Appendix E

Strategy Background

MEMORANDUM

May 8, 2024

To: Mike Ulrich

Organization: Spokane Regional Transportation Council (SRTC)

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Project: SRTC Regional Safety Action Plan (RSAP)

Re: Technical Memo 4: Strategy Development

Introduction

The purpose of this memo is to inform the selection of effective policy and countermeasure strategies to address the primary crash types and contributing factors associated with fatal and serious injury crashes within the Spokane Regional Transportation Council (SRTC) planning area. Example strategies are informed by the crash analysis, equity analysis, high injury network, stakeholder interviews, high-level review of SRTC agency plans and policies, and compilation of relevant notable best practices from the region and other comparable communities throughout the US.

Safe System Approach

The Regional Safety Action Plan (RSAP) is framed around the Safe System Approach. The Federal Highway Administration (FHWA) provides guidance on the Safe System Approach, which recognizes that road safety is a shared responsibility between those that design, build, operate, and use the road system. It recognizes that to reduce risks to humans all parts of the transportation system must be strengthened, so that if one part fails, the other parts still protect people.

Safe System Principles are illustrated in the outer ring of the graphic with the Safe System elements found on the inner ring: Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care.

The Safe System Approach aims to eliminate fatal and serious injury crashes using a proactive approach that anticipates human mistakes- and reduces the severity of crashes that do happen, so the impact is less likely to be fatal or cause serious injury. The strategies and practices included in this memo are framed around safer people, safer vehicles, safer roads, safer speeds, and post-crash care.

Crash Analysis: Key Emphasis Areas to Address

FHWA findings suggest that almost 90 percent of the traffic fatalities in the United States happen in three main areas: Intersections, pedestrians and bicyclists, and roadway departures[1]. Kittleson & Associates conducted an extensive analysis of crashes in the Spokane region from 2018-2022. The findings are detailed in Technical Memorandum #2, January 16, 2024. Based on findings from the crash and equity analysis, high injury network, plans and policies review, and stakeholder interviews, the following emphasis areas are recommended for policy, procedure, and program strategy development:

- Speed reduction
- Pedestrian Safety
- Bicyclist Safety
- Motorcyclist Safety
- Distracted Driving
- Impaired Driving
- Run-off Road Crashes in rural context
- Lighting
- Wet weather conditions

[1] "Roadway Lighting Resources | FHWA." 2023. Dot.gov. 2023. https://highways.dot.gov/safety/other/visibility/roadway-lighting-resources.

- Collectors, arterials, and highways in commercial/mixed-use land uses that have 3 or more lanes and posted speeds of 30 mph or higher.
- Collectors, arterials, and highways in open space/agricultural land uses that have posted speeds of 45 mph or higher.
- HIN/Equity – focus strategies and investments to address safety needs in disadvantaged areas

Equity Analysis: Key Emphasis Areas to Address

The Equity Analysis Memo identified disadvantaged areas and populations that are disproportionately impacted by a higher number of fatal and severe crashes. Some key findings from this memo include:

- There is correlation between low-income populations and communities of color with HIN locations, suggesting they disproportionately face traffic-related injuries and deaths.
- Areas with the highest concentration of households without vehicles overlapping with the HIN show a need for safety improvements focused on pedestrian, cyclist, and transit travel modes.
- The HIN doesn't correlate with the distribution of youth/elderly or disabled populations, however their unique needs should be explored through community engagement and considered in planning/project prioritization.

Existing Plan and Policy Review: Key Emphasis Areas to Address

The Existing Plan and Policy Review memo provided insights into effective strategies in improving safety outcomes that are already being implemented in the region. Where possible, the SRTC RSAP recommendations will seek to build upon project lists for future Capital Improvement and effective practices and policies already being implemented in the region. Some key findings from this memo include:

- The Spokane County Bicycle Master Plan found that just 11% of bicycle facilities are considered low-stress. Priorities include lighting at key crossing intersections, increasing connectivity to park and rides, transit stops, and schools.
- The Spokane County Pedestrian Master Plan recommends increasing sidewalk and trail miles, analyzing pedestrian crossings, and addressing infrastructure gaps. One key challenge for the County is a lack of an updated inventory of existing sidewalks.
- None of the existing comprehensive plans for cities in the SRTC planning area include a safety element.
- None of the existing design standards incorporate proven safety countermeasures to improve roadway safety for all users, suggesting an opportunity for systemic change by updating these.
- Half of all jurisdictions in Spokane County have a Complete Streets Policy in place.
- Most jurisdictions have project lists included in their Capital Improvement Plans (CIPs) or Capital Facilities Plans (CFPs) and often their comprehensive plans refer to project lists in their CIPs or CFPs.

Stakeholder interviews – Opportunities and Challenges to address

The project team conducted more than 20 interviews with representatives from city, county, state, tribal, and community-based organizations. Some key insights from interviews already held include:

Speeding

Many jurisdictions noted motorist speed is often above posted speed limits and expressed a desire for effective speed management strategies.

Pedestrian Safety

State highways and large multilane roads are often a barrier for people who need to walk to access everyday destinations such as grocery stores, schools, libraries, and parks. Communities lack sidewalks, often in school zones, safe mid-block crossings, and adequate lighting. Funding for sidewalks and pedestrian beacons is often inadequate.

Bicyclist Safety

As noted in pedestrian safety, state highways and large multilane roads are also barriers for bicyclists. Rural communities noted a lack of bicyclists and bicycle facilities. Some jurisdictions, such as Spokane Valley, noted some particularly challenging areas for cycling. Others, such as Liberty Lake, have relatively large networks of shared use paths, allowing bicyclists to travel separated from vehicle traffic.

Rural contexts

Driver fatigue is a contributing factor in run-off road crashes. Projects installing signage informing motorists, “this is last stop for 10 miles so take a rest if you need to” have been implemented in some locations. Low lighting conditions are a contributing factor in crashes involving pedestrians walking along shoulders of roads in unincorporated areas.

Roundabouts

Deer Park noted a significant reduction in crashes after the installation of three roundabouts. Crashes that have occurred at roundabouts in Liberty Lake typically involved impaired drivers.

Traffic Calming

There is a desire to implement traffic calming strategies such as traffic circles and chicanes to reduce motor vehicle speeds and to prevent cut through traffic in residential areas. Deer Park noted success with designing roads that were not straight thoroughfares while another jurisdiction noted that a raised intersection did not achieve the intended effect of slowing traffic.

Evacuation Routes

Evacuation routes out of cities can be complicated, especially in the case of wildfires that have caused closure of state and interstate highways.

Safety improvement implementation barriers

Adequate funding for things like pedestrian beacons, sidewalks, and issues with removing driveways for access management are some of the barriers to implementing safety improvements. Several jurisdictions and departments cited insufficient staffing as barriers to safety program and project implementation.

School Zones

In Liberty Lake, the side of the street where the elementary school is lacks a sidewalk and is adjacent to lower income residential areas. The high school is located near a busy 5-lane road with high volumes and speeds of motor vehicle traffic. It was also noted that children tend to cross where they want to despite the presence of a crosswalk and RRFB. Concern was expressed for children’s safety in all these areas.

Support from elected officials

Based on the interviews, it appears that most elected officials are supportive of the implementation of safety infrastructure improvements and programs, with some jurisdictions more than others. Other comments related to the paradox/contradiction of elected officials being supportive of safety projects but also having to be cost-conscious and the challenge of making cost-benefit decisions for investments for improved safety infrastructure, especially in locations that may have low numbers of FSI crashes and low traffic volumes.

Funding

It can be challenging to have enough funding to finance projects adequately, especially given expense of some measures (e.g. RRFB pedestrian beacon). One interviewee suggested that having a checklist of criteria for implementation funding would be very helpful.

Low cost, quick build safety treatments

One agency staff person indicated that it was easier to find funding and support for low-cost, quick-build safety improvements than more expensive treatments in a single location that do not have high rates of FSI crashes.

Capacity Building and Knowledge Sharing

There are opportunities for jurisdictions that have had success implementing safety strategies to share experiences with others (for example, Deer Park's success with roundabouts and traffic calming).

Education and awareness campaigns

Past campaigns for seatbelt use ("Click it or Ticket") were effective in raising awareness and increasing compliance with law. Opportunities exist to educate public about parking protected bike lanes (for example, parking is not allowed in the bike lane) and design elements to prevent parking in the first place.

Maintenance

Complication with maintenance responsibilities of state roads that pass through center of towns; snow removal in roundabouts is complicated.

Unhoused populations

Locations with lots of services, bridges, parking garages, WSDOT property, schools, parks, libraries, bus stops, beaches, riverbanks, empty buildings, fast food restaurants are popular areas for unhoused people. Important to understand that unhoused people may treat crossing the street in the same manner as someone crossing an indoor living room, with a lack of awareness of where crosswalks and traffic signals are located. Unhoused people also tend to be more active walking at night because it can be uncomfortable and dangerous to sleep on the street at these times. Project prioritization and safety interventions should take these behaviors into account.

Community Engagement

One agency noted that some community-based organizations may have "survey fatigue" caused by repeat engagement processes without knowing how input affected planning, leading to the belief that, "We don't feel like what we say matters."

