

Appendices



Appendix A: Plan and Policy Review



MEMORANDUM

July 28, 2026

To: Jason Kennedy, Senior Traffic Engineer

Organization: City of Federal Way

From: Sarah Gutschow, AICP, Alex DuVall, PE, RSP¹

Project: Federal Way Comprehensive Safety Action Plan

RE: Policy and Plan Review for Comprehensive Safety Action Plan

Toole Design has analyzed available City of Federal Way, King County, South King Fire, and Puget Sound Regional Council (PSRC) policies, practices, and guidelines relevant to the development of the Federal Way Comprehensive Safety Action Plan, with a focus on which ones should be endorsed as part of the Action Plan and which should be modified, updated, or discontinued.¹ This memo is organized as follows:

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¹ The project team's analysis was based on a review of publicly available documents available and provided by the City of Federal Way's project team. It is possible that not all relevant and applicable plans, policies and other documentation were reviewed. The project team welcomes additional documentation to inform this analysis and the formulation of strategies and actions included in the CSAP.

* Denotes recommendation included in Federal Way Comprehensive Plan (2024).

Bolded red recommendations are lower cost and lower effort

Project Background

This project is to develop a Comprehensive Safety Action Plan (CSAP) for the City of Federal Way. The purpose of the CSAP is to support reductions in fatal and serious injury crashes for all users, including pedestrians, bicyclists, public transit users, motorists, and commercial vehicle operators. The CSAP will accomplish this by identifying projects, strategies, and programs to improve transportation safety in Federal Way.

For this project task, the team reviewed plans, policies, standards, and guidelines for Federal Way, along with those of relevant county and regional government agencies, to provide context on alignment with regional priorities. For City policies, plans, and programs, the team then identified opportunities for safety-related modifications, with consideration given to impacts on policy implementation and long-term maintenance.

This memorandum first overviews the documents reviewed and their relevant safety-related sections (listed in chronological order of adoption). Current and Recommended Safety Policies/Practices by Safe System Approach Element

Table 1 then provides a summary of recommended safety-related modifications to current policies and practices, including potential new policies for Federal Way to consider. Findings from this review will be reflected in the CSAP's vision, goals, and recommendations.

Plan and Policy Review

City of Federal Way

Bicycle and Pedestrian Master Plan (2012)

The goal of this plan was to establish a framework for achieving the City's long-term vision of a safe, accessible, and connected bicycle and pedestrian network. It was created as a stand-alone document that would later be incorporated into the Transportation Element of the City's 2015 Comprehensive Plan. The plan was developed by staff under the guidance of an advisory committee established to help with the plan goals and project prioritization.

RELEVANT FINDINGS:

- The plan describes the City's existing built environment as largely characterized by conventional suburban style development, with separated land uses connected by an arterial roadway network with high volume and high-speed traffic. This has resulted in motorized and non-motorized cross-town trips being funneled to the same high-volume, high-speed corridors, creating a key challenge in developing a safe and convenient network of bicycling and pedestrian facilities.
- As of 2012, there were approximately 27 miles of bicycle facilities and approximately 247 miles of pedestrian facilities in Federal Way. The plan proposes approximately 66 miles of new bicycle facilities and 72 miles of new pedestrian facilities.
- Plan goals and objectives most relevant to safety include:
 - Goal: Ensure that the pedestrian and bicycle system is safe and functional for all users.
 - Improve facility safety through design, operations, maintenance, and education.
 - Effectively enforce laws that affect bicyclist and pedestrian safety.

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- Conduct outreach and education to increase safety and awareness for pedestrians, bicyclists, and motorists.
- Apply traffic calming techniques to address safety issues associated with vehicle speeds and volumes.
- Goal: Improve the bicycle and walking environment through enhanced traffic operations and maintenance.
 - Monitor bicycle and pedestrian facilities to ensure that safety is not being degraded over time.
 - Update pedestrian and bicycle facilities where appropriate to incorporate best practices.
 - Manage traffic control systems to better facilitate bicycle and walking travel along strategic corridors.

City Center/Regional Growth Center Subarea Plan (2015)

The goal of this plan is to present concepts and strategies for creating a definable and vibrant City Center for Federal Way and as a Regional Growth Center for Southwest King County. This is Chapter 7 of the 2015 Comprehensive Plan. The 2024 Comprehensive Plan broadened the Centers chapter to include both the City Center and South Station Subarea.

RELEVANT FINDINGS:

- The emphasis of the plan is to promote a variety of travel options, such as transit, walking, and bicycling. This would include reducing the size of the street grid, creating pedestrian paths through larger parcels, and streetscape improvements to create a safe and inviting environment for pedestrians and bicyclists, with direct connections between activities and transit facilities.
- The plan discusses the potential conflicting needs for safety and congestion between creating unsignalized pedestrian crossings versus more closely spacing signalized crossings.

Twin Lakes Subarea Plan (2015)

This is a Subarea Plan for the Neighborhood Business (NB) zone at the intersection of 21st Avenue SW and SW Campus Drive/SW 336th Street. It was part of the City's 2015 Comprehensive Plan. The 2024 Comprehensive Plan removed this chapter during the Periodic Update and preserved it as a standalone Subarea Plan.

RELEVANT FINDINGS:

Relevant goals and policies for implementation of the plan for the NB zone include:

- TLISA P8 Improve safety and access of buildings and surrounding site area.
 - Access points and driveways for neighborhood retail, including grocery stores, should accommodate the safe and efficient movement of pedestrians and bicycles.
- TLISA P16 Focus on improving safety for neighborhood residents.
 - This should include a special focus on safety along pedestrian and bicycle routes.
- TLISA P18 Improve bicycle and pedestrian infrastructure and connectivity.
 - Monitor bicycle and pedestrian facilities to ensure that safety is not being degraded over time.
- TLISA P19 Promote safe and convenient non-motorized transportation.
- TLISA P20 Focus on outreach and education to help promote safety and accessibility.

Parks, Recreation and Open Space Plan (2019)

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This 2019 City's Parks, Recreation and Open Space (PROS) Plan provides an update to the underlying data and assumptions that inform decision-making for investments in the City's parks, open spaces, trails, and recreation programs.

RELEVANT FINDINGS:

- "Core Value 2" is to prioritize land acquisition that will connect parks, neighborhoods, and recreation facilities through a network of walking and biking trails. Trails should be safe for pedestrian and bicycle use, ADA-compliant, effectively connect destinations, and be adequately signed.
 - One of the recommended actions is to leverage the City's existing and planned sidewalk network to facilitate connections between parks and trail routes.

Americans With Disabilities ACT Transition Plan (Stages 1 - 3) (2020)

The City of Federal Way's Americans with Disabilities (ADA) Self-Evaluation and Transition Plan meets federal requirements for developing a transition plan describing how local governments will ensure their facilities, services, programs, and activities are accessible. The City developed five stages for their plan update; stages 1-3 cover the City Center, Arterial Streets, and City Properties, while later stages will cover collectors and local streets.

RELEVANT FINDINGS:

- The City completed its evaluation of pedestrian paths and curb ramps in 2018. The inventory identified 1,311 existing curb ramps (approximately 445 of those judged to offer compliance), 87 traffic signals in Federal Way, and 563 push buttons (about 224 did not have Audible tones).
 - The City created evaluation criteria for pedestrian circulation paths / pedestrian access routes to identify highest priority needs for upgrades and replacements.
 - For Stages 1-3, findings include:
 - Stage 1 - City Center: The analysis concluded that City Center has 41% ADA compliant sidewalk and 59% non-compliant sidewalks, and has 29% ADA compliant curb ramps and 71% non-compliant curb ramps.
 - Stage 2 - Arterials: The analysis concluded that Arterial Streets have 39% ADA compliant sidewalks and 61% non-compliant sidewalks, and have 30% ADA compliant curb ramps and 70% non-compliant curb ramps. The City does not have sidewalks in several areas of the arterial street network.

Neighborhood Traffic Safety (NTS) Program (2022)

Existing residential neighborhoods in the City of Federal Way may be considered for the NTS Program in order to control traffic speeds, reduce cut-through traffic, and improve documented pedestrian, bicycle, and vehicular safety issues. The NTS process can be initiated by citizen request or complaint, Police Department request, Public Works Traffic Division data analysis, or other method. The NTS program consists of three phases in the following order: 1) Education, 2) Enforcement, and then 3) Engineering. The engineering phase allows for the installation of traffic calming devices. At least 90 days of education and targeted enforcement must be conducted AND the project meets minimum score of 3 points before the project will proceed to the next phase.

RELEVANT FINDINGS:

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- Once a request or complaint about speeding or cut-through traffic is received by the City, a traffic study is conducted to see if the program's technical criteria are met using the following factors: 85-percentile Speed, Volume, School/Park Presence, Collisions, and Sidewalk Presence.
 - Each neighborhood (elementary school enrollment area) may receive traffic calming devices once every three years.
 - Approval of installation of traffic calming devices requires:
- A neighborhood meeting with City staff to discuss the advantages and disadvantages of traffic calming devices,
 - Ballots sent to all properties within 600 feet, if the score is between 3-5.5 points, OR skip balloting if the score is 6 or greater,
- A majority of ballots returned (indicating support), if ballots are sent out,
 - Approval by the Land Use and Transportation Committee, and
 - Approval by City Council.
- Approval does not mean that installation is guaranteed. The Public Works Department will review all eligible projects once a year and rank them in order of severity and will implement based on available funding. Implementation will be based on geographic equity.
- Approval for removal of traffic calming devices requires:
 - A City prepared or approved petition signed by owners or residents representing 10 or more lots within the affected area (within 600 feet of existing traffic calming device),
 - A majority of returned ballots (sent by the City) voting affirmatively to remove the devices, and
- A minimum 12 month review period after installation and engineering analysis to determine the traffic characteristics along the route.

Commute Trip Reduction Plan 2024-2029 (2024)

This is the update of the City's local Commute Trip Reduction (CTR) plan, as required every four years under the State Commute Trip Reduction Law. This plan lays out the benefits of CTR, performance targets, services, and strategies. It also serves as a reference point for updates to the City's CTR ordinance and CTR-affected worksites' individual CTR programs.

RELEVANT FINDINGS:

- Travel to work in Federal Way in a single-occupant vehicle (SOV) accounts for roughly 69% of work trips within the City, with about 11% of work trips made by carpoolers. The remaining shares of work trips are for transit (7%), biking and walking (4%), and telecommutes (9%).
- The plan attributes current safety-related obstacles to increasing non-SOV commutes, including lack of safe non-motorized infrastructure crossings and perceptions that transit is unsafe.
- Strategies to confront these barriers include improving non-motorized network connectivity and better promoting transit modes, although the plan states that CTR efforts will focus mainly on increasing carpooling and vanpooling because they are the clear and preferred options for most commuters.

Development Standards (2024)

The City's Development Standards are a section of the City Code that establishes uniform, comprehensive and distinct requirements that will be applied to all development in Federal Way, unless they are specifically exempt. Their purpose is to provide clear guidelines for all development activity within the City by laying out administrative and technical requirements for the implementation of land use regulations and provide the basis by which developments are evaluated to ensure compliance with City regulations.

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RELEVANT FINDINGS:

- Section A (Minimum Street Design Standards, Table 1) includes the number of lanes for road types A through Z.
 - Types C through J include 4 to 6 through lanes for functional classifications of minor arterials and/or principal collectors.
 - Types A, B, D, F, H, J include 4 or 5 lanes within the City Center land use zone.
 - Types G and I include 5 lanes in Single Family land use zones.
 - Types G through J are intended for Average Daily Traffic of 15,000-25,000 and include 5 through lanes.
 - Types C, D, G, H, K, L, and O include bike lanes, with no designation of separation or protection, on principal arterials, minor arterials, and/or principal collectors with design speeds of 35 or 40 mph.
 - Types Q through Y include functional classifications for local streets with design speeds of 25 or 30 mph.
 - Other than Type Z for cul-de-sacs, the lowest design speed is 25 mph.
 - Minimum pavement width suggests lane widths of up to 14 feet.
 - Does not include through lane widths, median widths, or bike lane types or widths.
- Section J (signal phasing)
- Standard detail FW.J26.60 item 15 says “left-turn phasing shall be the least restrictive possible.”

South Station Subarea Plan (2024)

This plan is focused on leveraging the opportunities from the future opening of the Sound Transit Tacoma Dome Link Extension (TDLE) to transform this Subarea from an auto-oriented, suburban portion of the city into a multimodal, vibrant, mixed-use, urban neighborhood.

RELEVANT FINDINGS:

- One of the six “Guiding Principles” of the plan is to “expand connectivity within and around the Subarea and improve options for pedestrian and bicyclist mobility” with new pedestrian pathways and bicycle facilities, midblock connections, alleys, and reduced barriers for crossing busy roads.
- The plan highlights specific non-motorized routes that need safety improvements for pedestrians and bicyclists, including between the South Federal Way Park & Ride and the TOD District/future TDLE station.

Federal Way Comprehensive Plan (2024)

The Comprehensive Plan articulates a series of goals, objectives, policies, actions, and standards that are intended to guide the day-to-day decisions of elected officials and local government staff. It presents a 20-year vision for the future, with long-range goals and objectives for activities that help ensure the city grows in a planned way, including guidance on land use, transportation, housing, and other critical topics. The Transportation element of the plan focuses on investments needed to create and manage transportation infrastructure and services to accommodate future growth assumptions.

RELEVANT FINDINGS:

- The Transportation chapter includes:

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- Multimodal Level of Service (MMLOS) standards for four different transportation modes: automobiles, transit, bicycles, and pedestrians.
- Data and maps for existing conditions of different modes, including: roadway functional classifications, existing and planned traffic signals, traffic volumes, high-occupancy vehicle (HOV) facilities, congested streets and intersections, bicycle and pedestrian facilities, trail network, priority walking and bicycling network, transit routes and services, truck routes, and transportation demand management (TDM) programs.
- Intelligent Transportation Systems (ITS) Master Plan with the goals of completing gaps in the communication network, installing traffic monitoring capabilities, increasing staff resources, and increasing collaboration.
- The City's transportation project prioritization process includes three considerations related to safety:
 - Level of Service Improvement: The project reduces vehicle delay or enhances the quality of the facility (modal specific) based on the adopted level of service standards.
 - Safety: The project enhances a safety concern.
 - Severity: The project enhances a safety concern with a history of severe and/or increased collisions.
- Transportation goals and their related policies most relevant to safety include:
 - T G1: Maintain and enhance mobility through a safe, balanced, and integrated transportation system.
 - T G2: Enhance community health and livability through pedestrian, bike, and transit transportation improvements that are regionally connected.

Southwest King County Regional Trail Plan (2024)

The purpose of this plan is to identify corridors for accommodating multimodal travel in and around designated urban growth centers, as well as trail connectivity between Federal Way/SW King County and the northern and eastern parts of King County, as well as to Pierce County. It is intended as a resource for City staff and other partner agencies who develop and manage trails. It creates a vision for a trail network for transportation and recreation purposes, identifies key connections, evaluates and prioritizes trail projects for development, and identifies considerations related to implementation, operations, and maintenance of the trail network.

RELEVANT FINDINGS:

- The plan recommends biking and walking facilities, primarily within street rights-of-way, that provide a high comfort, trail-like experience separated from high-speed, high-volume vehicular traffic. The following facility types are recommended in order of preference:
 - Shared-use paths within separated rights-of-way
 - Sidepaths within roadway rights-of-way
 - Wide sidewalks, ideally with a buffer from vehicle lanes
 - High-comfort on-street bikeways like protected bike lanes and neighborhood greenways
- Three strategic projects are identified as feasible to implement in the short term (1-3 years) to build on existing or planned multimodal facilities:
 - 16th Ave S from S 288th St to S 308th St
 - Weyerhaeuser Way S from S 320th St to S 349th St
 - S 336th St from the BPA Trail (via 1st Way S) to the proposed Weyerhaeuser Way S project (mentioned above)

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- As part of the plan Visioning Survey, “lack of safety”, both personal safety and physical safety, was the top challenge respondents named for expanding and improving the trail network in Federal Way.
- The plan recommends safety countermeasures to increase the measured and perceived safety of trails at intersections with streets.

2026-2031 Transportation Improvement Program

The Transportation Improvement Program (TIP) outlines Federal Way’s six-year transportation program. It is prepared as part of the annual amendment to the Comprehensive Plan. The Comprehensive Plan goals guide the type of transportation projects that are constructed. The TIP details locations, descriptions, and costs per year for roadway and non-motorized transportation projects.

RELEVANT FINDINGS:

- The TIP includes a variety of investments aligned with the City’s transportation safety goals. These include spot improvements, systemic investments made throughout the roadway network, and system maintenance and preservation projects.
- Systemic investment projects and programs relevant to safety include:
 - Local Road Safety Plan
 - Street Light Infill
 - Implement Adaptive Traffic Control System
 - High Friction Surface Treatment Application
 - Street Vegetation Management
 - Citywide Pedestrian Safety System Improvement
 - ADA Retrofits
 - Citywide RRFB Upgrades
 - Local Improvement District Non-Motorized Improvement Program
 - Citywide Overlay Program
 - Several individual projects are relevant to safety and improved multimodal infrastructure, including installation of roundabouts, traffic signals, streetlights, sidewalks, bike lanes, and multi-use paths, as well as Pedestrian Access Improvements to the Federal Way Transit Center. More detailed information on systematic and individual projects is shown under “Capital Improvement Projects”.

Federal Way Revised Code

Federal Way’s code was reviewed to identify existing policies, regulations, and opportunities for improvement and updates. Several sections warrant particular attention based on their relevance to traffic safety and multimodal transportation, including the following:

Chapter 4.40 - Sidewalks

In the event an abutting property owner or occupant causes any damage to a sidewalk, the duty, burden and expense of all necessary maintenance, repair, reconstruction and/or construction of a sidewalk necessary in the city’s determination as a result of such damage, shall be the responsibility of such abutting property owner or occupant.

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Chapter 8.05 - Traffic and Vehicles in General

Areas within the city are to be known as “neighborhood traffic safety zones,” which shall consist of all areas within the city within 1,000 feet of a school bus route stop designated by a school district, or within 1,000 feet of the perimeter of a school grounds. The penalties imposed for traffic infractions committed within these areas must be at least 80% of the maximum of \$250.00, not including statutory assessments.

Chapter 8.05.090 Authority for Local Use of Automated Safety Cameras

Automated traffic safety cameras may be used to detect stoplight or school speed zone violations. The use of automated traffic safety cameras is restricted to two-arterial intersections and school speed zones only. Violations detected through the use of an automated traffic safety camera may be issued with a monetary penalty equal to the same total penalty issued for such violations if detected by an officer without the use of an automated traffic safety camera. In no case, may such penalties be issued in an amount that exceeds the amount of a fine that may be issued for an infraction involving a parking violation.

Chapter 8.20 - Motorized Foot Scooters

It is unlawful for any person to operate or ride a motorized foot scooter or similar device upon park property, upon city sidewalks, or upon streets with a maximum speed limit above 25 miles per hour.

Chapter 8.25 – Bicycles

No person shall ride a bicycle upon a sidewalk in a business district, unless the sidewalk is classified and published as a Class III bike route. A person may ride a bicycle on any other sidewalk or any roadway unless restricted or prohibited by traffic control devices.

Chapter 8.30 - Speed Limits

The state traffic laws regulating the speed of vehicles are applicable upon all streets within Federal Way, except that certain increased or decreased speed regulations are applicable upon specified streets and areas and/or during certain temporary conditions (as detailed in this chapter). The Federal Way public works director determines and establishes school or playground speed zones consistent with criteria established by state law. The city council may regulate lesser speed limits provided in no case the maximum speed is reduced to less than 20 mph.

Chapter 18.55 - Design Criteria

In addition to the sidewalks required in rights-of-way and vehicular easements, pedestrian and bicycle access should be provided for established or planned safe school routes, bikeways, trails, transit stops, and general circulation.

Chapter 19.135 - Development Improvements

- Bicycle facilities shall be installed as indicated on the bicycle/pedestrian facilities plan as shown in the currently adopted comprehensive plan. When bicycle facilities are provided as part of the right-of-way design and installation, they shall meet the standards defined in the most current version of the Washington State Department of Transportation Design Manual.
- Sidewalks shall be installed for each classification of right-of-way. Sidewalk widths may be required above the minimum in areas where special design standards have been adopted.
- Street lighting shall be required on all rights-of-way.

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- Complete Streets Policy (19.135.205). The city of Federal Way will plan for, design, and construct all new and retrofitted transportation projects to provide reasonable and appropriate accommodation for pedestrians, bicyclists, and transit users of all ages and abilities, as well as motorists, passengers, emergency responders, and freight, with a goal of street connectivity that creates a comprehensive, integrated, connected network for all modes because all users of the network are legitimate and equally deserving of safe facilities.

Capital Improvement Projects

This webpage provides detailed information on active or planned capital improvement projects in the City of Federal Way.

RELEVANT FINDINGS:

Individual and systemic investment projects and programs relevant to safety include:

- City Center Access Project: Add and improve connections to central gathering places and services by strengthening traffic operations and increasing safety and efficiency and reducing dependency on cars for people traveling by car, transit, bike or walking.
- City Center Greenway: Improve the non-motorized connection along S 308th Street and 20th Avenue South, between Federal Way High School and the City Center.
- Pacific Highway Non-Motorized Corridor: Construction of a non-motorized shared-use path along the Pacific Hwy S corridor from S 308th St to S 288th St (phase 1) and extending the shared-use path to the City's northern limits (phase 2).
- S 373rd and Pacific Hwy S Roundabout: Establish median control throughout the length of the project and construct a roundabout at the intersection of S 373rd Street.
- BPA Trail City Center Extension: Construct a non-motorized trail to extend the current BPA trail from Celebration Park to S 320th St and 23rd Ave S.
- 2024/25 Neighborhood Traffic Safety: Various locations
- 2024 ADA Retrofits: Various locations
- 2024 and 2025 Pedestrian Crossings: Various locations
- 21st Avenue S and S 320th Street Signal and Pedestrian Improvements
- Street Light Infill Project: Construct streetlights and electrical services in various locations to fill in gaps within the existing system.
- S 288th St Road Diet: Construct a continuous bicycle and ADA-accessible pedestrian route along S 288th St from 16th Ave S and 25th Ave S.

King County

Strategic Plan for Road Services (2014)

The King County Strategic Plan for Road Services (SPRS) provides policy guidance for managing the 1,500 miles of roads and 180 bridges in the County's unincorporated areas. It presents information about the county road system needs, associated costs, and alternative service levels in order to inform the public and policymakers as future service and funding options are considered. This plan was developed in response to a critical structural funding problem, coupled with a backlog of road system maintenance and preservation needs. The 2014 SPRS replaces the 2010 version to cover the years 2014 through 2024.

RELEVANT FINDINGS:

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- The plan includes the goal “(p)revent and respond to immediate operational life safety and property damage hazards.” This goal addresses situations or road conditions that, if not addressed, have the direct potential to result imminently in injuries or death. The 2014 SPRS update changed safety to first priority in the plan.

Countywide Planning Policies (2021)

Through the execution of an interlocal agreement approved in 1992, jurisdictions in King County formed the Growth Management Planning Council (GMPC). Through the GMPC, jurisdictions within King County work together to plan for economic and population growth in King County. The Countywide Planning Policies (CPPs) create a shared and consistent framework for growth management planning for all jurisdictions in King County. A major update of the Countywide Planning Policies occurred in 2021.

RELEVANT FINDINGS:

The CPPs most relevant to safety and multimodal connectivity include:

- DP-7 - Plan for street networks that provide a high degree of connectivity to encourage walking, bicycling, transit use, and safe and healthy routes to and from public schools.
- T-5 - Prioritize transportation investments that provide and encourage alternatives to single occupancy vehicle travel and increase travel options, particularly to and within centers and along corridors connecting centers.
- T-6 - Develop station area plans for high-capacity transit stations and mobility hubs based on community engagement. Plans should reflect the unique characteristics, local vision for each station area including transit-supportive land uses, transit rights-of-way, stations and related facilities, multimodal linkages, safety improvements, place-making elements and minimize displacement.
- T-12 - Prioritize funding transportation investments that support countywide growth targets and centers framework, and that enhance multimodal mobility and safety, equity, and climate change goals.
- T-20 - Consider mobility options, connectivity, active transportation access, and safety in the siting and design of transit stations and mobility hubs, especially those that are serviced by high-capacity transit.
- T-23 - Prioritize essential maintenance, preservation, and safety improvements of the existing transportation system to protect mobility, extend useful life of assets, and avoid costly replacement projects.
- T-28 Promote road and transit facility design that includes well-defined, safe, and appealing spaces for pedestrians and bicyclists.

King County Comprehensive Plan (2024)

In accordance with the Growth Management Act, the King County Comprehensive Plan is designed to manage growth so that development is directed to urban areas and away from the Rural Area and Natural Resource Lands. The plan provides a legal framework for managing growth and making decisions about land use in unincorporated King County. It also serves as a framework for other plans and regulations, such as subarea plans and the King County Code, and provides a basis for decisions about public spending on facilities and services.

RELEVANT FINDINGS:

- A guiding principle of the plan is to design, operate, and maintain the County’s transportation system in a manner that (1) provides access to mobility options for a wide range of users, including historically underinvested populations, (2) contributes to safe communities, (3) reduces impacts on the county’s natural resources and environment, and (4) fosters a vibrant community.

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- One of the County's transportation priorities (P. 8-1) is to maintain safe and secure County-owned infrastructure, including roads, bridges, trails, transit vehicles (buses, paratransit vehicles, passenger ferries, non-revenue fleet, etc.), transit facilities, and airport facilities.
- Transportation policies most relevant to safety and multimodal infrastructure include:
 - T-101 - King County should provide a safe and accessible system of transportation services and facilities that offers travel options to all members of the community.
 - T-113 - King County should partner with jurisdictions and the private sector to spur infrastructure investments that enhance safe, equitable, and accessible opportunities for transit, pedestrians, bicyclists, carpools and vanpools, and other alternatives to single-occupant vehicles.
 - T-207 King County shall consider the safety, needs, and abilities of active transportation users in the planning, design, construction, maintenance, preservation, and operation of road infrastructure and other transportation facilities.
 - T-315 King County should contribute to achieving the state traffic safety goal of zero deaths and serious injuries using a safe systems approach, through which road system managers, public health organizations, law enforcement agencies, emergency responders, road users, and other parties collaborate to prioritize the elimination of crashes that result in death and serious injuries.

Transportation Needs Report (2024)

The King County Transportation Needs Report (TNR) is a long-term, comprehensive list of improvement needs for the roads, bridges, and related infrastructure located in unincorporated King County. It includes consideration of significant projects in adjacent cities and counties, and on state highways, as they relate to the overall functioning of the transportation system. The TNR is a functional plan of the 2024 King County Comprehensive Plan.

RELEVANT FINDINGS:

- The TNR states that King County continues to experience a structural roads funding crisis and critical safety work remains the top priority for projects.
- The 2024 TNR lists 80 projects planned for active transportation safety improvements and 65 projects for intersection and traffic safety operation improvements on King County roads.
- The TNR included a high collision locations analysis. The analysis identified an initial list of study locations by analyzing the spatial density of ten years of collision data to produce heat maps of intersections and road segments with a concentration of crashes.

King County Traffic Safety Action Plan (2026)

The King County Department of Local Services Road Services Division is developing a Traffic Safety Action Plan to improve traffic safety. It will be built using public input, crash and safety data, and expert review. The division is using this plan to suggest where improvements are needed and identify possible solutions. The plan will follow the Safe System Approach adopted by Washington State. This plan is currently under development, as of early 2026.

South King Fire

South King Fire Policy Manual: Policy 301

This policy outlines how South King Fire ensures a safe and appropriate response to emergencies while maintaining the safety of District members and the public by requiring operators of District vehicles to conform to applicable Washington laws and regulations during an emergency response.

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RELEVANT FINDINGS:

- The Policy Manual includes guidance on how to safely respond during emergency response calls, including when and how to use emergency lights and sirens, coordinate during multiple emergency vehicle responses, operate vehicles en route, and stop at railroad crossings.

Puget Sound Regional Council (PSRC)

VISION 2050 (2020)

VISION 2050 is the Puget Sound regional vision and guidance document for growth for Kitsap, Pierce, Snohomish, and King County and their 82 cities and towns. The region's vision for 2050 is to provide exceptional quality of life, opportunity for all, connected communities, a spectacular natural environment, and an innovative, thriving economy. Federal Way is designated as a Core City in PSRC's VISION 2050. Core Cities have designated Regional Growth Centers that are intended to accommodate a significant share of future growth for the region.

RELEVANT FINDINGS:

The Growth Management Act requires the adoption of multicounty planning policies (MPPs) for the central Puget Sound region. The MPPs most relevant to safety and multimodal connectivity include:

- **MPP-DP-15** - Design communities to provide safe and welcoming environments for walking and bicycling.
- **MPP-T-1** - Maintain and operate transportation systems to provide safe, efficient, and reliable movement of people, goods, and services.
- **MPP-T-4** - Improve the safety of the transportation system and, in the long term, achieve the state's goal of zero deaths and serious injuries.
- **MPP-T-11** - Design, construct, and operate a safe and convenient transportation system for all users while accommodating the movement of freight and goods, using best practices and context sensitive design strategies.

Regional Transportation Plan (2022)

The Regional Transportation Plan (RTP) serves as the region's long-range transportation plan under both federal and state law and was developed as the functional implementation plan for VISION 2050. The region's multicounty planning policies in VISION 2050 provide the primary policy direction for the RTP. The plan lays out a regional strategy for the wide variety of investments and services that make up a region's transportation system.

RELEVANT FINDINGS:

- Safety was one of the "key policy focus areas" for the Regional Transportation Plan. The plan emphasizes achieving the WA State's goal of zero deaths and serious injuries through safety in the design, planning and funding of projects.
- The Safety chapter of the plan provides an overview of regional safety trends, including changes in fatalities and serious injuries by mode from 2010 to 2019, and highlights safety actions happening at the local level in the region.
- PSRC emphasizes safety throughout all aspects of the regional planning process and through the more detailed project evaluation criteria that is used to award PSRC's federal transportation dollars to specific

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Bolded red recommendations are lower cost and lower effort

near-term transportation investments. Future actions identified in the plan include convening regional partners and stakeholders to discuss the challenges and solutions in meeting safety goals and developing a Regional Safety Plan (described below).

Regional Safety Action Plan (2025)

PSRC developed the Regional Safety Action Plan to help the agency and its partners to identify actionable strategies and resources, improve project development, implement improvements, track progress toward meeting regional and state safety targets, and promote a culture of safety in the central Puget Sound region. PSRC envisioned that this RSAP will be complimentary to city and county frameworks, with the goal of consistent and effective safety planning and implementation throughout the region under the Safe System Approach.

RELEVANT FINDINGS:

- To better understand the long-term safety trends in the region, a broad range of crash data for the four-county region was analyzed for the period between 2010 and 2023. A geospatial assessment indicated that 93% of the fatal and serious injury crashes in the central Puget Sound region are located on PSRC's regional network.
- Crashes were also analyzed by location to determine which areas in the region experienced the highest density of crashes along corridors.
 - The High Injury Network (HIN) represents the 85th percentile of deaths and serious injuries on roadways within the PSRC Regional Roadway Network.
 - The Pedestrian and Bicycle HIN maps corridors with the highest concentration of traffic-related deaths and serious injuries (i.e., two or more per mile) of these vulnerable road users.
- State Route (SR) 509, Interstate 5 (I-5) and multiple arterial roads and intersections in Federal Way were identified as high crash locations on the HIN and regional High Crash Locations maps.

Current and Recommended Safety Policies/Practices by Safe System Approach Element

Table 1: Federal Way Current and Recommended Safety Policies/Practices by Safe System Approach Element

* Denotes recommendation included in Federal Way Comprehensive Plan (2024).

Bolded red recommendations are lower cost and lower effort

Safer People			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
SAFETY CAMPAIGNS: Expand the focus of City-hosted education campaigns and outreach events to include road users' responsibilities for creating a culture of safety.	Federal Way Comprehensive Plan (P.50): The plan proposes educating the public through project open houses and press releases on safety benefits of transportation projects. Bicycle and Pedestrian Master Plan: The plan includes an objective to conduct outreach and education to increase safety and awareness for pedestrians, bicyclists and motorists. The Federal Way Police Department uses social media to issue periodic <u>traffic safety reminders</u>.	- Add safety campaigns to the City's Communications Plan. Consider using readily available campaigns like <u>Safe Across</u>. Leverage the traffic safety reminders that the Federal Way Police Department publishes. - Focus on specific, core messages that apply to all travelers. For example, "Everyone is a Pedestrian" and "There's space for all travelers". - Update and distribute multi-lingual educational traffic safety materials through a variety of means, including new resident mailers, public meetings, through social media, at City buildings, or through other targeted outreach. - Distinguish between electric bicycles and higher-powered, higher-speed "e-motos" in messaging, along with consistent policies and regulations distinguishing between different types of e-micromobility devices. - Develop and distribute municipal code guidance which describes how traffic safety treatments work, and provides tips on how to follow the rules, pay attention, and be courteous to other road users. Provide this guidance to driving schools so that driving teachers have the latest information on traffic safety.	Communications Office with support from the Public Works Department, Public Schools District, and Emergency Management Division
FLEET OPERATORS: Reduce safety risks between trucks and other roadway users by requiring safety training for vehicle operators within the City's vehicle fleet.	<i>No City of Federal Way practices/policies found</i>	- Develop a fleet safety training and require all municipal and government-contracted staff with large truck, bus, or commercial vehicle driving responsibilities to take and pass the training course. - Trainings should include details on the City's policies on speed limits, traffic laws, and cell phone use, as well as information about the impacts of medication and how fatigue affects driving.	Fleet manager
SCHOOL SAFETY: Work with school districts to create pedestrian and bicycle safety curriculums for students.	Federal Way Public Schools publishes <u>suggested walking routes</u> and "<u>safe walking tips</u>" for children and their caregivers to safely travel to school using active transportation.	Continue support for Safe Routes to School Program and seek additional SRTS funding for safety campaigns and educational programs and activities. - Develop annual transportation safety curriculum/refresher for all students. Many resources are available online. - Confirm each school has identified low stress, safe walk/bike routes available for students and families - Develop a district-wide school zones speed reduction campaign.	SRTS manager (typically within Public Works or Planning Division)

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Safer People			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
TRACK PROGRESS: Provide regular updates on plan implementation and project development on City safety and progress tracking webpages.	• Bicycle and Pedestrian Master Plan: Plan proposes a number of measurement tools to track progress, including reducing collisions and increasing perceptions of safety. • Federal Way Comprehensive Plan: Plan includes implementation actions for (Appendix A) evaluating progress towards achieving land use and development goals and objectives, but no specific performance measurement actions are included for transportation. ○ However, the Transportation section includes a proposal to identify high collision locations on an annual basis (P.T-50).	• Continue updating the CSAP monitoring plan and dashboard in an annual snapshot. • Create a safety page within the Public Works department section of the Federal Way website that: ○ Highlights any project that specifically advances safety. ○ Includes data collected from implemented projects and from annual monitoring on the webpage as it becomes available. • Track which roadway safety countermeasures have been most successful and continue implementing those in relevant roadway contexts. ○ Report out regularly to Planning Commission and Land Use & Transportation Committee on the success of identified safety countermeasures and overall progress in meeting safety goals. • Regularly review and update bicycle and pedestrian priority plans, last updated in 2024 as part of the Federal Way Comprehensive Plan and in the 2024 SW King County Trails Plan.	Public Works, with support from Communications Office for website management
ENFORCEMENT: Target enforcement activities to those behaviors and locations most linked to death and serious injury, including automated enforcement.	• Traffic Calming: The second phase of the Neighborhood Traffic Safety Program is targeted enforcement. This phase involves enforcement using speeding tickets as an incentive to change driver behavior. ▪ Automated Traffic Safety Cameras (Speed Safety Cameras): Per the City’s municipal code, automated traffic safety cameras may be used to detect traffic signal or school speed zone violations. • Safety Zones: Per the City’s municipal code, within “neighborhood traffic safety zones” penalties imposed for traffic infractions must be at least 80% of the maximum of \$250.00, not including statutory assessments. ○ The City’s <u>photo-enforced school zones</u> use flashing yellow lights to signify the need to drive lower than the normal posted speed limit. The speed limit is reduced to 20 mph when the lights are flashing, regardless of whether children are present or not present.	• Update City municipal code (8.05.090) to align with Washington State code (RCW 46.63 sections 210, 220, 230, 250) regarding speed safety camera uses, placement (school speed zones, school walk zones, public park speed zones, hospital speed zones, roadway work zones, and crash prevention zones [6066-S2.SL]), use of revenue, and reporting requirements. More information available at <u>MRSC</u>. • Evaluate high priority locations to install additional speed safety cameras based on the findings of the CSAP. • Work with the Police Department to develop a speed enforcement plan based on the CSAP findings. ○ Identify funds and program improvements necessary to install additional automated speed safety cameras as noted in the recommendations above. ○ Conduct evaluations regularly to determine if speed safety cameras are accomplishing safety goals and whether changes in strategy, scheduling, communications, or public engagement are necessary. • Annually target enforcement efforts in and around school zones, with a special focus on these areas at the start of each school year, until speed safety cameras are in place.	Public Works with the support of the Police Department and Communications Office

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Bolded red recommendations are lower cost and lower effort

Safer Roads			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
TEMPORARY INSTALLATIONS: Temporary installations are implemented using low-cost materials to test new designs and build support for changes.	<i>No City of Federal Way practices/policies found</i>	• Create a program for safety demonstration and pilot projects to test materials and facility types and engage the community. Projects can be used to generate feedback and data to inform potential long-term changes to a corridor or intersection. ○ This can 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.). ○ Evaluate high priority locations to install quick-build projects based on the findings in the CSAP. ○ Consult WSDOT's <u>Active Transportation Programs Quick Build Guide</u> for guidance on planning and implementing quick build projects that will be eligible for WSDOT funding programs.	Public Works
DATA COLLECTION & ANALYSIS: Prioritize safety improvements using a data-driven process and a focus on serving diverse user groups.	<i>No City of Federal Way practices/policies found</i>	• Perform annual traffic speed and volume monitoring, prioritizing locations identified in the CSAP. Leverage adaptive signal timing software and the initial implementation of Automated Traffic Signal Performance Measures (ATSPM) to download and archive traffic volume data.* • Establish a program to conduct road safety audits at high crash locations to better identify contributing factors and inform appropriate countermeasures. Evaluate grant opportunities through Washington Traffic Safety Commission to fund this effort. • Build on the City's asset management system and roadway database to include data that would help to identify and refine risk factors through systematic safety analysis, including: number of travel lanes and turn lanes, street width, traffic signal phasing, transit frequency and boarding/alighting counts, location of fixed objects (barriers, utility poles, etc.), marked crosswalks and crosswalk enhancements, and adjacent land uses.	Public Works, with Planning Division and GIS Division for support with development and integration of asset management system
PROJECT PRIORITIZATION: Integrate safety as a priority for allocating funding through the Capital Improvement Program.	• Project Prioritization: The City's prioritization process integrates multimodal improvements and safety using factors that consider Multimodal Level of Service, collision histories, and safety concerns.	• Implement a similar prioritization process as outlined in the CSAP to prioritize projects on the city's Capital Improvement Plan. Consider including additional criteria for advancing safety goals as part of prioritization process. ○ Set aside dedicated safety funding in the city's capital improvements budget for a program of safety projects identified in the CSAP. • Identify outdated city traffic signals that are most in need of being refurbished in-house or of being rebuilt through the city's Capital Improvements Program. Evaluate additional improvements while traffic signals are being upgraded, such as ADA-compliant curb ramps, APS, APPB, refreshed crosswalk markings, signal phasing, protected turning movements, and LPI. • Identify all intersection and mid-block crosswalks, develop a standard operating procedure for improving these crossings, and prioritize the list of crosswalks for intervention. Crosswalk safety improvements can include visibility enhancements to help make crosswalks and people using them more visible to drivers, such as high-visibility patterns, improved lighting, and enhanced signage and pavement markings.	Public Works

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Safer Roads			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
STREET RESURFACING: Evaluate and leverage resurfacing projects for implementing safety improvements.	Asphalt Overlay Program: The City of Federal Way Asphalt Overlay is a street maintenance program to repave streets throughout the city, along with repairs and improvements to curb, sidewalks and curb ramps to meet ADA requirements.	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 traffic safety improvements, particularly on the High Injury Network or Systemic Safety Network. - Specifically evaluate potential for road diets, lane diets, bicycle and pedestrian network connectivity, and crossing improvements. - Dovetail this work to implement improvements without requiring substantial additional funding. Minor work and emergency repairs may not be able to support recommended safety improvements. Develop a policy to support pedestrian crossing improvements when curb ramps are reconstructed (i.e., curb bulbs). Use the CSAP as one criterion for prioritizing re-surfacing projects. - Develop speed management policies, in coordination with recommendations outlined in Safer Speeds → Reduce Speeds. - Implement speed management on roadways with identified speeding issues during regular resurfacing and stand-alone projects.	Public Works
SIGNAGE: Install advisory signs for curves and speed zones, as well as speed feedback signs and changeable message signs, to provide warnings and encourage safe behavior.	Traffic Calming: The engineering phase of the Neighborhood Traffic Safety Program allows for the installation of signage to address safety concerns, if the specified program criteria are met.	- Procure and deploy Variable Message Boards (VMBs) to display traffic safety messaging.* Educate motorists about City speed limits and the safety benefits of driving slower. - Improve safety and visibility at school pedestrian crossings and intersections.* Crosswalk safety improvements can include visibility enhancements to help make crosswalks and people using them more visible to drivers, such as high-visibility patterns, improved lighting, and enhanced signage and pavement markings. - Procure and deploy portable speed feedback trailers or signs, and deploy them where speeding is known to be problematic, until capital improvements can be made. - Continue installing speed monitoring and speed feedback signs on curves with a high crash history.*	Public Works
UPDATE STANDARDS: Update development standards and guidelines to align with Safe System approaches.	Federal Way Comprehensive Plan: - T P2.13 is to “Promote self-enforcing design standards that minimize pedestrian, cyclist, and vehicle conflicts.” - The plan proposes enforcing intersection sight distance standards to remove vision obstructions on the corners of intersections and at driveways (P.T-50). Federal Way Revised Code: The City’s Complete Streets Policy (19.135.205) states Federal Way will plan for, design, and construct all new and retrofitted transportation projects to provide reasonable and appropriate accommodation for pedestrians, bicyclists, and transit users of all	Hold an annual meeting between the Public Works, Fire Department, and Emergency Management Services (EMS) to discuss traffic calming and street design solutions that work for both groups, to build buy-in on a safety culture. Revise Section A (Minimum Street Design Standards, Table 1): - Consider limiting the number of through lanes on future/redesigned minor arterials and principal collectors to 4 max (Types C through J). - Consider limiting the number of lanes within the City Center (Types A, B, D, F, H, J) to 3 for future/redesigned roads due to the high number of pedestrians and bicyclists. - Consider limiting the number of lanes within Single Family land use zones (Types G and I) to 3 lanes. - Consider limiting the number of lanes for ADT traffic of under 25,000 to a maximum of 3 lanes (Types G and J). - Consider a design speed of 25 mph for all roadways that include bicycle facilities (Types C, D, G, H, K, L, and O) and designate what type of bicycle facility is appropriate for which street type and functional classification. - Consider a design speed of 15 to 20 mph for local streets (Types Q through Y), especially for turning movements. - Consider design speeds of down to 10 mph for various contexts within the city. - Consider adding recommended and maximum vehicular lane widths; recommended and minimum bicycle facility widths; and recommended and minimum median widths for each road type.	Public Works with participation from Fire Department for coordination meetings

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Bolded red recommendations are lower cost and lower effort

Safer Roads			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
	ages and abilities, as well as motorists, passengers, emergency responders, and freight, with a goal of street connectivity that creates a comprehensive, integrated, connected network for all modes because all users of the network are legitimate and equally deserving of safe facilities. Development Standards - Section A (Minimum Street Design Standards, Table 1) - Section J (signal phasing)	Revise Section J (signal phasing): - Revise standard detail FW.J26.60 item 15 to clarify that left-turn phasing shall be the least restrictive possible, unless: - The intersection is identified on the City's latest High Injury Network, in which case the Engineer shall evaluate protected left-turn phasing in relation to the crash history, or - The intersection is located within the City Center or other high-pedestrian activity zones, in which case the Engineer shall evaluate protected left-turn phasing. - Add a note to the appropriate standard detail in Section J to program Flashing Yellow Arrow (FYA) Omit when conflicting pedestrian calls are received, at all signalized intersections on the City's latest High Injury Network and within the City Center or other high-pedestrian activity zones.	