Strategies

Table 1 identifies potential strategies distilled from communities leading safety efforts around the country and aligned with best practices from FHWA, NHTSA, NACTO, and other industry sources. The left side of the table shows distinct but interrelated focus areas. The Safe System elements of Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care form the foundation of these strategies. Recommended strategies may fit within one or more focus areas and Safe System elements.

Table 1: Areas of Focus and Recommended Strategies Matrix

Areas of Focus						Strategies
Planning	Design	Policy /Process	Operations	Education/ Enforcement	Data	
X	X	X		X		Reduce vehicle speeds and speed limits *(Safer Speeds)*
X	X	X		X		Prioritize safety around schools *(Safer People)*
X	X	X	X		X	Conduct a lighting study *(Safer Roads)*
X	X	X	X		X	Address barriers caused by arterial roads and highways in underserved communities by improving active transportation and transit connections along and across these roads. *(Safer Roads)*
X	X	X	X		X	Better integrate safety into Complete Streets policies to ensure safety as an element of all capital improvement projects and resurfacing projects, and new development requirements. *(Safer Roads)*
X	X	X	X			Incorporate quick-build strategies and demonstration projects for rapid roll-out of safety improvements. (Safer Roads)
X		X	X	X	X	Implement equitable enforcement approaches *(Safer People)*
			X	X	X	Facilitate knowledge sharing and capacity building regarding best practices to reduce crashes *(Safer People / Safer Roads)*
X		X	X		X	Prioritize data-driven safety improvements using an equitable approach *(Safer People / Safer Roads)*
X		X	X		X	Track the County's progress to meeting plan goals and implementing projects *(Safer Roads)*
X	X	X	X	X	X	Implement awareness and education programs to promote a culture of safety *(Safer People / Safer Roads / Safer Speeds)*

Areas of Focus						Strategies
Planning	Design	Policy /Process	Operations	Education/ Enforcement	Data	
		X	X	X		Implement impaired driving prevention policies and programs *(Safer People)*
X	X	X	X		X	Evaluate Level of Service (LOS) standard *(Safer Roads)*
X	X		X			Coordinate with first responders to address safety needs *(Safer People / Safer Roads)*
X		X	X			Incorporate crash reduction and safety technology in vehicle fleet retrofits and purchasing standards *(Safer Vehicles / Safer People)*

Table 2 presents SRTC member jurisdictions existing practices and policies next to best practices and notable best practice examples from communities in the Spokane region broader US. This analysis reveals potential gaps and opportunities to build on existing practices and develop new ones that will enable the SRTC member jurisdictions to reduce fatal and serious injury crashes.

The first column shows the strategy (from Table 3). The second column lists best practice policies and guidance, including examples from other jurisdictions. The third column includes effective practices and policies that are already being implemented by jurisdictions in Washington State and the Spokane region. The fourth column suggests gaps and areas and potential updates. Based on stakeholder feedback these strategies will shape the actions identified in the RSAP.

Table 2: Recommended Strategies, Notable Best Practices and Policies, and Potential Actions for RSAP

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
Reduce Vehicle Speeds and Speed Limits	*Context appropriate speed limits and streets designed to encourage slower travel speeds are essential in reducing FSI crashes. Improved design and infrastructure improvements should always be prioritized over enforcement methods.* *Safer Speeds* ▪ To set appropriate speed limits and design speeds, the newly updated *Manual of Uniform Traffic Control Devices* (MUTCD) recommends that practitioners consider the following six factors "*roadway environment, roadway characteristics, geographic context, crash experience, speed distribution, and analysis of speed trends*"[2] As noted in the Federal Register regarding the updated MUTCD published in December 2023, "The FHWA emphasizes that there is no existing or new requirement that a speed limit must be set at the 85th-percentile speed" and clarifies that "*on urban and suburban arterials and rural main streets, the 85th-percentile speed should not be used as the sole consideration in setting speed limits*."[3]	Washington Statute "RCW 46.61.400 establishes a maximum speed limit of 25 mph for city/town streets and 50 mph on county roads, or higher as permitted under RCW 46.61.415. For state highways, the statute establishes a maximum speed limit of 60 mph, or up to 75 mph under RCW 46.61.410… Washington Statute RCW 46.61.415 authorizes local authorities to lower the speed limit at intersections…or reduce the speed limit as low as 20 mph." ▪ A high-level review of state roads passing through SRTC member	▪ Reevaluate current practices around setting posted speed and consider the approaches laid out in NACTO's *City Limits* guide to holistically evaluate and set speed limits based on context and the safety of all road users. ▪ Lower speed limits and implement speed management strategies that lower design speeds on arterials and residential streets. Prioritize interventions that improve safety for vulnerable road users in disadvantaged areas along the HIN. ▪ Continue tracking and supporting efforts at the state level to expand the use of automated traffic enforcement (see Embed equitable enforcement

2 "Federal Register :: Request Access." n.d. Unblock.federalregister.gov. Accessed January 30, 2024. https://www.federalregister.gov/documents/2023/12/19/2023-27178/national-standards-for-traffic-control-devices-the-manual-on-uniform-traffic-control-devices-for.

3 "Federal Register :: Request Access." n.d. Unblock.federalregister.gov. Accessed January 30, 2024. https://www.federalregister.gov/documents/2023/12/19/2023-27178/national-standards-for-traffic-control-devices-the-manual-on-uniform-traffic-control-devices-for.

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	Based on a comprehensive speed study of its network, the City of Tacoma lowered speed limit in 2023 to 20 MPH on residential 25 MPH on arterial streets in four of the city's Neighborhood Business Districts[4]. It plans to reduce speeds on additional arterials following guidance that was developed as part of the Vision Zero planning effort. ▪ City of Hoboken lowered the speed limit to 20 MPH on all city streets and 15 MPH in school and park zones. ▪ Cities such as Portland and San Francisco use traffic signal timing to encourage lower speeds by using a "green wave" where traffic signals are timed to be green for relatively lower consistent speeds. If motorists go above this speed, they will encounter a red a light.[5] ▪ In Los Angeles, speed feedback placement signs trigger downstream traffic signals to change to red if the motorist is going above the speed limit. [6]	jurisdictions suggests speed limits of 25 mph, 35 mph, and 45 mph.[7] WSDOT provides guidance and recommendations for local jurisdictions adopting an Injury Minimization and Speed Management policy. The purpose of this policy is to eliminate fatal and serious injury crashes by reducing operating speeds, posted speeds, design speed, and incorporating changes to traffic operations.[8]	approaches and provide more control to municipalities over the setting of speed limits. ▪ Adopt an Injury Minimization and Speed Management policy that uses a combination of speed limit reductions, design and geometric changes, and traffic operations additions to successfully reduce travel speeds.
Reduce Vehicle Speeds and Speed Limits	*Safer Roads* ▪ Genessee County, Michigan Metropolitan Planning Commission (GCMPC) conducted a county-wide corridor study evaluated and ranked more than 140 miles of four-lane undivided roads for potential conversion to three lanes ("Road Diets") in 2009[9]. Following the study, the County converted 26.1 linear miles in 11 cities and townships from four-lane to three-lane roads. An analysis of before and after crash data on 18 of these corridors with ADTs ranging from 1,654 to 20,865, suggested an average decrease	All the cities within Spokane County include design standards for the right-of-way. These standards all require a 5' minimum sidewalk width. Only Airway Heights has smaller lane width standards of 11' feet and these standards only apply to minor collectors and local streets. All the other cities have lane width standards or minimum	▪ Evaluate resurfacing and restriping projects for potential to include road diets, converting 4 or 5-lane roads to 3-lane roads and the possibility to include all ages and abilities bicycle facilities in conjunction with road diets. ▪ Review existing design standards for potential to incorporate national best

4 "Vision Zero." Home - City of Tacoma. Accessed January 30, 2024. https://www.cityoftacoma.org/cms/one.aspx?pageId=190027.
5 National Academies of Sciences, Engineering, and Medicine. 2019. Pedestrian Safety Relative to Traffic-Speed Management. Washington, DC: The National Academies Press. https://doi.org/10.17226/25618.
6 National Academies of Sciences, Engineering, and Medicine. 2019. Pedestrian Safety Relative to Traffic-Speed Management. Washington, DC: The National Academies Press. https://doi.org/10.17226/25618.
7 "WSDOT - Roadway Data Speed Limits." n.d. Geo.wa.gov. Accessed February 28, 2024. https://geo.wa.gov/datasets/WSDOT::wsdot-roadway-data-speed-limits/explore?location=47.787487%2C-117.435039%2C13.79.
8 "Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations." 2020. WSDOT. Accessed March 6, 2024. https://wsdot.wa.gov/sites/default/files/2021-10/InjuryMinimization-SpeedManagement-PolicyElements-Recommendations.pdf
9 "Prepared by the Genesee County Metropolitan Planning Commission Prepared by the Genesee County Metropolitan Planning Commission Complete Streets Technical Report." 2009. https://gcmpc.org/wp-content/uploads/pdf/Complete_Streets/Complete_Streets_Technical_Report_Approved_withAppendix.pdf.

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	of -32.1% in all non-alcohol and non-deer related crashes after the conversion from three-lane to four-lane roads.[10.] ▪ Battle Lake, Minnesota (pop. 735) reduced the number of lanes (from four lanes to three) and widened sidewalks of a highway that passes through the town's center. The project was proposed by local residents in reaction to Minnesota Department of Transportation plans to resurface the state highway, which is also the town's main street. Since the project's completion in 2014, the downtown has seen more local business activity (21 new businesses) and is reportedly "thriving."[11] ▪ Speed is often a factor in motorcycle crashes and run-off road vehicle crashes, especially on curves. The FHWA found that countermeasures such as high-friction surface treatment strategies decrease up to 63 percent of injury crashes at ramps, 48 percent of injury crashes at horizontal curves and 20 percent of total crashes at intersections for all motor vehicles. As part of horizontal curve systemic safety analysis, Rhode Island DOT identified a relationship between horizonal curve radii and motorcycle fatal and serious injury crashes and installed HFST along key locations. Based on the results, Rhode Island is exploring installing HFST at all curved sections with a history of motorcycle crashes.[12] ▪ Speed is also a factor in motorcycle run-off the road crashes. However, guard rails designed to stop vehicles from exiting the roadway can cause serious injuries or be deadly to motorcyclists because the height is designed to be at a vehicle's bumper. Utah DOT installed Motorcycle Protection System (MPS) barriers along SR 191. Prior to installation, there was an average of one	requirements of 12'. The minimum allowable curb radii typically range between 20' and 30' for all cities with none recommending a curb radius lower than 20'.	practices such as narrower lane widths, tighter curb radii to encourage slower motor vehicle speeds, provide shorter pedestrian crossing distances, and space for bicycle facilities. ▪ Collaborate with WSDOT to set appropriate posted and design speeds on state-owned roads that pass through communities. ▪ Evaluate motorcycle crash locations to determine if there are trends related to curves, guard rails, or other factors to select appropriate systemic countermeasures such as high friction pavement or updating standards

10 When doing the corridor crash analysis, only roads which had at least three years of crash data available for the periods before and after conversion were analyzed.

[11]Walljasper, Jay . 2019. "Getting Rural America Back on Its Feet." Planning Magazine. American Planning Association . December 2019. https://www.planning.org/planning/2019/dec/backonitsfeet/.

[12] "MOTORCYCLE SAFETY NOTEWORTHY PRACTICES: Infrastructure and Engineering FHWA-SA-22-032." 2022. USDOT FHWA. June 2022. https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/FHWA_MAC_Recommendations_Project_Noteworthy_Practices.pdf.

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	motorcycle injury crash a year. In the three years post-installation, there were no reported motorcycle injury crashes.[13]		
Prioritize Safety Around Schools	*A lack of sidewalks and all ages and abilities bicycle facilities in school zones in other cities and towns in the region disproportionately affect children and families who access schools on foot or by bicycle. School siting decisions also plays an important role in how families travel to school. Focusing pedestrian and bicycle safety improvements in school zones and siting schools within walking distances of residential areas can have multiple benefits of improving safety, reducing motor vehicle traffic at arrival and dismissal times, and encouraging more physical activity.*[14] The Seattle Department of Transportation's (SDOT) Safe Routes to School programs prioritizes funding, staff time, and engagement at equity schools[15]. SDOT partners with community-based organization partners to implement encouragement programs in conjunction with safety improvements in school zones. This combined approach has resulted in a significant increase in active travel to school to Seattle Public Schools, with 30% of students walking, biking, or using scooters in 2023, double the rate of 2005[16]. SDOT also publishes a toolkit for School Safety Committees to create a circulation plan to manage motor vehicle traffic at arrival and dismissal times. The Toolkit prioritizes the separation of travel	The City of Liberty Lake is developing a Pedestrian Master Plan that will include the prioritization of pedestrian facilities in school zones. ▪ The Spokane County Bicycle Master Plan recommends a variety of considerations into the County's 6-year TIP for funding and implementation reasons including schools and parks lacking scores of Level of Traffic Stress connectivity. The Spokane County Pedestrian Master Plan identifies schools and parks as high priority locations for pedestrian facilities, and notes a county preference for providing sidewalks on at least one side of the street where there are schools, parks, and commercial amenities. It also	▪ Prioritize active transportation safety improvements and speed management strategies that provide all ages and abilities facilities in school zones. ▪ Create school circulation plans that prioritize active transportation and limit motor vehicle interactions with families walking or bicycling to school. ▪ Implement education and encouragement programs in conjunction with infrastructure improvements and plans and policies that reduce motor vehicle traffic volumes and speeds around schools. ▪ Prioritize new school siting in areas close to where current students live with active transportation options. ▪ Assess impacts of potential new school sites on students' ability to

[13] "MOTORCYCLE SAFETY NOTEWORTHY PRACTICES: Infrastructure and Engineering FHWA-SA-22-032." 2022. USDOT FHWA. June 2022. https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/FHWA_MAC_Recommendations_Project_Noteworthy_Practices.pdf.

[14] Giles-Corti, Billie, Gina Wood, Terri Pikora, Vincent Learnihan, Max Bulsara, Kimberly Van Niel, Anna Timperio, Gavin McCormack, and Karen Villanueva. 2011. "School Site and the Potential to Walk to School: The Impact of Street Connectivity and Traffic Exposure in School Neighborhoods." *Health & Place* 17 (2): 545–50. https://doi.org/10.1016/j.healthplace.2010.12.011.

[15] n.d. SDOT Safe Routes to School ACTION PLAN PRIORITIZATION PROCESS. https://www.seattle.gov/Documents/Departments/SDOT/SRTS/SRTSActionPlanPrioritizationProcess.pdf.

[16] Review of SDOT Safe Routes to School 2022-23 Annual Report. n.d. https://www.seattle.gov/documents/Departments/SDOT/SRTS/2022_2023_SRTS_Annual_Report.pdf.

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	modes and helps committees create circulation plans to reduce motor vehicle traffic close to schools.[17] ▪ School Siting: The Environmental Protection Agency (EPA) has a comprehensive guide to help jurisdictions with school siting decisions. Its list of "desirable school location attributes" includes[18]: » Locations that do not increase environmental health or safety risks » Locations near populations and infrastructure; » Implications of the school location for transportation options; » Options for developing Safe Routes to School Programs that can support alternative modes of transportation; and » The potential use of the school as an emergency shelter. ▪ In evaluating 4 potential sites for a new elementary school, Arlington County, Virginia assessed the locations of current students within a ½-, 1-, and 1 ½-mile radius, street grid connectivity, existing active transportation infrastructure, and motor vehicle traffic impacts of each site.	recommends that destinations such as schools, parks, and transit stops be evaluated for midblock crossings. The Washington State Growth Management Act (GMA) goals encourage compact urban growth and discourage sprawl. Urban growth areas as preferred locations for siting schools, but the GMA does not prohibit schools in rural areas.	access the site via walking or bicycling, motor vehicle traffic impacts, and school busing costs. ▪ Install speed feedback signs and Automated Traffic Enforcement cameras in school zones.
Conduct a Lighting Study	*Crash analysis suggests that low lighting conditions are a factor in FSI crashes in both rural and urban contexts. Adequate lighting improves visibility for all road users and can improve safety outcomes for the principal types of crashes, including at intersections, pedestrian and bicyclists, and roadway departure.*	WSDOT is currently conducting a Street Lighting and Safety Study that focuses on the safety of pedestrians and other vulnerable users. The study will include interviews with local and regional roads departments, water-sewer districts, and	▪ Evaluate lighting conditions at locations where there have been night time FSI crashes, particularly those crashes involving vulnerable road users

[17] "IMPROVE YOUR SCHOOL ARRIVAL and DEPARTURE PROCEDURES a TOOLKIT for SCHOOL SAFETY COMMITTEES." n.d. https://www.seattle.gov/Documents/Departments/SDOT/SRTS/ImproveYourSchoolArrivalandDepartureProcedures.pdf.
[18] Review of EPA School Siting Guidelines. n.d. Environmental Protection Agency. https://www.epa.gov/sites/default/files/2015-06/documents/school_siting_guidelines-2.pdf.