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Safer Land Use			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
PRIORITIZE SCHOOL AREAS: Work with school districts to take a comprehensive approach to create safer schools and routes to schools.	• Federal Way noncompliance zoning code: follows SEPA conditions • Federal Way Comprehensive Plan: ○ For its Bicycle and Pedestrian Priority Network, the City considered whether routes provide/enhance a Safe Route to School (SRTS) connection (P.T-22). Proposed new routes were largely influenced by information the Federal Way School District maintains on recommended walking routes to elementary schools (P.T-51). ○ The City is looking to provide enhanced crossings at regular intervals within a half mile of schools (P.T-30). ○ Policies T P2.6 and T P2.8 emphasize improving safety and connectivity for active transportation routes to schools. • Federal Way Revised Code: Chapter 8.05 states that all areas within 1,000 feet of a school bus route stop designated by a school district, or within 1,000 feet of the perimeter of a school grounds within the city are to be known as the “neighborhood traffic safety zone.” • Bicycle and Pedestrian Master Plan: Plan states that Federal Way coordinates with Federal Way Public Schools on applying for and implementing SRTS improvements for schools within the city limits.	▪ Update noncompliance zoning code prioritize code enforcement within school walk areas and along the High Injury Network and Systemic Safety Network. • Work with the school district to site new schools within walking distance of residential areas to provide multiple benefits of improving safety, reducing motor vehicle traffic at arrival and dismissal times, and encouraging more physical activity.	Planning Division and Federal Way Public Schools
REDUCE VEHICLE MILES: Reducing vehicle miles traveled (VMT) reduces user exposure and thereby decreases potential collisions.	• Federal Way Comprehensive Plan: ○ For the 2024 plan update, the City updated the city-focused travel model adapted from the latest version of the PSRC Trip-Based Travel Model. ○ For land use, LU P3.2 states “Accommodate a majority of the City’s growth in the Regional Growth Center and Countywide Growth Center.” ○ For centers policy, C G1 states “Focus a majority of the City’s future employment and residential growth in centers and promote the creation of healthy, walkable, compact, and equitable transit-oriented neighborhoods that maintain distinct character, local culture, and identity.” ○ C G2 states “Plan for adequate infrastructure, amenities, and services for centers to meet growth expectations and promote a high quality of life for all current and future residents and employees.” • Capital Improvement Projects ○ The City Center Access Project will add and improve connections to central gathering places and services by strengthening traffic operations and increasing safety and efficiency and reducing dependency on cars for people traveling by car, transit, bike or walking. ○ Several individual projects will be used to make safety and nonmotorized connectivity spot improvements throughout the central area of the City. • Access Management ○ Federal Way has a four-level <u>access classification system</u> that applies to all state routes and locally maintained thoroughfares in the City (See Federal Way Municipal Code <u>Article IV. Access Management</u>).	• Work on a placemaking strategy for downtown Federal Way to encourage redevelopment of the City Center and the creation of a vibrant downtown.* • Amend zoning and/or development regulations around the future Tacoma Dome Link Extension station to encourage dense residential development and diverse pedestrian-oriented uses close to the transit station.* • Revise code to create designated pedestrian-oriented zones. These areas can require pedestrian-oriented designs that encourage a denser mix of land uses, smaller block sizes, and design features and amenities that prioritize pedestrian safety and comfort, such as: ○ Recommended maximum distances between crossings ○ Prohibition on business drive-through lanes ○ Restrictions on parking in front of properties or within a building ○ Discouragement of driveways that cross a sidewalk • Reduce or eliminate off-street parking minimums for new developments to help support dense, mixed-use, and walkable neighborhoods, consistent with state regulations.	Planning Division

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Safer Vehicles			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
FLEET PURCHASING STANDARDS: Require the adoption of new safety technologies within the City’s vehicle fleet.	<i>No City of Federal Way practices/policies found</i>	• Develop a Safe Fleet Transition Plan to formalize a set of best-practice vehicle safety technologies and design requirements for all City vehicles to prevent and mitigate crashes. ○ Vehicle fleet policies to prioritize smaller vehicle sizes, weights, and front-end heights and shapes. ○ Installation of warning systems, cameras, speed governors, and hands-free phone/GPS holders in vehicles. ○ Install side guards and crossover mirrors where applicable to all large fleet vehicles, and require entities contracting with the City to have side guards on a certain proportion of their fleet over 10,000 lbs. ○ Implement active Intelligent Speed Assistance (ISA) into all government fleets, allowing supervisors or managers full system control, aside from limited or emergency situations.	Fleet manager
INTELLIGENT TRANSPORTATION SYSTEMS (ITS): Use ITS technologies to improve safety by integrating infrastructure and vehicles to enable real-time analysis and decision-making.	• Federal Way Comprehensive Plan: The plan includes an update to the City’s Intelligent Transportation Systems Master Plan. ○ The goals of the ITS Master Plan are completing gaps in the communication network, installing traffic monitoring capabilities, increasing staff resources, and increasing collaboration.	• Continue participation in PSRC’s ITS/Traffic Operations regional meetings and events. • The City should continue updating and implementing its ITS Master Plan, including expanding its Vehicle Detection program, creating a Dangerous Curve Warning System, and developing a plan for advance warning at traffic signals.* • Assess existing Emergency Vehicle Preemption (EVP) installations to ensure they are fully functional and present at all signalized intersections on emergency response routes. Install new EVPs where there are current gaps and upgrade existing EVPs to meet current industry standards for EVP technology.	Public Works with input from Fire Department on EVP functionality

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Safer Speeds			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
REDUCE SPEEDS: Reducing vehicle operating speeds is done first by engineering streets that encourage slower, context-appropriate speeds and second by enforcing speed limits.	• Federal Way Revised Code: Chapter 8.30 - Speed Limits states state traffic laws regulating the speed of vehicles are applicable for all streets within the city, except for certain increased or decreased speed regulations applicable upon specified streets or in certain areas. • Federal Way Comprehensive Plan (P.89): ○ The Traffic Division places speed monitoring and speed feedback signs on curves with a crash history. ○ T P1.8 policy includes improving safety on residential streets by reducing design speeds to discourage speeding. ○ T P1.7 is to employ traffic calming measures in neighborhoods through context-sensitive design where traffic volumes and speeds consistently exceed reasonable levels, per the adopted Neighborhood Traffic Safety Program. • Neighborhood Traffic Safety (NTS) Program: Existing residential neighborhoods in the City of Federal Way may be considered for the NTS Program in order to control traffic speeds, reduce cut-through traffic and improve documented pedestrian, bicycle, and vehicular safety issues. ○ The <u>Neighborhood Traffic Safety Program</u> includes a provision for removal of install traffic calming elements in response to petitions by property owners and residents within the affected area.	▪ Remove provision for removing traffic calming improvements from the Neighborhood Traffic Safety Program. The program already uses a data-driven and public process to determine whether and what type of traffic calming elements to install. • Revise Chapter 8.30 to allow for 10 mph speed limits on designated non-arterial “shared streets”, as permitted under the recently enacted RCW 46.61.197. This also includes requiring vehicular traffic to yield the right-of-way to any pedestrian, bicyclist, or operator of a micromobility device on shared streets. • Reevaluate current practices around setting design speed and consider the approaches laid out in WSDOT’s <u>Safe System Approach for Speed Management: A Handbook for Local Agencies in Washington State</u>, to holistically evaluate and set speed limits based on context and the safety of all road users. ○ Efforts should start with residential streets and commercial centers, then focus on high-risk corridors identified in the CSAP crash analysis. ○ Prioritize interventions that improve safety for vulnerable road users. ○ Monitor before and after implementation of projects to determine if target speeds have been achieved and where additional interventions may be needed to achieve safe speeds and eliminate crashes related to speeding. • Determine the level and types of traffic calming that would be acceptable on all roadway classifications and emergency response routes. ○ On emergency routes that would benefit from vertical separation of modes (e.g., separated bike lanes), mountable curbs that are compatible with EMS vehicles may be appropriate.	Public Works

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Post-Crash Care			
Best Practices/Policies	Current Federal Way Practices/Policies	Gap Areas & Recommendations	Lead
EMERGENCY RESPONDERS: Involve first responders in project design and design guidance development.	Federal Way Comprehensive Plan: - The City has completed its Traffic Management Center (TMC) and will create a secondary Satellite Management Center in conjunction with an enhanced Emergency Management Center. - The City has a finalized Emergency Plan in place.	Develop key data sharing partnerships between Federal Way EOC, City of Kent, City of Auburn, King County, WSDOT, King County Metro, Pierce Transit, Sound Transit, and Valley Communications Center (hub for all 911 communications in South King County).* Create a centralized location for Emergency Management Services procedures. Create an emergency route map so that roadways can be adequately designed. - Improve data to be Next Generation 911-compliant to provide telecommunicators with exact incident locations.	Police Department, Fire Department, St. Francis Emergency Department with support from Public Works for the emergency route map
CRASH DATA: Work with police service providers to improve data collection methods around traffic crashes and unsafe driving behaviors.	Federal Way Comprehensive Plan (P.89): The Federal Way Traffic Division has a shared use agreement with the Police Department to share Safe City surveillance equipment.	- Hold Crash Review Team meeting to review fatal and serious injury crashes with the Public Works department, Fire Department, Police Department, St. Francis Emergency Department, and TriMed. - This meeting can focus on Safe System Approach elements that contributed to the crash, opportunities for speed safety cameras, and opportunities for roadway design improvements. - Meetings can be held on a quarterly basis or the Crash Review Team can be convened following serious or fatal incidents. Provide adequate support for victims and their families through recognition, accountability, and involving them in appropriate conversations. A common form of recognition is World Day of Remembrance for Road Traffic Victims (WDOR). - Evaluate how often police officers receive training on accurate crash reporting and investigation, including the unique attributes required to accurately report the circumstances of crashes involving bicyclists, pedestrians, and other vulnerable road users. Evaluate a refresher training annually.	Police Department, Fire Department, St. Francis Emergency Department, Public Works Department, Communications Office for WDOR

Appendix B: Road Safety Audit (RSA) Memorandum





CITY OF FEDERAL WAY: CSAP ROAD SAFETY AUDIT

RSA TECHNICAL MEMO

SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW

JUNE 2026 | FINAL

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EXECUTIVE SUMMARY

PURPOSE AND STUDY CONTEXT

The City of Federal Way conducted a Road Safety Audit (RSA) for portions of SW Campus Drive, SW 336th Street, and 21st Avenue SW to identify roadway safety concerns and opportunities to reduce crash risk for all users. The RSA study area includes principal arterial corridors that serve residential neighborhoods, multifamily housing, neighborhood commercial destinations, transit stops, parks, and multiple schools, including TAF@Saghalie, Olympic View K-8, and Silver Lake Elementary.

The study area was selected based on crash history, the High Injury Network, the Systemic Safety Network, demographic data, public engagement, and Stakeholder Advisory Committee input developed through the Federal Way Comprehensive Safety Action Plan.

KEY RSA FINDINGS

The RSA combined review of available crash data, land use, school walking route context, existing transportation facilities, public engagement comments, and field observations from the walking audit and workshop. Together, these sources show that safety issues in the corridor are not isolated to a single location or behavior. Instead, they reflect recurring corridor-wide conditions that increase risk for people walking, biking, accessing transit, and driving.

Key RSA findings include:

- **Pedestrian exposure is high** at wide arterial crossings, commercial driveways, school walking routes, and transit access points.
- **Turning conflicts are common**, particularly at signalized intersections and commercial driveways where vehicles interact with pedestrians and bicyclists.
- **Vehicle speeds and wide roadway geometry** contribute to uncomfortable and potentially high-risk conditions, especially along 21st Avenue SW.
- **Access management issues** are concentrated near auto-oriented retail centers with multiple closely spaced driveways.
- **Pedestrian and bicycle facilities are inconsistent**, with narrow sidewalks, missing or faded markings, limited bicycle comfort (high bicycle level of stress), and gaps in accessible routes.
- **Visibility and maintenance issues** affect safety, including non-uniform lighting, vegetation blocking sight lines, sidewalk heaving, moss buildup, and obstructed signs or bus stop visibility.

RELATIONSHIPS TO CRASH TRENDS

The field observations generally reinforce the trends identified in the crash data. Pedestrian- and bicycle-related conflicts were noted as a corridor-wide concern, particularly during late afternoon and evening periods, mostly in daylight and clear conditions. During the walking audit, participants observed conditions that help explain these trends, including long crossing distances, short or insufficient pedestrian walk timing, driver failure to yield, conflicts with turning vehicles, and pedestrian delay that may encourage crossings at less protected locations.

Several field-observed issues align with documented crash patterns:

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

- At **SW Campus Drive and 21st Avenue SW**, audit participants observed conflicts with right-turn movements, short pedestrian intervals, and driver failure to yield. This intersection is also within the TAF@Saghalie school walk zone.
- At **SW Campus Drive and 19th Avenue SW**, participants observed heavy student crossing activity, short pedestrian cycles, and left-turning vehicles passing close to children in the crosswalk. This location is a particularly important priority because community engagement materials note that six youth were struck by vehicles turning left from 19th Avenue SW onto SW Campus Drive between December 2017 and March 2026, reinforcing the need for pedestrian-focused signal operations, school-zone safety treatments, and left-turn conflict reduction.
- Along **21st Avenue SW between SW 330th Street and SW 325th Place**, participants noted speeding, poor lighting, long spacing between enhanced crossings, and heavy student and transit use.
- Near **commercial driveways**, including the Fred Meyer area and retail centers along SW Campus Drive and SW 336th Street, participants observed turning conflicts and unpredictable vehicle movements that are consistent with driveway-related crash risk.

These observations indicate that crash risk along the corridor is strongly influenced by the interaction of land use, roadway design, vehicle speeds, and multimodal activity.

Community engagement findings reinforced the safety issues observed during the RSA. Community members reported reckless driving and speeding, red-light running, confusing signage, short pedestrian walk phases, lack of crosswalks, limited bike facilities, poor lighting, and concerns about bus stop safety and comfort. These comments are consistent with field observations showing pedestrian delay, visibility constraints, turning conflicts, and uncomfortable walking and biking conditions along the corridor.

PRIMARY SAFETY CONCERNS

The RSA identified the following primary safety concerns along the corridor:

- **Pedestrian crossing risk:** Wide streets, long crossing distances, large curb radii, and long waits between pedestrian phases increase exposure for people walking.
- **Conflicts between pedestrians and turning vehicles:** permissive turns, right turns on red, and driveway movements create recurring conflict points.
- **Speed management:** Wide arterial cross sections and limited traffic calming contribute to speeding and uncomfortable conditions for pedestrians and bicyclists.
- **Access management:** Closely spaced commercial driveways create frequent conflict points and encourage complex turning movements across multiple lanes.
- **School and transit access:** School walking routes and bus stops are located along or near high-volume arterials, where pedestrian facilities and crossings are not always consistent with the level of activity.
- **ADA accessibility and sidewalk condition:** narrow sidewalks, surface defects, moss, and gaps in accessible paths limit safe and comfortable travel.
- **Visibility and lighting:** Vegetation, utility poles, non-uniform lighting, and obstructed signs reduce visibility at crossings, intersections, bus stops, and driveways.

IMPLEMENTATION EMPHASIS

Near-term actions should focus on lower-cost improvements that directly respond to observed crash patterns and field conditions, including:

- refreshing pavement markings,
- vegetation trimming,
- evaluating the need for lighting improvements,
- minor sidewalk repair,
- pedestrian signal timing changes (e.g., Leading Pedestrian Intervals [LPIs] and longer pedestrian clearance time and walk intervals),
- quick-build curb extensions where appropriate,
- dynamic speed feedback display signs, and
- evaluation of automated enforcement (speed safety cameras).

Particular emphasis should be placed on locations where crash history, community feedback, and RSA observations overlap. This includes **SW Campus Drive and 19th Avenue SW**, where community engagement materials note a history of youth pedestrian crashes involving left-turning vehicles and where the RSA identified heavy student crossing activity, short pedestrian cycles, and conflicts between pedestrians and turning vehicles. Near-term treatments at this location should include:

- programming protected left-turn phasing,
- omitting Flashing Yellow Arrows during school arrival and dismissal or when pedestrians activate the push button,
- extending the school zone through the intersection,
- improving crossing visibility, and
- considering crossing guard deployment where supported by school travel patterns.

Access management should also be emphasized in commercial areas where multiple closely spaced driveways create conflicts between vehicles entering and exiting retail centers, pedestrians, bicyclists, and transit users, particularly near the **Fred Meyer area, the retail center west of 21st Avenue SW, and the commercial frontage between 21st Avenue SW and 19th Avenue SW**. Near- and mid-term actions should include:

- evaluating driveway consolidation or closure,
- restricting turn movements,
- hardening centerlines, and
- improving channelization.

Longer-term investments should focus on corridor redesign elements that create safer, more comfortable, and more predictable conditions for all users, including:

- enhanced shared sidewalks,
- ADA curb ramp reconstruction,
- concrete curb extensions, and
- access management.

These improvements would support the Safe System Approach by reducing conflict points, lowering vehicle speeds, shortening pedestrian exposure, and improving comfort and accessibility for all users.

Overall, the RSA found that the greatest opportunity to improve safety is to reduce pedestrian exposure, manage vehicle speeds, simplify conflict points, and improve visibility and accessibility throughout the corridor. Implementing the highest-impact countermeasures at priority locations would help Federal Way

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respond to documented crash trends, address community and field-observed safety concerns, and advance the City's goal of eliminating fatal and serious injury crashes.

INTRODUCTION

The purpose of this study is to conduct a Road Safety Audit (RSA) for a study area that includes two corridors and their intersections: SW Campus Dr/SW 336th St from 25th Pl SW to 17th Ave SW, and 21st Ave SW from SW 325th Pl to SW 338th St. This report was developed in accordance with the Federal Highway Administration (FHWA) RSA guidelines and combines findings from crash data analysis and available data.

SAFE SYSTEM APPROACH

The Federal Way Comprehensive Safety Action Plan is framed around the Safe System Approach (Figure 1). The 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 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, Post-Crash Care, and Safer Land Use.

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, post-crash care, and safer land use.

Figure 1. Safe System Approach Wheel
(Source: WTSC)



WHAT IS A ROAD SAFETY AUDIT?

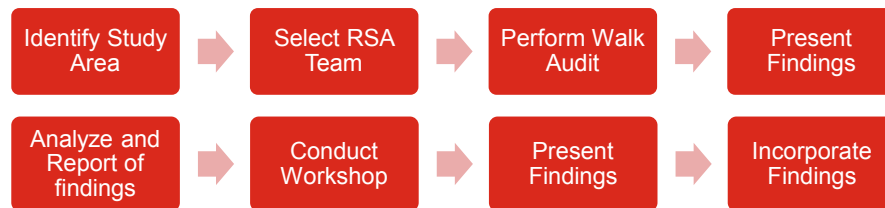
PURPOSE

An RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. The aim of an RSA is to answer the following questions:

- What elements of the road may present a safety concern: to what extent, to which road users, and under what circumstances?
- What opportunities exist to eliminate or mitigate identified safety concerns?

PROCESS

Figure 2. RSA Process



STUDY AREA

The study area for this RSA is under the jurisdiction of the City of Federal Way. It includes SW Campus Dr from 17th Ave SW to 21st Ave SW; SW 336th St from 21st Ave SW to 25th PI SW; 21st Ave SW from SW 325th PI to SW 338th St. This area was identified for the RSA based on the crash factors, High Injury Network, Systemic Safety Network, demographics data, and public engagement done for the Comprehensive Safety Action Plan. The project's Steering Committee helped determine the RSA study area after being presented with the list of potential locations.

Recent safety efforts in this area include the installation of an RRFB between SW 338th St and SW 339th St.

Table 1 and Figure 3 include high-level details of the study area. In addition to these details, the Comprehensive Plan's 2044 planned facilities and capital projects include:

- Enhanced shared sidewalks on SW Campus Dr (ped/bike)
- Transit priority route on 21st Ave SW
- Additional turn lanes at 21st Ave SW/SW Campus Dr (Project 16-16)

Figure 4 shows the findings from the demographics data.

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Figure 5 summarizes comments from in-person and virtual public engagement.

Figure 6 shows the existing facilities along the corridor, including signals, stop signs, marked crosswalks, bus stops, driveways, schools, sidewalk, and parcel lines.

Figure 7 shows the crash history, including crashes by type and by injury and Figure 8 shows fatal and serious injury crashes. Table 2 has more details about these fatal and serious injury crashes.

Note that TAF@Saghalie located within the study area is identified on GIS data layers as "Saghalie Middle School," which is the old name of the school. The school's name changed to TAF@Saghalie in 2017.

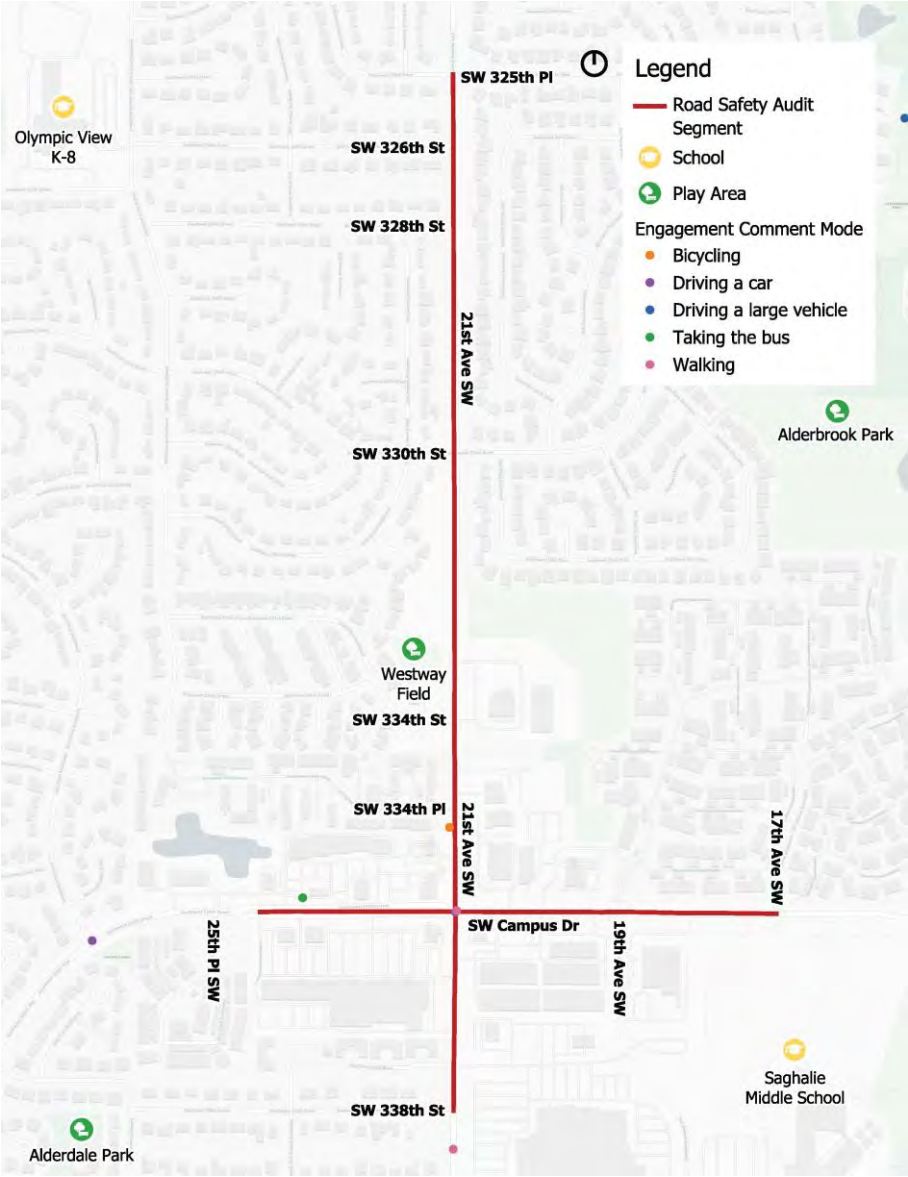
Table 1. RSA Study Area

Street	Extent	Functional Classification	Length	Speed Limit
SW Campus Dr	21 st Ave SW to 17 th Ave SW	Principal Arterial	0.2 miles	35 mph 20 mph school zone near 17 th Ave SW
SW 336 th St	25 th PI SW to 21 st Ave SW	Minor Arterial	0.2 miles	35 mph
21 st Ave SW	SW 325 th PI to SW 338 th St	Principal Arterial	1.3 miles	35 mph 20 mph school zone near SW 338 th St

Figure 3. RSA Study Area Map with Public Engagement Comments Shown (see

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Figure 5)



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Figure 4. Demographics Data

Communities disproportionately impacted by traffic safety issues include people with disabilities, neurodiverse individuals, older adults, children, low-income communities, Black, Indigenous, and other people of color, as well as religious minorities. Identifying the communities most in need of transportation investment is essential to building a safer, more equitable future for all.

Equity Need

Equity need is based on the Sandy Williams Connecting Communities Viewer, developed by the Washington State Department of Transportation (WSDOT). This tool identifies overburdened and underserved communities to determine where additional transportation investment may be needed.

The Sandy Williams Connecting Communities Viewer uses American Community Survey (ACS) data from 2016-2020 and the Washington Environmental Health Disparities Map to score each census block based on five factors: Transportation, Health, Economics, Family & Community, Environmental Justice.

Legend

— Road Safety Audit Segment

📍 Schools

Equity Need

0 - 6 (Lowest)

7 - 10 (Low)

11 - 13 (Moderate)

14 - 17 (High)

18 - 27 (Highest)



Road Safety Audit Segment Equity

Equity Need

The census blocks surrounding the Road Safety Audit (RSA) segment range from low to high equity need. On average, the census blocks are identified to be of moderate equity need.

High Injury Network (HIN)

The HIN identifies segments of roadway with the highest density of fatal or serious injury crashes. The HIN used in this map includes crash data from 2020-2024.

The entirety of the RSA segment lies on the HIN. This indicates that this segment has experienced high densities of fatal and/or serious injury crashes from 2020-2024.

Systematic Safety Network (SSN)

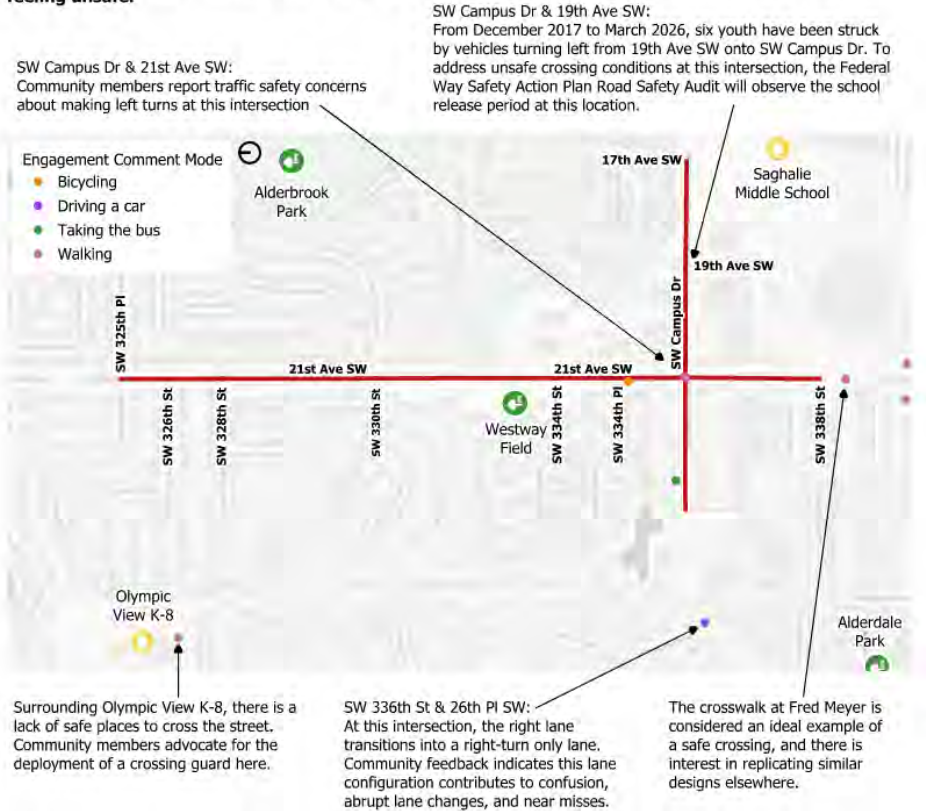
The SSN identifies segments of roadway with attributes that have been found to correlate with high crash frequency (high speed limits, high-volumes, poor visibility, etc.), but where crashes may not have occurred.

The entirety of the RSA segment is rated medium on the Systematic Safety Network. This indicates that the segment displays attributes similar to other high injury roadways.

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Figure 5. Comments from Public Engagement

General traffic safety concerns reported in this area include reckless driving/speeding and bus stops feeling unsafe.



Citywide comments:

Reckless driving and lack of driver education

Drivers run red lights and speed.

Unsafe e-bike and e-scooter usage

Observed unsafe behavior includes riding on the sidewalk, running red lights, and overall lack of education on proper and safe device usage.

Active transportation infrastructure gaps

Community members report lack of wide, accessible sidewalks; lack of crosswalks; short walk phases at existing crosswalks; limited bike lane network; and poor streetlighting.

Lack of traffic safety enforcement

Unclear or confusing traffic signage

Community members report a lack of clear signage regarding right turns on red, right of way in roundabouts, and speed limits. Existing signage and new traffic signs are confusing to community members who do not read English well.

Concerns about personal safety and comfort

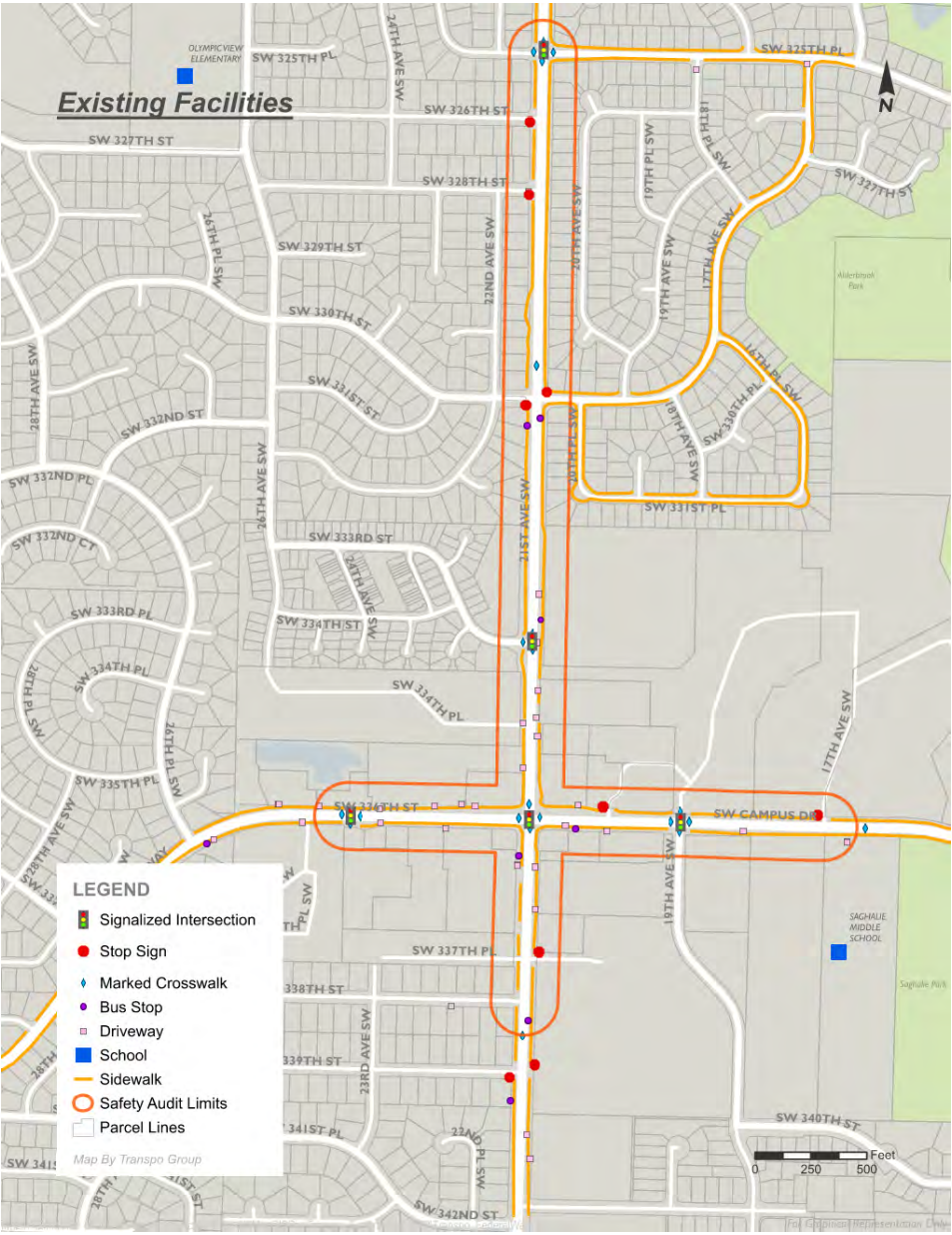
Bus riders report safety concerns at bus stops due to unhoused individuals, drug activity, and lack of lighting.

Lack of transit accessibility and connectivity

Bus riders report inconvenient bus stop locations, bus routes, and timing. Specifically, a lack of east-west trips and first/last-mile connections were identified.

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Figure 6. Existing Facilities within RSA Limits



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Figure 7. Crash History by Mode and Severity (2020-2024)

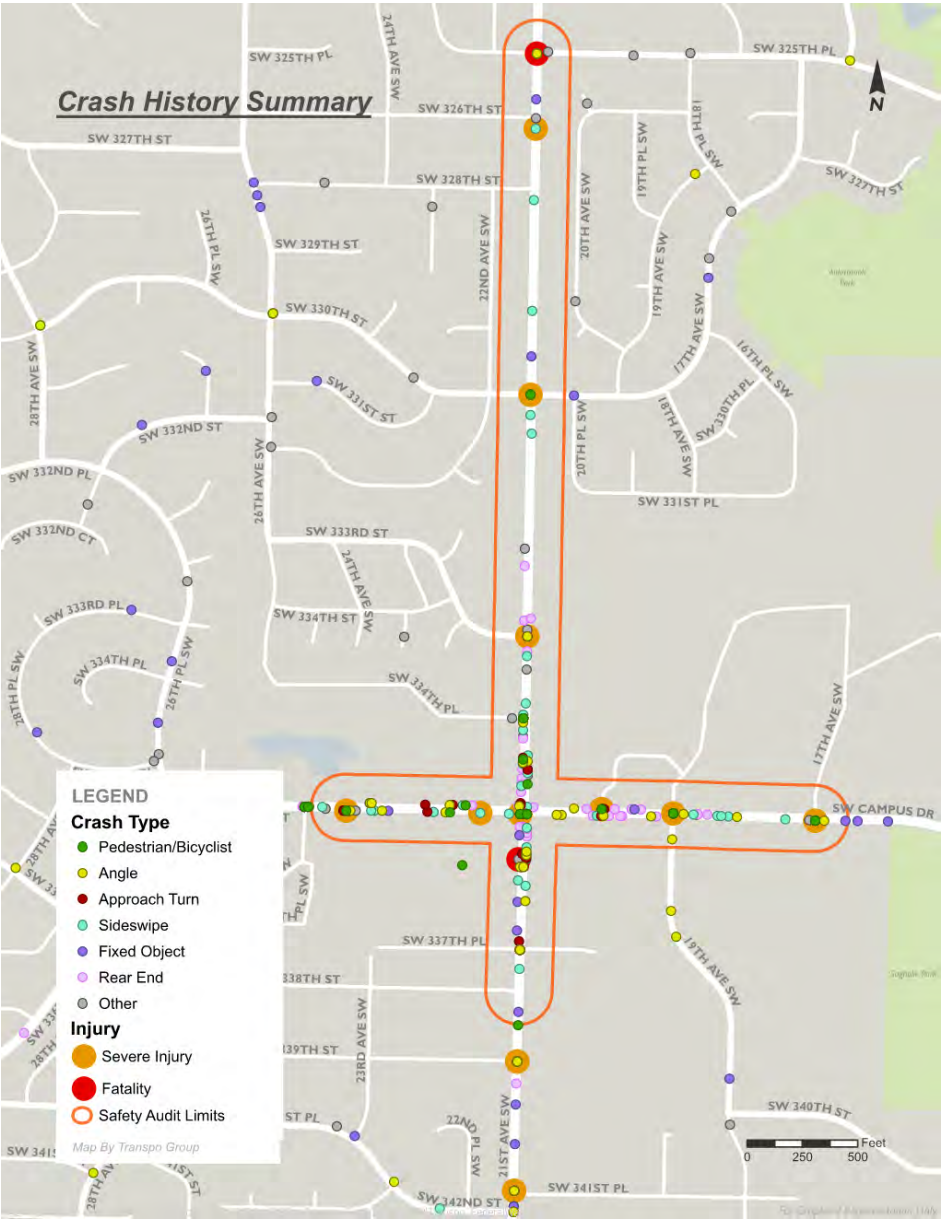


Figure 8. Fatal and Serious Injury Crashes

The numbers attached to each crash dot represent the GIS ID for that crash. See Table 2.

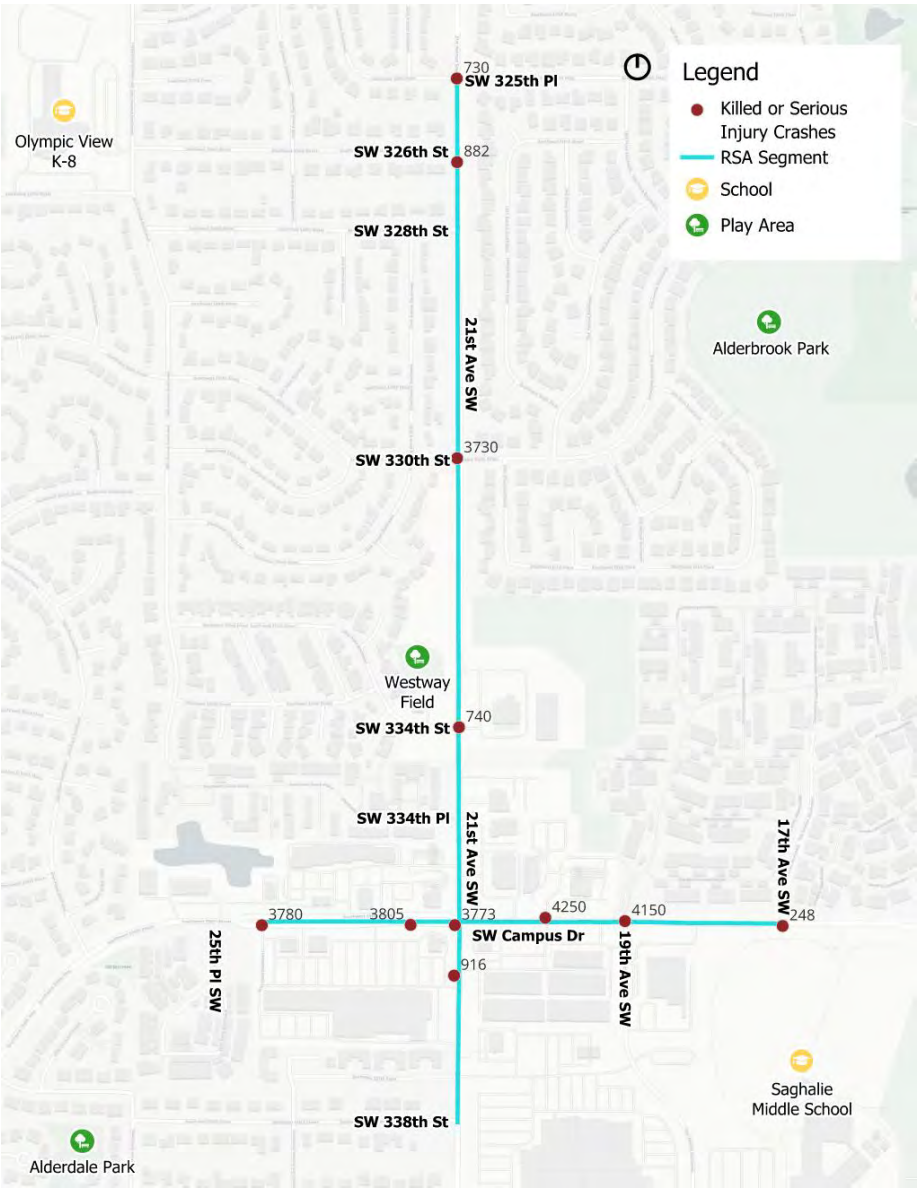


Table 2. Fatal and Serious Injury Crash Details

ID	Injury Severity	Crash Modes	Crash Actions	Location Type	Intersection Control	Contributing Factors	Year	Primary Street	Nearest Cross Street
730	Dead at Scene	Motorcycle	From opposite direction - one left turn - one straight	Intersection	Traffic Signal	Improper Turn/Merge & Did Not Grant RW to Vehicle	2022	21st Ave SW	SW 325 Pl
882	Suspected Serious Injury	Motorist	From opposite direction - both going straight - sideswipe	Not at Intersection	N/A	Under Influence of Alcohol	2022	21st Ave SW	SW 326th St
3730	Suspected Serious Injury	Motorist	Entering at angle - one turning left - one going straight	Intersection	Partial Stop	Did Not Grant RW to Vehicle & Lost in Thought/Daydreaming	2021	21st Ave SW	SW 330th St
740	Suspected Serious Injury	Motorist	From opposite direction - one left turn - one straight	Intersection	Traffic Signal	Did Not Grant RW to Vehicle	2023	21st Ave SW	SW 334th St
916	Died in Hospital	Motorcycle	Vehicle overturned	Driveway Related	N/A	Did Not Grant RW to Vehicle	2020	21st Ave SW	SW Campus Dr
3780	Suspected Serious Injury	Motorist	Entering at angle - one turning left - one going straight	Intersection	Traffic Signal	Did Not Grant RW to Vehicle	2022	SW 336th St	24th Pl SW
3805	Suspected Serious Injury	Motorcycle	From same direction - both going straight - both moving - sideswipe	Intersection Related	Traffic Signal	Improper Turn/Merge	2023	SW 336th St	21st Ave SW
3773	Suspected Serious Injury	Pedestrian	Vehicle going straight hits pedestrian	Intersection	Traffic Signal	Disregard Traffic Sign and Signals	2021	SW 336th St	21st Ave SW
4250	Suspected Serious Injury	Pedestrian	Vehicle turning right hits pedestrian	At Driveway	Partial Stop	Did Not Grant RW to Non-Motorist	2024	SW Campus Dr	19th Ave SW
4150	Suspected Serious Injury	Motorist	From opposite direction - one left turn - one straight	Intersection	Traffic Signal	Improper Turn/Merge	2022	SW Campus Dr	19th Ave SW
248	Suspected Serious Injury	Bicycle	Pedalcyclist Strikes Moving Vehicle	Intersection	Partial Stop	None	2022	17th Ave SW	SW Campus Dr

ZONING AND LAND USE

The study area is approximately 3.5 miles southwest of the Federal Way Town Center, located at the nexus of the Twin Lakes, Alderbrook, and Campus Highlands neighborhoods. Both streets are principal arterials, with 21st Ave SW providing a north-south connection and SW Campus Drive/SW 336th St providing an east-west connection. 21st Ave SW connects to SW Dash Point Rd (SR 509) less than one mile to the north of the study area, while SW Campus Drive/SW 336th St connects to Pacific Highway S (SR 99) and the I-5 corridor approximately 2–3 miles to the east.

Figure 10 shows the zoning around the study area. The intersection of 21st Ave SW and SW Campus Drive/SW 336th St is in a Commercial (Neighborhood Business) zone with higher density Residential Multifamily (1 dwelling unit per 2,400 sq ft of lot area) surrounding this, and some slightly lower density Residential Multifamily (1 dwelling unit per 3,600 sq ft of lot area). To the north of the intersection, 21st Ave SW passes through Residential Single-Family zones of lower density on the east side (1 dwelling unit per 5,000 sq ft lot) and slightly higher density on the west side (1 dwelling unit per 3,600 sq ft of lot area). There are three schools in the area – TAF@Saghalie (6-12), Olympic View K-8, and Silver Lake Elementary. The commercial zone encompasses many restaurants, pharmacies, and other businesses that may meet residents' daily needs.

BN - Commercial (Neighborhood Business): This zone allows 1–4 story commercial and mixed-use uses such as retail, restaurants, and services. Many existing businesses are auto oriented (i.e., parking lot in front of the building), single-story commercial buildings, and include small retail, dining, pharmacies, storage centers, auto repair shops, banks, and culturally relevant grocery stores like Tiendita Las Canicas and La Nueva Lupitas. Residents may also access these establishments by walking or biking due to the surrounding residential neighborhoods.

RM3600 & RM 2400 - Residential Multifamily: These zones allow 2–4 story apartments and townhomes at moderate to high density. Existing buildings include numerous townhomes and apartment communities along SW Campus Drive and the local streets that connect to SW Campus Drive and 21st Ave SW.

RS5.0 & RS7.2 - Single-Family Residential: These zones allow 1–2 story detached residential uses on small to medium lots. These single-family residential areas are concentrated along 21st Ave SW beyond the commercial and multifamily zones.

Parks, schools, and nearby communities: TAF@Saghalie (6-12) is the closest school to the study area, located just east of the 21st Ave SW and SW Campus Drive intersection. The school is directly adjacent to Saghalie Park, which includes athletic facilities. On the northern end of the study area, Olympic View Elementary School is approximately 0.3 miles west of the intersection of 21st Ave SW and SW 325th Place, while Silver Lake Elementary School is 0.3 miles east of the intersection. There are a few other parks near the study area, including Alderbrook Parks (3 connected parks), English Garden, Alderdale Park, and Westway soccer field.

Upcoming development: Currently, there are no projects under review or under construction within the study area; however, there are four subdivision projects under review and construction south of the study area off SW 344th Street, as seen in Figure 9. Three of these are under review, and one is under construction.

Figure 9. Federal Way New Development Projects Dashboard

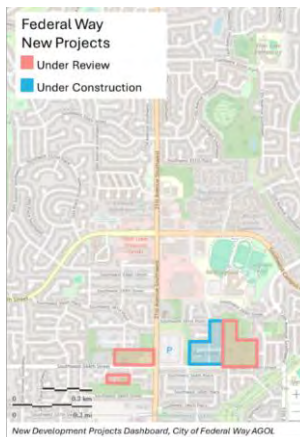
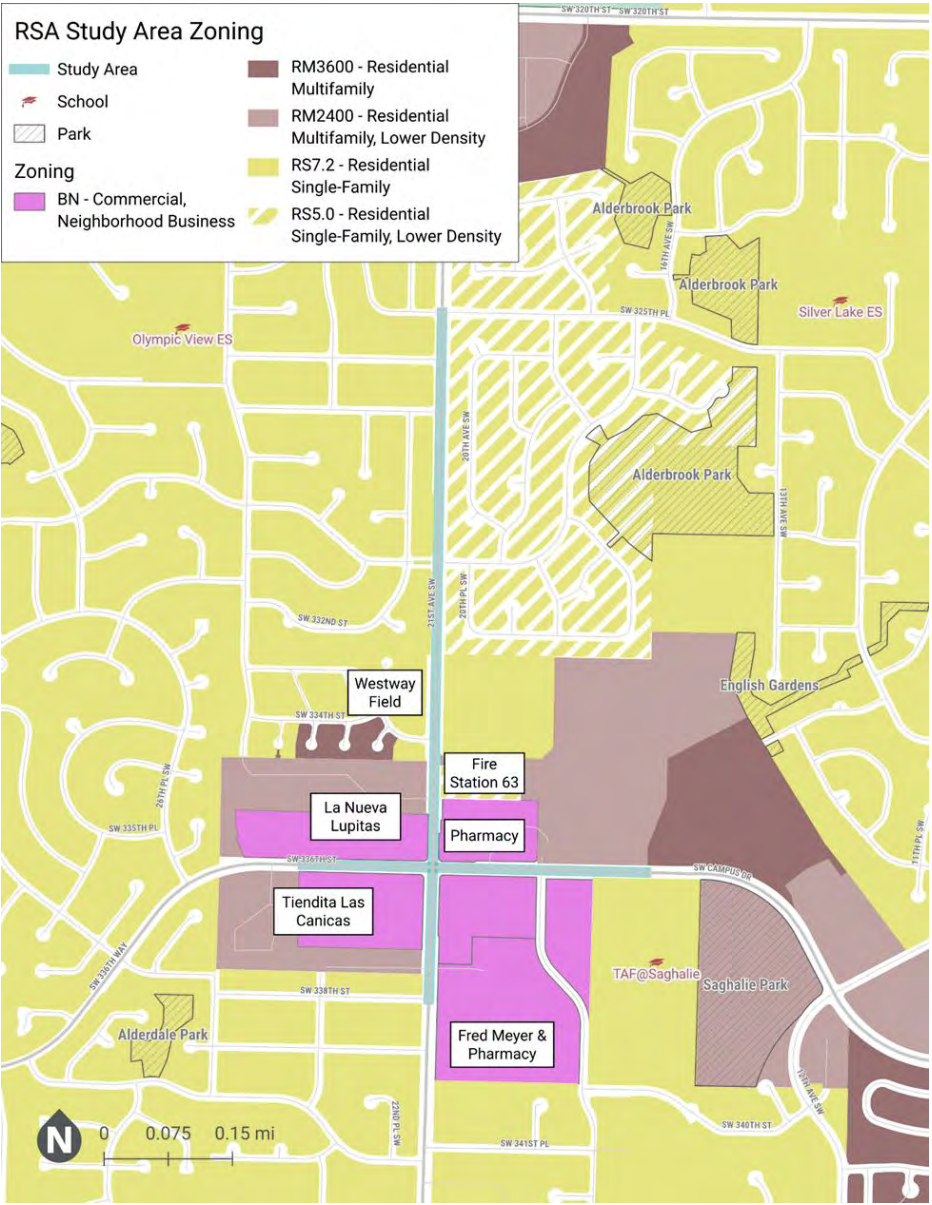


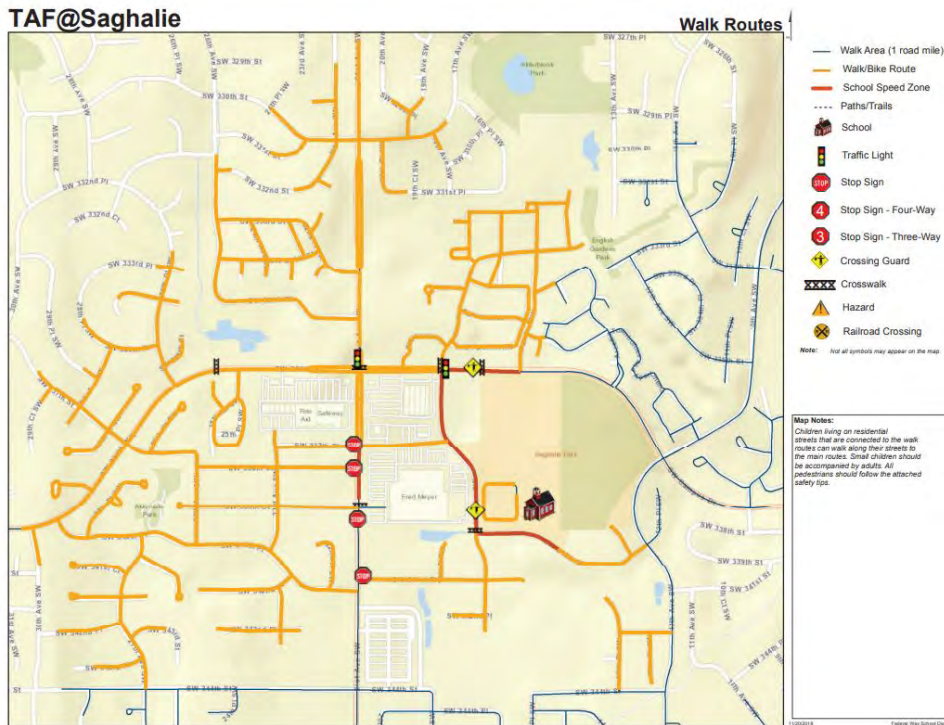
Figure 10. RSA Study Area Zoning



SCHOOL WALKING ROUTES

Federal Way Public Schools has suggested walking routes for students and families.¹ Walking routes for TAF@Saghalie overlay the entire RSA corridor, and the primary intersection for drivers accessing the school is at SW Campus Dr and 19th Ave SW. Walking routes for Olympic View and Silver Lake do not cross 21st Ave SW, and the primary intersection for drivers accessing both schools is at 21st Ave SW and SW 325th Pl.

Figure 11. FWPS Suggested Walking Routes for TAF@Saghalie



¹ <https://www.fwps.org/departments/transportation/walking-routes>

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Figure 12. FWPS Suggested Walking Routes for Olympic View K-8

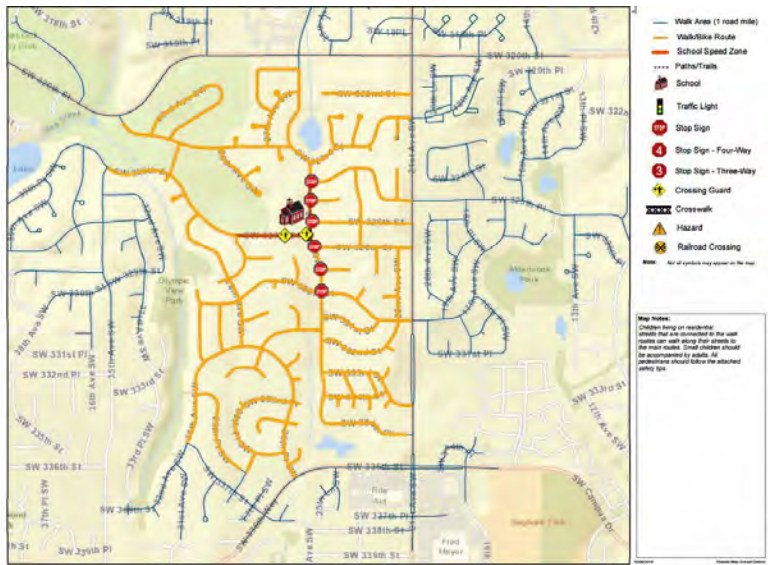
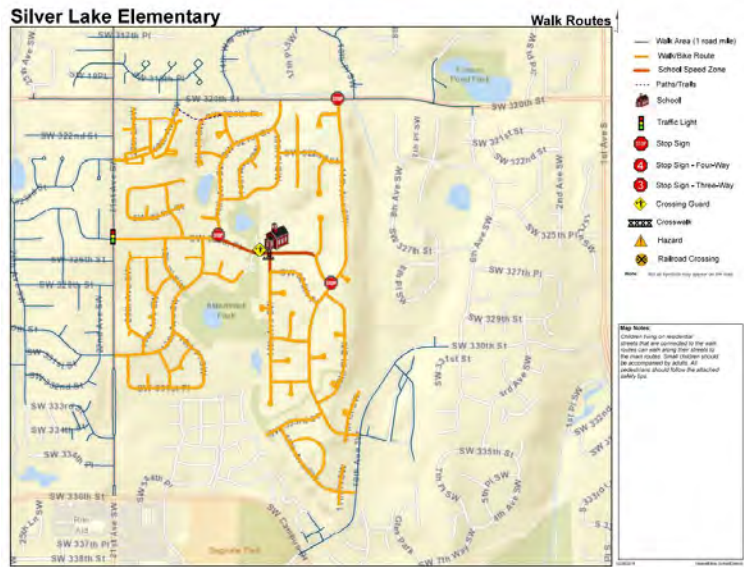


Figure 13. FWPS Suggested Walking Routes for Silver Lake Elementary



RSA MIRO BOARD

Figure 14. Federal Way RSA Miro Board



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The following section summarizes the comments and suggestions from the team during the walking audit and workshop. These opinions were taken into consideration for the development of recommended improvement considerations shown in the Recommended Safety Treatments section of this memo. The corridor was broken into 5 segments in the order that the walking audit took place.

CORRIDOR WIDE

General Considerations Refresh pavement markings. Paint crosswalks where there aren't ones already. Opportunity for bike parking on the sidewalks. Any re-channelization happening throughout this project? Ask Jeff. FYA Omit. Relocate crosswalks to be closer to bus stops. Consider adding east/west cycling/shared use facilities along SW campus. Based on Federal Way Crash History Dashboard, ped/bike conflicts typically occur: Late afternoon/evening, mostly clear conditions, mostly daylight; Majority of collisions are ped-vehicle conflicts.	
Roadway Design Widen sidewalks throughout corridor to be used as multiuse paths. Update blended transition ramps to directional ramps where possible.	Lighting increase would improve visibility, especially in areas with tree cover.
Maintenance Noncompliance zoning code updates for adding pedestrian safety infrastructure? See if these can be strengthened for property owners to make safety updates with... Increase lighting at crossings and intersections and near bus stops. Enforcement of tree trimming to protect site-lines from minor streets.	
Signal Evaluate no right on red. Add no turn on red signs to improve pedestrian safety. Add walking time at pedestrian crosswalks. Recommended Lead Pedestrian Intervals (LPI) and Accessible Pedestrian Signals (APS) at every leg of this intersection. Upgrade all pedestrian signals to include countdown.	Faded pavement markings throughout the corridor should be refreshed.

SEGMENT 1: SOUTH 21ST AVE FROM SW 339TH ST TO SW 336TH ST/CAMPUS DR

1a	Segment: SW 339th St to Crosswalk (North) Add crosswalk to apartment complex across from Fred Meyer. Conflicts between vehicles turning in and out of Fred Meyer. Widen sidewalks along designated bikeway to be used as a multi-use path. Sidewalk adjacent to travel lane has no shoulder; very uncomfortable for pedestrians. Add accessible path from Fred Meyer lot to bus stop. Develop better school walk route from crosswalk, across Fred Meyer property, to school. Photo enforced school speed limit.		
1b	Segment: Greenway Connection Merging left in front of cars is unsafe for bicyclists. Greenway connection could be revisited, as lane shared between links is high stress, and this symbol is non-standard and could be confusing to riders already in a travel lane (was identified by the cyclist with us during the walk). Comment: Greenway sign facing solely south; is there signage to identify “greenway” in addition to destination distances. Response: There is a sign that says, “bike route” with a left arrow for southbound traffic, but it doesn’t specifically say “greenway” and is not very clear where bikes should turn left. Bike marking area on SW 338th St is faded. Repainting needed.		Crosswalk north of 339th St SW. Arrows pointing cyclists towards greenway connection.
1c	Segment: SW 338th St to SW 336th St Missing painted crosswalk at SW 337th St intersection. Conflicts between vehicles turning in and out of Fred Meyer. Vacancies in retail center. No existing plans to redevelop. 10 of the 15 recorded crashes in shopping center driveway south of 336th St occurred in 2020 and 2021. Not sure when the Safeway and RiteAid closed, but while this is still a risk, it’s been less so in the last 3 years.		

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SEGMENT 2: SW 336TH ST FROM 25TH PL SW TO 21ST AVE SW

2a	Segment: 25th PI SW to 24th PI SW Crash data showed 3 pedestrian crashes at 25th, and separate crashes at 24th. 30 seconds walk time from 25th to marked crossings at 24th, and 45 second wait for light to change. The delay could be contributing to people crossing at marked/unprotected locations. No pedestrian walkway to Cedardale Apartment Homes Some tree holes are missing trees.	
2b	Intersection: 24th PI SW Recommended pedestrian path addition at intersection to private property owner. Blended transition ramp at SE corner of intersection. Directional ramps would be ideal. No sidewalk to shopping center from intersection.	Treeholes with no trees throughout segment 2.
2c	Segment: 24th PI SW to 21st Ave SW Opportunity for bike parking on sidewalks. Trees between travel lane and sidewalk based on old city standard. Cars turning WB (right) from driveway between 24th PI SW and KFC often dart across 4 lanes to make the left turn at the 24th PI SW intersection. Would a C-curb solve this turning movement issue? Install delineators in lane line to prevent this movement. Close driveway between KFC and Papa Murphy's. Two driveways on this parcel are non-conforming. Some tree holes are missing trees.	
2d	Intersection: 21st Ave SW Recommended Lead Pedestrian Intervals (LPI) and Accessible Pedestrian Signals (APS), at every leg of this intersection. There are a lot of issues with right turn movements. Evaluate red light cameras here and at major intersections north and south of here (per police rep). Add "No turn on red" signs. FYA Omit with ped push and/or by time of day. This intersection is within the TAF at Saghalie walk zone. E/W has protective left turn and N/S has protective/permissive left turn. FD comment: Many low injury/low speed crashes.	SE curb ramp at 21st Ave SW intersection is blended, rather than directional.

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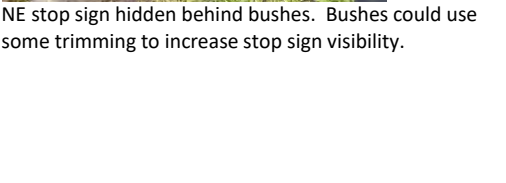
Community observation: Drivers fail to yield to pedestrians.	
Increase pedestrian phase at this intersection.	
Ideal ramps for ADA/visually impaired people? Blended vs directional.	
Confirm if there are bicycle facilities (SUP) along SW Campus Dr in the bike/ped master plan.	
Recorded 8 seconds of walk, 14 seconds of don't walk (E/W) at this signal. 7 seconds of walk, 18 seconds of don't walk (N/S). Walk speeds are quite quick based on road width (2.75 ft/sec calculated E/W).	

SEGMENT 3: 21ST AVE SW FROM SW 336TH ST/SW CAMPUS DR TO SW 330TH ST

3a	Segment: SW 336th St to SW 334th St	 Pole blocking driver visibility of people waiting for the bus.
	Pole on east side of street blocking driver visibility of people waiting at bus stop.	
	Potholes on sidewalk right in front of fire station.	
	Paint "Keep Clear" in front of fire station.	
	FD has trouble leaving station during peak times. Forced to drive wrong way south.	
	Street will be resurfaced (overlay) this summer.	
3b	Intersection: SW 334th St	
	Relocate crosswalks to be closer to bus stop.	
	Long term recommendation: Add sidewalk, curb and gutter to replace the walkway.	
	Street art on utility box makes the community feel more welcoming.	
3c	Segment: SW 334th St to SW 330th St	
	Consider widening east side of 21 st Ave SW to shared use path between SW Campus Dr and SW 320 th St. ROW seems wider than the west side.	
	Sidewalks on the west side are very narrow. Widening suggested.	
	Potential safety benefit of moving SB bus stop nearside 330 th , closer to RRFB. This would require a 5x8 front door landing pad per federal ADA requirements.	
	Extra large utility pole blocking sightlines on east side of 21 st , approaching 330 th St.	

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SEGMENT 4: 21ST AVE SW FROM SW 330TH ST TO SW 325TH PL

4a	Intersection: SW 330th St	
	Curb ramp is in the drive lane.	
	Lack of signalized intersection potentially contributing to crashes. Make crosswalk signalized.	
	Wide streets with large curb radii. Long crossing distance, a lot of time for pedestrians to be in the street.	
4b	NE stop sign hidden behind bushes. It is still visible for vehicles approaching intersection westbound, but bushes could use some trimming.	
	Segment: SW 330th St to SW 325th Pl	
	Increase lighting at crossings and intersections. Visibility is poor.	
	Uneven sidewalk pavement along 21 st .	
	Consider speed camera or automated enforcement along 21 st Ave SW. Lots of racing and speeding along this corridor.	
	Add dynamic speed display devices somewhere along this stretch.	
	Addition of bike lanes and reduction in number of motorist lanes could help reduce speeds.	
	Additional medians could help reduce speeds.	
	Section of railing on fence between 326 th St and 327 th St is missing. Railing on private property though?	
4c	Intersection: SW 325th Pl	
	Reduce crossing distances on minor street approach using curb bulbs.	
	Greenway is along SW 325 th Pl	
	This intersection is within the Decatur High School walk zone. This area is heavily utilized by those students. Lots of students use KCM to access Decatur High School.	
	N/S has protective/permissive left turn and E/W has permissive left turn.	

Curb ramp is in the drive lane. Repaving would be beneficial for pedestrian safety and ADA compliance.

NE stop sign hidden behind bushes. Bushes could use some trimming to increase stop sign visibility.

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SEGMENT 5: SW CAMPUS DR FROM 21ST AVE SW TO 17TH AVE SW EB BUS STOP

5a	Segment: 21st Ave SW to 19th Ave SW Conflicts between vehicles turning in and out of retail centers. Close openings in median curb near Puerto Vallarta. Too many driveways from commercial strip malls such as this. Solving that issue is a challenge but the number of driveways in general is a potential issue. Improved connections needed across commercial sites. Difficult challenge to solve but worth flagging. Cars are going straight across, despite R-turn only sign.	
5b	Intersection: 19th Ave SW Short pedestrian cycles east to west. Evaluate widening the sidewalk at the SW corner. Evaluate relocating signal control cabinet. Coordinate this widening by closing the driveway that is too close to the intersection. A lot of left-turning cars speeding within 5 feet of kids crossing south to north. Consider time of day coordination between walking signals and flashing yellow to avoid vehicles crossing active crosswalk, especially during school times. Is a pedestrian scramble possible during school time? If not, is there a yield to ped sign that can be added? Protected left turns would be best (FYA Omit during school arrival/dismissal). Evaluate phasing cycle time to reduce ped wait times crossing SW Campus Dr. (Note that ped scramble increases cycle time.) Can school speed zones be extended through the 19th Ave intersection given the number of students crossing there?	
5c	Segment: 19th Ave SW to 17th Ave SW EB Bus Stop Bus drivers mentioned that trees along this stretch are damaged due to bus mirrors hitting parts of the tree. Visibility issues due to tree cover. Lots of sidewalk heaving between 17th and 19th on north side.	

Driveway with no access could be mistaken as a curb ramp by pedestrians, which poses a safety risk.

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

Sidewalk needs beveling and panel gap needs filling as gap is width of bike wheel.	
Sidewalks need regular rainy season moss removal.	
Vehicles cut through post office parking lot during school release times.	
Implement more time specific signs for when kids will be out walking.	
Driveway with no access at 17 th Ave SW. Could be mistaken as a curb ramp by pedestrians.	
Vegetation maintenance corridor wide but especially on SW Campus Dr east of 19 th Ave SW.	

RECOMMENDED SAFETY TREATMENTS

The recommended safety treatments for this RSA were developed to address the crash trends, field observations, public engagement comments, and Safe System priorities identified for the study area. The recommendations are intended to help the City of Federal Way advance safety improvements along SW Campus Drive, SW 336th Street, and 21st Avenue SW through a combination of near-term, lower-cost treatments and longer-term capital investments.

The countermeasures identified in this section are not an exhaustive list of every possible safety improvement. Rather, they represent a focused set of treatments that respond to the specific safety issues observed in the corridor, including pedestrian exposure, conflicts between pedestrians and turning vehicles, vehicle speeds, access management challenges, visibility limitations, ADA accessibility needs, and gaps in pedestrian, bicycle, and transit access. Many of the recommended treatments are proven safety countermeasures that are consistent with the Safe System Approach and are commonly used to reduce crash risk and improve comfort for people walking, biking, taking transit, and driving.

Recommended improvements were developed with consideration for implementation feasibility, potential safety benefit, and consistency with adopted plans, including the Federal Way Comprehensive Safety Action Plan and planned multimodal facilities identified in the Comprehensive Plan. Some recommendations may be appropriate for near-term implementation through maintenance, signal operations, quick-build materials, or resurfacing coordination, while others may require additional design, right-of-way review, interagency coordination, private property coordination, or future capital funding.

The following recommended safety treatments are organized by corridor-wide improvements and segment-specific improvements. Together, they are intended to support a phased approach to implementation that addresses immediate safety needs while advancing longer-term corridor changes that reduce crash risk and improve safety, comfort, and accessibility for all users.

KEYS/LEGENDS

Estimated Implementation Cost Key	
\$	<= \$75,000
\$\$	\$75,000-\$150,000
\$\$\$	\$150,000-\$300,000
\$\$\$\$	>= \$300,000

Abbreviations	
ADA	America with Disabilities Act
APS	Accessible Pedestrian Signals
CMF	Crash Modification Factor
LPI	Leading Pedestrian Intervals
RRFB	Rectangular Rapid Flashing Beacon

Timeframe Key	
Near-term (Near)	<= 2 years
Intermediate (Int.)	2-5 years
Long-term (Long)	>= 5 years

Commented [AD1]: Federal Way: Please confirm you agree with the estimated cost ranges and the timeframe. I.e., if you prefer for \$ to be <= \$100,000 we can change it and re-evaluate how the recommendations are reporting cost

Commented [AD2R1]: Still need to confirm

Crash Reduction Factors (CRFs) are from [FHWA's CMF Clearinghouse](#). CRFs are approximate for the general countermeasure. A specific CRF should be determined for each unique scenario. For selection of specific CRFs for specific locations in Federal Way, explore the CMF clearing house and apply all relevant factors.