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	▪ Minnesota Department of Transportation (MnDOT) implemented a Street Lighting at Rural Intersections program following a crash data analysis that suggested that ~50% of FSI crashes were occurring at rural intersections in dark conditions. MnDOT took a systemic approach to addressing this issue by developing a set of criteria of risk factors to help counties to consistently evaluate and install lighting at rural intersections. Counties were also encouraged to include lighting as a strategy in road safety plans. "Since implementing a proactive lighting program, MnDOT has noticed a reduction in nighttime crashes at rural intersection locations; specifically, nighttime-to-daytime crash ratios have been significantly lower at those intersection locations where roadway lighting was installed."[19]	other utility services to gather a holistic data set on street illumination in various underserved areas throughout the state and communities with poor street illumination to evaluate community desires for improvements. The study will also involve conferring with regional and state-level police, fire, and emergency medical services to assess and document potential delays in emergency response times due to poor street illumination as well as assess the impact of using LED lights in roadway and pedestrian scale lighting in reducing carbon emissions and light pollution throughout the United States.	▪ Prioritize the installation of additional lighting on HIN intersections and corridors.
Address barriers caused by arterial roads and highways in underserved communities by improving active transportation and	*Barriers such as highways, interstates, and arterials often prevent residents in underserved areas safe access on foot, by bicycle, or public transit to essential services.* ▪ Avoiding widening existing roadways, except to create bicycle and pedestrian facilities is an approach that communities can utilize that existing barriers do not get worse. ▪ On roads that are already wide, with high motor vehicle speeds and traffic volumes, systemic implementation of countermeasures on these roads can	The City of Millwood's Comprehensive Plan (2019) states that roadway width expansion, in particular the city's only major arterial, should only be done to accommodate bicycle and pedestrian facilities. The City of Spokane's Vision Zero Action Plan (2023) includes various systemic	▪ Evaluate existing arterials with 4 or more lanes for possibility to convert 3 or less lanes. ▪ Evaluate resurfacing and restriping projects of highways and major arterials for potential to include road diets, converting 4 or 5-lane roads to 3-lane roads and the possibility to include all ages and abilities bicycle

[19] Review of *Minnesota Department of Transportation's Street Lighting at Rural Intersections (Publication Number FHWA-SA-22-077)*. n.d. FHWA. https://highways.dot.gov/sites/fhwa.dot.gov/files/2023-03/Minnesota%20Department%20of%20Transportation%27s%20Street%20Lighting%20at%20Rural%20Intersections.pdf.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
transit connections along and across these roads.	improve safety outcomes for these communities. Countermeasures include gateway treatments at entrances to communities, road diets, leading pedestrian intervals, safe crossing treatments such as medians and pedestrian refuges, no turn on red, and HAWK signals at mid-block crossings, and above grade crossings over interstate highways. The City of Lehi, Utah constructed a bridge to connect the shared use Murdock Canal Trail that previously had an at-grade crossing of a six+-lane highway. Prior to the construction there were approximately 45 bicyclist trips recorded in the month July 2019 (~1.5/per day) crossing the highway at grade. After the bridge opened, there were 4,430 bicyclist trips crossing the bridge recorded in the month of July 2021 (~143/per day).[20]	improvements that will improve access and safety on foot and bicycle, such as: ▪ Adding ADA ramps and bumpouts at unsignalized intersections, ▪ Adding raised crosswalks and Rectangular Rapid Flashing Beacons (RRFB) at unsignalized crosswalks, and ▪ Adding high visibility crosswalks per intersection leg at all signalized and unsignalized crosswalks.	facilities in conjunction with road diets. ▪ Prioritize implementation of crossing enhancements on intersections and mid-block crossings on the HIN in disadvantaged areas located near SNAP retailers, schools, parks, libraries, and job centers.
Better integrate safety into Complete Streets policies to ensure safety as an element of all capital improvement projects and resurfacing projects, and new development requirements.	*Integrating the safe systems approach into jurisdiction's everyday processes and operations while leveraging resurfacing and maintenance to install quick-build safety treatments will help further implementation more quickly.* ▪ As part of its process institutionalizing safety in all stages of capital project planning, development, and project review, the City of Tacoma's Complete Streets policy and process was evaluated to determine how both could be revised to improve complete streets outcomes. A Vision/Zero Complete Street checklist was developed and adopted to use on all capital project planning and development. This checklist includes an evaluation of speed and potential countermeasures, equity in relation to project location and community engagement, accessibility to nearby transit stops, presence of all ages and abilities bicycle facilities and amenities, sidewalks, signal	Jurisdictions *with* Complete Streets policies: ▪ Spokane County ▪ City of Spokane ▪ City of Spokane Valley ▪ City of Airway Heights ▪ City of Medical Lake ▪ City of Deer Park Jurisdictions *without* Complete Streets policies: ▪ City of Liberty Lake ▪ Town of Spangle	▪ Review and revise as necessary existing Complete Streets policies and processes to embed safety practices into Complete Streets planning and design. ▪ Support the adoption of model Complete Streets policies with embedded safety practices in jurisdictions without adopted policies. ▪ Elevate transportation safety in Comprehensive Plan Transportation Elements in terms of its importance to

[20] DTV Capacity Building, Teije Gorris, Mike West, and Kim Struthers. n.d. "Monthly Cycling Webinar: Applying the 5 Design Principles in Lehi City." *DTV Capacity Building*. Accessed February 22, 2023. https://www.youtube.com/watch?v=eRKbbRdhWIE.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	timing, streetscape improvements, trees, and green/vegetated stormwater facilities. For non-access-controlled state routes that interface with the local network in Tacoma, the plan recommends coordination with the Washington State Department of Transportation (WSDOT).	▪ Town of Fairfield ▪ Town of Rockford ▪ Town of Latah ▪ Town of Waverly	equity, mobility and GHG reduction, and community livability. ▪ ▪
Incorporate quick-build strategies and demonstration projects for rapid roll-out of safety improvements	▪ The City of Tacoma's Vision Zero Action Plan recommends "a quick-build pilot program that includes low-cost traffic calming measures, prioritizing corridors, crossings, and districts identified for speed reduction or pedestrian safety improvements, particularly in areas with low Equity Index scores." This pilot program incorporates monitoring and evaluation through observations and surveys to compliment any crash data that may not be readily available. ▪ Hoboken, New Jersey's approach to safety improvement implementation includes quick-build infrastructure road safety improvements and then making them permanent as time goes on. The city leverages routine road maintenance work such as repaving to implement low-cost, high-impact safety measures: » Daylighting intersections with painted curb extensions and flex posts, bike racks, or bollards.[21] » Any road with a high number of crashes and proximity to schools, hospitals, and parks are given wider sidewalks and medians when they get are repaved[22] » Install high visibility crosswalks ▪ Emmett, Idaho (pop. 6,600) created a three-quarter mile pedestrian lane by extending the road shoulder and installing an extruded curb between the lane and motor vehicle traffic (with periodic cuts to allow for storm	▪ Airway Heights King Street Demonstration Project temporarily installed traffic calming and placemaking features on a residential street adjacent to a school and park that connects to popular retail and grocery destinations and highway US-225. The project included a survey and pedestrian and motor vehicle counts were recorded with cameras before and after the project. Funding was provided by the Centers for Disease Control and Prevention Active People, Healthy NationSM Initiative, Washington Transportation Improvement Board, Barr Foundation, Washington State Department of Health and WSDOT.	▪ Evaluate all CIP, resurfacing, restriping, and new development projects to ensure they are addressing safety needs. ▪ Create pilot programs to include traffic calming (i.e., chicanes and pinch points) and pedestrian facility improvements (i.e., curb extensions and walkways using paint, flex posts, planters, etc.). ▪ Study outcomes for pilot installations (using before and after data), publish results as feasible, and install permanent street design changes based on successful installations as capital projects where appropriate. ▪ Evaluate all resurfacing projects, planned maintenance activities (i.e., signal retiming), and other major projects (i.e., new traffic signals) for the potential implementation of quick-

[21] John Surico, "It's Been a Deadly Year on US Roads. except in This City.," Bloomberg.com, December 28, 2022, https://www.bloomberg.com/news/features/2022-12-28/it-s-been-a-deadly-year-on-us-roads-except-in-this-city.
[22] Christopher Robbins, "Hoboken Hasn't Had a Traffic Death in 4 Years. What's It Doing Right?," Curbed, June 17, 2022, https://www.curbed.com/2022/06/hoboken-traffic-deaths-none-vision-zero-streets.html.
[25] America, Smart Growth. 2022. "Complete Streets Safety Demonstration Project: Airway Heights, WA." Smart Growth America. March 16, 2022. https://smartgrowthamerica.org/complete-streets-safety-demonstration-project-airway-heights-wa/.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	drainage) to improve safety for children walking to an elementary school located on a street with no sidewalks. With project costs of ten percent of a traditional sidewalk, it provided a quick way for the town to improve pedestrian safety in a school zone.[23] Cities in Washington such as Kirkland and Bainbridge Island have installed similar curb protected walksways in school zones. ▪ Bethel, Vermont (pop. 2,000) worked with organizations Team Better Block and AARP Vermont, and community volunteers to install temporary curb extensions and painted crosswalks during a fall festival on the highway that runs through its downtown. The temporary safety improvements were well-received and later made permanent.[24]	▪ The City of Spokane's Parklet/Streatery program - began as a pilot program in the summers of 2016 and 2017, and in August 2017 an ordinance established it as a permanent program. The program offers private businesses, residents, and local groups the opportunity to convert street parking spaces into a public space, typically with seating areas and often with greenery. These types of interventions help activate the street as a place for community members to rest and gather instead of just a place for motor vehicles to pass through or be parked. Streateries are similar to parklets, but "belong to an adjacent restaurant or café during operating hours, functioning as a 'off-sidewalk café' that can extend off the sidewalk into the parking lane. When the restaurant or café is closed the streatery operates as a typical parklet."	build safety improvements, particularly on the high-risk corridors and in disadvantaged areas. Leverage this work to implement improvements without requiring substantial additional funding. Minor work and emergency repairs may not be able to support recommended safety improvements. Note: the Countermeasure Toolbox includes options for quick-build variations where appropriate.

[23] Walljasper, Jay. 2019. "Getting Rural America Back on Its Feet." Planning Magazine. American Planning Association . December 2019. https://www.planning.org/planning/2019/dec/backonitsfeet/.
[24] Walljasper, Jay. 2019. "Getting Rural America Back on Its Feet." Planning Magazine. American Planning Association . December 2019. https://www.planning.org/planning/2019/dec/backonitsfeet/.