CORRIDOR-WIDE:

- SW CAMPUS DR FROM 17TH AVE SW TO 21ST AVE SW
- SW 336TH ST FROM 21ST AVE SW TO 25TH PL SW
- 21ST AVE SW FROM SW 325TH PL TO SW 338TH ST

LOCATION	Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
			NEAR	INT.	LONG			
- SW Campus Dr from 17th Ave SW to 21st Ave SW - SW 336th St from 21st Ave SW to 25th Pl SW - 21st Ave SW from SW 325th Pl to SW 338th St	Unclear roadway delineation	Refresh/replace thermoplastic pavement markings throughout the corridor including raised reflective pavement markers (RRPMs). Summer 2026 resurfacing will provide an opportunity for sections of 21st Ave SW.		✓		\$\$-\$\$\$	12.9	CoFW
	Pedestrian exposure	Upgrade signals to omit Flashing Yellow Arrows when a pedestrian pushes the push button.		✓		\$-\$\$	55	CoFW
	Pedestrian facilities	In conjunction with a full street redesign install 8' sidewalks with 6' landscaping strip (per city code for principal and minor arterials). Refer to Chapter 19.125 Outdoors, Yards, and Landscaping and City Standard Details for landscaping guidance.			✓	\$\$\$\$	-	CoFW
	Failure to yield/speed limit compliance	Consider automated red-light camera and/or speed safety cameras.		✓		\$-\$\$	28	CoFW
	ADA-accommodations	Install ADA compliant curb ramps. Upgrade blended transition ramps to directional ramps where feasible.		✓		\$\$\$-\$\$\$\$	-	CoFW
	Non uniform or discontinuous illumination	Evaluate streetlighting throughout project limits for accordance with city standards. Install and improve existing lighting based on findings. Refer to ANSI/IES RP-8: Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting for recommended practice.		✓		\$\$\$\$	41.9	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

- SW Campus Dr from 17th Ave SW to 21st Ave SW - SW 336th St from 21st Ave SW to 25th Pl SW - 21st Ave SW from SW 325th Pl to SW 338th St	ADA-accommodations	Upgrade signals to include Accessible Pedestrian Signals.		✓		\$\$\$- \$\$\$\$	-	CoFW
	Substandard pedestrian facilities	Upgrade all signalized pedestrian crossings to include countdown pedestrian signal heads per Section 41.04 Paragraph 1.		✓		\$\$\$- \$\$\$\$	8.8	CoFW
	Multimodal facilities	Provide ADA-compliant 5-foot by 8-foot landing pads at all bus stops to accommodate passenger boarding and alighting activities. Where landscape strips or street trees are proposed, maintain sufficient space for 5-foot by 8-foot rear landing pads for disembarking passengers. Install benches where adequate right-of-way is available, and provide shelters at bus stops with 25 or more average daily boardings. Where feasible, construct shelter pads regardless of current ridership to accommodate future shelter installation as transit demand increases.		✓		\$\$\$- \$\$\$\$	-	King County Metro
	Roadway visibility	Maintain street trees so that they have a minimum clearance of 8 feet over pedestrian ways and 14 feet over streets at maturity (per city code) and to improve visibility.	✓			\$	-	Property Owners/CoFW
	Intersection sight distance	Perform intersection sight distance evaluation at cross streets and driveways to identify sight distance interference and initiate mitigation based on findings.	✓			\$	-	CoFW
	Pedestrian facilities	Add Leading Pedestrian Intervals (LPI) to signal phasing at all signalized intersections. Existing signal equipment may need to be upgraded to accommodate LPI.	✓			\$- \$\$\$\$	10	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

- SW Campus Dr from 17th Ave SW to 21st Ave SW - SW 336th St from 21st Ave SW to 25th Pl SW	Pedestrian facilities	Review existing signal timing to confirm that pedestrian clearance time (i.e., Flashing Don't Walk) is sufficient to allow a pedestrian in the crosswalk who left the curb or edge of pavement at the end of the Walk interval to travel at a walking speed of 3.5 feet per second to at least the far side of the traveled way or to a median of sufficient width for pedestrians to wait. Update signal timing as needed.	✓			\$	-	CoFW
	Multimodal facilities	Per the Comprehensive Plan, explore opportunities to construct an enhanced shared sidewalk along SW 336th St/SW Campus Dr. Consider road diet and narrowing travel lanes where right-of-way is insufficient to provide enhanced shared sidewalk per the Comprehensive Plan.			✓	\$\$\$\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT



SEGMENT 1: SOUTH 21ST AVE FROM SW 339TH ST TO SW 336TH ST/CAMPUS DR

LOCATION CODE		Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
				NEAR	INT.	LONG			
Segment: SW 339th St to Crosswalk (North) Segment: Greenway Connection	1a 1b	Multimodal facilities	Widen sidewalk to enhanced shared sidewalk along the east side of the street from 339th to the existing crossing south of SW 338th and then along the west side of the street to the existing greenway. Eventually extend the shared use path along the east side of the street south to existing facilities on SW 356th St and greenway on SW 338th. Designate this as intended route to access SW 338th St and remove existing sharrow indicating that SW 338th should be accessed from left-turn lane.		✓		\$\$\$\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

Segment: SW 339th St to Crosswalk (North) Segment: Greenway Connection Segment: SW 338th St to SW 336th St	1a 1b 1c	Speed compliance	Consider implementing speed safety cameras in the school zone.		✓		\$-\$	54	CoFW
Segment: SW 339th St to Crosswalk (North) Segment: Greenway Connection Segment: SW 338th St to SW 336th St	1a 1b 1c	Pedestrian facilities	Explore public-private partnership to create pedestrian accessible route from 21st Ave SW to TAF@Saghalie through Fred Meyer retail center for additional pedestrian connectivity through TAF@Saghalie walk zone.			✓	\$\$\$\$	-	CoFW
Segment: SW 339th St to Crosswalk (North) Segment: Greenway Connection Segment: SW 338th St to SW 336th St	1a 1b 1c	Access Management	As part of future redevelopment of retail center that contains Chase Bank, conduct an access management study to evaluate driveway consolidation or closure, turn-movement restrictions, and driveway channelization to reduce conflicts between vehicles entering and exiting adjacent retail centers.		✓		\$-\$	25	CoFW
Segment: Greenway Connection	1b	Wayfinding/guidance	Review and improve existing wayfinding signage for greenway along SW 338th and S 21st Ave	✓			\$	-	CoFW
		Wayfinding/guidance	Refresh sharrows on SW 338th St	✓			\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

Segment: SW 338th St to SW 336th St	1c	Pedestrian facilities	At intersection of SW 337th Pl and Retail Access Driveway, install enhanced crossing including a pedestrian cross island and Rectangular Rapid Flashing Beacon (RRFB). Comprehensive Plan states that the city is looking to provide enhanced crossings at regular intervals particularly downtown, at busier transit stops, and within half-mile of schools. This location is within a half mile of TAF@Saghalie. Without this crossing, the distance between crossings is approximately 900'. Coordinate this enhanced crossing with pedestrian connectivity through the Fred Meyer retail center to TAF@Saghalie.		✓		\$\$\$	56 (refuge island) 47 (RRFB)	CoFW
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RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT



SEGMENT 2: SW 336TH ST FROM 25TH PL SW TO 21ST AVE SW

LOCATION CODE		Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
				NEAR	INT.	LONG			
Segment: 25th PI SW to 24th PI SW	2a	N/A	No segment specific improvements identified during walk audit.						
Intersection: 24th PI SW	2b	Pedestrian facilities/ADA-accommodations	Modify median island on west side of intersection to become a pedestrian crossing island		✓		\$\$	56	CoFW
		Pedestrian accessibility	Review signal timing to determine whether a shorter cycle length is feasible to provide more frequent pedestrian service.	✓			\$	-	CoFW
		ADA-accommodations	Replace the blended transition curb ramp on the southeast corner with directional curb ramps.		✓		\$\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

Segment: 24th PI SW to 21st Ave SW	2c	Access Management	Evaluate closing the driveway between Jack in the Box and KFC to consolidate access to the retail center to remaining driveways.		✓		\$-\$\$\$	-	CoFW
		Access Management	Evaluate the driveways serving the commercial plaza containing Emerald City Smoothie, Pho Fusion & Grill, and Papa Murphy's for conformance with applicable code requirements and identify potential mitigation measures, such as closing one of the driveways.		✓		\$-\$\$\$	-	CoFW
Intersection: 21st Ave SW	2d	Inadequate Dilemma Zone	Review yellow and red clearance intervals for opportunity to improve dilemma zone protection.	✓			\$	13.7 (increase red), 12.0 (increase yellow)	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT



SEGMENT 3: 21ST AVE SW FROM SW 336TH ST/SW CAMPUS DR TO SW 330TH ST

LOCATION CODE		Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
				NEAR	INT.	LONG			
Segment: SW 336th St to SW 334th St	3a	Sight Distance	Explore relocating utility pole approximately 180' north of SW 336th/SW Campus Dr to improve bus operator visibility of bus stop. Alternatively, explore relocating bus stop, potentially utilizing the existing U-turn turnout as a shared-use bus pullout/U-turn lane.		✓		\$\$-\$\$\$\$	-	CoFW/ King County Metro
		Pedestrian facilities/ADA-accommodations	Repair pavement defects along the accessible pedestrian route in the fire station driveway.		✓		\$\$\$-\$\$\$\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

		Access Management	Evaluate access management strategies to mitigate left turn conflicts from 21st Ave SW onto SW 334th Pl and the AutoZone driveway.	✓			\$-\$\$	25	CoFW
		Emergency Vehicle Access	Install Do Not Block Intersection Markings pavement markings per MUTCD Section 3B.26 to improve access to and from fire station during peak periods. Coordinate with Summer 2026 resurfacing. Elevated measures could include flashing exit warning beacons if pavement markings do not improve access during peak periods.	✓			\$	-	CoFW
Intersection: SW 334th St	3b	Pedestrian facilities/ADA-accommodations	Along south side of SW 334th: - replace existing asphalt pedestrian path sections with concrete sidewalk (pending feasibility analysis) - construct sidewalk to replace existing in-street walking path separated by concrete barrier		✓		\$\$\$-\$\$\$\$	40.2	CoFW
		Transit Access	Evaluate moving the near side southbound bus stop to the far side and utilizing the existing U-turn turnout as a shared-use bus pullout/U-turn lane.		✓		\$-\$\$\$	-	CoFW/King County Metro
Segment: SW 334th St to SW 330th St	3c	Transit Access	Consider moving southbound bus stop that is currently south of SW 330th St closer to the RRFB north of SW 330th St.		✓		\$\$	-	CoFW



SEGMENT 4: 21ST AVE SW FROM SW 330TH ST TO SW 325TH PL

LOCATION CODE		Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
				NEAR	INT.	LONG			
Intersection: SW 330th St	4a	Pedestrian facilities/ADA-accommodations	In the near-term, construct curb extensions to tighten corner radii using quick build materials on SW 330th St to slow turning vehicles and shorten pedestrian crossing distances. Include stop bars on SW 330th St and consider high-visibility crosswalk markings. In the long-term consider concrete curb extensions including directional curb ramps.	✓			\$	45	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

		Roadway visibility	Trim vegetation around westbound stop sign on SW 330th St to improve visibility.	✓			\$	-	CoFW
Segment: SW 330th St to SW 325th PI	4b	Pedestrian facilities	Consider enhanced pedestrian crossing including a pedestrian cross island and Rectangular Rapid Flashing Beacon (RRFB) with adequate lighting. There is currently approximately 1,300' between the signalized crossing at SW 325 PI and the RRFB north of SW 330th St.		✓		\$\$\$	56 (install refuge island) 47 (RRFB)	CoFW
		Pedestrian facilities	Repair surface defects in existing sidewalks.		✓		\$\$- \$\$\$\$	-	CoFW
		Speed limit compliance	Install dynamic speed display devices to encourage slower speeds. Replace or upgrade the existing dynamic posted speed limit sign with a speed feedback sign.		✓		\$-\$\$	5	CoFW
		Pedestrian facilities	Install fence railing where currently missing between SW 326th St and SW 327th St	✓			\$	-	CoFW
Intersection: SW 325th PI	4c	Pedestrian facilities	In the near-term, construct curb extensions to tighten corner radii using quick build materials on SW 325th PI to slow turning vehicles and shorten pedestrian crossing distances. In the long-term consider concrete curb extensions including directional curb ramps.	✓			\$	35	CoFW
		Pedestrian facilities	Explore removing dedicated right turn lane on the east leg to shorten pedestrian crossing distance.		✓		\$-\$\$	-	CoFW
		Signal operations	Install permissive/protected signal heads for SW 325th PI along with Corridor Wide recommendation to upgrade signals to include ability to omit Flashing Yellow Arrows when a pedestrian pushes the push button.		✓		\$-\$\$	55	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT



SEGMENT 5: SW CAMPUS DR FROM 21ST AVE SW TO 17TH AVE SW EB BUS STOP

LOCATION CODE		Observed Safety Challenge/Issue	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CRF (%)	LEAD
				NEAR	INT.	LONG			
Segment: 21st Ave SW to 19th Ave SW	5a	Access management	Option 1: Modify the middle driveway for the retail center with Taco Bell and Life Storage to right-in/right-out access. Harden centerline to enforce. Option 2: If eliminating all left-turn access (Option 1) is infeasible, explore keeping existing driveway access and implementing a dedicated left-turn lane on SW Campus Dr similar to the design at KFC/ Emerald Smoothie drive at the retail center west of 21st Ave SW (left-in/right-out).	✓			\$	25	CoFW
		Long crossing distances	In the near-term, construct curb extensions to tighten corner radii using quick build materials on the north side of the street to slow turning vehicles and shorten pedestrian crossing distances. In the long-term consider concrete curb extensions.	✓			\$	35	CoFW
		Access management	Consider closing the easternmost driveway for the retail center containing Taco Bell and Life Storage due to its proximity to 19th Ave SW, where there is heavy pedestrian activity and a history of pedestrian-involved crashes.	✓			\$	25	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

Intersection: 19th Ave SW	5b	Signal Operations	Upgrade signals to omit Flashing Yellow Arrows when a pedestrian pushes the push button (see Corridor Wide recommendations).		✓		\$-\$	45	CoFW
		Pedestrian facilities	Review signal timing to determine whether a shorter cycle length is feasible to provide more frequent pedestrian service.	✓			\$	-	CoFW
		Pedestrian safety	Consider extending the school zone through the intersection given its role as a major access point for students and school traffic. Consider no right on red restrictions.	✓			\$-\$\$\$	-	CoFW
		Pedestrian facilities/ADA-accommodations	Consider reconstructing the southwest corner to improve the amount and functionality of pedestrian space. This may require ROW acquisition. Remark the crosswalk pavement markings on the south and east legs to meet ADA/PROWAG guidance.		✓		\$-\$\$\$	-	CoFW
Segment: 19th Ave SW to 17th Ave SW EB Bus Stop	5c	Roadway visibility	Trim vegetation to improve sight lines and reduce conflicts between buses and overhanging trees.	✓			\$	-	CoFW
		Pedestrian facilities/ADA-accommodations	In the near-term, construct curb extensions to tighten corner radii using quick build materials on the north side of the street to slow turning vehicles and shorten pedestrian crossing distances. Include crosswalk markings due to high pedestrian activity. Include a stop bar. In the long-term consider concrete curb extensions with directional curb ramps.	✓			\$	35	CoFW
		Pedestrian facilities/ADA-accommodations	Repair surface defects in existing sidewalks.		✓		\$\$-\$\$\$\$	-	CoFW

RSA TECHNICAL MEMO: SW CAMPUS DR/SW 336TH ST AND 21ST AVE SW | DRAFT

		Pedestrian facilities/ADA-accommodations	Consider rebuilding the sidewalk section that slopes to street level to provide a fully developed curb.		✓		\$\$	-	CoFW
		Pedestrian facilities/ADA-accommodations	Schedule routine maintenance to remove moss from sidewalks.	✓			\$	-	CoFW

Appendix C: Public Engagement and Outreach Summary



MEMORANDUM

June 26, 2026

To: Jason Kennedy, Senior Traffic Engineer

Organization: City of Federal Way

From: Alex DuVall, PE, RSP₁, Kaitlyn Kwan

Project: Federal Way Comprehensive Safety Action Plan

Re: Engagement Summary

Engagement Summary

The purpose of this memo is to summarize the Phase 1 public engagement for the Federal Way Comprehensive Safety Action Plan (CSAP). Phase 1 spans Fall 2025 and Winter 2025/2026 and aims to collect personal stories, concerns, and priorities about traffic safety of the Federal Way community. The CSAP development began in Summer 2025 and is expected to wrap up in Summer 2026.

This engagement aligned with the Public Engagement Plan, which served as a resource for the project team to understand the outreach approach for this project. It also identified specific individuals and groups for targeted outreach and interviews, and activities for engagement.

Groups that the project team prioritized included:

- Bus riders
- Emergency Medical Service Providers
 - » South King Fire, Federal Way Police Department, St. Francis Emergency Department
- Federal Way Community Festival attendees
- Federal Way Farmer's Market attendees
- Federal Way Public School bus drivers
- Korean American Association
- Mujer al Volante
 - » A non-profit organization with the mission to support low-income, immigrant and refugee women and mothers with driver's education
- Federal Way Senior Commission
- Transit Providers
 - » Sound Transit, King County Metro, Pierce Transit
- Federal Way Youth Commission

The public engagement for the CSAP aligns with three key project phases:

Phase	Dates	Purpose	Engagement Methods			
			Stakeholder Advisory Committee	In-person Outreach	Stakeholder Listening Sessions ¹	Website, Online Map, & Survey/ Poll
1	Fall 2025 and Winter 2025/ 2026	Listen – Collect personal stories, concerns, and priorities about traffic safety and processes that are working well.	✓	✓	✓	✓
2	Winter 2025/ 2026	Test Ideas – Share crash analysis, introduce potential countermeasures and possible solutions	✓			
3	Spring 2026	Share – Release the draft plan for review and comment, identify project champions, and set priorities	✓		✓	✓

Figure 1. CSAP Public Engagement Plan

***Note:** During Phase 1 public engagement, numerous concerns regarding the unhoused population and drug use at bus stops in Federal Way were reported. While these concerns are heard and valid, the scope of the Federal Way CSAP does not include the direct treatment of these concerns.*

Findings from the in-person engagement events and the online web-mapping tool are shown in Figure 2 and Figure 3 below. Figure 2 shows where people feel safe or comfortable in blue, and where people feel unsafe or uncomfortable in orange. Figure 3 shows where people feel unsafe or uncomfortable by mode (bicycling, driving a car, driving a large vehicle, taking the bus, walking, or non-specified).

¹ Listening sessions are anticipated to take place in the first phase of the plan. In phase 3, listening session participants will receive follow up communication regarding the release of the draft plan and will be invited to provide feedback via an online comment form or quick online poll.

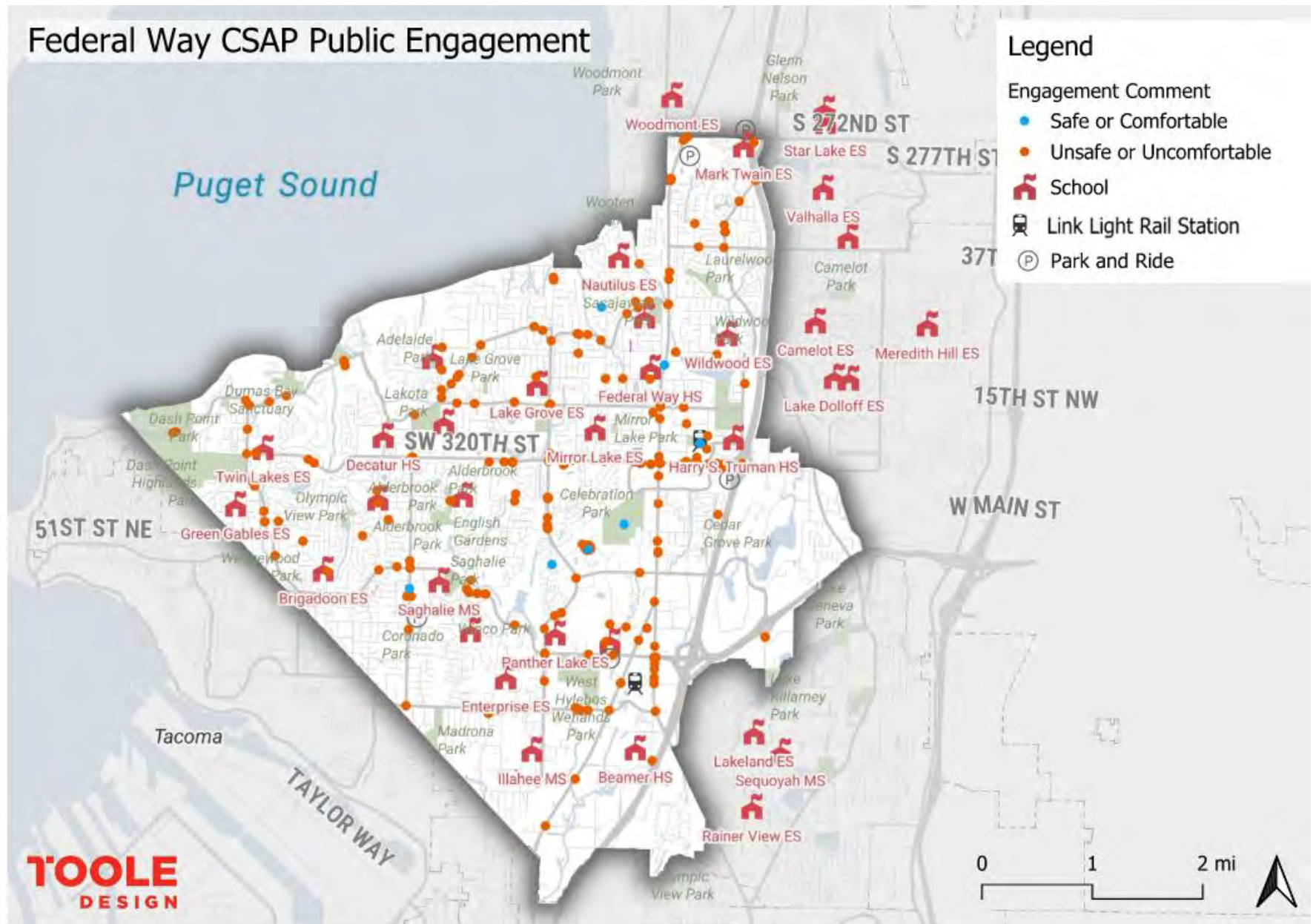


Figure 2. Combined Public Engagement Comments by Comfort (In-Person and Online)

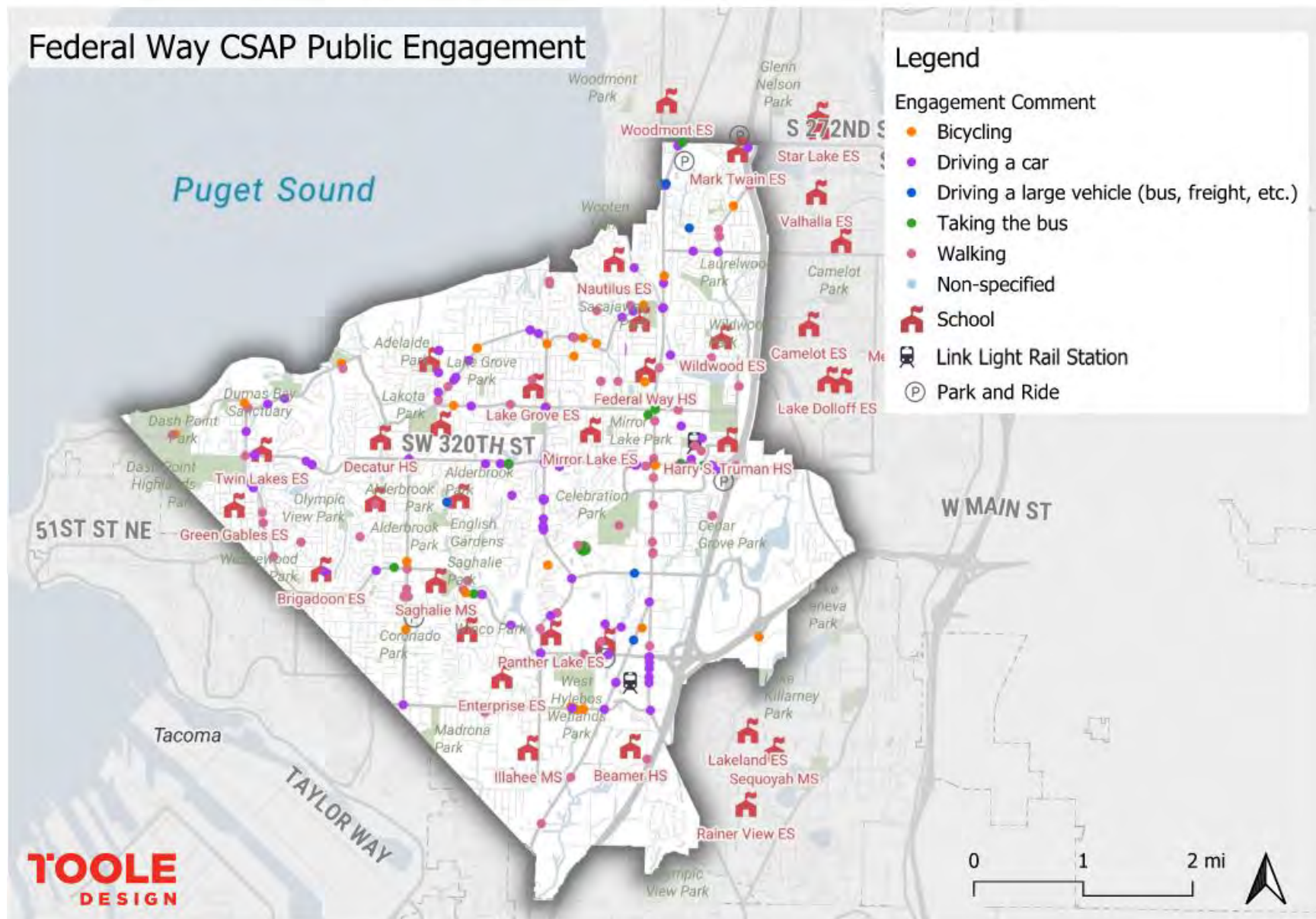


Figure 3. Public Engagement Comments by Mode (In-Person and Online)

Public Engagement Goals

The primary goals of the CSAP public engagement process were to:

- Educate the community about:
 - » The need for improved traffic safety
 - » Proposed solutions that will improve traffic safety using a Safe System Approach²
 - » Tradeoffs involved in the implementation of traffic safety projects
- Understand:
 - » Community values, priorities, and preferences around Safe System strategies
 - » Where different Safe System Approach elements may have disparate impacts on BIPOC, low-income, disabled, and/or other historically marginalized communities
 - » Specific corridors or locations where community members are most concerned about traffic safety
 - » Which communication and engagement tools are preferred by community members
- Incorporate:
 - » Community stories and voices into the plan
 - » Community priorities into the plan’s strategies and recommendations
- Build:
 - » Relationships with and between key interest groups and stakeholders
 - » Public support for plan implementation

Summary of Events

Engagement Event	Date and Location	Top Transportation Safety Concerns
Community Festival	Saturday, Aug 9, 2025	• People driving too fast • Reckless or aggressive drivers • Lack of safe places to cross the street
Senior Commission Listening Session	Wednesday, October 8, 2025	• People driving too fast • Racing • Drivers running red lights
Farmer’s Market	Saturday, October 25, 2025	• Not enough traffic enforcement • Not enough street lighting • People not yielding or stopping at intersections or driveways • People driving too fast

² “Zero Deaths and Safe System.” 2024. USDOT Federal Highway Administration. August 2, 2024. <https://highways.dot.gov/safety/zero-deaths>.

Mujer Al Volante Listening Session	Tuesday, October 21, 2025	• People driving too fast • Lack of sidewalks/safe places to walk • Reckless or aggressive drivers
Youth Commission Listening Session	Thursday, November 13, 2025	• Lack of safe places to bike • Lack of safe places to cross the street • Lack of sidewalks/safe places to walk
School Bus Drivers Listening Session	Monday, November 24, 2025	• Insufficient driver's education • Lack of sidewalks/safe places to walk • Lack of sheltered bus stops • Not enough street lighting • Improve signage placement and visibility
Bus Intercept Survey (King County Metro, RapidRide A Line)	Wednesday, December 3, 2025	• People driving too fast • Not enough street lighting
Emergency Medical Services Listening Session	Tuesday, December 16, 2025	• Lack of safe places to cross the street • Not enough street lighting • Insufficient driver's education
Korean American Association Presentation	Wednesday, December 17, 2025	A brief CSAP presentation was given as a part of a larger meeting
Transit Providers Listening Session	Tuesday, January 13, 2026	• People driving too fast • Reckless or aggressive driving behavior • Lack of safe places to cross the street • Lack of safe places to bike • Lack of sidewalks/safe places to walk • Not enough lighting

Phase 1: Fall 2025 and Winter 2025/2026

Phase 1 focused on listening to community members. The consultant team led three pop-up events, six listening sessions, presented at one community meeting, and created an online survey and a web map storing public comments. Public feedback was incorporated into a GIS layer (Figure 2 and Figure 3) that will be used for project prioritization, along with crash and demographic analysis.

Pop-Up Event 1: Federal Way Community Festival

Toole Design staff attended the Community Festival organized by the Federal Way Diversity Commission on Saturday, August 9, 2025. The event was well attended by a wide range of community members. The purpose of the event was to gain an understanding of where community members did not feel safe traveling and to generally hear their transportation safety concerns.

Takeaways

Many people felt safe walking in Federal Way and expressed positive feelings about the direction of the City and the streets. However, many were worried about speeding/street racing and others cited concerns about the lack of safe places to walk or cross the street and unsafe conditions for walking or bicycling near schools. Many people indicated they were concerned about dangerous driving, such as speeding and reckless driving; the lack of safe crossings; and lack of walking or bicycling infrastructure.

Activities

Toole Design staff set up a booth that included two principal activities related to transportation safety: An interactive survey and mapping activity. Participants were asked to share their top three Transportation Safety Concerns by placing pom poms in 15 jars labeled with transportation safety concerns such as “Lack of Safe Places to Walk” and “Distracted Drivers” (Figure 4).



Figure 4. Interactive Survey

Figure 5 below shows the results of the interactive survey activity. Driver behaviors such as “People driving too fast” and “Reckless or aggressive drivers” emerged as the top concerns cited by participants, followed by “Lack of safe places to cross the street,” “Not enough traffic enforcement,” and “Poor sidewalk, bicycle infrastructure, and/or street conditions.”

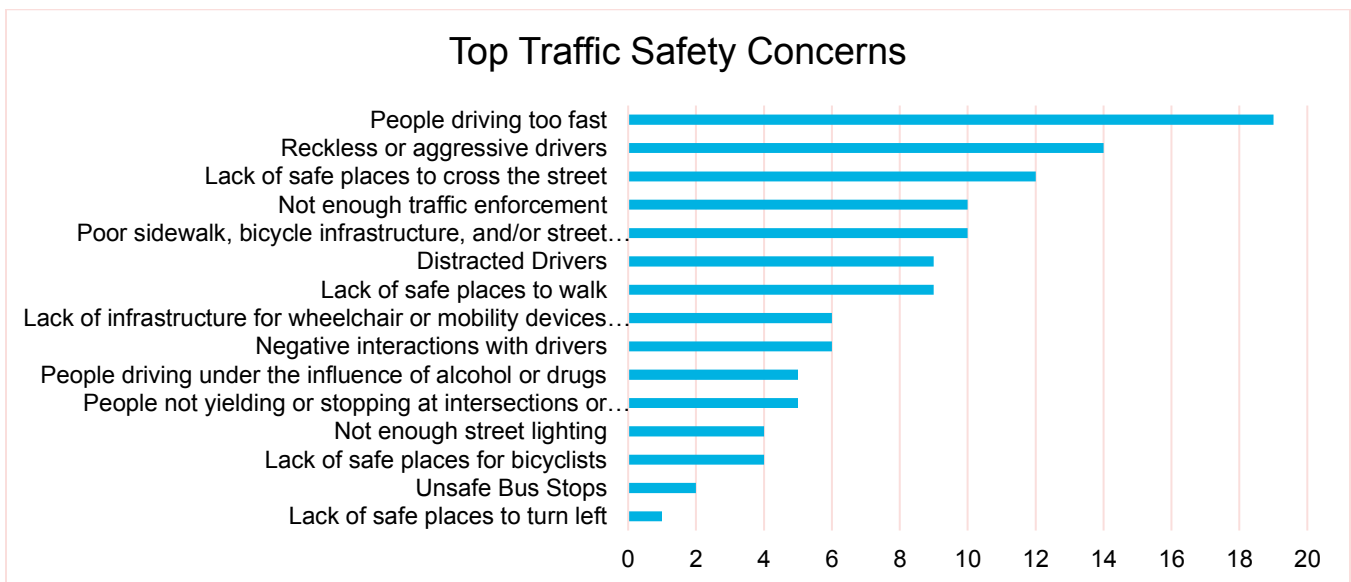


Figure 5. Community Festival Interactive Survey Result

For the interactive mapping activity, participants were asked to place blue dots on the map in places where they liked to walk, bike, roll, drive, or take the bus and yellow dots where they feel uncomfortable or unsafe (Figure 6).

Participants placed 20 dots on the map. Concerns included a lack of safe places to walk/sidewalks, drivers speeding, lack of marked crosswalks, unsafe conditions for kids walking and bicycling near schools, lack of visibility at intersections and lack of infrastructure for wheelchair and mobility device users. The public comments from this mapping activity have been digitized and combined with comments received from other in-person and online engagement efforts to be used to inform the CSAP recommendations and implementation strategies (Figure 2 and Figure 3).

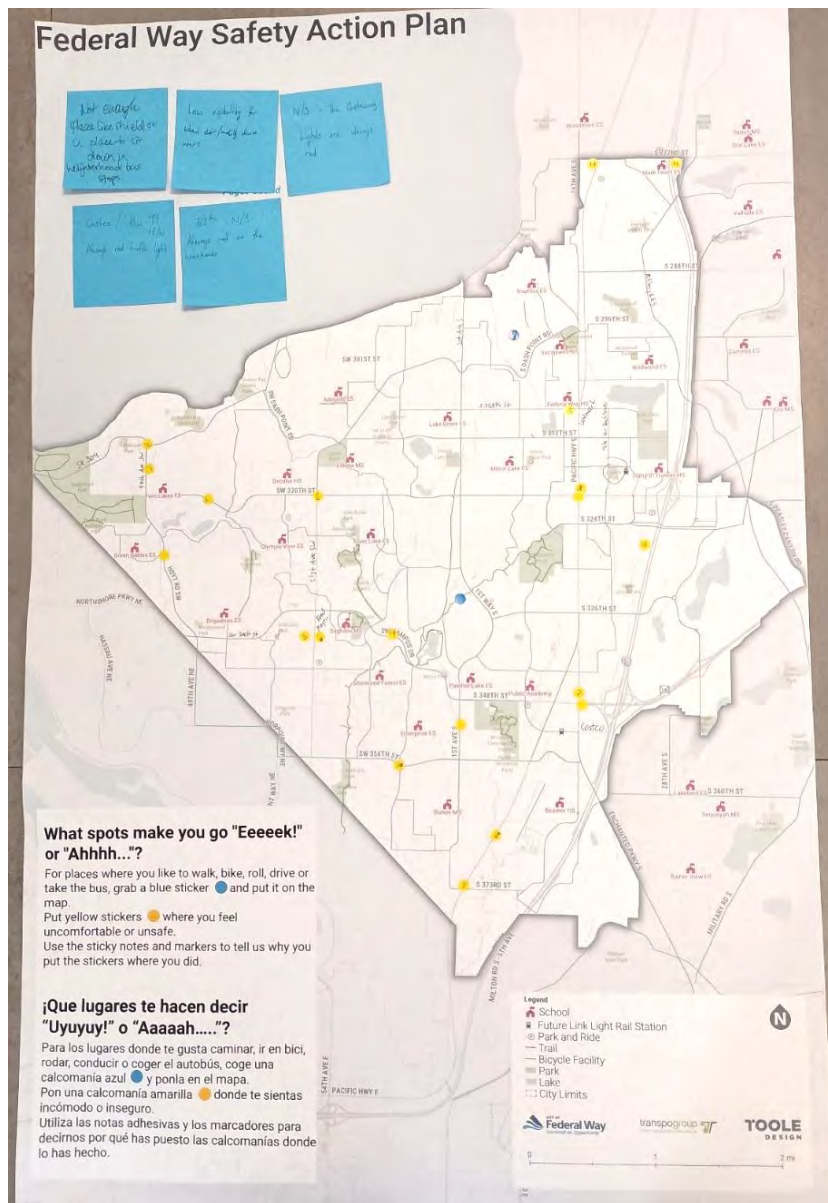


Figure 6. Interactive mapping results for Community Festival

Pop-Up Event 2: Federal Way Farmer's Market

Toole Design staff attended the Federal Way Farmer's Market on Saturday, October 25, 2025. The event was well attended by a wide range of community members.

Takeaways

A majority of community members were concerned about traffic safety in Federal Way. Concerns surrounded reckless driving behaviors, unsafe conditions for walking, confusion and non-compliance with Right of Way and intersection guidelines, and lack of street lighting.

Activities

Toole Design staff set up a booth that included three principal activities related to transportation safety: a spinner wheel, an interactive survey, and mapping activity. The spinner wheel (Figure 8) was used to draw attendees to the table by engaging them in an educational trivia game on traffic safety practices and infrastructure treatments. In the interactive survey, participants were asked to share their top three Transportation Safety Concerns by placing pom poms in 15 jars labeled with transportation safety concerns such as "lack of safe places to walk" and "distracted drivers" (Figure 7 and Figure 8).

Figure 9 below shows the results of the interactive survey activity. Although, not all 15 categories are included because a windstorm toward the end of the event resulted in the table being knocked over and the event ending early. From the data that was preserved, "Not enough traffic enforcement," "not enough streetlighting," "people not yielding or stopping at intersections or driveways," and "people driving too fast" emerged as the top concerns cited by participants.



Figure 7. Interactive Survey



Figure 8. CSAP Booth at the Farmer's Market

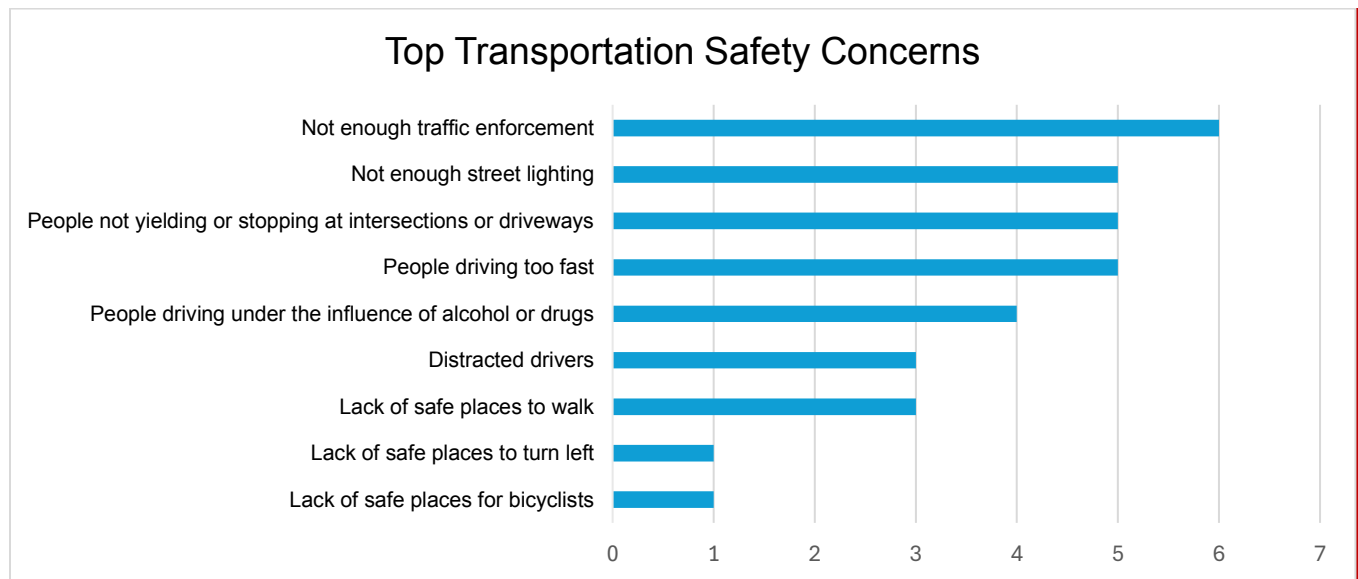


Figure 9. Farmer's Market Interactive Top Transportation Safety Concerns

In the interactive mapping exercise, participants were asked to place purple dots on the map in places where they liked to walk, bike, roll, drive, or take the bus, and orange dots where they feel uncomfortable or unsafe. Figure 10 shows the map used in the activity.

Participants placed 22 dots on the map. Public comments from this mapping activity were digitized and combined with comments received from other in-person and online engagement efforts and will be used to inform the CSAP recommendations and implementation strategies (Figure 2 and Figure 3).

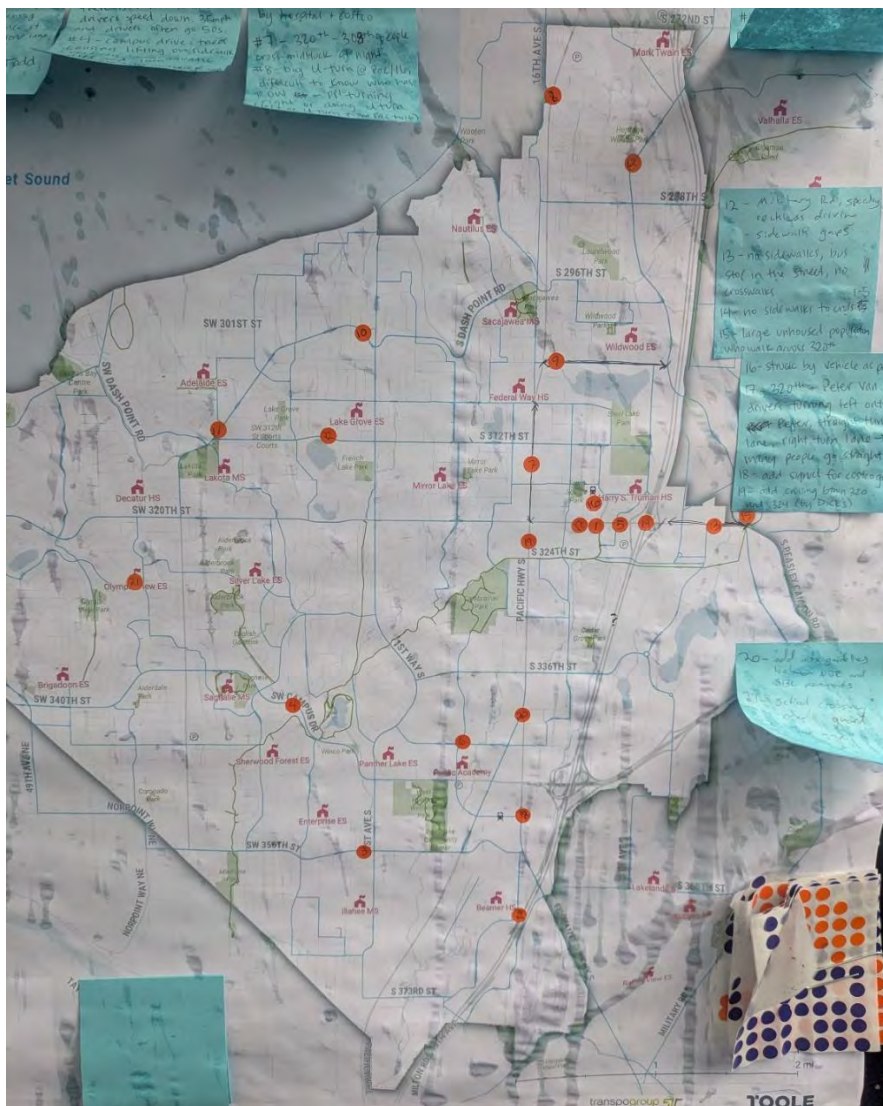


Figure 10. Farmer's Market Interactive Mapping Activity

Pop-Up Event 3: Bus Intercept Survey

Toole Design staff performed a bus intercept survey in Federal Way, on King County Metro's RapidRide A Line on Wednesday, December 3, 2025. A bus intercept survey is an in-person engagement method where surveyors approach transit riders at bus stops, or on buses, and ask them questions about their travel experience to gather real-time data. Toole Design staff rode from the RapidRide A Line from the Federal Way Transit Center to the Kent Des Moines Transit Center and back. Staff collected responses from 43 transit riders.

Takeaways

A majority of bus riders felt safe getting to the bus stop and waiting for a bus. However, some passengers felt unsafe due to drivers speeding, the presence of unhoused individuals, and drug use at bus stops.