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Implement Equitable Enforcement Approaches	*Recognize the current and historical impacts of traffic enforcement activities on communities of color.* ▪ The City of Denver implements safety improvements and warning sign installation in advance of installing automated traffic enforcement (ATE) cameras. ▪ Studies suggest that ATE has a greater potential to reduce motor vehicle speeds more consistently than routine traffic stops while reducing the potential for police bias in traffic stops and police violence that is often associated with traffic stops of Black, Indigenous, and people of color. High numbers of FSI crashes in low-income neighborhoods and communities of color may lead cities to focus ATE in these areas. However, underlying causes of these high numbers of crashes, for example, historic underinvestment and poor street design also need to be addressed.[26] To account for this, NACTO recommends this approach when siting ATE cameras: ○ Simultaneously use crash data hotspot analysis to prioritize locations for street improvement projects and ATE; evaluate regularly to determine if cameras are still necessary once the street has been changed. ○ In addition, cities should layer multiple data points into camera placement analysis, including: ▪ FSI crashes ▪ Presence of schools, daycares, parks, and recreation and senior centers ○ Performance metrics of ATE should be based on observed reduction in motor vehicle speeds, not number of tickets issues.[27]	▪ Washington State Law authorizes counties and cities to use automated traffic enforcement cameras "to detect stoplight violations (red light cameras), railroad crossing violations, and (in limited contexts) speed violations…Camera placement is restricted to certain areas including multi-arterial intersections, railroad crossings, school speed zones and school walk areas, public park speed zones, hospital speed zones, and certain priority road safety locations." ▪ The City of Spokane has ATE cameras at six elementary schools and one high school. ▪ WA State Bill 1513, under consideration in the Legislature would eliminate traffic stops for minor violations such as missing one taillight or lack of license plate lighting, and instead prioritize traffic stops for vehicular	▪ Promote the careful use of ATE cameras to detect speeding and handheld cell phone use (see recommendations from NACTO in Notable Best Practices, Policies, and Guidance). ▪ ATE cameras should be considered an interim strategy until roadway design changes can be made on the HIN or other high-risk areas to get people to drive the safe speed for all road users (target speed). ▪ Provide education/diversion programs and graduated/tiered fines (scalable to income level) for traffic violations and number of infractions (fines increase for each violation) with no late fees. Fines should be used as a tool to change behavior, NOT generate revenue. This approach can help reduce disproportionate impacts of enforcement on low-income communities and communities of color. ▪ Deprioritize enforcement of minor infractions such as administrative and

26 "AUTOMATED ENFORCEMENT." 2020. National Association of City Transportation Officials. August 21, 2020. https://nacto.org/publication/city-limits/the-right-speed-limits/corridor-speed-limits/determine-best-option-for-speed-management/automated-enforcement/.

27 "AUTOMATED ENFORCEMENT." 2020. National Association of City Transportation Officials. August 21, 2020. https://nacto.org/publication/city-limits/the-right-speed-limits/corridor-speed-limits/determine-best-option-for-speed-management/automated-enforcement/.

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	▪ While NHTSA recommends high visibility enforcement efforts to deter distracted driving, other countries such as the Netherlands, Spain, the United Kingdom, and Australia are using automated high-definition cameras to detect cell phone use while driving. Although extensive research evaluating automated camera detection of cell phone use while driving still remains to be done, one study of the New South Wales driving population suggests that the automated cameras had “achieved 30% to 40% deterrence” of cell phone use while driving after its implementation in December 2019.[28] ▪ In Washington, the King County Target Zero Coalition expects to pilot automated cameras to detect cell phone use while driving in the near future.	problems with "an equipment failure on the vehicle may cause immediate, serious injury to the operator or other persons in the vicinity of the vehicle.” The hope is this would free up police time for enforcement of behaviors that are a greater threat to public safety such as impaired driving, distracted driving, speeding, and seatbelt violations as well as reduce racial disparities in law enforcement encounters. [29] ▪ Spokane County, Spokane Valley, and Liberty Lake offer motorists with certain minor traffic violations the opportunity to complete traffic safety school. The traffic safety program allows offending drivers to pay the cost of the school, attend the class at the Spokane County Sheriff’s Training Center, and then move to have the infraction dismissed upon successful completion of the course. If dismissed, the fine for the	equipment violations such as missing a taillight for people driving, recognizing that these are not high-value public safety issues and too often result in inequitable enforcement and harsh, unintended consequences. ▪ Deprioritize citations for people walking and biking, given that many areas lack safe walking and biking infrastructure, which should be prioritized in an upstream approach to safety. ▪ Any revenue generated from automated traffic safety camera programs should go directly into roadway design changes that improve safety on the corridor where a speeding-related crash risk exists. This commitment should be explicit in messaging around ATE deployment.

28 “Nsw Evaluation of Mobile Phone Detection Camera Effectiveness.” n.d. Bing. Accessed January 31, 2024. https://www.bing.com/search?q=nsw+evaluation+of+mobile+phone+detection+camera+effectiveness&cvid=79294b03aadd4451aeb323291ed2693a&gs_lcrp=EgZjaHJvbWUyBggAEEUYOTIHCAEQRRj8VdIBCTE0NjcwajBqNKgCALACAA&FORM=ANAB01&PC=U531.

29 Abramson, Ben. 2023. “Washington State Bill Would Reduce Low-Level Traffic Stops .” Strong Towns. March 10, 2023. https://www.strongtowns.org/journal/2023/3/10/washington-traffic-stops.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
		infraction will be excused and the violation will not appear on someone's traffic record or affect their insurance premium. ▪ Airway Heights, Cheney, and Spokane also appear to offer similar traffic safety school programs.	
Facilitate knowledge sharing and capacity building	▪ As part of its Comprehensive Safety Action Plan Development, the NW Arkansas Regional Planning Commission provided webinars about the Safe System Approach for decision makers and the general public. These webinars were recorded and posted on the project website so they can be accessed at any time. ▪ FHWA Local and Rural Road Safety Program offers training, tools, guidance, and countermeasures for local practitioners. Offers resources, recorded videos and webinars related to safety on rural local and tribal roads. Includes a playlist of low-cost safety improvements for a variety of contexts such as stop-controlled intersections, unpaved roads, walking and biking, speed management techniques, etc. and many other resources related to road safety.[30] ▪ The National Center for Rural Road Safety offers webinars related to rural road safety. Webinars are recorded and archived on the site for on-demand viewing. A variety of topics are covered including rural countermeasure resources, roundabouts, motorcycle safety, complete streets for rural areas, rural road funding opportunities, the safe systems approach, rural	▪ WSDOT's Local Technical Assistance Program (LTAP) offers classes and courses related on a variety of topics including, work zone traffic control design, active transportation guide overview and speed management, active transportation crossings and intersections, linear treatments for pedestrians and bicyclists, etc. WSDOT has also hosted Transportation Professional Forums and Peer Exchanges.[33] ▪ Transportation Engineering students at Gonzaga University created a temporary bicycle lane	▪ Provide opportunities for local agency staff to participate in professional development activities related to safety such as Vision Zero Network and FHWA webinars. ▪ Facilitate exchange of successful safety projects (for example, Deer Park's reduction in crashes following the installation of three roundabouts) through peer exchange, walkshops and bike rides to highlight successful safety interventions, and "power hours" to brainstorm solutions for corridors and intersections on the HIN with staff from SRTC member agencies.

30 "Training, Tools, Guidance and Countermeasures for Locals Practitioners | FHWA." 2023. Dot.gov. 2023. https://highways.dot.gov/safety/local-rural/training-tools-guidance-and-countermeasures-locals-practitioners.
33"Training for Local Agencies through LTAP | WSDOT." n.d. Wsdot.wa.gov. Accessed March 5, 2024. https://wsdot.wa.gov/business-wsdot/support-local-programs/local-programs-training/training-local-agencies-through-ltap.

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	roadway departure countermeasures, designing for bicyclist safety, rural aging road user, etc.[31] ▪ Denver Regional COG offers a seven-week Civic Academy to help build the civic capacity of area residents on topics related to regional transportation, economic vitality, housing, civic engagement, and beyond. The course features three-hour sessions that include lectures from local subject matter experts, small-group interactions, and networking. Participants develop individual action plans upon completing the academy. The academy began in 2007 as part of a non-profit program called Transit Alliance whose mission was to empower residents to transform mobility in Colorado. The program boasts more than 800 graduates. In 2018, the Denver Regional COG assumed responsibility for the academy at the request of Transit Alliance.[32]	for research purposes. In another project, students conducted community engagement and created conceptual designs and for a proposed greenway in Spokane.[34]	▪ Partner with area university programs such as the Urban and Regional Planning programs at Eastern Washington University and/or the Traffic Engineering program at Gonzaga University to support pre- and post- data collection and implementation of quick-build demonstration projects.
Prioritize Data-Driven Safety Improvements Using an Equitable Approach	*An equitable approach to prioritizing safety improvements considers how existing power structures have governed resource distribution in the past. Everyone should have access to safe, comfortable, affordable, and healthy transportation choices. Too often, this is not the case in many communities across the United States. Developing a project prioritization framework that prioritizes investment in communities that disproportionately bear the burden of traffic violence is a step*	▪ The Spokane County 6-year Transportation Improvement Program (TIP) prioritizes projects based on a variety of factors including key destinations, schools lacking low-stress connectivity, public transport first	▪ Prioritize equity in the planning and implementation of safety projects so as not to reinforce existing racial and socioeconomic disparities by concentrating investment in areas that are already better served by transportation infrastructure.