Many bus riders declined to speak with us, with several noting they do not speak English, and others noting concern that staff were associated with fare enforcement or immigration.

Activities

Staff asked transit riders two questions:

- 1) How do you usually get to and from your bus stop?
- 2) Where do you feel unsafe getting to a bus stop or waiting for the bus?

A significant majority of bus riders in Federal Way reported walking as their main mode of travel to and from bus stops. A few participants reported biking, using a personal battery-powered device, or using a mobility aid. Figure 11 below displays the participants' responses to this first question.

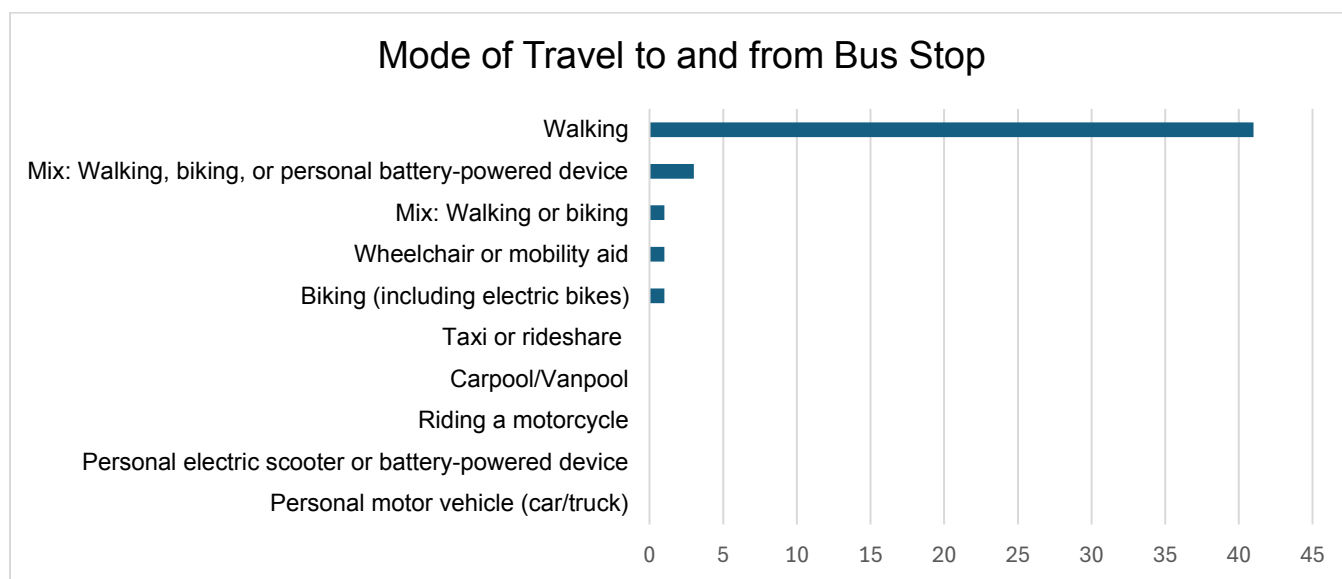


Figure 11. Bus Intercept Survey Results

In response to the second question, which asked bus riders to identify locations they felt unsafe getting to or waiting at a bus stop, stops on Pacific Highway S emerged as a top concern. Specific destinations along the highway included the area near H Mart (S 312th St) and the El Rinconsito restaurant (320th St). Riders reported concerns regarding high vehicle speeds along Pacific Highway S and the presence of unhoused individuals at bus stops, particularly near Kent Des Moines and SW 336th St & 21st Ave SW.

Listening Sessions

Listening sessions are facilitated meetings where community groups share their experiences, concerns, and ideas about specific transportation safety issues. These meetings aim to build trust, gather feedback, and inform decision-making. Toole Design staff facilitated listening sessions with the following groups:

- Senior Commission
- Mujer Al Volante
 - » A non-profit organization with the mission to support low-income, immigrant and refugee women and mothers with driver's education
- Federal Way Youth Commission
- Federal Way Public School Bus Drivers
- Emergency Medical Service Providers

- » South King Fire, Federal Way Police Department, St. Francis Emergency Department
- Korean American Association
- Transit Providers
 - » Sound Transit, King County Metro, Pierce Transit

In each listening session, staff gave an overview of the CSAP and outlined the purpose of the meeting, which was to get feedback about the community's experiences while traveling around Federal Way. Each community group was asked 5-7 questions on the topics of Transportation Safety Issues and Locations, Transportation Challenges and Barriers, and Ideas for Improvements. Feedback from these discussions are summarized in the sections below.

Federal Way Senior Commission

Toole Design staff attended the Federal Way Senior Commission's meeting on Wednesday, October 8, 2025. The event was attended by the commission's 12 members, as well as additional Federal Way staff.

Many commissioners noted three primary concerns: speeding, racing, and drivers running red lights and stop signs. One commissioner said, "when I drive through an intersection, even when I have the green light, I always look both ways because you never know who is going to be running a red light." Another commissioner said racing occurs on the street he lives on, every evening at dusk, and thought it could be stopped with police enforcement. Another commissioner said that racing often occurs on the street he lives on, in the middle of the night.

Mujer Al Volante

Toole Design staff met with Mujer Al Volante, a non-profit organization whose mission is to support low-income, immigrant, and refugee women and mothers with driver's education, on Tuesday, October 21, 2025. The meeting was attended by five Mujer Al Volante members.

The primary traffic safety concern raised by Mujer Al Volante was the lack of sidewalks throughout Federal Way. Members also highlighted the lack of safe pedestrian crossings, insufficient street lighting, speeding, and unclear traffic guidance. In particular, participants expressed a strong need for clearer education and communication around "No Turn on Red" restrictions, noting that inconsistencies between intersections create confusion, especially for community members with limited English proficiency. Participants also identified locations in Federal Way that present traffic safety challenges, including multiple intersections along S 320th St and the Costco exit onto Enchanted Parkway S.

Federal Way Youth Commission

Toole Design staff attended the Federal Way Youth Commission's meeting on Thursday, November 13, 2025. The meeting was attended by all nine commission members.

Commissioners reported several primary traffic safety concerns, including the lack of safe places to bike, lack of safe street crossings, and lack of sidewalks. Dash Point Road was identified as a key location of traffic safety concern. To address traffic safety concerns, the group expressed support for installing more pedestrian-activated flashing beacons near schools to improve visibility of students crossing the street. Participants also emphasized the need for improved safety at public transit stops.

Federal Way Public School Bus Drivers

Toole Design staff met with Federal Way Public School bus drivers on Monday, November 24, 2025. The event was attended by six drivers.

Key transportation safety concerns identified by school bus drivers include insufficient driver education, incomplete pedestrian infrastructure, limited sheltered bus stops, inadequate street lighting, and poor signage visibility. Participants noted that inconsistent traffic control devices, such as flashing yellow arrows that transition to either red or green, contribute to driver confusion and result in near misses. Variable turn signage was specifically identified as confusing at the intersections of SW Campus Dr and 1st Ave S, and S 336th St and 1st Way S (Figure 12). Drivers also highlighted citywide barriers affecting students' access to bus stops, including flooding and missing sidewalks.



Figure 12. Variable turn sign at S 336th St and 1st Way S

Emergency Medical Service Providers

Toole Design staff met with Emergency Medical Service (EMS) providers on Tuesday, December 16, 2025. The event was attended by four providers: one from St. Francis Emergency Department, two from South King Fire, and one from Federal Way Police Department.

Key traffic safety concerns reported by EMS providers include lack of safe pedestrian crossings, inadequate street lighting, limited driver education, and drivers speeding. Participants identified Pacific Highway S, Dash Point Road, and S 320th Street as particularly dangerous roadways. Infrastructure-based challenges to emergency response cited by participants are non-EMS-specific speed humps and small roundabouts.

Korean American Association

A brief presentation on the CSAP was given on Wednesday, December 17, 2025 as a part of a larger quarterly meeting between the City and the Korean American Association. Discussion on this topic was limited, but the online survey and webmap links were shared.

Transit Providers

Toole Design staff met with Transit providers on Tuesday, January 13, 2026. The event was attended by 10 participants: six Sound Transit, two Pierce Transit, and two King County Metro employees.

Transit providers reported speeding, reckless or aggressive driving, lack of bike and pedestrian infrastructure, and inadequate lighting to be primary transportation safety concerns. Wide, high-speed corridors and gaps in sidewalks and marked street crossings were noted as key barriers to walking, biking, and transit use.

Online Engagement

Online engagement, in the form of a survey and interactive web map, was conducted from August 27, 2025 – January 31, 2026.

Website Engagement Summary

- 1,962 views
 - Views: number of times a Visitor views the CSAP page on the Federal Way website
- 902 visitors
 - Visitor: number of unique public or end-users on a Site (a Visitor is only counted once, even if they visit a site several times in one day)

- 436 contributions
 - Contribution: number of responses or feedback collected through the participation tools
- 265 contributors
 - Contributors: unique number of Visitors who have left feedback or Contributions on a site through the participation tools

Survey Form

The online survey gathered information on how community members traveled and felt while traveling around Federal Way. A total of 307 contributions from 252 contributors were received.

A majority of contributors (85%) reported being residents of Federal Way, and 36% of contributors also work in the city. Many of the contributors experience Federal Way as both a home and commute space.

Key Takeaways

- To get around Federal Way, people primarily drive or walk.
 - 92% report driving personal motor vehicles
 - 59% report walking
 - 23% report using transit
 - 14% report biking
- People generally feel safe in motor vehicles.
 - On average, respondents reported feeling the safest when carpooling/vanpooling, using a taxi or rideshare, and taking the bus or paratransit.
- People generally feel unsafe walking and biking.
 - On average, respondents reported feeling least safe when using a wheelchair or mobility aid, biking or e-biking, riding a motorcycle, and walking.
- People would like to travel by active transportation more frequently.
 - If conditions felt safer, contributors reported that they would like to travel most frequently by driving, walking, and biking/scooters.
- The street design and operational factors most often cited as contributing to unsafe conditions in Federal Way were:
 - Lack of safe places to walk (61%)
 - Insufficient traffic enforcement (41%)
 - Neglected or poorly maintained infrastructure (41%)
 - Not enough street lighting (41%)
 - Lack of safe street crossings (29%)
- The biggest driver-related behavior problems reported were:
 - Speeding (68%)
 - Reckless/aggressive driving (66%)
 - Distracted driving (63%)
 - Failure to yield (51%)

Interactive Web Map

Site visitors had the opportunity to pin comments to an interactive web map (pictured below in Figure 13) to share location-specific feedback about traffic safety concerns and experiences throughout Federal Way.

A total of 129 contributions from 43 contributors were received.

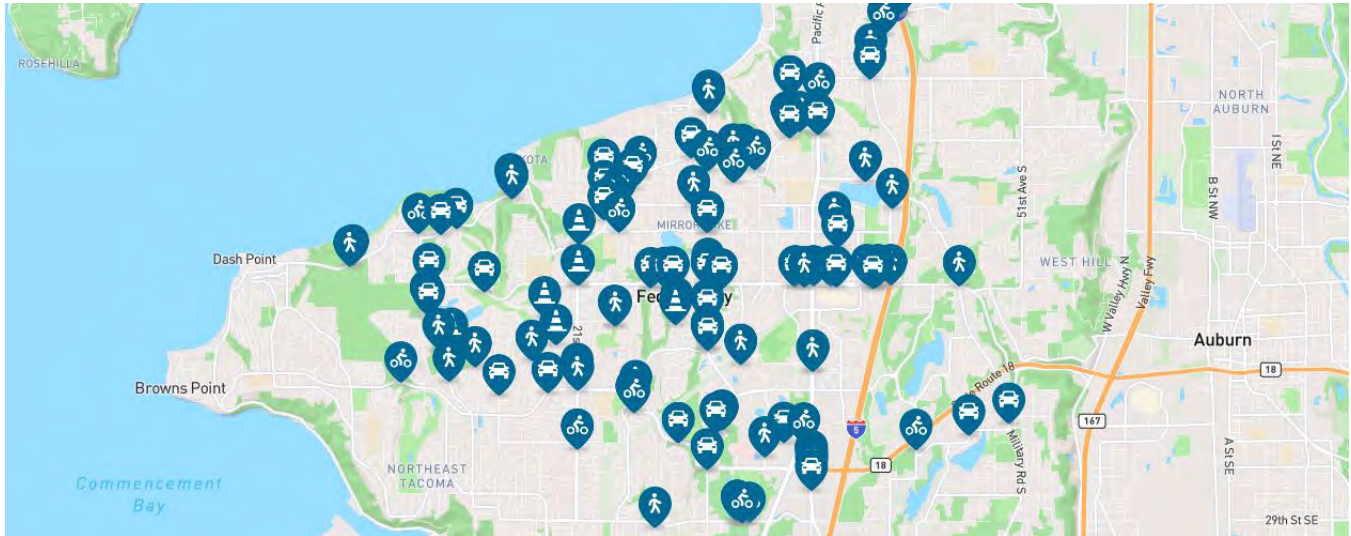


Figure 13. Federal Way Interactive Web Map

Primary Traffic Safety Concerns

“Motorists go too fast” emerged as a primary traffic safety concern amongst four of the five categories. Top streets identified as having frequent speeding issues include S/SW Dash Point Road, SW 320th Street, Hoyt Road SW, SW 336th Way/SW Campus Drive, SW 356th Street.

- Driving a car (59 responses)
 - **Motorists go too fast**
 - Unsafe to turn left here
 - Poor visibility/blind corners
- Walking (34 responses)
 - Lack of safe places to walk
 - **Motorists go too fast**
 - Lack of lighting along the street
- Biking (25 responses)
 - Lack of safe places to bike
 - **Motorists go too fast**
 - Lack of safe places to cross the street
 - Lack of lighting at crosswalks
 - Red light running
- Taking the bus (1 response)
 - Lack of safe places to cross the street upon entering or exiting the bus
 - Lack of lighting at crossings
 - Lack of lighting at bus stops
- Driving bus/freight (1 response)
 - **Motorists go too fast**

Conclusion

Across all engagement events, participants consistently identified speeding and reckless/aggressive driving, such as redlight running and racing, as the most pressing transportation safety concern. A second dominant theme was the lack of safe infrastructure for pedestrians. In particular, the absence of sidewalks, marked mid-block crossing opportunities, and street lighting were noted. In addition to physical infrastructure, many groups cited insufficient traffic enforcement and driver education as contributing factors to unsafe conditions. Overall, the feedback shows strong community alignment around the need for slower speeds, safer pedestrian and bicycle infrastructure, improved lighting, and better driver behavior and enforcement.

Following the conclusion of Phase 1 of the Public Engagement Plan, the project will move into Phase 2 (Winter 2025/2026) and Phase 3 (Spring 2026). Phase 2 will focus on testing ideas by sharing crash analysis findings with the Stakeholder Advisory Committee and introducing potential treatments to address the issues identified in Phase 1. Upon completion of Phase 2, the draft Federal Way CSAP will be released for public review and comment in Phase 3.

Appendix D: Demographic Analysis



DEMOGRAPHIC ANALYSIS MEMO

June 26, 2026

To: Jason Kennedy

Organization: City of Federal Way

From: Vaidehi Shah, Anish Tailor, and Omar Peters

Project: Federal Way Comprehensive Safety Action Plan

Re: Federal Way Safety Action Plan: Demographic Analysis Findings

The Federal Way Comprehensive Safety Action Plan (CSAP) aims to create a safer transportation network for all users. By analyzing data trends and using predictive methods, the plan will identify innovative, proactive strategies to reduce fatal and serious crashes and position the City for future safety funding opportunities.

The Federal Way Public Engagement Plan prioritized outreach to communities disproportionately affected by traffic safety issues and historically underrepresented in engagement processes. These groups include people with disabilities, neurodiverse individuals, older adults, school-age children, low-income households, Black, Indigenous, and People of Color (BIPOC), and religious minorities. Building on that foundation, this demographic analysis memo uses the [Sandy Williams Connecting Communities Viewer](#) (the Connecting Communities Viewer) to identify overburdened and underserved communities and determine where additional transportation investment may be needed. The analysis also examines whether corridors identified on the High Injury Network (HIN) overlap with areas of *high equity need*, as defined in the Connecting Communities Viewer.

Demographic Analysis

The purpose of the demographic analysis is to provide tools to locate underserved communities and evaluate whether those communities experience increased exposure to transportation safety risks. The demographic analysis can provide a framework to understand where socio-demographic disparities exist and how we can redress past harms by making strategic investments in those areas.

Background Demographics

Federal Way has a greater diversity in its population as compared to the state demographics – with a higher portion of Black, Asian, and Hispanic communities as compared to the state average.¹ There is also a high concentration of Spanish speaking students in the public schools in the city.² Several census tracts in the city

¹ [U.S. Census Bureau QuickFacts: Federal Way city, Washington](#)

² [District Profile - Federal Way School District](#)

have more than 30% households below 200% poverty threshold.³ The Smart Growth America's *Dangerous by Design*⁴ report reveals that, on a national scale, People of Color, particularly Black Americans and Native Americans or Alaska Natives, face a higher likelihood of pedestrian fatalities compared to other racial or ethnic groups – these groups account for nearly 22% of all pedestrian deaths in metro areas despite accounting for just under 13% of the population. Additionally, individuals walking in low-income neighborhoods are up to three times more likely to be killed than those in high-income areas.⁵

Sandy Williams Connecting Communities Viewer

This analysis uses the Connecting Communities Viewer to understand where communities experiencing the largest barriers to opportunity and environmental health disparities are located. The tool was developed by the Washington State Department of Transportation (WSDOT) to identify and prioritize locations for investment in the Sandy Williams Connecting Communities Program.⁶

The Connecting Communities Viewer uses the 2016–2020 American Community Survey (ACS) data and the Washington Environmental Health Disparities (EHD) Map to score each census block group based on several factors. These factors include:

1. **Transportation:** households spending a high percentage of income on transportation and/or no access to a vehicle
2. **Health:** residents with few healthy food choices and/or disproportionate health outcomes
3. **Economics:** households living on low incomes
4. **Family + Community:** youth (age 18 or younger) and seniors (age 65 or older), systemically oppressed and marginalized communities that have largely been historically left out of traditional planning processes—including but not limited to Black, Indigenous, Asian and Pacific Islander, Hispanic/Latinx, and other communities of color—those with limited English skills, and people with disabilities
5. **Environmental Justice:** communities with disproportionate exposure to pollutants, diesel pollution, and industrial contaminants

The resulting scores from each of these factors are added together to create a final Total Need Score:

- 18 or above for an area indicates the “Very High Need”
- 14-17 is “High Need”
- 10-13 is “Moderate Need”

Communities that fall within Very High Need and High Need are the primary focus of the Sandy Williams Connecting Communities Program.

³ [Sandy Williams Connecting Communities Viewer](#)

⁴ Boutros, Anthony, Sharon Field, and Kevin Resler. 2023. Review of Integrating Equity into Transportation: An Overview of USDOT Efforts. Federal Highway Administration, Public Roads, Spring 2023 (Washington, DC: 2022) <https://doi.org/10.21949/1521994>.

⁵ Smart Growth America. 2022. “Dangerous by Design 2022.” Smart Growth America. Smart Growth America. 2022. <https://smartgrowthamerica.org/dangerous-by-design/>

⁶ WSDOT, Sandy Williams Connecting Communities Program, <https://wsdot.wa.gov/business-wsdot/support-local-programs/funding-programs/sandy-williams-connecting-communities-program>

Figure 1 shows census block groups in Federal Way scored by their total need score. This analysis focuses on the “Very High Need” block groups. As seen in the map, block groups near the I-5 state highway and Pacific Highway scored highest need in the total need score. These include neighborhoods like:

- Steel Lake Neighborhood
- Kitts Corner Neighborhood
- Eastern side of West Campus Neighborhood
- NW side of the Redondo Neighborhood

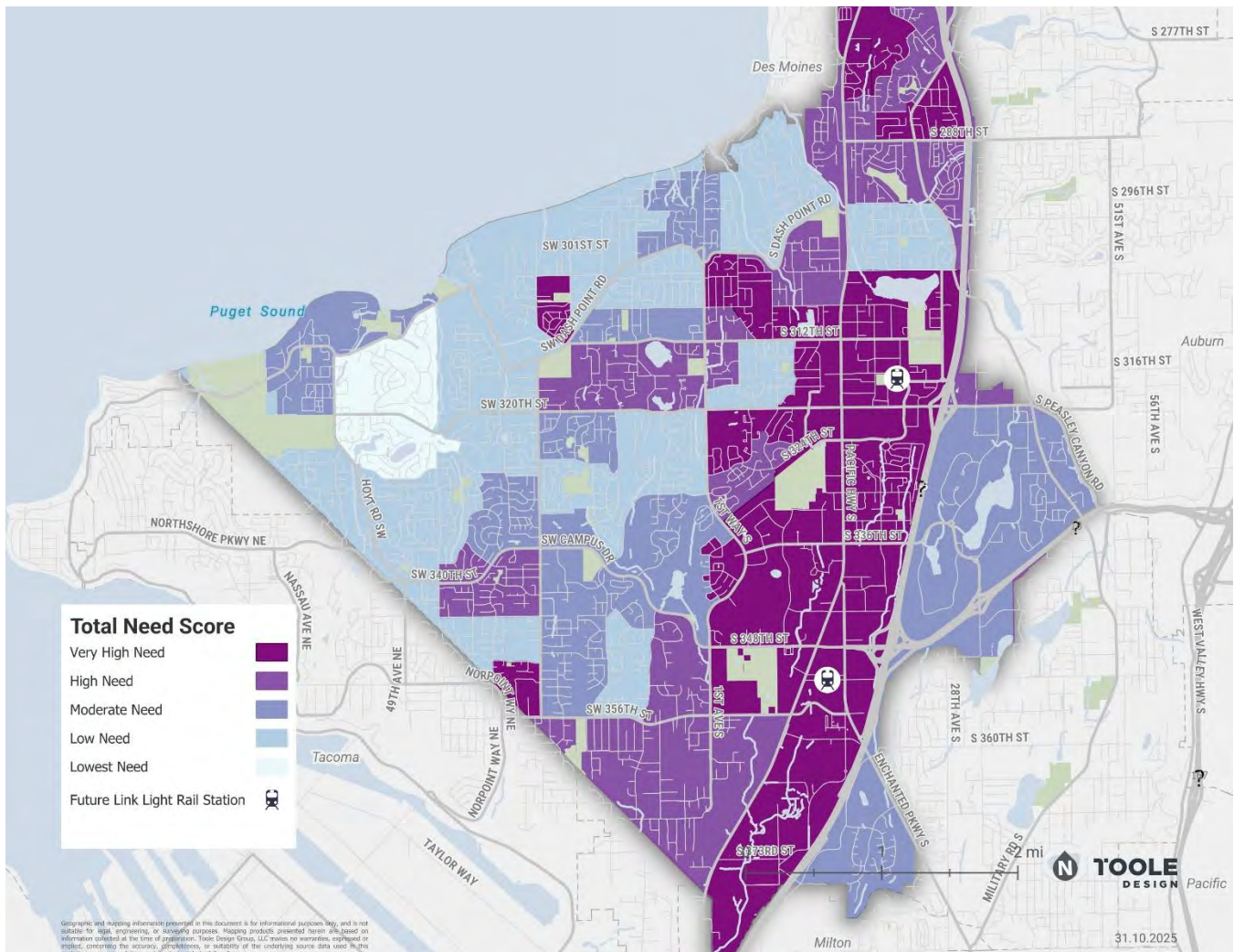


Figure 1: Map of the City of Federal Way Need Scores
(from the Sandy Williams Connecting Communities Viewer)

High Injury Network Overlay

Safety impacts and risks across Federal Way's transportation network were evaluated as part of this project and documented in the HIN Memo. The HIN depicts segments of the roadway network with the highest densities of crashes that resulted in a fatality or serious injury.

Overlaying these results on the Map of the City of Federal Way Need Scores shows us block groups where safety needs overlap with high needs. Figure 2 shows the overlay of HIN of the Map of the City of Federal Way Need Scores.

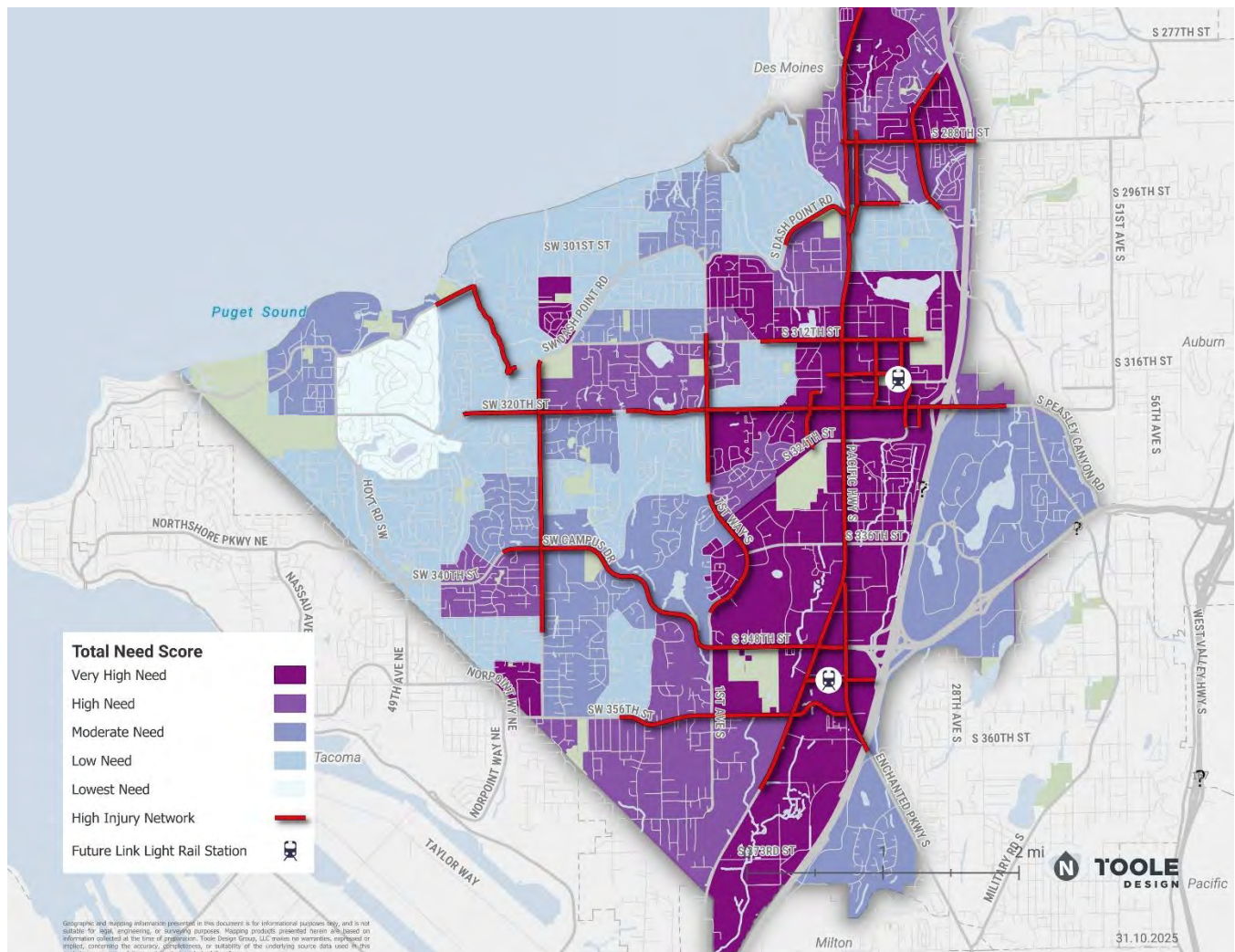


Figure 2: Map of Need Scores with the High Injury Network

Key Takeaways and Next Steps

The analysis shows a strong overlap between Very High Need Areas identified from the Connecting Communities Viewer and the HIN, indicating that traffic-related injuries and fatalities fall disproportionately on underserved and overburdened communities.

The following are specific corridors that overlap in both Very High Need Areas and HIN:

- Pacific Highway S
- SW 320th Street
- S 312th Street
- 16th Avenue S
- S 288th Street
- S 348th Street
- 1st Way S
- SW 356th Street

A demographic analysis is only one element to inform transportation investment. The crucial factor lies in how the demographic analysis insights are used, transforming it from a mapping exercise to an effective tool. Next steps to use these insights include:

1. **Focus engagement:** understanding the unique population characteristics and specific needs of each population group in these areas will allow for more targeted engagement outreach in the future. These activities should center on communities that have both a higher share of HIN corridors and higher needs scores. Since this analysis only provides one part of the picture, targeted community engagement is critical for identifying the areas' safety risks and understanding access and mobility barriers perceived by the community based on their daily experiences.
2. **Prioritize safety interventions:** Segments of the HIN that overlap with the High Equity Need Areas should be prioritized for investment to achieve safe and equitable outcomes as these residents stand to gain the most from investments outlined in the Federal Way Comprehensive Safety Action Plan.
3. **Continue assessment:** The demographic analysis should be refined over time, adjusting demographic factors and indicators as needed-and revisited periodically to track outcomes and guide continued transportation investments.

Appendix E: Safety Analysis



MEMORANDUM

Date:	January 26, 2026	TG:	24410.00
To:	Jason Kennedy, City of Federal Way		
From:	Brett Schock, PE, AICP, RSP2i, Transpo Group		
cc:	Jon Pascal, PE, Project Manager, Transpo Group Rick Perez, PE, City of Federal Way		
Subject:	Federal Way Safety Analysis		

As part of the development of a Safety Action Plan for the City of Federal Way, five years of crash data, obtained from WSDOT via police reports, covering from January 1, 2020, through December 31, 2024, was analyzed for trends and risk factors that can be proactively addressed to reduce the severity of crashes and even prevent some future crashes. The safety data analysis covers all public roads in the City of Federal Way but excludes limited access highways (Interstate 5 and SR 18 east of SR 161). The conclusion of the safety analysis is the identification of specific, prioritized risk factors to be used in the recommendation of countermeasure projects, policies, and procedure changes as part of the Safety Action Plan.

Introduction

Historical crash data was analyzed as part of the Safety Planning effort to understand crash risks at a systemic level and focus proactive transportation safety efforts on areas where the most benefit can be achieved. Crash data is reported in a format that allows for grouping and identification of trends related to, but not limited to:

- Crash type
- Crash severity, including fatal and serious injury crashes (FSI)
- Contributing circumstances (as reported by Police)
- Location
- Time of day
- Weather and lighting conditions

The results of the historical analysis provide a picture of crash trends and statistical outliers over the five-year period, showing which types of crashes are most frequent and severe, and what the underlying behavioral issues may be.

The crash data locations, along with the associated crash type, severity, contributing circumstances, etc., were mapped and analyzed spatially to identify patterns, trends, and statistical outliers that may be related to specific roadway conditions, intersections, adjacent development, existing or missing pedestrian and bicycle facilities, and other factors. In addition to a spatial analysis of crash data, overlaying demographic data can help to identify patterns and risks that may be associated with socioeconomic characteristics, in addition to roadway operational or physical conditions.

Combining the historic statistical and spatial analyses helps to identify actionable risk factors, showing what types of crashes, environmental conditions, contributing behaviors, and/or facility characteristics present the greatest risk to roadway users, and which types of roadway users are most at risk.

Statistical and Spatial Crash Data Analysis

The process of analyzing crash data includes both statistical and spatial evaluations. The statistical data analysis allows for identification of trends in the data, such as crash types, contributing circumstances, or physical environment characteristics that are common to crashes. The commonalities could be among all crashes where there is a significant percentage that fall into a certain category. Commonalities could also be statistical outliers when comparing Federal Way to similar cities for which we have summarized crash data for the same period. Statistical outliers can be especially helpful as they can identify aspects of the city's transportation network that differ from other areas which experience fewer crashes and could suggest ideal projects to proactively reduce future crash occurrence.

Following the completion of the first stage of statistical analysis, the crash data is analyzed spatially. Each crash report is accompanied by a coordinate pair that can be used to map all the crashes in the city in the study period using GIS software. An interactive crash dashboard was prepared for Federal Way which facilitates a spatial analysis of crashes. The spatial analysis helps to identify trends and respond to questions such as:

- Are the more severe crashes occurring on arterials?
- What is the relationship between active mode crashes and intersections?
- Are there more fixed object and lane departure crashes happening on roads with horizontal curves?

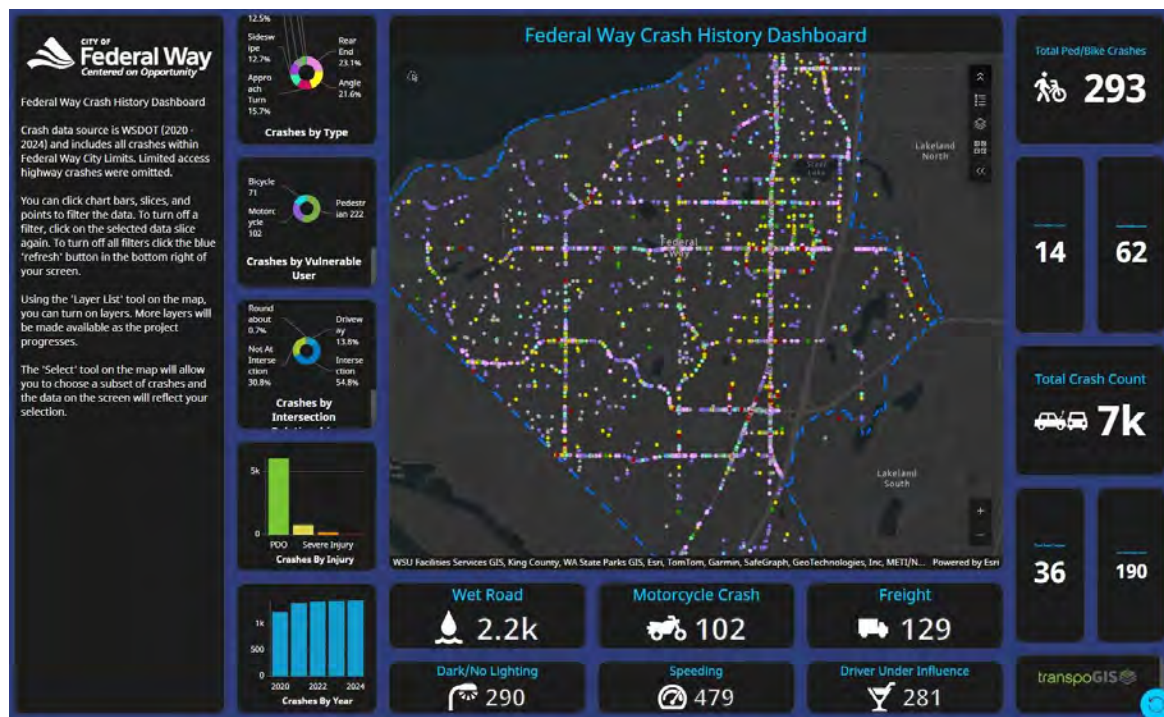


Figure 1 – Screen capture of Federal Way Crash Dashboard

The spatial analysis helps to leverage the information in the statistical analysis and refine it into more actionable countermeasures. Resource limitations mean that the City must prioritize where improvements are made. Understanding both the statistical and spatial risk factors for crashes helps to focus the City's efforts on areas with the highest potential for mitigation of the most severe and/or most frequent future crashes.

The statistical analysis looks at the most severe crashes (those resulting in a documented severe injury or fatal outcome for one or more parties to the crash) and all crashes.

The statistical and spatial analyses are limited by the reliance on police reported information about a crash. While some information, such as the date and time, are less subjective, some police reporting practices differ from department to department and among individual officers. The crash data we have represents the best possible information available on historical events. Near-miss events, while impactful for those involved, and likely indicative of safety risks that could be proactively addressed, are not included in the crash data. There are rarely reports of near-misses that are not anecdotal or perhaps reported to the City as a citizen action request. These events are not included in the crash data analysis at this stage but can be considered and incorporated into the development of countermeasure projects and programs at later stages of the Safety Action Plan process.

The following analysis looks at crashes by type and by location to identify how contributing factors, the statistical and spatial distribution of crashes, and additional unique analysis points collectively highlight common risk factors that can be addressed by the City as part of the Safety Action Plan.

Safe System Approach

WSDOT's Safe System Approach is a guiding principal in the analysis of crash data for Federal Way's Safety Action Plan (see Figure 2 below).

The Safe System Approach considers several factors that, combined, help to improve the overall safety of the transportation network. While a safety analysis and its resulting countermeasures focus primarily on the Safer Roads aspect Safe System, the approach of looking at both statistical and spatial crash data allows for consideration of other Safe System factors, such as:

- **Safer People** – Identifying trends in driver and/or active mode user behavior—such as disregard for signals and signage, distraction, intoxication, drowsiness, speeding or reckless behavior—or improper actions such as not yielding right-of-way at turns or active mode crossings, can help the City of Federal Way identify educational and enforcement processes to improve the safety of the users of the transportation network.
- **Safer Speeds** – An important aspect of looking at the crash data spatially is the ability to more easily match crash types and contributing circumstances to roadways with different posted speed limits. The spatial analysis can help differentiate between drivers exceeding the posted limit, or the posted limit itself may be a systemic factor leading to crashes.
- **Safer Vehicles** – Vehicles that are smaller portions of the overall fleet—such as trucks, motorcycles, or active modes—can be involved in an outsized number of crashes. The statistical analysis of crashes included vehicle types that are more often involved in certain crash types as a consideration for future roadway countermeasure project design and education efforts.



Figure 2 – WSDOT’s Safe System Approach

Overall Crash Trends

Overall, the total number of crashes—regardless of injury outcome—in the City of Federal Way has been statistically steady since the resumption of more “normal” traffic patterns following the 2020 COVID pandemic. The increase in the total number of crashes has been less than 2% per year. Before the 2020 COVID pandemic, the crash frequency in the City was higher than the crash frequency in the current study period.

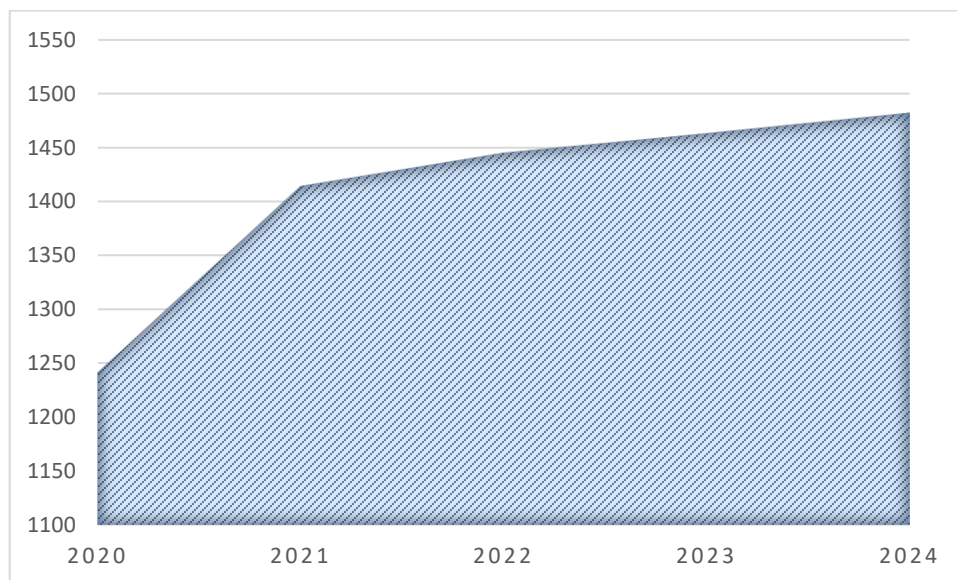


Figure 3 – Yearly Crashes in Federal Way

Small statistical variations in the total crashes from year to year are expected. Additionally, the volumes of traffic in the City and the region overall have been increasing slightly during the study period as the travel patterns change following the dramatic impacts of the Stay-at-Home orders in 2020.