31 “Webinar Archive.” n.d. National Center for Rural Road Safety. Accessed March 6, 2024. https://ruralsafetycenter.org/webinar-archive/.

32 “Civic Academy.” 2018. Denver Regional Council of Governments. June 26, 2018. https://drcog.org/programs/civic-academy.

34 “Greenways: Gonzaga Students Engineer Future Transport | Spokane Journal of Business.” n.d. Www.spokanejournal.com. Accessed February 27, 2024. https://www.spokanejournal.com/articles/3180-greenways-gonzaga-students engineer-future-transport.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	towards creating more equitable outcomes in transportation planning and design work. ▪ Crash data analysis done as part of the Los Angeles Department of Transportation's (LADOT) Safe Routes to School (SRTS) Strategic Plan suggested that 50% of al FSI crashes involving a young person occurred within in a ¼ mile of a school, and school-age children (ages 5-17) accounted for 19% of all pedestrian-related collisions and 18% of all fatally or severely injured pedestrians. To address these findings, the plan created a project prioritization framework based on the number of vehicle-pedestrian/bicycle collisions, number of students who live within ¼ mile from school, number of students eligible for Free-Reduced Price Meals, and lack of prior of state/federal SRTS funding. ▪ The NW Arkansas Regional Planning Commission Comprehensive Safety Action Plan incorporates number of injuries, HIN, equity and degrees of disadvantage, total crashes, and public feedback into its project prioritization framework. The plan also highlights the NWRPC's ability to "influence equity outcomes through storytelling using the high-level issues and patterns identified in the regional analyses. The regional mapping can be used by smaller towns and rural communities with fewer resources to conduct their own analyses. In this way, NWARPC can help these jurisdictions tell the story of their transportation needs and who is vulnerable to mobility limitations." ▪ The City of Tacoma's revised Complete Streets Checklist incorporates an assessment of equity in relation to project location and community engagement as part of its set of project evaluation criteria. ▪ The City of Tacoma Vision Zero Action Plan's project prioritization framework within the City's LRSP is focused on the High Risk Network, for which results of the Speed Reduction Study were a primary component. The City's Equity Index is also an important prioritization factor. Another recommended supporting action (5) related to implementation, includes implementing "a quick-build pilot program that includes low-cost traffic calming measures, prioritizing corridors, crossings, and districts identified for speed reduction or pedestrian safety improvements, particularly in	and last mile access, households without vehicles, disadvantaged census tracts, and previously identified active transportation and traffic calming needs. ▪ The city of Spokane's Pedestrian Master Plan identifies Pedestrian Priority Zones which are based on an assessment of indicators measuring pedestrian demand features and pedestrian deficiencies to determine where the pedestrian needs are the greatest. The indicators include: employment density, population density, proximity to destinations, and demographic factors (% of people with no vehicle available, % of households below the poverty level, % of people under 18, and % of people 65 or over).	▪ Incorporate racial and socioeconomic data into project prioritization. ▪ Provide traffic signal timing that limits pedestrian and bicyclist wait times and allows all users of all ages and abilities adequate crossing times. ▪ Prioritize speed management strategies in areas with a concentration of service providers for unhoused people.

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	areas with low Equity Index scores." This pilot program incorporates monitoring and evaluation through observations and surveys to compliment any crash data that may not be readily available. ▪ The Denver Regional COG Regional Vision Zero plan balances urban, suburban, and rural contexts found in its region. Crash data analysis includes these three context types. The plan highlights best practices in equity such as including demographic, social, public health, and economic data into crash analysis and project prioritization and recommended strategies to integrate equity and empathy into enforcement and community engagement.		
Track Progress in Meeting Plan Goals and Implementing Projects	▪ Tacoma's Vision Zero Crash Data Dashboard was built to include an initial five years of crash data and the ability to for the City's GIS team to maintain and update it. The dashboard offers a transparent means of tracking and communicating the City's progress towards meeting its Vision Zero goals. It provides a data summary of the number of fatal and serious injury crashes, Killed or Serious Injured (KSI) crashes by year, on the High Risk Network, involving young drivers, impaired users, on arterials, and mid-block by posted speed, and all crashes involving young bicyclists and pedestrians. It also includes a map of crash locations with a spatial query feature that allows users to quickly draw corridor and intersection level crash trends, which can be helpful for project development or a funding application.	Washington Target Zero (2019) includes the following performance metrics: ▪ Number of traffic fatalities on all public roads (FARS). ▪ Number of fatalities per 100 million vehicle miles traveled (VMT) on all public roads (FARS/FHWA). ▪ Number of serious injuries on all public roads (State Data). ▪ Number of non-motorist fatalities and serious injuries on all public roads (e.g. bicyclists and pedestrians**) (FARS/State Data). ▪ Number of serious injuries per 100 million VMT on all public roads (State Data/FHWA). ▪ Number of bicyclist fatalities (FARS). ▪ Number of unrestrained passenger vehicle occupant	▪ Developing an equity framework, or checklist, to assess impacts of strategies. Track and publish metrics such as: ▪ Number of FSI crashes ▪ Number of FSI crashes where speed was a factor ▪ Number of FSI crashes where impaired driving was a factor ▪ Number of FSI crashes where distracted driving was a factor ▪ Number of FSI crashes where lighting was a factor ▪ Number of FSI crashes on arterials ▪ Number of FSI crashes with young drivers ▪ Number of crashes involving bicyclists and pedestrians ▪ Number of crashes involving young (under 20 years of age) bicyclists and pedestrians

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		fatalities, all seat positions (FARS). ▪ Number of motorcyclist fatalities (FARS). ▪ Number of unhelmeted motorcyclist fatalities (FARS). ▪ Number of drivers age 20 or younger involved in fatal crashes (FARS). ▪ Number of speeding-related fatalities (FARS). ▪ Number of fatalities involving a driver with a BAC of .08 and above (imputed) (FARS). ▪ Observed seat belt use for passenger vehicles, front seat outboard occupants (survey). ▪ Number of seat belt citations, impaired driving arrests, and speeding citations issued during grant-funded enforcement activities	▪ Crashes occurring on roadways in disadvantaged areas ▪ Observed motor vehicle speeds ▪ Average speed on street segment before and after ASE cameras enforced ▪ Repeat speed offenders in areas with ASE ▪ Number of road segments with reduced posted speed limits ▪ Number of high crash corridors and intersections receiving safety improvements each year ▪ Number of safety improvements on HIN ▪ Number of safety improvements implemented in disadvantaged areas. ▪ Number of safety improvements in school zones ▪ Number of drivers observed with handheld cell phones before and after detection cameras installed. ▪
Implement awareness and education programs to promote a culture of safety	▪ The City of Hoboken Vision Zero Plan requires “specialized driver safety training for anyone authorized to drive City of Hoboken fleet vehicles or for hire drivers.” Other recommended actions include bicycle safety training in schools, developing educational campaigns about road user safety and empathy directed at residents, businesses, students, and community organizations as well as timing awareness campaigns to coincide with seasonal changes in the fall when daylight decreases. ▪ According to NHTSA, effective awareness campaigns require time and research to plan, produce, and distribute the campaign. Campaigns should	▪ In 2019, the City of Spokane implemented an awareness “Look Both Ways” campaign that included stenciled painted sidewalk markings that said “Look!” at select intersections in downtown Spokane.	▪ Embed safety in all transportation planning and operations work. ▪ Develop awareness campaigns to help educate decision makers and public about Vision Zero approach of safety ▪ Expand safety awareness campaigns to include motorists responsibilities for traffic safety in addition to pedestrians and bicyclists.

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	be planned as a part of an overall outreach strategy and paired with other measures that either support its implementation (for example, child carseat awareness campaigns done in conjunction with fire departments that offer to do a free carseat installation check) or with high visibility enforcement activities (for example, impaired-driving prevention).[35] ▪ The City of Tacoma lowered speed limits in 2023 to 20 mph on residential streets and on arterial streets in four business districts. Public outreach about the change started prior to the new speed limit taking effect. A city website explained the new policy, gave background about speed and safety, vision zero, the safe systems approach, and how the new speed limit supports other programs such as Safe Routes to Schools. It also provided links to a map that shows speed limits by street and a fact sheet explaining the new speed limits.[36] ▪ Additionally, the City of Tacoma's Safe Routes to School program received a grant from the Washington Traffic Safety Commission to implement a driver safety campaign focusing on two districts and one neighborhood in Tacoma: Yard signs and posters available in multiple languages (e.g. Spanish, Russian, Vietnamese, Chinese, etc.) were given to residents in target neighborhoods at community events throughout the summer. Residents were encouraged to "check your speed" by going at or below posted speed limit on residential streets, around schools, and business districts. Residents could also sign a pledge (on the back of the posters) to go 20 mph or below and to post on their social media channels. Local television news featured the campaign and explained how slower speeds reduce crashes and injuries.[37]		▪ Develop education and awareness campaigns that roll out prior to and in conjunction with the implementation of new safety improvements such as lowered speed limits, traffic calming interventions, roundabouts, and bicycle facilities like protected bike lanes. ▪ Work with media outlets, SRTC staff and member agencies to more accurately report traffic crashes to avoid victim-blaming and report crashes in the context of the Safe System Approach. Traffic crashes should be referred to as "crashes" rather than "accidents" to align with the Federal Highway Administration's and the Safe System Approach. ▪ Develop comprehensive engagement strategies that create personal connections to the Safe System Approach. ▪ Partner with youth organizations to create peer-to-peer anti-distraction,

35 "Mass Media Campaigns | NHTSA." n.d. Www.nhtsa.gov. Accessed February 27, 2024. https://www.nhtsa.gov/book/countermeasures-that-work/alcohol-impaired-driving/countermeasures/other-strategies-behavior-change/mass-media.