The yearly occurrence of severe crashes has been increasing during the study period faster than the overall crashes, but fatal crash occurrences per year have been steady.

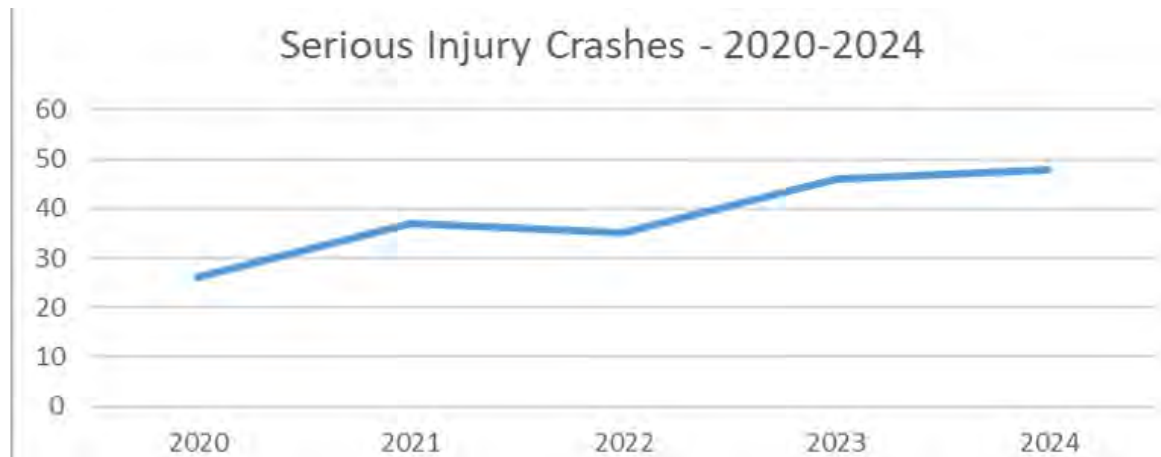


Figure 4 – Serious Injury Crashes in Federal Way

Crashes in Federal Way tend to be higher in the last three months of the year (October-December), with December being the highest crash frequency month by 30% or more over the average monthly crash volume, and April being the lowest, when crash frequency is about 20% less than average. Crash frequency also tends to be highest at the end of the week, especially on Fridays, and during the afternoon peak hours of 4 p.m. to 6 p.m. Development of countermeasure projects and programs that are responsive to the timing of crashes may help to improve the effectiveness of treatments.

Crash Severity

The evaluation of all crashes acknowledges that, while prevention of the most severe outcomes is the highest priority, the severity of a crash outcome can be based on unrelated factors outside of the scope of a safety improvement project, such as health factors of the driver or passenger, construction of the vehicles involved, or random chance circumstances.

Among the full range of crashes in the study period, nearly two-thirds involved property damage only, with no injuries among any of the parties involved in the crash. The remaining one-third of crashes involved an injury to one or more parties, with the strong majority of those injuries (32% of all crashes) being minor only. Police crash report data typically defines minor injury as the type that would not involve a hospital visit, but may require a doctor's care, and could also be cuts, scrapes and bruises.

Average Crash Severity - Federal Way 2020-2024

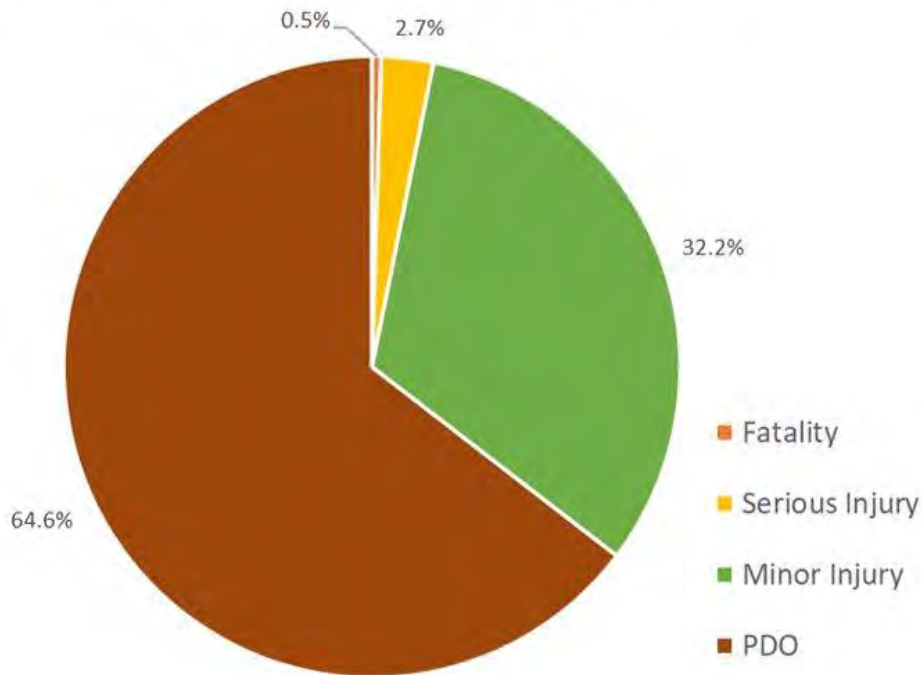


Figure 5 – Serious Injury Crash Percentages in Federal Way

The more serious injury crashes represent a smaller portion of the crashes. Federal Way's percentage of severe injury and fatal crashes among all crashes is similar to that of other area cities of a similar size, although this does not diminish the need to address these types of life-altering crashes. Within the study period, 2.7% of crashes resulted in a severe or disabling injury, and 0.5% of crashes resulted in a fatal outcome.

Multiple-Injury Crashes

When injury crashes occur in Federal Way, a single injured party is the most common result. In many cases, the single injured party is a pedestrian or cyclist. Many of the most serious injury crashes involve only a single vehicle, although this statistic is skewed by the fact that many of the more serious injury crashes involve a pedestrian.

- Among minor injury crashes, 26% had more than 1 injured party in the crash.
- Among serious injury crashes, 32% had more than 1 injured party in the crash.
- Among fatal crashes, 6% had more than 1 party killed in the crash.

The occurrence of multiple-injury crashes is unlikely to be a factor that, individually, is statistically significant enough to be incorporated into the development of countermeasures. Many of the factors that may lead to multiple-injury crashes would be addressed via other countermeasures and contributing circumstances.

Table 1. Multiple-Injury Crashes
City of Federal Way, 2020-2024

	No injury	Minor injury	Serious injury	Fatal
Crashes of Type	4551	2268	190	36
More than 1 injured party	0	592 (26%)	60 (32%)	2 (6%)

1. Data from WSDOT Public Records Request database, obtained May 2025
2. Records are reliant on police-reported injuries

Single-Vehicle Injury Crashes

Single-vehicle crashes with an injury typically involve a pedestrian and can be an indicator of potential risk factors.

- For minor injury crashes, 17% involved only a single vehicle. Of these minor injury single-vehicle crashes, 63% did not involve a pedestrian, and 37% did involve a pedestrian being injured.
- For serious injury crashes, 48% involved only a single vehicle. Of these serious injury single-vehicle crashes, 38% did not involve a pedestrian, and 62% did involve a pedestrian being seriously injured.
- For fatal crashes, 42% involved only a single vehicle. Of these fatal single-vehicle crashes, 20% did not involve a pedestrian, and 80% did involve a pedestrian being killed.

The data emphasizes that single-vehicle crashes involving pedestrians are the most likely to result in a severe outcome.

Table 2. Single Vehicle Crashes
City of Federal Way, 2020-2024

	No injury	Minor injury	Serious injury	Fatal
Crashes of Type	4551	2268	190	36
Single-vehicle involvement	656 (14%)	389 (17%)	91 (48%)	15 (42%)
Single-vehicle involvement (Pedestrian-involved removed)	648 (14%)	246 (11%)	35 (18%)	3 (8%)

1. Data from WSDOT Public Records Request database, obtained May 2025
2. Records are reliant on police-reported injuries

Contributing Factors to Severe Crashes

Among the crashes with the most severe outcomes (serious injury and fatal, abbreviated as FSI) there were no crash types or contributing factors that were overwhelmingly represented in the data. Common crash types accounting for more than 10% of crashes were pedestrian and bicycle involved (33%), approach/angle (29%) and fixed object (14%). The involvement of pedestrians and bicyclists is consistent with other data about crash severity and reinforces the need to focus on active mode involved crashes, even when they are a statistically small portion of the total number of crashes. More detail on pedestrian and bicycle crashes and fixed object crashes is included in the sections below.

The higher number of approach/angle crashes is an important factor when considering the spatial analysis of where the crashes occurred. While the majority are spread out among the arterials in the City, there are three important clusters of crashes to highlight:

- S 312th Street between SR 509 and SR 99 had 6 approach turn crashes with FSI outcomes during the study period. The crashes were all at 4-way intersections. The clustering of angle and approach type crashes on this one stretch of roadway should be considered in the development of countermeasure projects.
- The intersection of Military Road S and S 288th Street had a cluster of approach turn type crashes at the intersection and at driveways near the intersection. This intersection should be a focus in the development of countermeasure projects.
- The intersection of 21st Avenue SW and Campus Drive, including the approaches for about one-half mile in both directions, had a clustering of angle and approach turn crashes with FSI outcomes. This area should be a focus for countermeasure projects that address the angle and approach turn crash types.

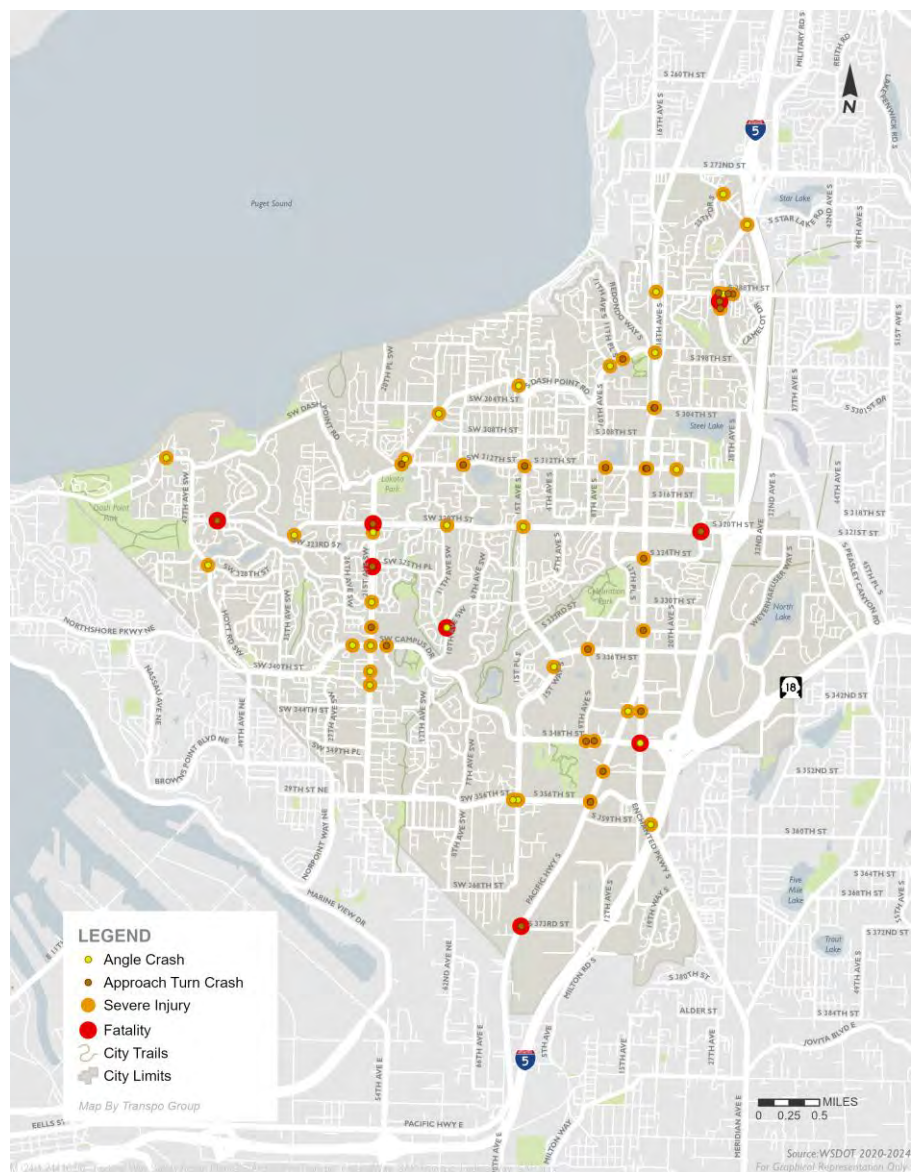


Figure 6 – Angle/Approach Turn Crashes with Serious Injury or Fatal Outcome

The contributing circumstances cited in the police reports for FSI crashes had a few common actions cited in more than 10% of the crashes:

- 27% of FSI crashes cited an improper driver action, such as not granting right-of-way to another vehicle or active mode user, improper turns/merges, or disregarding signs or signals. Under the Safe System Approach, these types of contributing circumstances fit into the Safer Drivers category and could represent opportunities for educational and enforcement focused countermeasure programs and policies.
- 12% of FSI crashes involved some sort of distraction, ranging from cell phones to other occupants to food.
- 10% of crashes cited exceeding the stated speed limit or a reasonable safe speed. Exceeding a reasonable safe speed could indicate that because of traffic volumes, lighting, precipitation, or other circumstances, in the opinion of the responding officer, the driver should have been driving at a speed under the posted limit.
- 10% of crashes cited intoxication as a contributing factor.

Beyond the more common circumstances, close to 45% of FSI crashes had either no specific contributing factors cited (19%), or an “other” factor cited (23%). The lack of actionable data for nearly half of the FSI crashes is not uncommon, and is a reason that proactive steps, aligned with a Safe System Approach, can help to address some of the unexpected or unanticipated factors that lead to severe crashes.

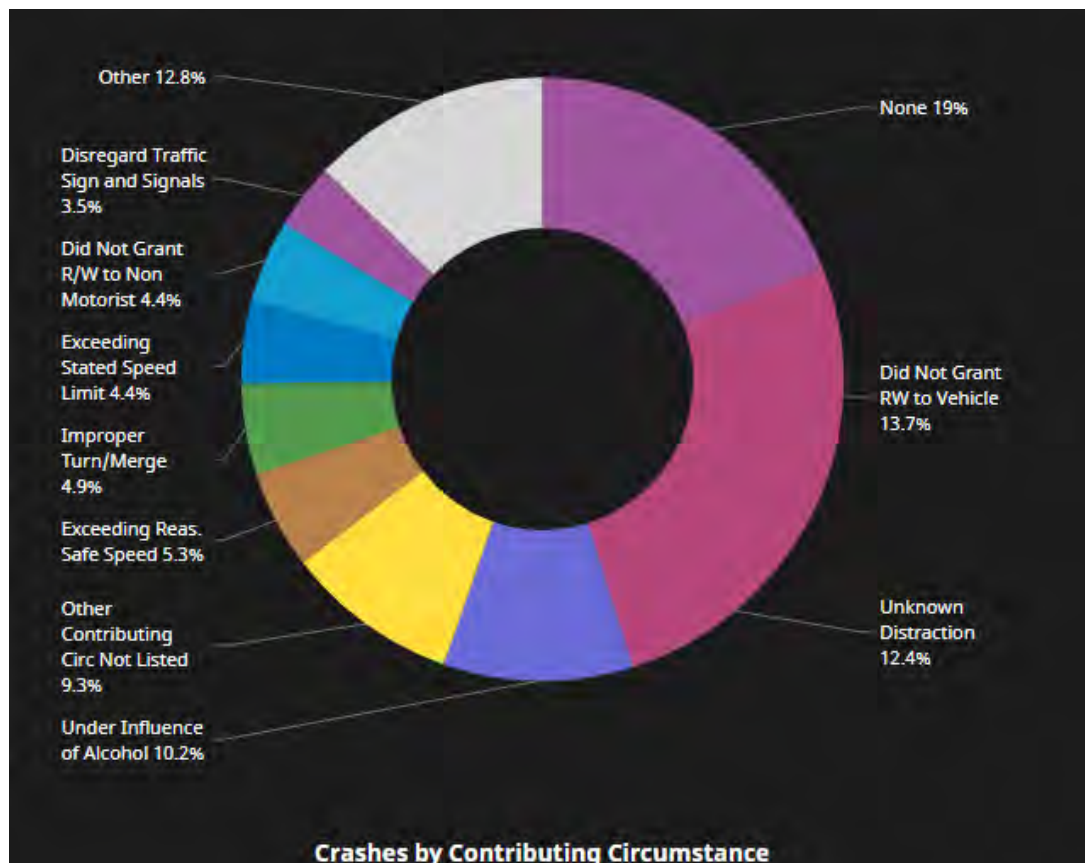


Figure 7 – Contributing Factors to Severe and Fatal Crashes

Crash Type Analysis

Identifying the crash type is an important factor in determining actionable risk factors for the City of Federal Way to address as part of the Safety Action Plan. Crash types are a categorization that considers the parties involved, the location and relationship of vehicles, and the type of object struck. The distribution of crash types among all the crashes in the study period in Federal Way is shown in the chart below.

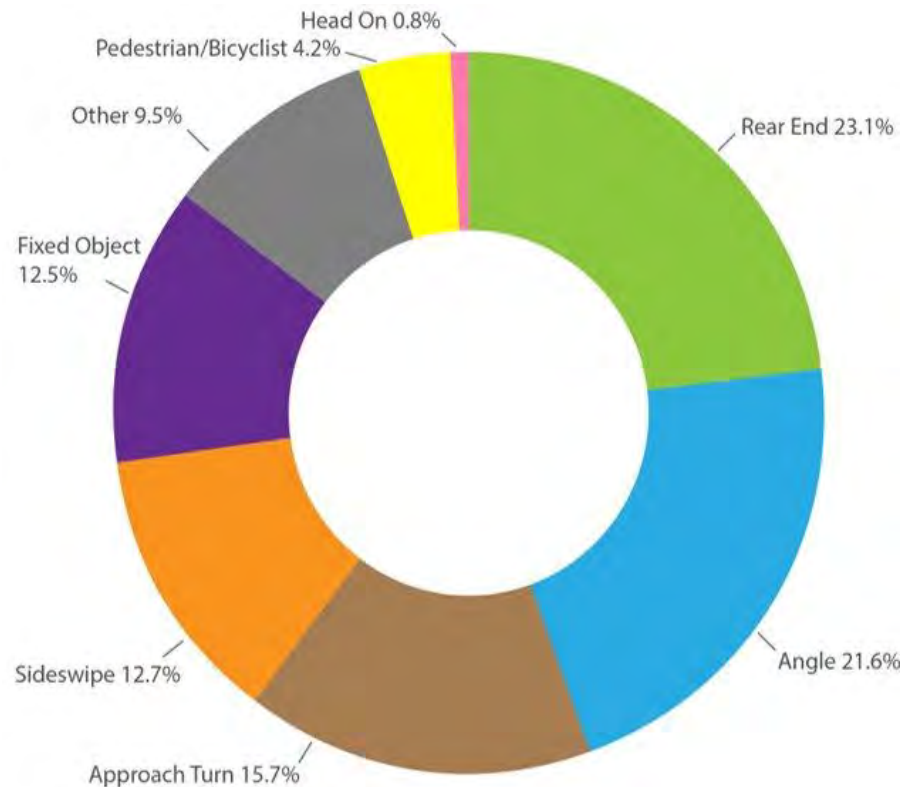


Figure 8 – Crash Types for all Crashes, Citywide

Further details were gathered on the location and contributing circumstances for each of the more common, or more severe, crash types.

Crash Types

To understand the analysis, each of the crash types included in the figure above, and cited in this safety analysis, is defined as follows:

- **Rear-End** – Rear-end crashes occur when one vehicle impacts another while traveling in the same direction. Rear-end crashes occur most frequently when vehicles in front stop or slow unexpectedly, such as in congestion near signalized intersections or on busy arterials at peak traffic times. Rear-end crashes are often related to driver distraction or inattention, following too closely, or reacting too slowly to stopped traffic. Rear-end crashes are typically of a lower severity and can be mitigated by improving signal-related congestion or driver expectancy when in congested areas, and implementing distraction mitigation measures.
- **Angle** – Angle crashes, closely related to approach turn (defined below), occur when two vehicles crash at a 90-degree angle. Angle crashes occur when drivers do not properly yield right-of-way, do not adhere to stop or signal control, or misjudge a gap due to errors

or limited visibility. Angle crashes can be more severe because of the lesser protection of a vehicle's sides and the potential for higher speeds at the point of impact.

- **Approach Turn** – Approach turn crashes occur when a turning vehicle impacts a vehicle traveling in the same or opposite direction at a more acute angle than an angle crash. This type of crash is usually related to misjudgment of gaps in traffic or the speed of oncoming traffic and is common at signalized intersections. These crashes, like angle crashes, can involve higher rates of speed and less protected parts of vehicles and can be more severe.
- **Sideswipe** – Sideswipe crashes involve two vehicles traveling in the same direction and making contact along their sides. Sideswipes can occur due to lane changes or drivers “creating” additional lanes when in congestion conditions or trying to queue for turns at signalized intersections. Sideswipes are typically less severe and can be mitigated by reviewing lane configurations, queue lengths, congestion, and shoulder widths.
- **Fixed Object** – Fixed object crashes, also known as run-off-the-road crashes, are lane departures that result in a vehicle impacting any sort of natural or built object at the roadside, including embankments and ditches. Fixed object crashes can be severe because of the immobility of the object hit, and are usually more common as single-vehicle crashes.
- **Pedestrian/Bike** – Ped/bike crashes are a grouping of crash types that involve impacts between a vehicle and any non-motorized user of the transportation system. Any number of rolling vehicles (bikes, scooters, etc.) are typically classified as “bikes” in the available safety analysis data. Any user on foot and not currently in a vehicle at the time of impact is considered a pedestrian. Because of the lack of protection from a vehicle or other encasing object, ped/bike crashes, also known as active mode crashes, are typically the most severe in terms of injury.

Other crash types are less common and are grouped into an “other” category for the purposes of the Federal Way crash data analysis.

Rear-end

Rear-end crashes are common in areas with high traffic volumes and signalized intersections, as they frequently result from and are indicative of backups. Rear-end crashes do happen in other circumstances, but the distribution of this crash type in Federal Way tracks closely with the most congested arterials.

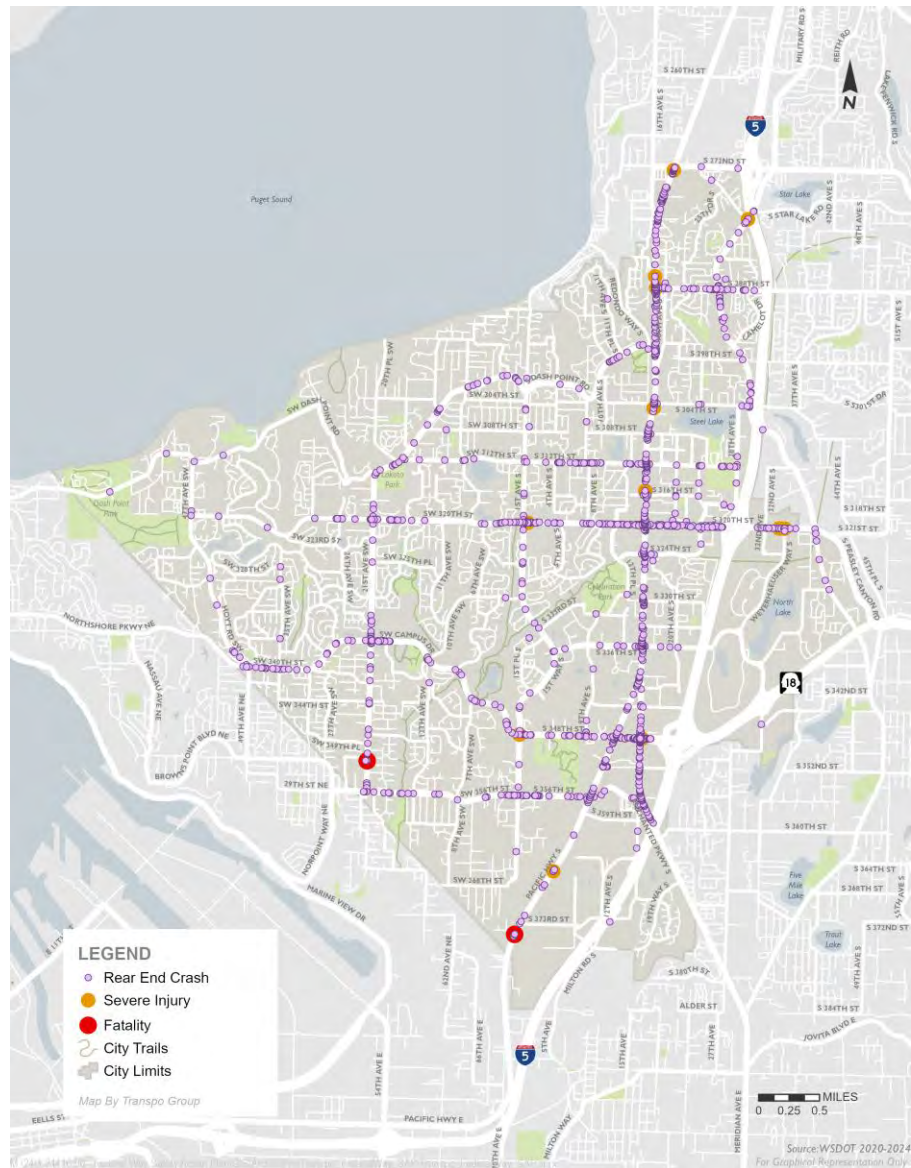


Figure 9 – All Rear-end Crashes

The majority of rear-end crashes occurred along SR 99 and the arterials approaching SR 99. There were also some rear-end crashes near the intersection of 21st Avenue SW and Campus Drive. Among rear-end crashes, 20% were cited with distraction as a contributing factor, and 50% were cited with following too close, or speed too fast for conditions. Rear-end crashes tend to happen more frequently on Fridays and peak between 4 and 6 p.m., indicating a strong correlation with end of the week rush hours. This crash type also occurs more frequently in August, November, and December, aligned with potential traffic increases associated with back-to-school season and the holidays. Rear-end crash frequency in dry versus wet conditions compared similarly to that of all crashes, indicating that environmental conditions are not a significant factor for this crash type.

Two rear-end crashes resulted in fatal outcomes. Both involved motorcycles that were stopped being struck by drivers. One crash occurred on 21st Avenue SW, and the other crash occurred on

SR 99. The SR 99 crash involved impairment of the driver of the vehicle that struck the motorcycle.

Angle and Approach

Angle and approach turn crashes are considered together as there are many similar circumstances that lead to each type of crash. Both types of crash commonly occur where roads or driveways intersect, requiring judgment actions by the driver(s) based on identifying, analyzing, and balancing many factors such as oncoming vehicles, other turning vehicles, active mode users, and environmental conditions.

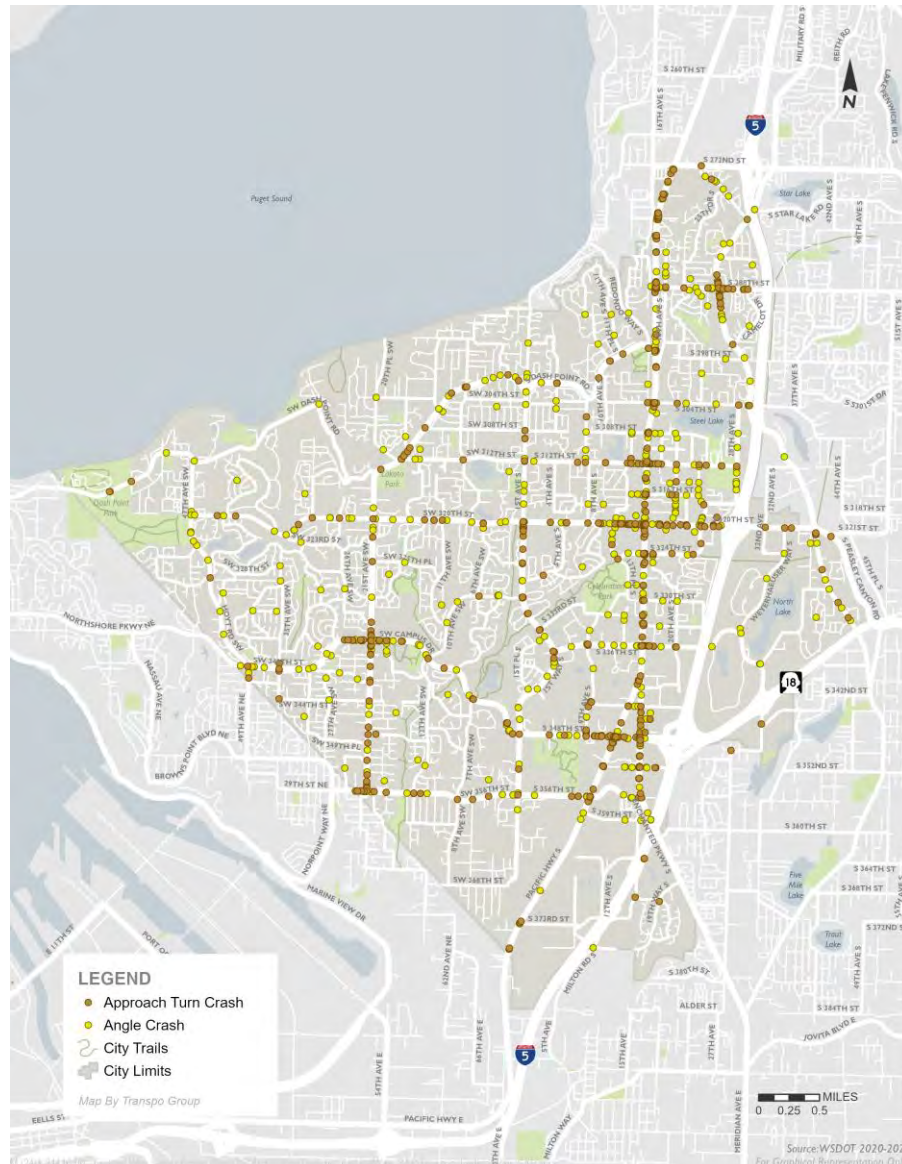


Figure 10 – All Angle and Approach Turn Crashes

Of the approximately 2,600 crashes in the study period that were of the approach turn or angle type, 68% were evaluated to be caused by driver error or improper actions, such as not granting right-of-way to another vehicle, disregard of signs and signals, or making an improper turn or merge. Just under 70% of the angle and approach crashes occurred at intersections, and just

under 30% occurred at driveways. Angle and approach crash frequency in dry versus wet conditions compared similarly to that of all crashes, indicating that environmental conditions are not a significant factor to either crash type. Similar to rear-end crashes, angle and approach crashes occur significantly more frequently on Fridays during the 4 – 6 p.m. peak hours and are higher in the later months of the year (October through December).

The angle and approach turn crashes primarily occurred along the arterials and collectors in the City, with only a few in the local street areas. Concentrations of crashes are located at four geographical areas of the City:

- The Downtown retail area (bounded by S 324th Street on the south, S 312th Street on the north, 11th Place S on the west, and 23rd Avenue S on the east)
- 21st Avenue SW and SW Campus Drive
- Military Road S and S 288th Street
- S 348th Street and SR 99 and SR 161/16th Ave S intersections

Eight angle and approach type crashes resulted in fatal outcomes. The locations were spread throughout the City, with at least one near each of the four concentration areas listed above. Two of the fatal crashes involved motorcycles and two involved drivers under the influence.

Sideswipe

Sideswipe crashes, similar to rear-end crashes, typically occur more often along the more congested multilane arterial and collectors in the City, with a higher frequency in the SR 99 corridor and the approaches to SR 99 from collectors and arterials.

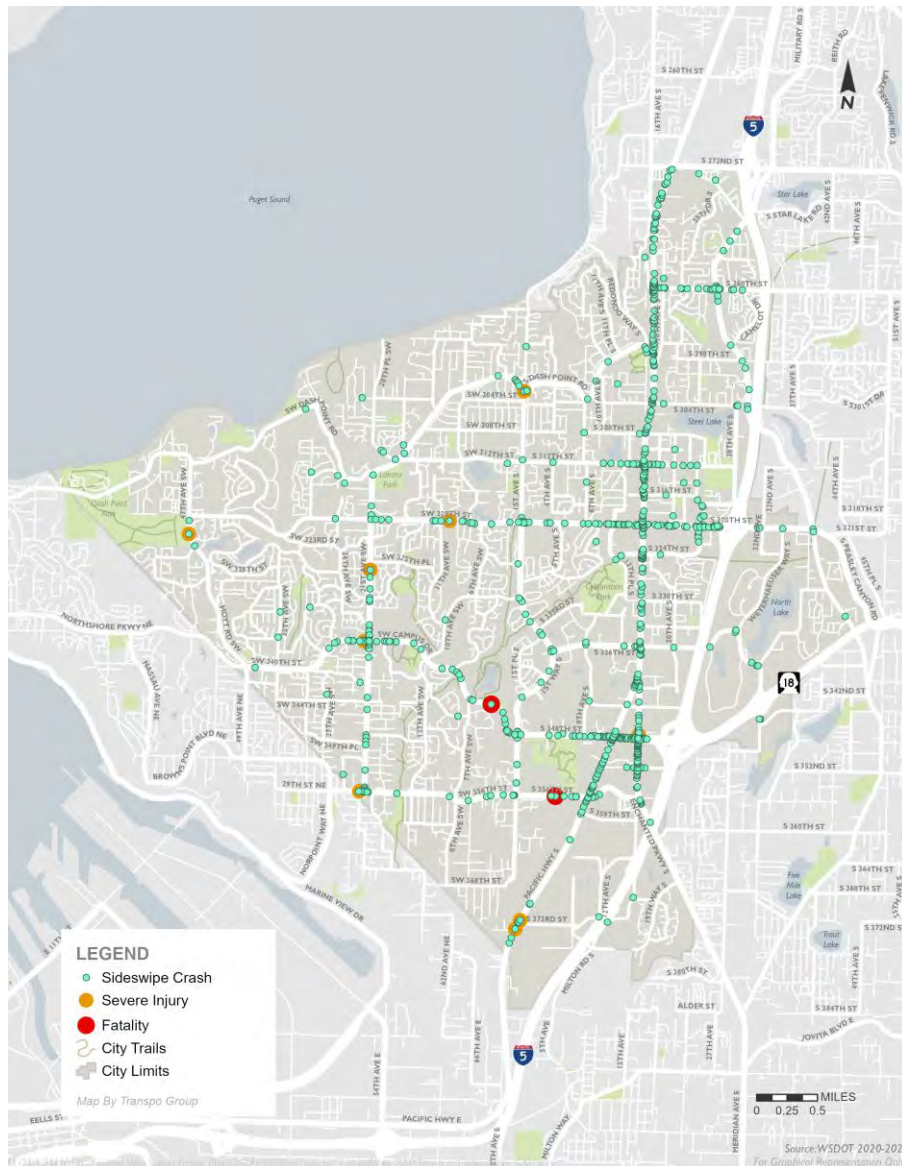


Figure 11 – All Sideswipe Crashes

Sideswipe crashes have a lesser severity than some other studied crash types, with only 11 FSI crashes, despite 892 total crashes in the study period. The most common contributing factor to sideswipe crashes was identified as driver error, with improper turn/merge, not granting right-of-way to a vehicle, and improper passing accounting for nearly 50% of all sideswipe crashes. Distraction was cited in just under 14% of sideswipe crashes. Sideswipe crash frequency in dry versus wet conditions compared similarly to that of all crashes. Sideswipes occurred more often in the afternoon hours (2 p.m. – 6 p.m.) but had no significant differences in frequency by month or day of the week.

Fixed Object

Fixed object crashes, which involve a vehicle departure from the travel lanes, are a widely distributed crash type across the City. Fixed object crashes are the most common type of crash on Federal Way's residential/local streets. While fixed object crashes do occur on the arterials and

collectors, this crash type is less concentrated on these higher volume, multilane roads than other crash types.

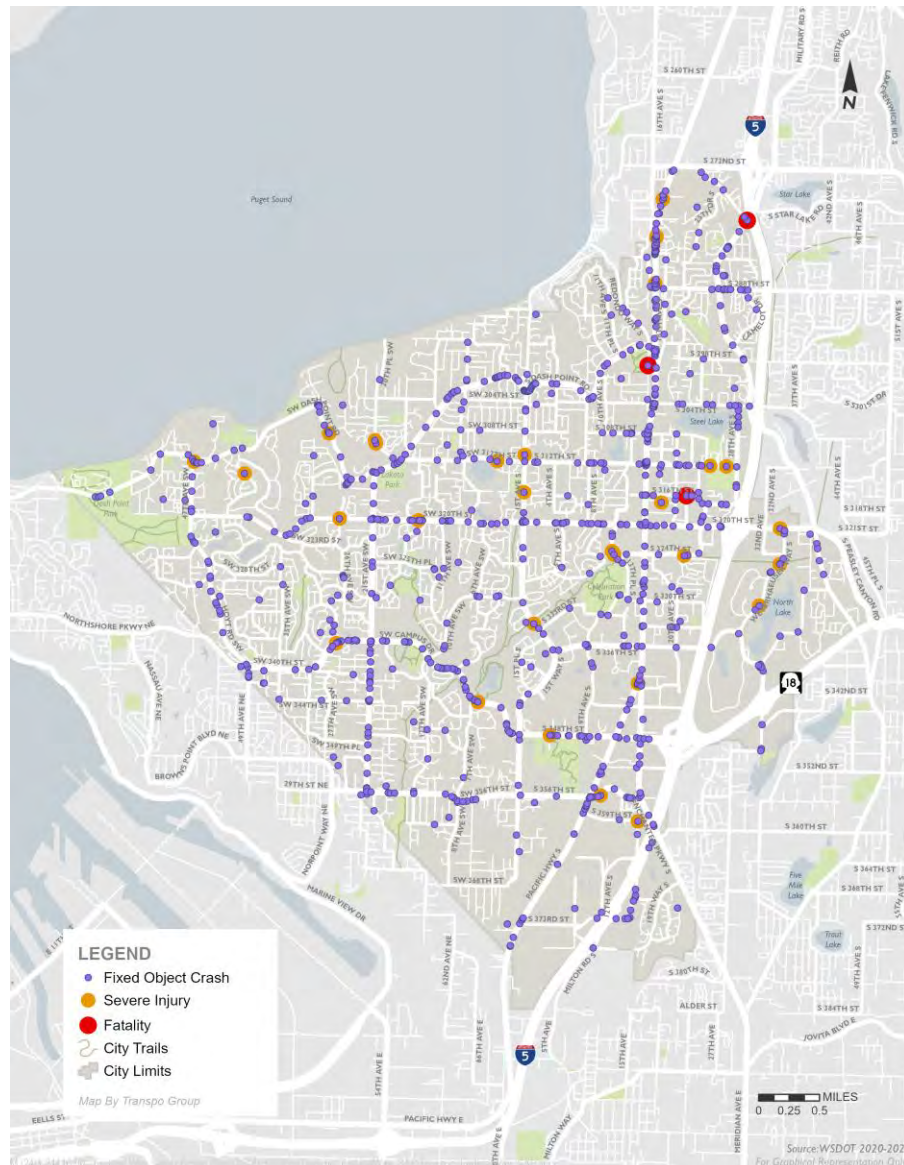


Figure 12 – All Fixed Object Crashes

Contributing factors to fixed object crashes include a wider array of cited conditions, with leading factors at relatively equal occurrence. Significant factors cited in more than 15% of fixed object crashes include:

- Distraction (17.6%)
- Speeding (16.6%)
- Biological factors such as DUI and being asleep (16.7%)

Fixed object crashes do occur somewhat more often in wet conditions when compared to the full data set of all crashes. Fixed object crashes also tend to occur more often in November, December, and January, indicating environmental factors may be significant contributors. Fixed

object crashes also happen more frequently on weekends (Saturday and Sunday) and most often between 10 p.m. and 3 a.m., with a strong peak in occurrences in the 2 – 3 a.m. hour.

While some fixed object crashes do occur in horizontal curves of roadways, there are many that also occur in tangent/straight sections of road. There may be only a limited connection between roadway geometry and fixed object crashes.

The data shows that the risk factors showing the strongest correlation with fixed object crashes are:

- Environmental, with wet surfaces and darkness, especially in winter months. These are significant factors.
- Late-night weekend driving and the tendency for speeding, intoxication, and sleepiness to be factors for drivers at these times.

The City of Federal Way's 2022 Local Road Safety Plan (LRSP) identified fixed object crashes in horizontal curves as a significant risk factor. The City completed a project in 2019 (just before the current study period) to implement citywide horizontal curve warning signs. The lack of concentrated fixed object crashes in horizontal curves in the current data indicates the success of the project in addressing a systemic risk factor for this crash type. The 2022 LRSP suggested high friction pavement treatments would be a future project, and the current data highlighting the environmental factors common to fixed object crashes reinforces the need to investigate a systemic countermeasure project to increase roadway surface friction.

Pedestrian and Bicycle (Active Modes)

Crashes involving active mode users represent some of the highest risk for severe outcomes because of the vulnerability of the active mode users compared to those in vehicles. The City of Federal Way does have an extensive active mode network of bike and pedestrian facilities, and with transit connections plentiful in and near the City, active modes are an important transportation option for some users.

Crashes involving active modes involved pedestrians 77% of the time, and cyclists 23% of the time. Perhaps due to the way the City's active mode network is distributed, bike crashes tended to occur more often at midblock locations, or outside of major signalized intersections, with the majority on SR 99 and S 320th Street. On the other hand, crashes with pedestrians were more focused at the larger signalized intersections in the City, although the pedestrian crashes that occurred midblock tended to be the most severe.

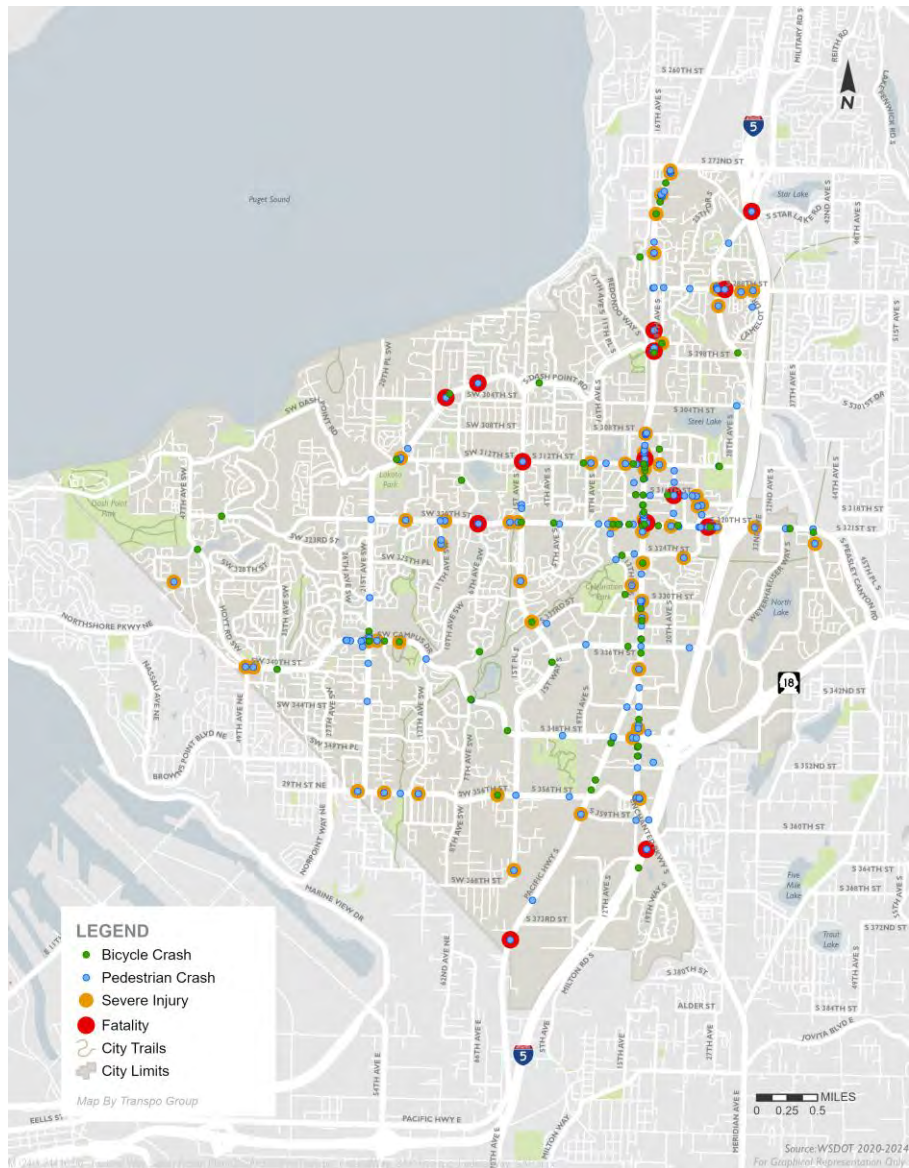


Figure 13 – All Pedestrian and Bicycle Crashes

Only 3% of the crashes involving pedestrians did not result in at least a minor injury. Thirty-one percent of the pedestrian-involved crashes were of the FSI type, with 14 fatal outcomes. Only one of the fatal outcome crashes involved more than one victim. For cyclists, 3% of crashes were considered “property damage only,” and while fortunately no fatal bike crashes occurred, a serious injury occurred in 10% of the crashes.

Table 3. Active Mode Crash Severity⁴
City of Federal Way, 2020-2024

	Crashes	No injury	Minor injury	Serious injury	Fatal
All active mode crashes	301	10	213	64	14
Pedestrian only	231	8 (3%)	152 (66%)	57 ² (25%)	14 ³ (6%)
Cyclist only ⁴	70	2 (3%)	61 (87%)	7 (10%)	0

1. Data from WSDOT Public Records Request database, obtained May 2025

2. Two crashes involved two pedestrians with serious injuries.

3. One crash involved two fatal pedestrian outcomes.

4. Records are reliant on police-reported injuries and mode of travel. Other "rolling" modes are not counted separately.

Contributing circumstances to active mode crashes included the driver not granting right-of-way to the active mode user (about 30% of the time), and the driver being distracted (13% of the time). But 35% of the active mode crashes cited no particular contributing circumstance on the part of the driver or the pedestrian. This high percentage of crashes with no direct cause can be an indicator of the need for continued development of highly visible and predictable active mode facilities. Active mode users can be "missed" by drivers when they are not expected or when they are difficult to see. Only 9% of crashes with active mode users occurred in the dark with no lighting, indicating that most of Federal Way's active mode facilities are in lit areas, although lighting improvements can always be helpful in improving visibility for active modes.

Active mode crashes tended to be significantly higher in the later months of the year, September through December, with the lowest in the late spring months, April through June. Active mode crashes occurred most often on Fridays, with significantly fewer occurring on weekends. Most active mode crashes occurred between 3 p.m. and 8 p.m., with a peak at 6 p.m., aligned with the highest peaks in vehicle volume activity during the day. Pavement conditions in active mode crashes were similar to the overall dataset of crashes, indicating wet surfaces are not necessarily correlated with active mode crash types.

The City of Federal Way's 2022 Local Road Safety Plan (LRSP) identified severe pedestrian crashes as a priority risk factor. Addressing pedestrian crashes at signalized intersections and midblock crossings were part of the planned countermeasures in the LRSP. Lead pedestrian intervals at signals where at least 7 lanes were present and left turning traffic has a permitted phase have already been implemented, and in fact, in the 2024 crash data, fewer pedestrian crashes at intersections occurred, possibly demonstrating the success of the countermeasure.

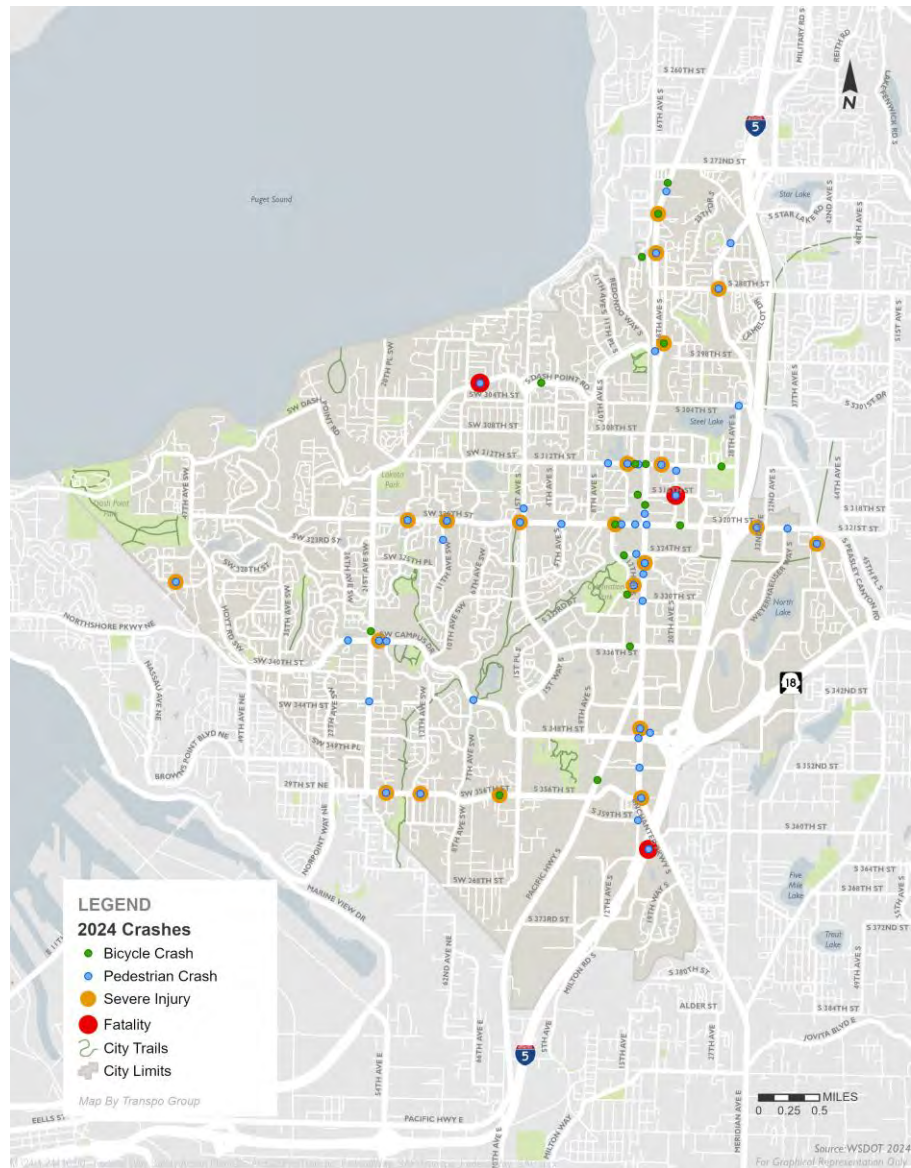


Figure 14 – 2024 Pedestrian and Bicycle Crashes

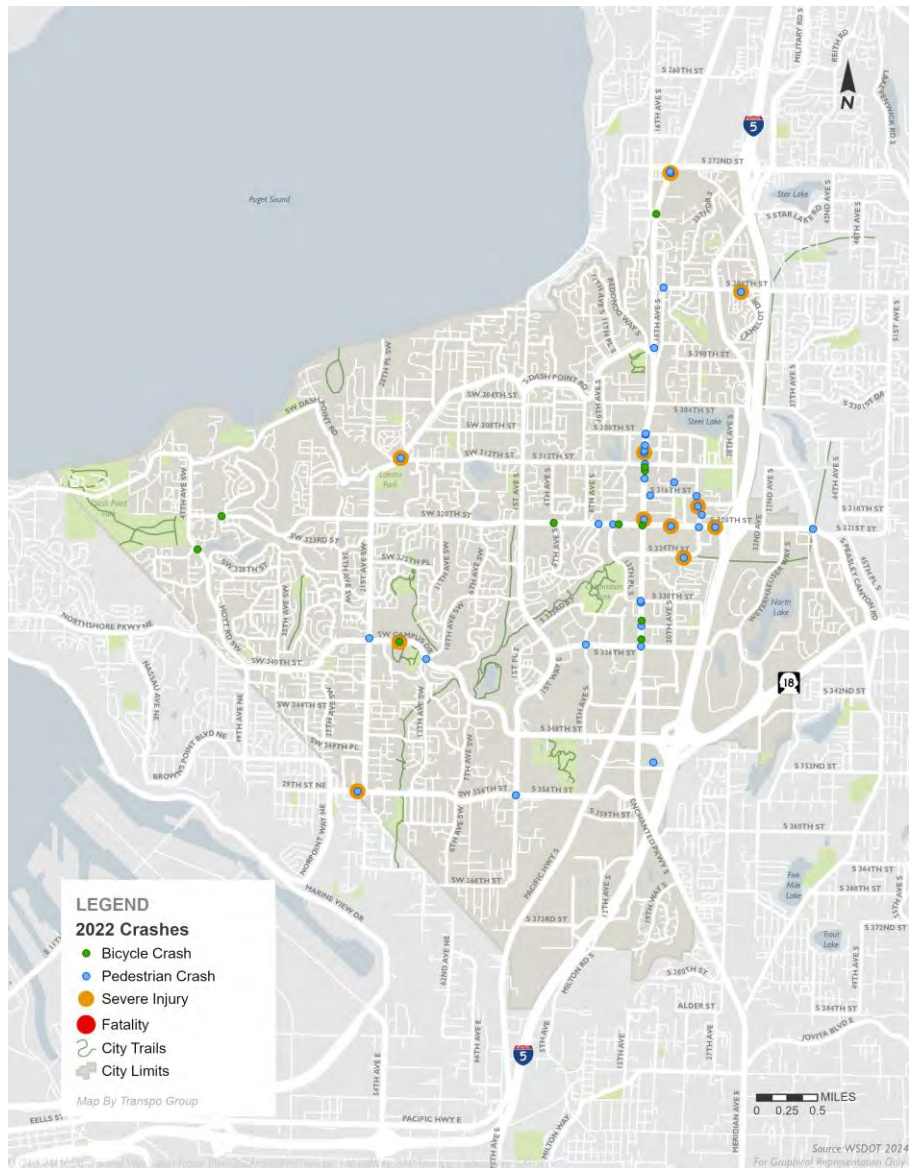


Figure 15 – 2022 Pedestrian and Bicycle Crashes

Crash Location Analysis

In addition to evaluating crashes grouped by type, looking at common locations for crashes and identifying the types and contributing circumstances can yield insights into the risk factors and associated countermeasure projects and programs the City of Federal Way can implement through the Safety Action Plan process.

Arterials and Collectors

The City's arterial and collector roadways serve as the main conduits of the local transportation system. These roadways connect neighborhoods, retail areas, and services, and see higher volumes of traffic and speed, which can lead to more conflicts and crashes. Many of the City's arterial and collector roadways are multilane (more than one lane in each direction), and most are signed for a regulatory speed limit of 35 mph or higher.

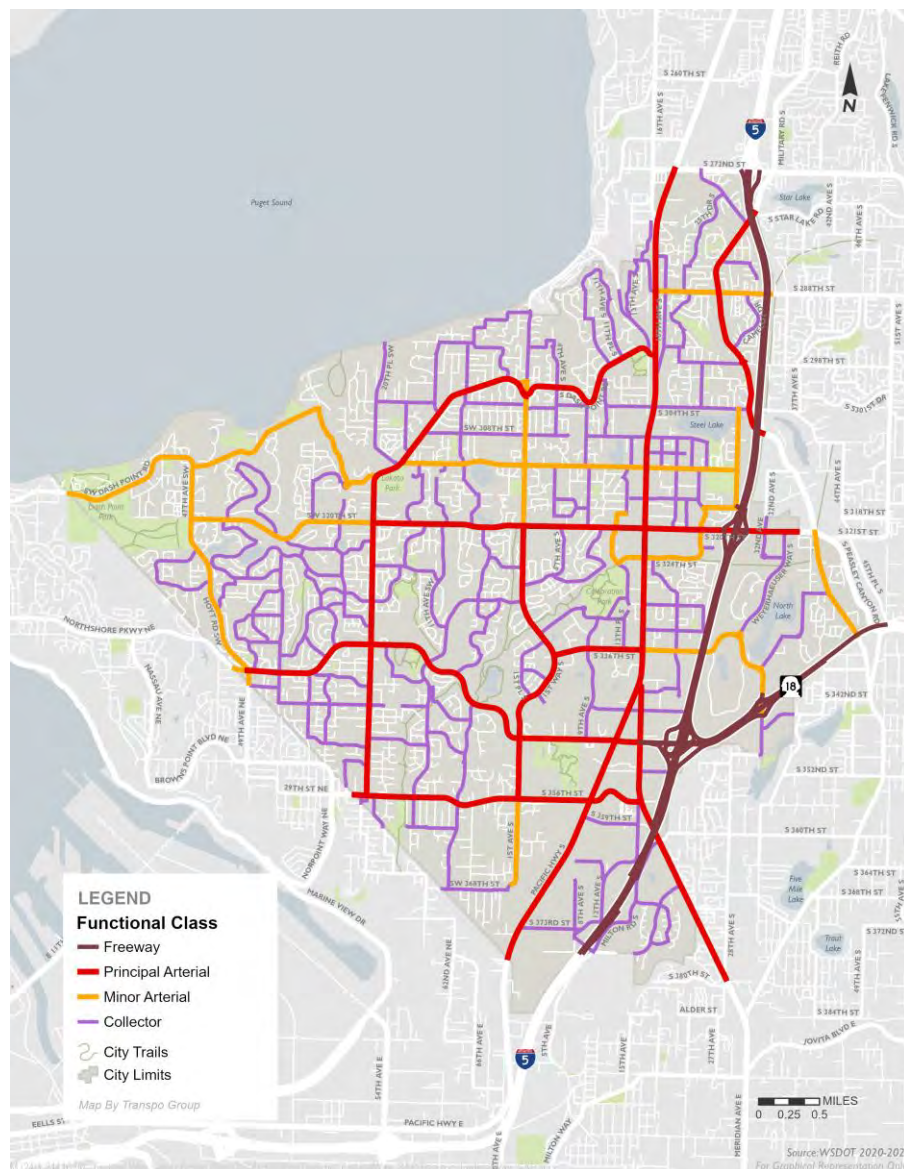


Figure 16 – Arterial and Collector Roads in Federal Way

While elevated crash volumes on arterials and collectors are not unique to Federal Way, nor are they unexpected given the function of the transportation system, these types of roads need to be a focus of any safety actions. They represent the best opportunity to mitigate future crashes and address certain situations that are, statistically, more likely to lead to crashes.

In the following analysis of the City's arterials and collectors, some of the contributing circumstances, as reported by the police for each crash, have been grouped for ease of analysis.

- **Speeding:** If one or more of the participants in a crash was cited for "exceeding posted speed", "exceeding reasonable safe speed," or "following too close," a crash was identified as speeding-related.
- **Driver Action:** If one or more of the participants in a crash was cited for "did not grant right-of-way," "disregard for signal/sign," or "improper turn or merge," a crash was identified as driver action-related.

Severe Crashes

Severe crashes have been discussed in other areas of the safety analysis, but the scattered nature of FSI crashes, spatially, is a topic worthy of note in the context of the overall crash analysis. Severe crashes do occur all over the City of Federal Way's arterials and collectors, with just a handful of more severe crashes on lower classification local roadways. The distributed nature of severe crashes highlights the need to address not just severe crash commonalities, but also all crashes, as the somewhat random nature of severity means any crash can turn severe.

While the bulk of FSI crashes were scattered throughout the City, as highlighted in other sections of the safety analysis, there were four areas with some concentration of the more severe crashes:

- The Downtown retail center (SR 99 and S 320th Street)
- The intersection of 21st Avenue SW and SW Campus Drive
- Military Road S and S 288th Street, especially south of the intersection
- The intersections of S 348th Street with SR 99 and SR 161

Severe crashes also tended to occur more often in straight sections of roadway, as opposed to areas with curves and horizontal geometry changes. The occurrence of crashes in straight sections of roadway is somewhat counterintuitive to typical expectations surrounding crashes, but can also highlight the effect of the City's previous efforts to improve safety around the delineation and protection of horizontal curves.

The Downtown Area

The City has developed a significant retail core around The Commons mall. The area is bounded by S 324th Street on the south, S 312th Street on the north, 11th Place S on the west, and 23rd Avenue S on the east. Within these boundaries, the development centers around large retail outlets, large parking lots, numerous attractions for those of all modes, a concentration of side streets and driveways, and several signalized intersections. The area is also adjacent to the S 320th Street interchange with Interstate 5.

Because of the concentration of land uses that attract and/or generate a significant amount of traffic of all modes, the area experiences a concentration of crashes of many types, as well as elevated crash severity.

Most of the concentration of severe pedestrian and bicycle related crashes—23 with severe injury and 4 fatal—have occurred in the Downtown area. In these crashes, 31% of the time, the driver was cited for not granting the right-of-way to the active mode user. Sixteen percent of these active mode-involved crashes involved distraction on the part of the driver, the pedestrian, or both. But, despite some commonalities in the contributing circumstances, 36% of the severe active mode crashes did not cite any specific contributing factors, either on the part of the driver or the pedestrian. Crashes occurring with no specific contributing factors demonstrate that the congested nature of the Downtown area, and the frequency of unpredictable and unexpected movements by users of all modes could be significant contributors to crashes. Interventions that help to create predictable actions by users, such as limiting left turns, locating protected high visibility crossings along strong desire lines, and using design elements to direct pedestrians to safer crossing locations could all be helpful in addressing the crash frequency and severity in the Downtown area.

Among the crashes that involved vehicles, common contributing circumstances included driver action in 47% of crashes. Distraction was cited in 11% of crashes and speeding cited in 4%, and while these are still circumstances that could be addressed, they represent lower prevalence in the Downtown area than in other areas of the City and are not the primary factors leading to crashes.

While a significant number of crashes did occur on the arterial streets around the Downtown area, several of the “interior” roads to the area north of S 320th Street and east of SR 99 had a high number of crashes given the functional classification of those roads. The locations of the interior crashes were nearer to the hotels, parks, and smaller retail establishments in the Downtown area, rather than the “Big Box” stores with larger parking lots, or the mall itself. The crash frequency on the interior roads may be an indicator that less familiar traffic (hotel guests) or more diverse desire lines for drivers and pedestrians (to access parks and smaller retail stores) may be contributing factors. As with the broader Downtown area, specific focus on increasing the predictability of actions by concentrating left turn opportunities and crossings on these interior roads could help to mitigate crashes.

The Downtown Retail Area Crash Timing

In the area of the Downtown retail core, approximately bordered by S 312th Street, S 324th Street, 11th Pl S, and 23rd Ave S, there is a clustering of crashes that fit many of the categories of crash type, crash severity, and common contributing circumstances already presented.

In addition to the already-described risk factors, the timing of crashes in the Downtown area is of note and could be an opportunity for specific countermeasure actions and/or projects. The nature of the crashes and the relationship to land use and private control over some of the elements of the transportation network in the area will require partnership between the City and developers and owners to achieve safety goals.

A larger portion of the crashes in the Downtown area occur during the October to January months, most often between 12 noon and 8 p.m. The timing of crashes aligns with both heightened periods of retail activity around the year-end holidays, and typical periods of darkness in the Pacific Northwest. Ensuring sufficient lighting, adequate crossings with high visibility treatments and active beacons where appropriate, and management of high-volume traffic intersections, including driveways, is important to addressing the specific risk factors for crashes in the Downtown area.

Intersections

Intersections are the most common location for crashes to occur in any city. Intersections naturally bring vehicles and pedestrians into conflict for common spaces, and require focused attention of users of all modes to safely and comfortably negotiate crossing each other’s paths. Predictability of movement—requiring a common understanding of the geometry of an intersection, restrictions on certain movements, visibility of users and their intentions, and a common pattern of movement—contributes to the safe operation of intersections. But, despite the best efforts of all involved, crashes can still occur at intersections even with no contributing circumstances. The safety analysis seeks to identify those factors leading to crashes at intersections that can be mitigated.

Of the intersections listed for specific analysis below, only two fatal crashes occurred within the intersection footprint, one at S 348th Street and SR 161 and one at S 320th Street and SR 99. The footprint of the intersection, for the purposes of defining crashes “within an intersection,” is considered small, and only goes to the back of the curb returns of each leg, rather than extending down each leg. But the data indicates that many of the crashes occurring at intersections are of a lower speed and a lower severity, which is important to consider in developing and prioritizing countermeasure projects at intersections.

If common congestion-related crash types (rear-end and sideswipe) are removed from the list of crashes, the highest concentrations of crashes in intersections in the City are at:

- S 348th Street and SR 161
- S 320th Street and SR 99
- 21st Avenue SW and SW Campus Drive

Where each of the corridors below cross each other, the intersection is only cited under one heading to avoid duplication of observations.

SR 99 Intersections

SR 99 has several major signalized intersections, including S 288th Street, S 312th Street, S 320th Street, S 324th Street, S 336th Street, SR 161, S 348th Street, and S 356th Street. Each intersection has multiple turn lanes, marked crossings, and several lanes of through traffic in each direction. Each intersection has experienced a significant number of crashes, but consistent with citywide data, the severity of those crashes is at or below the average, and the locations of severe crashes are spread throughout the corridor without a single specific concentration. There are more crashes involving active modes (pedestrians and cyclists) at the S 312th Street and S 320th Street intersections, but considering the proximity to the Downtown retail area, the increased active mode crash volume is understandable.

S 320th Street Intersections

S 320th has major signalized intersections with 1st Ave S, 10th Ave S, 11th Ave S, 25th Ave S and Weyerhaeuser Way S. The majority of crashes near the S 320th Street intersections are rear-end and fixed object type crashes, indicative of heavy congestion. The crash types on S 320th Street are less intersection-related than in other corridors, and intersections on this corridor are a lower priority risk factor compared to others in the City.

S 348th Street Intersections

On S 348th Street, the intersections with SR 99 and SR 161 are of particular concern. The crash frequency at these two intersections is one of the highest in the City. There is an especially high number of sideswipe crashes in and near these two intersections, and the intersection with 16th Avenue S/SR 161 also has a high number of rear-end crashes. The number of sideswipes tends to be higher on the legs of S 348th, rather than on the SR 161 or SR 99 legs of the intersections. Just outside of the footprint of each intersection, there is a high number of driveway-related crashes.

21st Avenue SW Intersections

21st Avenue SW has major signalized intersections with SW Campus Drive and SW 356th Street. Each intersection represents a significant risk for crashes and has had many crashes of a diverse number of types. SW Campus Drive experiences a high number of active mode crashes, except on the south leg of the intersection. Angle and approach turn crashes are high at both intersections, both in the intersection and on the approaches of all 4 legs to both intersections, including at driveways on the approach legs of both intersections. At SW 356th Street, the number of fixed object crashes is of more concern than at SW Campus Drive. The intersection of 21st Avenue SW and SW Campus Drive has the highest concentration of severe injury crashes among intersections in the City.

Military Road S and S 288th Street

The intersection of Military Road S and S 288th Street includes many crashes with citations of the driver not granting right-of-way to approaching vehicles or making improper turns and merges. A number of driveway-related crashes occur nearby, especially on the south and east legs of the intersection. The south and east legs of the intersection are fronted by several driveways to retail locations, including grocery stores and drug stores. These same legs have significant transition of lanes, changing from 2- or 3-lane roads to multilane intersections with dedicated turn lanes. Approaching the intersection with the combination of lane changes for the signal, combined with the frequent driveways, likely leads to some driver confusion and unpredictability which could be a contributing factor to the risks at this intersection.

Impact of Red Light Enforcement Cameras at Intersections

The City has red light enforcement cameras in three locations:

- The southbound direction of SR 99 at the intersection with S 312th Street
- Three of the four directions at SR 99 and S 320th Street.
- All directions at the intersection of S 348th Street with SR 161

The crash data does not have specific reporting to indicate if red light cameras were suspected to be a contributing factor to a crash. Research and anecdotal evidence suggests red light enforcement cameras do tend to raise rates of rear-end crashes.

S 320th Street at SR 99 has a higher number of rear-end crashes than other intersections on SR 99, about 70, compared to the next highest intersection cluster on SR 99 (about 50 rear-end crashes at SR 99 and S 288th Street). S 312th Street at SR 99 has about 40 rear-end crashes in the intersection, with 15 of those occurring in the southbound SR 99 direction. S 348th Street at SR 161 has the highest concentration of rear-end type crashes in the City, with over 110 within 50 feet of the intersection, and another 30 more nearby which could be related to actions at the intersection. Only one of the rear-end type crashes at any of the intersections with red light cameras resulted in a severe injury (at S 348th Street and SR 161).

S 320th Street at SR 99 and S 348th Street at SR 161 are high volume intersections, compared to other major intersections in the City. The increased volume of vehicles is not directly proportional to the number of rear-end crashes. While more research and data would help to validate the correlation, there is evidence that the presence of red light enforcement cameras are contributing to an increase in the incidence of rear-end crashes.

High Injury Network

The high injury network (HIN), which is covered in depth in other areas of the Safety Action Plan, was referenced to confirm the crash analysis and identification of safety risk factors. To further align the HIN with the safety analysis, reduction of the sliding window used to evaluate injury risk was analyzed with GIS for specific intersections. The use of a smaller sliding window helped to avoid identifying corridors of a length unrealistic to mitigate through safety projects and programs to be implemented with limited City resources.

The HIN is, by its nature, focused on crashes of a higher severity. Because of the availability of data on all crashes, the full safety analysis also includes considerations for crashes that resulted in property damage only. As demonstrated in the City's crash data, sometimes the severity of a crash is a result of factors that are random and not aligned with elements that are in the control of the City, such as physical condition of the driver or equipment failures.

But, despite the inclusion of a larger data set, many of the results of the HIN's identified focus areas and those of this safety analysis have common location recommendations for crash countermeasures.

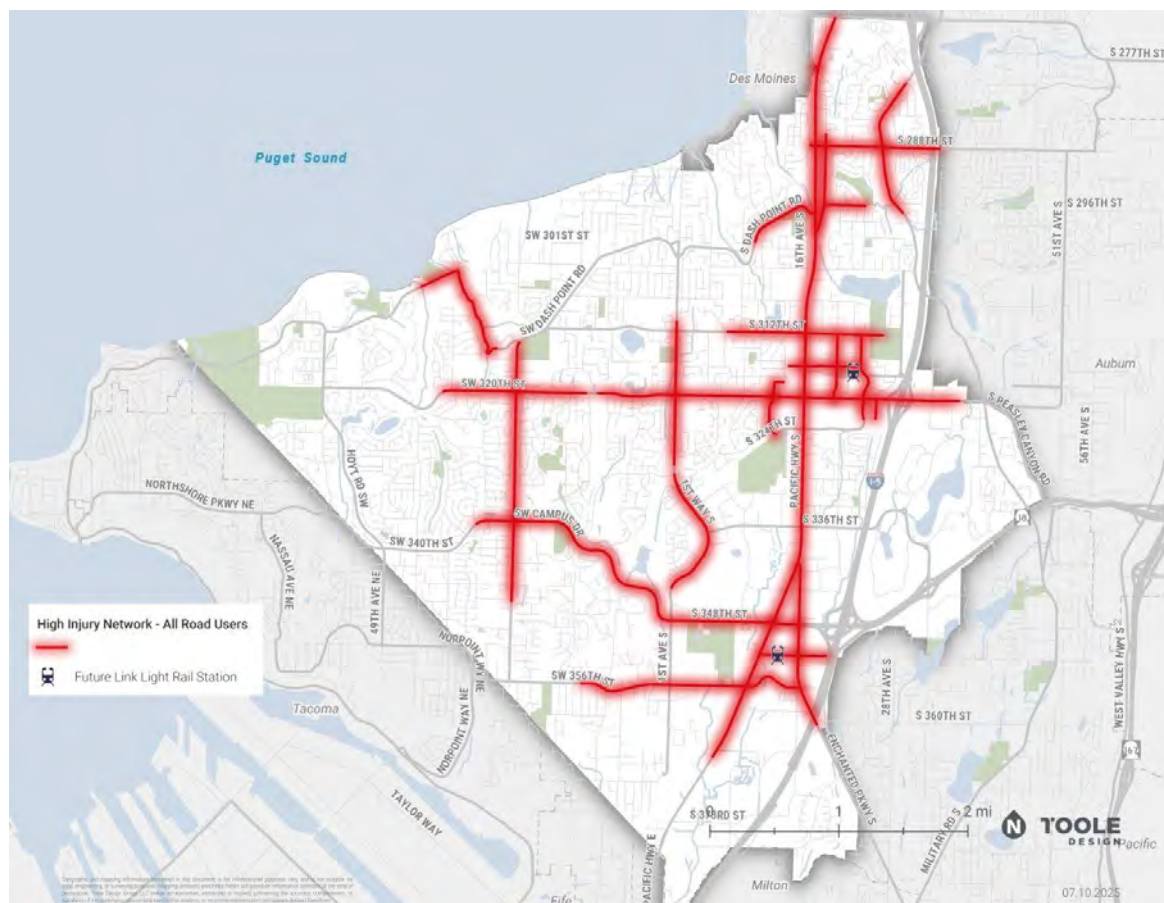


Figure 17 – High Injury Network (Toole Design Group)

Other Crash Analysis Topics

The crash analysis by statistical and spatial characteristics yielded several other topics that are of interest in developing and prioritizing risk factors for crashes.

Pedestrian Midblock Crashes

Midblock crashes, or those at driveways and near intersections, but unrelated to the intersection, represent 40% of the pedestrian-involved crashes, a total of 93 crashes over the 5-year study period. During the study period, midblock pedestrian crashes resulted in a serious injury or fatal outcome 45% of the time. Driver speed was cited as a contributing factor in only 4% of the midblock crashes, and driver intoxication in only 1 crash. Pedestrian distraction was cited in 13% of the midblock crashes, and pedestrian intoxication in 9%. In 41% of the midblock pedestrian crashes, no contributing factor for the driver of the involved vehicle was cited. Failure of the driver to yield to pedestrians was cited in only 11% of midblock pedestrian crashes.

Midblock crashes involving pedestrians occurred more frequently on Fridays and Sundays, and in the late afternoon hours (5-6 p.m.) compared to other times of day.

In the City's 2022 LRSP, midblock crashes were cited as a priority risk factor. The data indicates that midblock crashes have a mix of contributing factors. But, with "none" cited in more than 40% of crashes, the unpredictability of pedestrians entering the roadway at locations without marked crossings could be a significant factor to address.

Pedestrian Crashes, Intoxication, and Distraction

During the study period, in 10 of the 293 crashes that involved pedestrians, intoxication of the pedestrian, either by alcohol, drugs, or a combination of both, was cited as a contributing factor. Of the 10 pedestrian crashes where the pedestrian was intoxicated, 4 were fatal and 3 others resulted in a serious injury, representing 70% of the crashes where pedestrians were intoxicated. In addition to the injury frequency, 8 of the 10 (80%) crashes involving intoxication of the pedestrian were not at intersections.

Of the 14 fatal pedestrian crashes in the City, 8 (57%) involved intoxication, impairment, or distraction on the part of the pedestrian. Addressing the shared responsibility of all users of the transportation system for safety is one of the key parts of the Safe System Approach.

Motorcycle Crashes

The City of Federal Way has a specific concern with motorcycle-related crashes. Motorcycle crashes tend to occur more often on the straight, arterial and collector corridors in the City. Crashes with FSI outcomes involving motorcycles were spread throughout the City, but two concentrations of severe crashes—one on 21st Avenue SW, and another near the intersection of Military Road S and S 288th Street—may require special attention. The 3 severe crashes at Military Road S and S 288th Street were all of the approach turn type, while on 21st Avenue SW, the severe-outcome crash types were mixed.

Motorcycle-involved crashes with all outcomes tended to occur more in August and on Saturdays at midday, indicating a weather-related relationship and a more recreational user involved in crashes, as opposed to a commuter during the weekday peak hours. For motorcycle crashes with severe outcomes, crashes occurred later in the evening and were more spread throughout the week, with the highest volume of crashes occurring on Tuesdays. August remained the peak time for FSI motorcycle crashes, confirming that motorcycle crashes tend to occur during warm, dry weather.

Risk Factors for Crashes in Federal Way

The desired result of the safety analysis is to identify the highest priority, actionable risk factors for the City of Federal Way to address. Countermeasures to address the risk factors could range from specific engineering projects, to new enforcement priorities, to new or reimagined City programs of education and outreach. The statistical and spatial safety analyses together help assemble a list of not just the risk factors, but the corridors and intersections where interventions and countermeasures are likely to have the highest impact on reducing future crash occurrence and risk for severe outcomes. The list below combines the crash types, contributing factors and locations to offer specific, actionable risks to be addressed. More generalized citywide risk factors are captured as well, to offer insight that can inform other projects and future analyses within the city.

Engineering Risk Factors

Engineering risk factors are those that can be used to help define safety projects that change the physical roadway environment. The risk factors are described as a combination of the location, the crash types, and the contributing circumstances. The risk identified is specific to a high number of total crashes and/or high crash severity. The engineering risk factors can be addressed via systemic or spot-location improvement projects fundable through various grant programs, through local projects, or in combination with other construction-related actions. Capital projects to improve capacity, traffic operations, maintenance, and utilities can all be opportunities for including safety countermeasures. The form of projects, including conceptual designs and cost estimates, can be found in other chapters of the Safety Action Plan.

The engineering risk factors are presented in order of the highest contribution to all crashes in the City data, with additional consideration given to higher severity of crashes. As resources allow, it is recommended to address the risk factors in the order presented, but addressing any of the risk factors will be a positive step toward achieving the City's Vision Zero goals.

Risk Factor A: The Downtown Area

Limits: 11th PI S to 23rd Avenue S on S 320th Street, S 312th Street to S 324th Street on SR 99

The risk factors for crashes are:

- Angle and approach type crashes at driveways and intersections, especially minor intersections outside of the major signals. The type of traffic in a retail-heavy area and the types of crashes indicate that unexpected movements and visibility of turning traffic are a risk factor for crashes.
- Pedestrian crashes at midblock and intersections, especially near hotels, restaurants and smaller retail areas with smaller parking lots. The land use near the pedestrian crashes indicates desire lines, and unfamiliar users seeking easy routes may be contributing to the risk factor.

Additional considerations in this area include:

- All crash types are more common on weekends (Friday - Saturday), in the evening (5 p.m. - 10 p.m.) , and in the later months of the year (October - December).
- Addressing risk factors in this area will require close coordination with private developers and landowners to help manage traffic of all modes into and out of retail parking lots and establishments.

Risk Factor B: 21st Avenue SW

Limits: SW 320th Street to SW 356th Street, focused on the intersection with SW Campus Drive

The risk factors for crashes are:

- Crashes at the intersection with SW Campus Drive, including angle, pedestrian and motorcycle involved, rear-end and sideswipe. All approaches to the intersection are susceptible to similar crash types. Operation of the intersection, and all approaches, is complex and predictability could be improved.
- Between SW Campus Drive and SW 356th Street, especially where the two-way left-turn lane ends, angle crashes and fixed object crashes are common.