36 "20 Is Plenty - City of Tacoma." n.d. Www.cityoftacoma.org. Accessed February 23, 2024. https://www.cityoftacoma.org/government/city_departments/public_works/vision_zero/20_is_plenty.

37 "Driver Safety Campaign - City of Tacoma." n.d. Www.cityoftacoma.org. Accessed February 23, 2024. https://www.cityoftacoma.org/government/city_departments/public_works/vision_zero/20_is_plenty/driver_safety_campaign.

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	▪ In response to crash data that suggested 43% of traffic fatalities involved people over 65 years old, the San Francisco Department of Public Health created two community grant programs targeting neighborhoods in the city's High Injury Network and Communities of Concern. Outreach and education funding was provided via the Safe Routes for Seniors program provided local non-profits serving individuals 65 years of age and older, especially to monolingual non-English speaking populations. Another program, called the Safe Speeds Campaign provided community-based organizations with funds for education and outreach to reduce speeding behaviors in neighborhoods.[38]		impairment, and speed safety messaging campaigns.
Implement impaired driving prevention policies and programs	▪ Utah implemented a 0.05 g/dL BAC law in 2018 and reported an 18% reduction in the crash death rate per mile driven in the first year after it went into effect. The new law was also associated with lower alcohol involvement in crashes. ▪ Interlocks are highly effective at preventing repeat offenses while installed. Incorporating alcohol use disorder assessment and treatment increases their effectiveness. Supporting nighttime and weekend public transportation hours ▪ Rideshare Programs: » Often night-time rideshare programs are offered to prevent impaired driving due to alcohol or drugs as well as for other purposes such as sexual assault prevention, domestic violence situations, and fatigue. Most frequent examples are found in university towns, such as the University of Oregon in Eugene, which offers a service called "Duck Rides" (merged from two former services called "Designated Driver Shuttle" and "Saferide") that is funded by student fees; other examples	In Washington State Blood Alcohol Content (BAC) is 0.08 g/dL and 0.02 g/dL for people under 21 years of age. Lowering the BAC to 0.05 g/dl is currently being considered in the WA State Legislature. Washington State already requires ignition interlocks for all convicted DUI offenders, including first-time offenders. According to CDC, "Interlocks keep vehicles from starting if drivers have a BAC above a certain level, usually 0.02 interlock programs shows promise in reducing repeat offenses even after interlocks are removed." Public transport options in the region are available with Spokane Transit:	▪ Support DUI/DWI court programs that focus on education and treatment over punishment. ▪ Evaluate feasibility to offer on-demand public transportation or rideshare service during late-night hours and in areas without regular fixed route service. ▪ Support mixed use land use planning and zoning laws that put people closer to destinations, e.g, more permissive zoning to allow neighborhood cafes and restaurants in or immediately accessible to residential areas.

38 Review of Equity Studies for Practitioners. n.d. Vision Zero Network. https://visionzeronetwork.org/wp-content/uploads/2017/05/VisionZero_Equity.pdf.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	include called partnerships between cities and universities as is the case with the City of Norman and the University of Oklahoma. » Other models are with community-based organizations such as Safe Ride Home Whidbey Island that partners with local taxi services and is funded by donations. This service provides free rides to Whidbey Island residents but has a one ride per year restriction. Youth under age 18 years old are able to use the service with a consent form signed by their parents and also can have a "Safe Ride Home Passport" to use the service more than once with parents responsible for ride costs. ▪ Other on-demand late-night transportation service has a focus more to serve people working late night shifts when public transport service is typically not available rather than impaired driving prevention: » Pinellas Suncoast Transit Authority, Florida has a Transportation Disadvantaged Program which offers late-night reduced and free rides based on income (200% of poverty level); some individuals are eligible for door-to-door service; but reservations for the service must be made 48 hours in advance. » Detroit, Michigan — Woodward 2 Work: Offered a pilot program partnering with Lyft to provide last-mile service along bus route (Woodward) between 12 am – 5am; participants received a $7 credit for a Lyft ride to their final destination. ▪ Daytime on-demand service is a more frequent option than the night-time options. Clallum Transport and Kitsap Transport offer on-demand ride service in various towns within their service areas on the Olympic and Kitsap Peninsulas in Washington. One example is BI ride on Bainbridge Island which operates between 8:45am – 3:30 pm on weekdays and 9:00am-6:00pm on Saturdays) offered along regular bus routes during daytime non-peak hours. Rides can be scheduled up to seven days in advance through the app Ride Pingo. ▪ Planning strategies can include land use and zoning laws that permit neighborhood cafes (that serve food and alcohol) in residential	▪ Offers 18 fixed bus routes, operating hours vary according to route but are generally between approximately 5 am - 11:45 pm ▪ Rideshare, a Spokane Transit program formerly known as vanpool, is available for commuting purposes to a minimum of three people who live or work near each other. Paratransit is available for approved ADA eligible customers in Spokane Transit's service area during typical operating hours. Washington Impaired Driving Strategic Plan and Guide provides guidance and recommendations including public outreach, education, enforcement, and prevention to reduce impaired driving: ▪ Focus education efforts in areas with high rates of impaired driving and deliver educational messages through channels and locations that are most likely to reach the target audience. ▪ Instead of fear-based messaging, focus on fostering positive community norms and messages of hope that inspire responsible choices.	

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	neighborhoods that residents to access places nearby to socialize without the need to drive. This type of law (HB 2252) is currently under debate in the Washington State Legislature.		
Evaluate Level of Service Standard (LOS)	▪ In 2008, Bellingham implemented a multimodal LOS. This program is based on the concept of quantifying the number of person trips equivalent (PTA) for each mode of transportation, including both motorized and non-motorized modes. These multi modal LOS standards are: » Arterial Streets: LOS E, which corresponds to a volume-to-capacity ratio of no more than 1.0. » Transit: LOS F, which corresponds to 1.0-1.25 riders per seat (e.g., up to 50 riders on a 40-seat bus). » No separate LOS thresholds are identified for pedestrians, bicycles, or trails; however, they are considered in the overall PTA measure.[39] ▪ Redmond implemented a multimodal transportation concurrency program that determines LOS based on "mobility units" or citywide person miles traveled. This program is based on a supply and demand model where new infrastructure projects create a supply of mobility units and new developments create a demand for them. This program is intended to create a balance between land use and transportation.[40]	Airway Heights includes multimodal LOS in its comprehensive plan. The City of Spokane uses the standard LOS and a non-motorized LOS. Spokane County and other jurisdictions in the SRTC planning areas appear to use the standard LOS.	• Explore Code of Ordinance revisions that would update Spokane County's LOS standard to include safety performance and require contributions from new development to implement safety improvements along high-risk corridors.
Coordinate with First Responders to Address Safety Needs	▪ NHTSA states the importance of prehospital treatment, especially in rural communities where response times are longer.[41] Improvements in EMS Care allow pre-hospital administration of blood products with increases survivability following critical injuries. Increasing access to specialized EMS training such as Crash Vehicle Extrication and providing Stop the Bleed		▪ Research and adopt policies to improve prehospital treatment for rural communities. ▪ Coordinate on design and operation modifications impacting designated emergency response routes.

39 "MMLOS Metrics, Standards & Guidelines Final Report." 2017. www.bellevuewa.gov. Accessed March 5, 2024. https://bellevuewa.gov/sites/default/files/media/pdf_document/Bellevue_MMLOS%20FINAL.pdf

40 "MMLOS Metrics, Standards & Guidelines Final Report." 2017. www.bellevuewa.gov. Accessed March 5, 2024. https://bellevuewa.gov/sites/default/files/media/pdf_document/Bellevue_MMLOS%20FINAL.pdf

41 "Emerging Digital Technologies in Emergency Medical Services: Considerations and Strategies to Strengthen the Continuum of Care." 2015. NHTSA. https://www.ems.gov/assets/11792-EmergingDigitalTechInEMS.pdf

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	training and kits for volunteer EMS will also improve pre-hospital treatment.[42] *Include first responders in project design and design guidance development.* ▪ The City of Portland, OR engaged with the Portland Fire & Rescue teams during the development of flexible street design standards.		
Incorporate crash reduction and safety technology in vehicle fleet retrofits and purchasing standards	▪ Hoboken, New Jersey's Vision Zero Plan recognizes that "Certain types of vehicles, notably larger vehicles, pose greater safety risks to people walking and biking not only because they are heavier, but also because there are inherent blind spots. Actions for safe vehicles focus on safety features and designs for large vehicles and shared vehicles. In addition, actions for smaller vehicles will be necessary to maintain the high-level service quality of fire, waste management, and delivery on streets where protected bikeways and other safety treatments may require operations to take place further from the curb." Driver training and advanced crash impact reduction technologies for parties outside of the vehicle can reduce the severity of crashes that involve large vehicles. However, the plan also recommends additional actions to update the City fleet with latest technology and safety equipment available, purchase hose extensions to allow fire trucks to access hydrants farther away from curb, and update vehicle purchasing standards to begin phasing smaller vehicles with latest crash reduction and safety technology into the fleet when possible. ▪ Cities such as Seattle and Portland have been installing side guards that hang down to cover the gap between the front and rear wheels of the truck on all department trucks.[43] The guards reduce the likelihood that a pedestrian or bicyclist would be pulled under the trucks wheels and run over in the event of a side impact collision. Since 2019, the City of Portland		▪ Revise procurement guidelines to include side guards as a standard feature on all new heavy trucks (gross vehicle weight of 10,000 pounds or more) purchased by SRTC member jurisdictions. ▪ Install side guards on all large trucks operating in jurisdiction vehicle fleets that have a replacement date of 2026 or later. ▪ Require that all garbage and recycling contractors operating in Spokane County install side guards by _____. ▪ Update vehicle purchasing standards to begin phasing smaller vehicles with latest crash reduction and safety technology into the fleet when possible.

[42] "A Safe System Approach and the Road to Zero." 2023. University of Georgia. https://publichealth.uga.edu/wp-content/uploads/2023/07/TSREG-RALRSS-Presentation-2.pdf

43 Blog, SDOT. 2017. "Check out SDOT's Life (Saving) Guards!" SDOT Blog. November 1, 2017. https://sdotblog.seattle.gov/2017/11/01/side-guards/.

Strategies	Notable Best Practices, Policies, and Guidance	Washington State and SRTC Member Practices + Policies	Potential Action for RSAP
	has included side guards as a standard feature on all new heavy trucks gross vehicle weight of 10,000 pounds or more). The City of Portland also added side guards to all existing eligible trucks with a replacement date of 2022 or later and required garbage and recycling contractors operating in the city to have side guards by 2022.[44] ▪ Beginning in 2024, all buses and trucks registered in the European Union will be required to include safety technology such as blind spot information system to warn drivers of a possible collision with a pedestrian or bicyclist beside the vehicle and the forward blind spot of the vehicle and camera and/or sensor technology to alert the driver if there are objects or people behind the vehicle when they are going in reverse[45].		

44 “Heavy Truck Side Guards | Portland.gov.” n.d. Www.portland.gov. Accessed February 27, 2024. https://www.portland.gov/transportation/vision-zero/side-guards.

45 European Commission. 2022. “New Rules to Improve Road Safety and Enable Fully Driverless Vehicles in the EU.” European Commission - European Commission. July 6, 2022. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_4312.

Infrastructure Countermeasures

The Infrastructure Countermeasure Summary Matrix (Table 3) presents design tools known to reduce crashes involving people driving, bicycling, walking, or rolling, and outlines how each tool addresses safety and the expected reduction in crashes. The matrix also describes the applicable locations for each tool and context. A Countermeasure Toolkit has also been developed that provides more details on each of the specific countermeasures and guidance on how best to implement countermeasures. This toolkit will be made available to SRTC's member agencies to aid them in safety project implementation.

Categories

Countermeasures are organized into five categories below based on the safety objective:

- **Systemic**

  Tools that are systemic that can be implemented universally across the SRTC region that proactively address road user safety.

- **Active Mode Facilities**
  Create spaces that separate people walking, bicycling, or rolling from motorists.

- **Crossings and Signals**
  Separate users in time to improve spaces where different road users' paths cross.

- **Speed Management**
  Encourage motorists to travel at safe speeds.

- **Other Road Design**
  Additional tools that are more systemic and cover multiple objectives.

Note, within each category the tools are listed and presented in this document alphabetically.

Effectiveness

The level of effectiveness is presented as a crash reduction factor (CRF), which is the estimated percent reduction in crashes. See Appendix A for more information on effectiveness and crash reduction factors.

Location

Some tools are generally applied along segments, while others improve safety at intersections. The matrix indicates the type of location most appropriate to apply each countermeasure. Most countermeasures can be applied to several different types of locations. Based on the Safe System principle that *redundancy is critical*, it is important to consider implementing multiple countermeasures at one location.

Locations for applying the countermeasures are categorized as follows:

- Along Corridor
- Midblock Crossing
- Signalized Intersection
- Unsignalized Intersection

Countermeasures will be selected for specific locations in the region, only after an evaluation of the appropriateness of the countermeasure for the location's context.

Context

Roadways throughout the region have different characteristics based on the number of lanes, vehicles per day, travel speeds, adjacent land use, and other factors. Therefore, different safety tools may be appropriate on different roadways.

The level of appropriateness for urban/suburban or small town/rural contexts for each countermeasure is indicated using following symbols:

- Small Town/Rural
- Urban/Suburban

Table 3: Infrastructure Countermeasure Summary Matrix

Tool	Location				Context		
	Along Corridors	Midblock Crossing	Signalized Intersection	Unsignalized Intersection	Small Town/Rural	Urban/Suburban	Effectiveness
Systemic							
Accessible Pedestrian Signals			X		X	X	9-70%
Automated Speed Safety Cameras	X				X	X	23-90%
Coordinated Signals			X			X	21-58%
High Visibility Crosswalks		X	X	X	X	X	40%
Leading Pedestrian Intervals (LPIs)			X		X	X	9-59%
Retroreflective Traffic Signal Backplates			X		X	X	15%
Sidewalks	X				X	X	65-89%
Active Mode Facilities							
Bicycle Boulevard/Shared Streets	X				X	X	63%
Buffered Bicycle Lanes	X				X	X	30-49%
Separated Bicycle Facilities	X				X	X	40-66%
Crossings and Signals							
Curb Extensions and Bulb Outs		X	X	X	X	X	N/A
Parking Restrictions at Crossings/Daylighting		X	X	X	X	X	30%
Protected Pedestrian Phases			X			X	35%
Protected Turn Phases			X		X	X	31-100%
Raised Intersections/Crossings		X	X	X	X	X	46%
Raised Refuge Islands		X	X	X	X	X	46-56%
Rectangular Rapid Flashing Beacons (RRFBs)		X		X	X	X	47-73%
Signal Clearance			X			X	3-20%
Stop Sign Controls		X		X	X	X	10-27%
Traffic Signals				X	X	X	30-77%
Speed Management							
Edge Lines	X				X	X	22-37%
Speed Feedback Indicator Signs	X					X	N/A
Transverse Rumble Strips	X	X		X	X	X	6-78%

Other Road Design							
Access Control/Diverters			X	X	X	X	25%
Access Management	X				X	X	5-31%
Chevron Signs on Horizontal Curves	X				X		15-60%
Lighting	X		X	X	X	X	28-38%
Median Barrier	X				X		8%
Pedestrian Lighting	X	X				X	42%
Raised Medians	X				X	X	46%
Relocate/Remove Fixed Objects Outside Clear Zone	X		X	X	X	X	97%
Road/Lane Diets	X				X	X	19-47%
Rumble Strips (Edge line or Centerline)	X				X		13-64%
Wet-Reflective Pavement Markings	X				X	X	3-46%

Appendix A: Effectiveness of Countermeasures

Effectiveness

The level of effectiveness is presented as a crash reduction factor (CRF), which is the estimated percent reduction in crashes. Please note that a crash modification factor (CMF) is the inverse of a CRF. The lower the CMF value, the higher the CRF percentage is (e.g., a CMF of 0.25 is the same as a CRF of 75%).

Although researchers have estimated the reduction in crashes that can be achieved by implementing many road safety tools, crash reduction estimates do not exist for all tools. When research has shown a reduction in crashes for a given tool, it is noted in the Toolkit. This percent is usually presented in a range based on findings from different research or different crash types and contexts. Most of the information on crash reduction is from FHWA's Crash Modification Factors Clearinghouse or FHWA's Proven Safety Countermeasures, unless otherwise noted.[46,47,48] Engineers should confirm the appropriate CRF or CMF value for site-specific factors by using FHWA's Clearinghouse or other proven safety countermeasure sources.

Note: The FHWA cautions that 1) crash reduction estimates should be regarded general effectiveness and are not specific to any road or community, and 2) engineers must exercise judgment and consider site-specific factors when considering which tools to apply.[49]

[46] US DOT. 2023. Crash Modification Factors Clearinghouse. http://www.cmfclearinghouse.org/

[47] FHWA-HRT-23-078. Developing Crash Modification Factors for Separated Bicycle Lanes. https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-23-078.pdf

[48] US DOT. Proven Safety Countermeasures. https://highways.dot.gov/safety/proven-safety-countermeasures

[49] US DOT. 2008. Toolbox of Countermeasures and Their Potential Effectiveness for Roadway Departure Crashes. https://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa18041/