Additional risk factor considerations in this area include:

- Motorcycle crash severity in this corridor is high, and two of the crashes involved a motorcycle being rear-ended.

Risk Factor C: S 348th Street intersections with SR 99 and SR 161

Limits: S 348th Street between 11th Avenue S and the I-5 ramps

The risk factors for crashes are:

- Crashes at each of the two intersections of S 348th Street with SR 99 and SR 161, including angle, pedestrian-involved, rear-end, and sideswipe. The number of sideswipe crashes at these two intersections are two of the highest in the City. The high number of sideswipes and the proximity to regional routes (both state routes and the interstate) indicate a need for clarity and physical reinforcement around lane positioning approaching each intersection.

Additional risk factor considerations in this area include:

- The coming changes from the addition of a new Link Light Rail station near the intersections will compound the risks by adding traffic to these intersections.

Risk Factor D: Military Road S/S 288th Street Intersection

Limits: Military Drive S between S 286th Place and Laurelwood Valley Road

The risk factors for crashes are:

- Pedestrian and motorcycle crashes are more common and more severe compared to other areas of the City.
- Angle type crashes are very common at the intersection, especially on the south and east approaches to the signal.

Additional risk factor considerations in this area include:

- The location of the retail driveways in the vicinity of lane transitions approaching the intersection may be contributing to driver confusion and the risk of crashes. Mitigation may require coordination with the private parcel owners.
- The City's recent Road Diet project on S 288th Street may have a positive impact on the crash frequency at the intersection and should be monitored against the baseline of crashes.

Risk Factor E: SW Campus Drive Horizontal Curves

Limits: SW Campus Drive between 21st Avenue SW and 1st Avenue S

The risk factors for crashes are:

- Fixed object crashes in the horizontal curves within the corridor limits.

Additional risk factor considerations in this area include:



- The risk factor for fixed object crashes is considered separate from the risk factors for crashes near the intersection with 21st Avenue SW.

Risk Factor F: S/SW 312th Street Access Management

Limits: S/SW 312th Street between SW Dash Point Rd and SR 99

The risk factors for crashes are:

- Angle and approach type crashes to driveways and minor roads are frequent and spaced evenly throughout the risk corridor. Addressing predictability and visibility of turns and implementing passive driver error correction improvements could help to mitigate a common crash type in the corridor.

Additional risk factor considerations in this area include:

- The fire station on the west end of the corridor could limit opportunities for access management.

Behavioral Risk Factors

Behavioral risk factors are those that are less able to be mitigated by physical changes to the roadway environment, although some physical changes can help to reinforce the desirable changes in the risk factors listed below. Some of the risk factors are location-specific, as noted, but many are common across the entire Federal Way transportation network.

- **Late night driving on weekends** – A commonality among crashes, especially in locations where intoxication, drowsiness, inattention/distraction, and speeding were common—such as on S/SW Dash Point Road, 21st Avenue SW, and the Downtown area—was the tendency for crashes to occur late at night (10 p.m. – 2 a.m.), on weekends (Friday and Saturday nights) and during the winter months (November through January). Common crash types under the late-night conditions are fixed objects, and pedestrians where intoxication is involved either on the part of the driver, the pedestrian, or both.
- **Intoxication and Distraction for Pedestrians** – Protecting vulnerable users through modern best practices and design principles for crossing locations, protection, lighting, etc., is an important factor in decreasing the incidence and severity of pedestrian-involved crashes. The City's crash history demonstrates that some education and awareness messaging to pedestrians is also a complementary measure to decrease risk. Distraction and intoxication of the pedestrian involved in a crash, especially at midblock and when overlapping with the late-night weekend period, was a common contributing factor to crashes.
- **Motorcycle safety, especially for summer recreational usage** – While motorcycle crashes were typically limited to the City's arterials, a common factor was the timing of the crashes, indicating recreational usage in favorable weather. Many of the City's motorcycle crashes with severe outcomes happened during summer (July – August) and in the daytime hours on weekends. Speed-related factors and reckless operation accounted for nearly a third of crashes where the motorcycle was considered the "initiator" of the crash. A targeted outreach for users on 21st Avenue SW, where some of the most severe crashes involving motorcycles were clustered, could be particularly effective. Encouraging safe and knowledgeable operation of motorcycles, especially during high recreational use periods, could have an important positive impact on future crashes.

Citywide Risk Factors

In addition to the site-specific combined risk factors, there are several citywide risk factors for crashes that can be used to inform other City efforts, such as capital projects, maintenance projects, etc., to further the goals of the Safety Action Plan and the City's Vision Zero commitment. Most of the specific engineering risk factors identified above incorporate the recommendations to address citywide risk factors that are also present at many of those locations. The citywide risk factors for crashes are:

- **Pedestrian-involved crashes** – Vulnerable active mode users, especially pedestrians, are a citywide concern, especially in midblock areas where desire lines between high volume locations such as parks, schools, transit stops, and major retail centers may not be served by a nearby protected crossing. Maintaining the City's existing midblock crossing program, as recommended in the 2022 Local Road Safety Plan, is an important project to continue to address.
- **Fixed object crashes** – Fixed objects, especially in select locations identified in the City's 2022 Local Road Safety Plan, remain a risk factor throughout the City. Identifying improvements through maintenance and other projects may offer low-cost opportunities to systemically address roadside fixed object visibility and separation from the roadway, mitigating a common risk factor in both horizontal curves and tangent sections of roadways throughout the City. Maintaining programs that address driver intoxication, driving while drowsy, and avoiding distraction can help address common factors in fixed object crashes.
- **Angle/approach crashes at driveways and minor intersections** – Driveways and minor road intersections are a citywide risk factor for crashes. Addressing access management through capital projects and development review can help increase the predictability of movements and eliminate potential conflict points.
- **Sideswipes at congested intersections** – Lane configurations at congested intersections should be reviewed for ease of messaging comprehension for users and be evaluated for physical restrictions limiting last-minute lane changes that can cause sideswipe style crashes near signalized intersections. Access management of driveways near intersections can also help to mitigate sideswipe risk.
- **Passive measures to reinforce proper driver actions** – Improper actions, such as not granting right-of-way to oncoming vehicles or making improper turns, was cited in a large number of Federal Way's crashes. Implementing low-cost, rapid-deployment solutions—such as curbing or flexible posts to reinforce signed turn restrictions, or creating “escape” lanes for left turns onto busy arterials—can help to passively reinforce proper driver actions.

Appendix F: High Injury Network





DRAFT HIGH INJURY NETWORK

City of Federal Way
COMPREHENSIVE SAFETY ACTION PLAN

November 11, 2025

Introduction

Toole Design has prepared the following High Injury Network (HIN) maps for the Federal Way Comprehensive Safety Action Plan. The following section describes the consultant team’s crash data sources and methodology for developing the maps. One of the goals of the comprehensive safety action plan is to eliminate fatal and serious injury crashes. So, the high injury network is focused on crashes at these severity levels.

Crash Data Sources

The study period of crashes analyzed is 2020 to 2024. Crash data was received from WSDOT after submitting a public disclosure request through their online portal.¹

Summary of Crashes by Road User

Table 1 summarizes the crash data by mode. To recap, from 2020 to 2024, there were 279 Fatal (K) and Serious Injury (A) crashes, and there were 9,858 crashes in total.

Table 1: Crashes by Injury Severity and Road User, 2020-2024

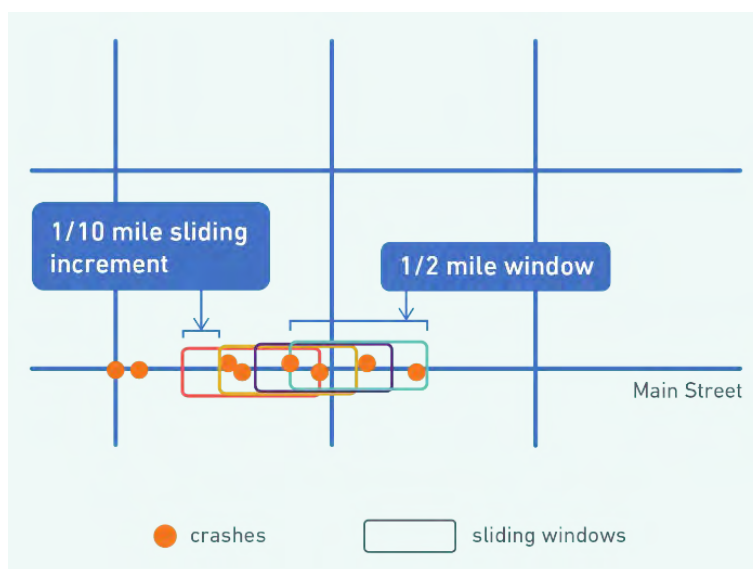
Injury Severity	Pedestrian	Bicyclist	Motorcyclist	Motorist	Total
Fatal (K)	14	0	7	14	35
Serious Injury (A)	55	7	22	106	190
Minor Injury (B)	84	33	34	629	780
Possible Injury (C)	62	29	21	1,387	1,499
No Apparent Injury (O)	8	2	19	4,290	4,319
Total	223	72	138	6,426	6,823

Sliding Window Analysis Methodology

A sliding window analysis helps us understand crashes throughout a transportation network and identify segments with the highest crash density, weighted by crash severity. For Federal Way, the analysis is done by determining the number and severity of crashes in a **half-mile window** on a roadway and shifting that virtual “window” along the roadway **1/10 of a mile** at a time, counting the number of crashes by severity and road user that occurred within each successive half-mile segment. An example of a sliding window analysis is shown in Figure 2.

¹ [https://wsdot.mycusthelp.com/WEBAPP/_rs/\(S\(gyg5xnhzyyx00ecrxyhlhi1c\)\)/supporthome.aspx](https://wsdot.mycusthelp.com/WEBAPP/_rs/(S(gyg5xnhzyyx00ecrxyhlhi1c))/supporthome.aspx)

Figure 1: Example of the Sliding Window Analysis. Source: Toole Design Group



The sliding window analysis weights the most severe crashes more heavily than lower severity crashes. The sliding window score is calculated by multiplying the number of Fatal (K) and Suspected Serious Injury (A) crashes by 3, multiplying the number of Suspected Minor Injury (B) and Possible Injury (C) by 1, and No Injury (O) crashes by 0. This ratio allows for less severe crashes to be included in the analysis while still focusing on corridors with more severe crashes. For instance, with fatal and serious injury (FSI) crashes weighted at three times moderate injury crashes, a corridor with two FSI crashes will have the same weighted total as a corridor with six moderate injury crashes. Moderate injury crashes were included in this analysis since research has found that a significant percentage of pedestrian and bicyclist injuries to be underreported and/or misclassified between injury levels.²

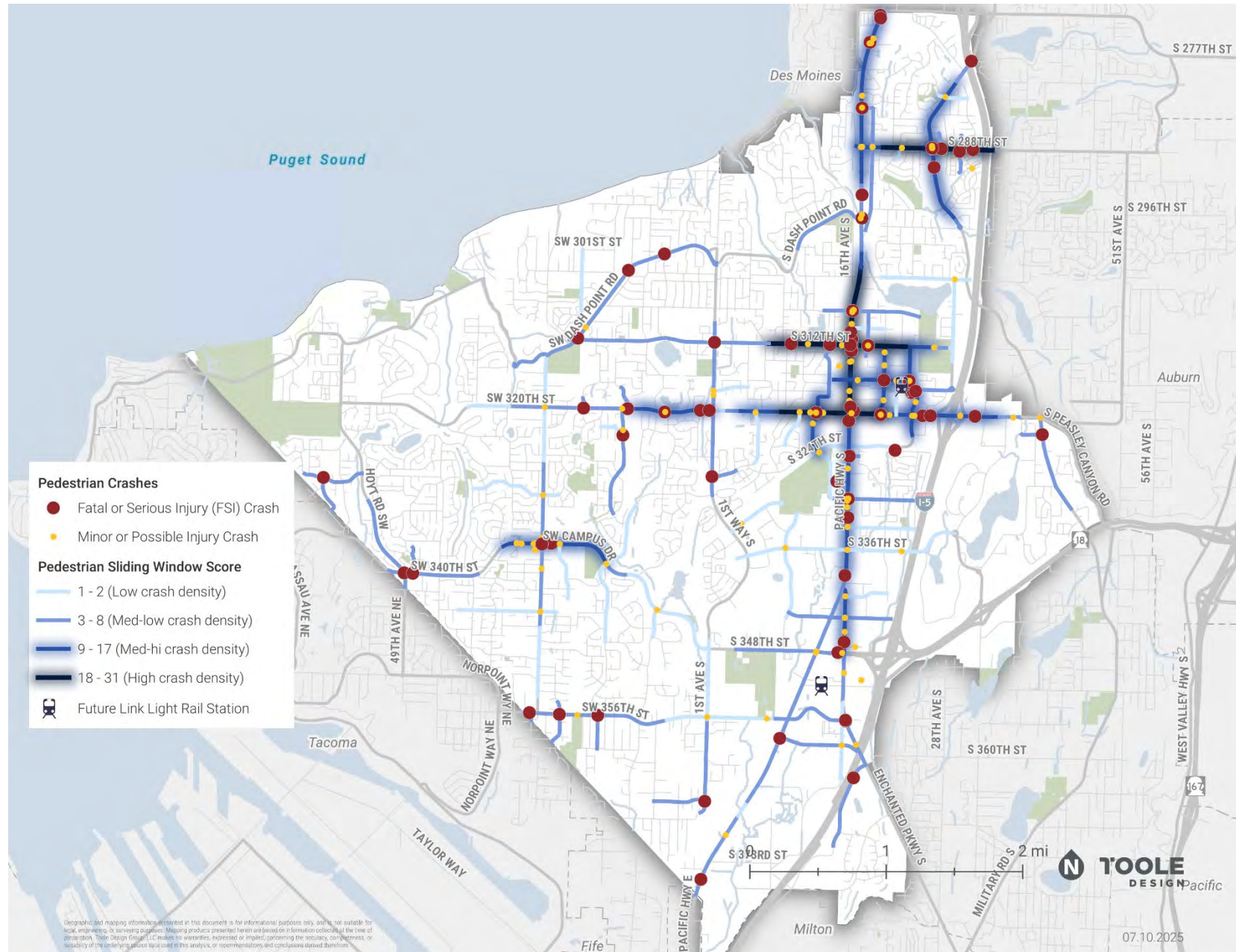
Once the weights are established and applied to the crashes, the total number of crashes are aggregated along a corridor. Each segment receives a score from the sliding window analysis. Those scores are mapped for each mode in the crash density maps in the next section.

Crash Density Maps

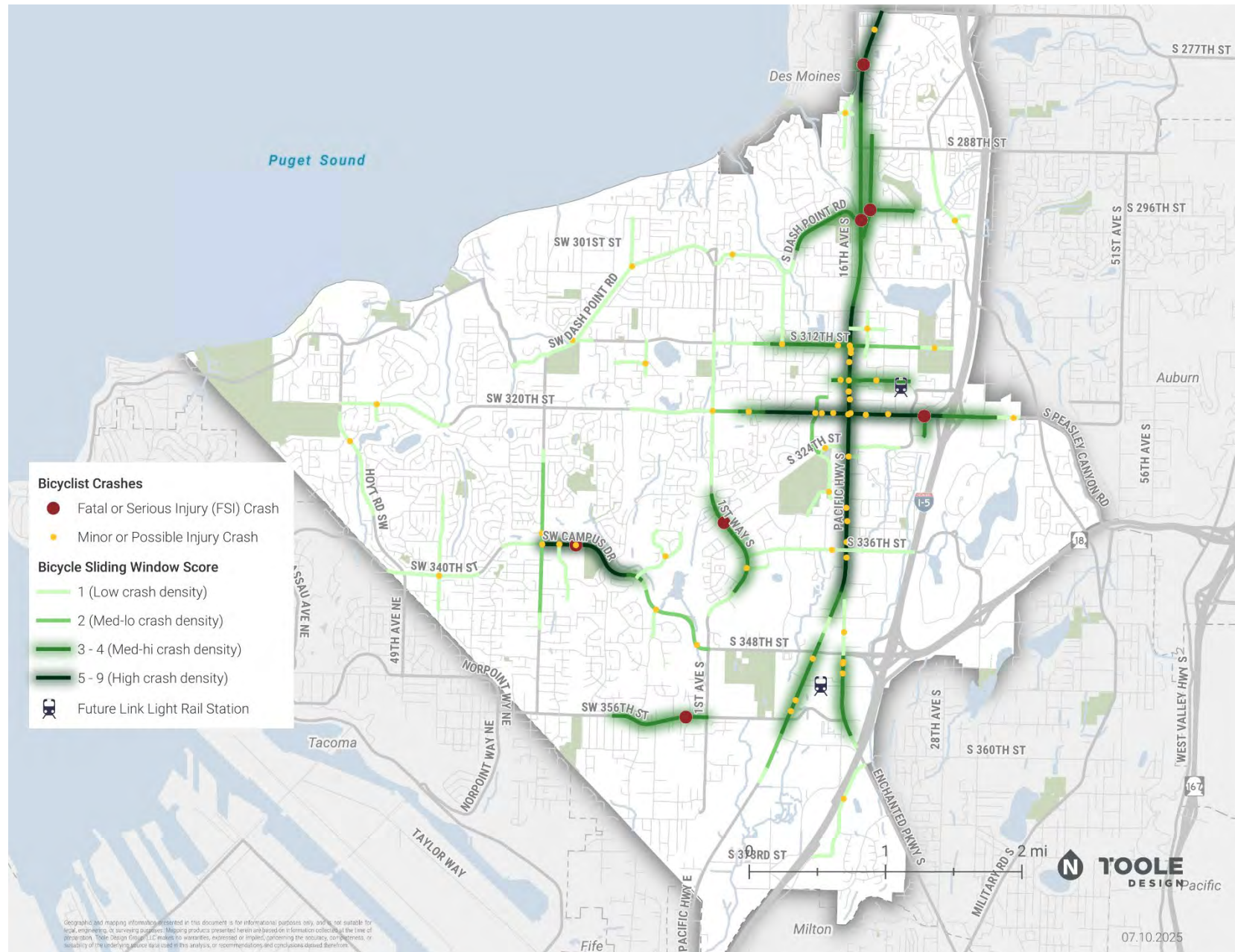
Crash density maps (Map 1 to Map 4) depict the results of the sliding window analysis. The sliding window score for every mode is divided into four categories using natural breaks in the distribution. Each category represents high, medium-high, medium-low, or low density of crashes. These crash density maps set the foundation for the HIN based on the methodologies outlined in the Development of the High Injury Network section below.

² Doggett, S., Ragland, D. R., & Felschundneff, G. (2018). "Evaluating Research on Data Linkage to Assess Underreporting of Pedestrian and Bicyclist Injury in Police Crash Data." *UC Berkeley: Safe Transportation Research & Education Center*. Retrieved from <https://escholarship.org/uc/item/0jq5h6f5>

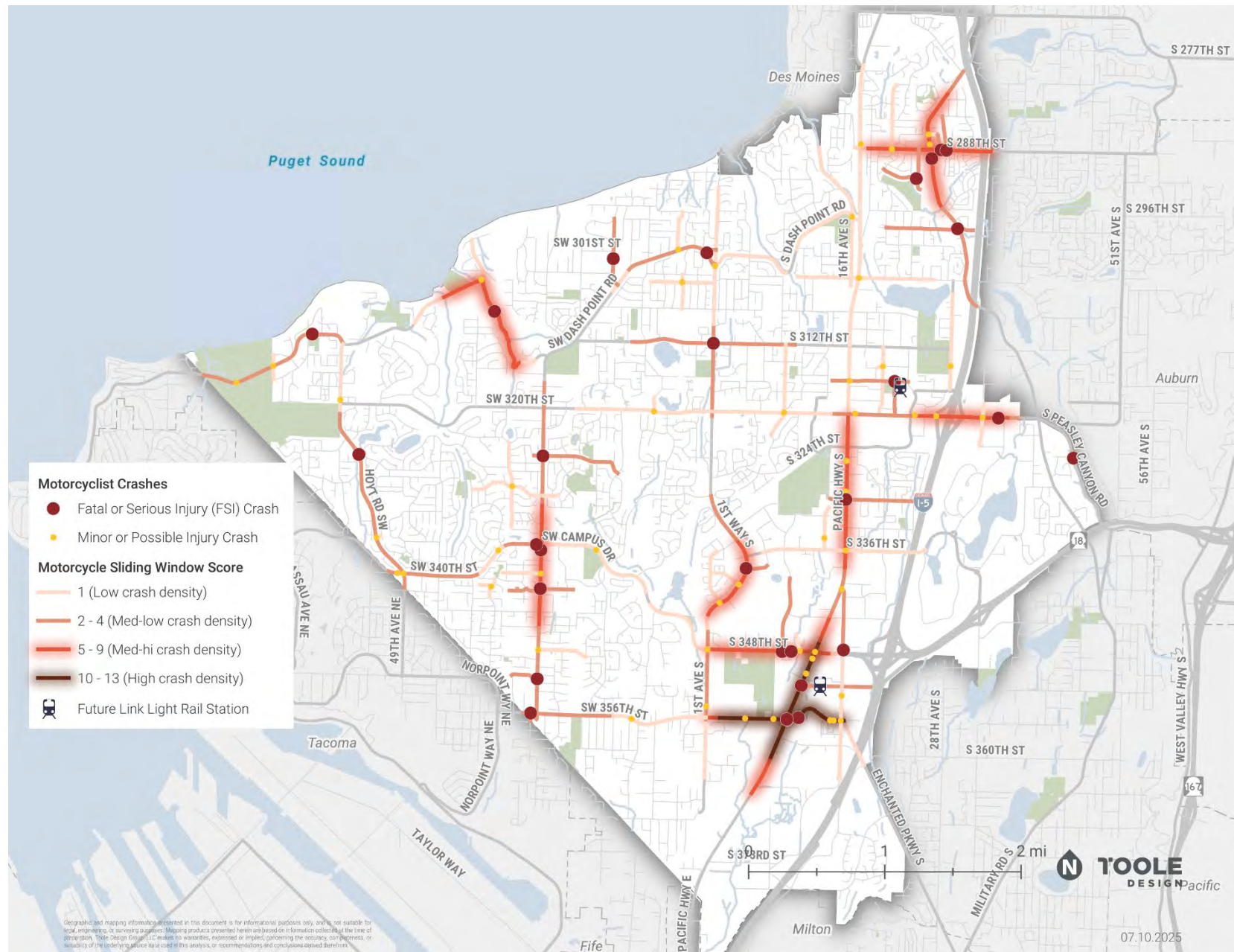
Map 1: Pedestrian Sliding Window Analysis



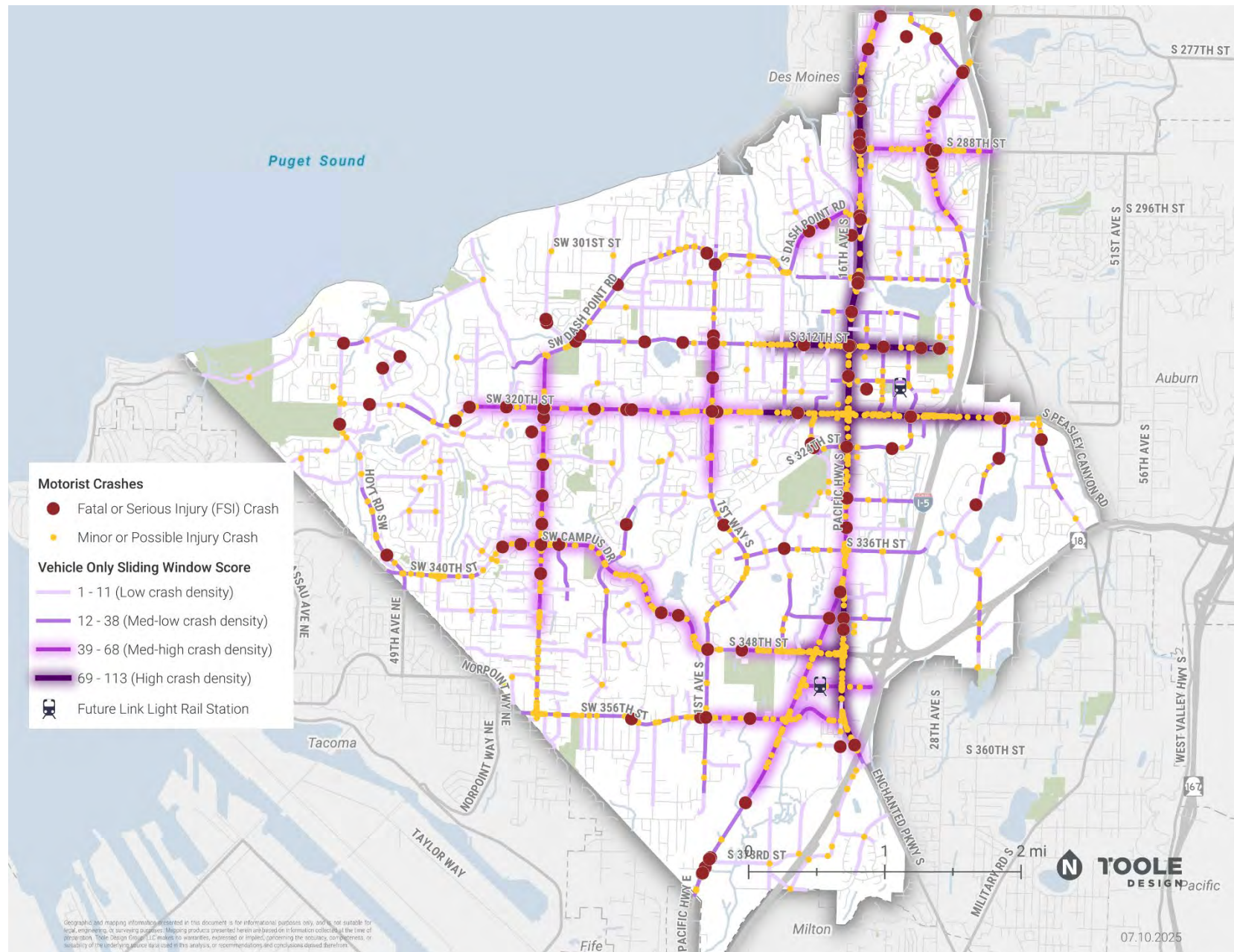
Map 2: Bicyclist Sliding Window Analysis



Map 3: Motorcyclist Sliding Window Analysis



Map 4: Motorists Sliding Window Analysis



Development of the High Injury Network

The HIN is developed based on the results the sliding window analysis. Both intersection and segment crashes were included in this evaluation, as the focus is on overall corridor conditions. The HIN helps identify corridors that may warrant special attention. Identifying these corridors can help a city prioritize investment in the areas where crash history demonstrates the most serious problems and easily communicate those priorities to the community.

Developing an HIN is an iterative process. It is expected that the City of Federal Way will review the HINs produced during this task and recommend additional streets to be considered for inclusion or specific streets to be removed from the current HIN.

The HIN development process relies on historical crash data, which is imperfect and incomplete because not every crash is reported to the police. As such, this process requires engineering judgment as well as local knowledge. The following process was used to develop the mode-specific HINs and the overall HIN:

1. Map the sliding window analysis results for each road user (pedestrian, bicyclist, motorcyclist, and motorist) individually. (See Maps 1 to 4 for sliding window analysis results.)
2. For each mode, determine the threshold of the sliding window score required to be included in the HIN. This step eliminates streets that have a lower crash density and prioritizes streets that have higher crash density (i.e., higher crash severities and frequencies).
3. Review and manually adjust for false-positive segments that have a high crash score due to a single intersection crash but do not have any other crashes along the corridor.

High Injury Network Thresholds

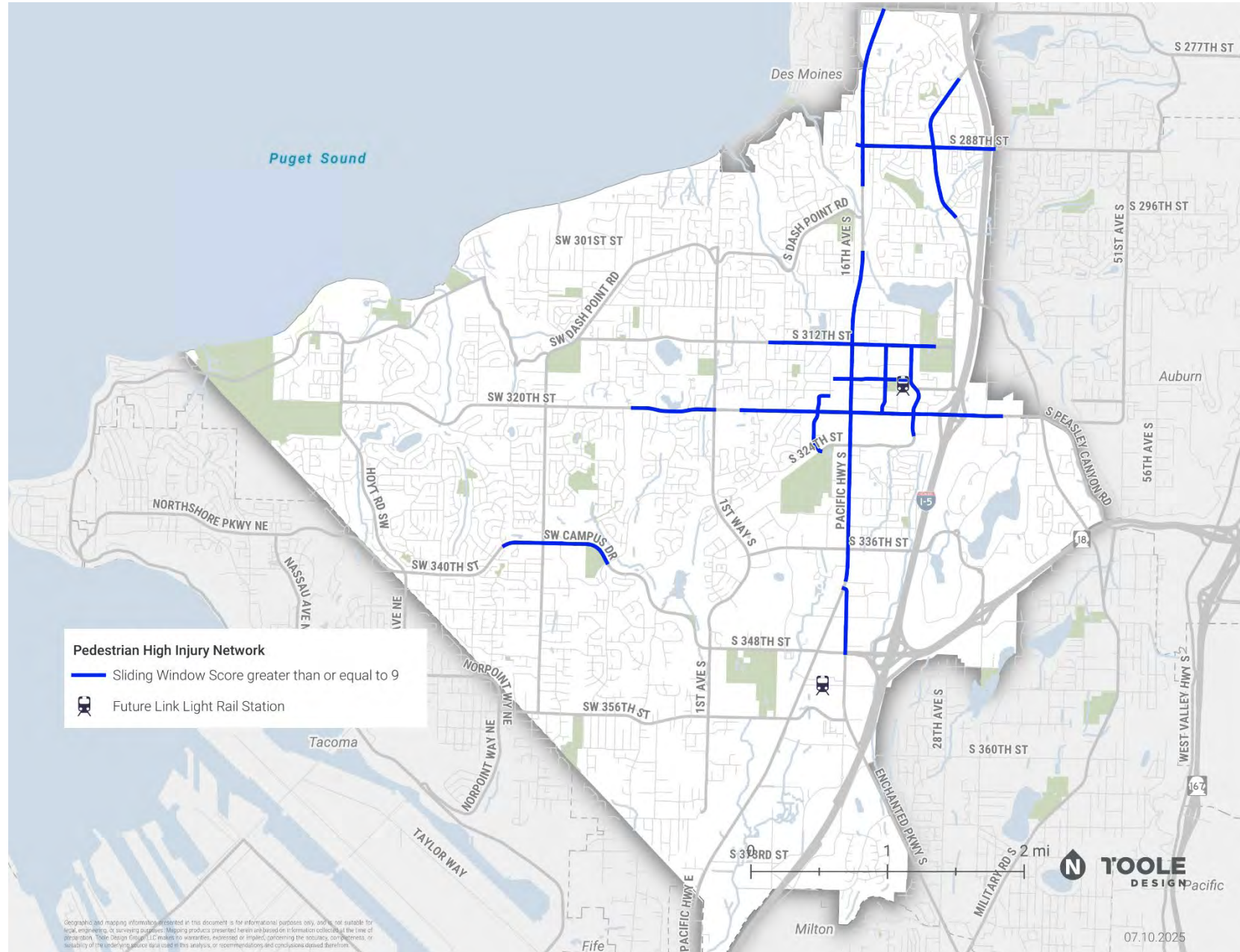
A threshold is defined as the lowest sliding window score for a segment to include on the HIN. A minimum threshold for the sliding window score is set for each road user independently. With such an approach, the HIN covers a selective set of city streets, but a relatively large share of FSI crashes. These thresholds may differ by transportation mode. For example, a sliding window score of 5 may be appropriate to include in the bicyclist HIN, but would be relatively low for a motorist HIN since there are generally more motorist crashes than bicycle crashes.

Thresholds for each road user are listed in Table 2. A segment is included on the HIN if the sliding window score is greater than or equal to the threshold set for that mode. Maps 5 to 8 depict the HIN for each mode. Map 9 shows the overall HIN for all road users based on the sliding window analysis conducted for each mode. It is a compilation of each mode's HIN.

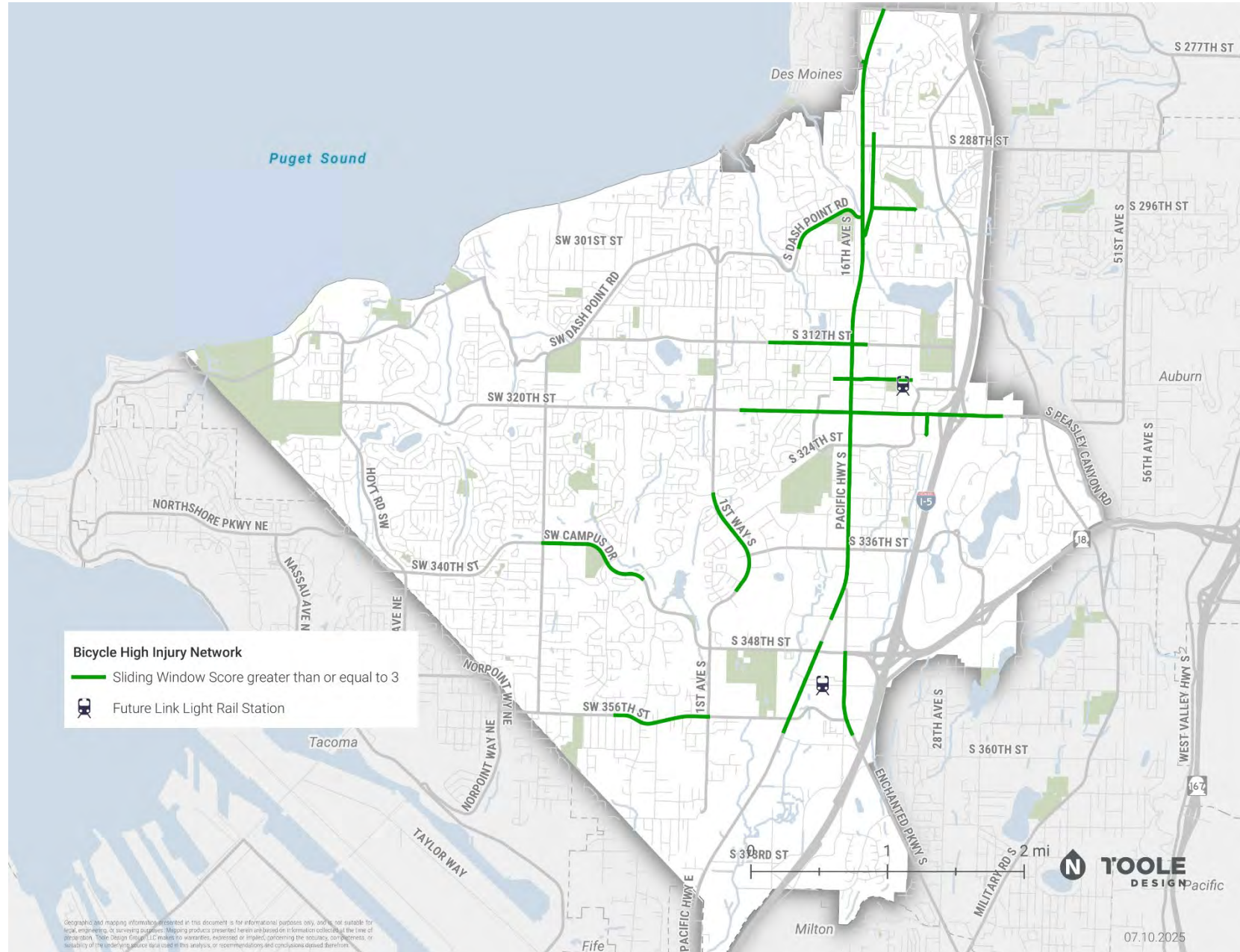
Table 2: Thresholds for Minimum Sliding Window Score by Road User

Road User	Threshold
Pedestrian	9
Bicyclist	3
Motorcyclist	5
Motorist	39

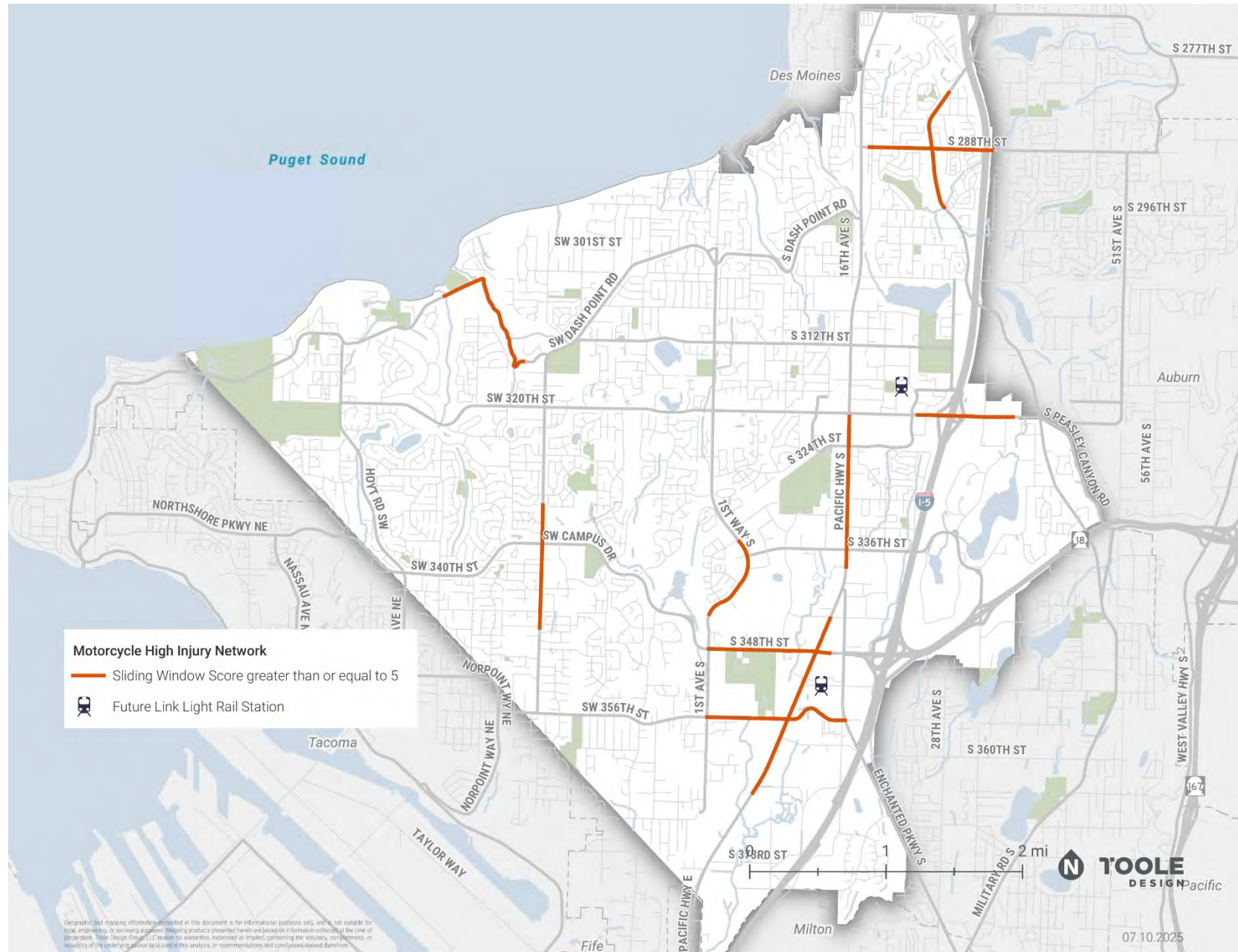
Map 5: Pedestrian High Injury Network



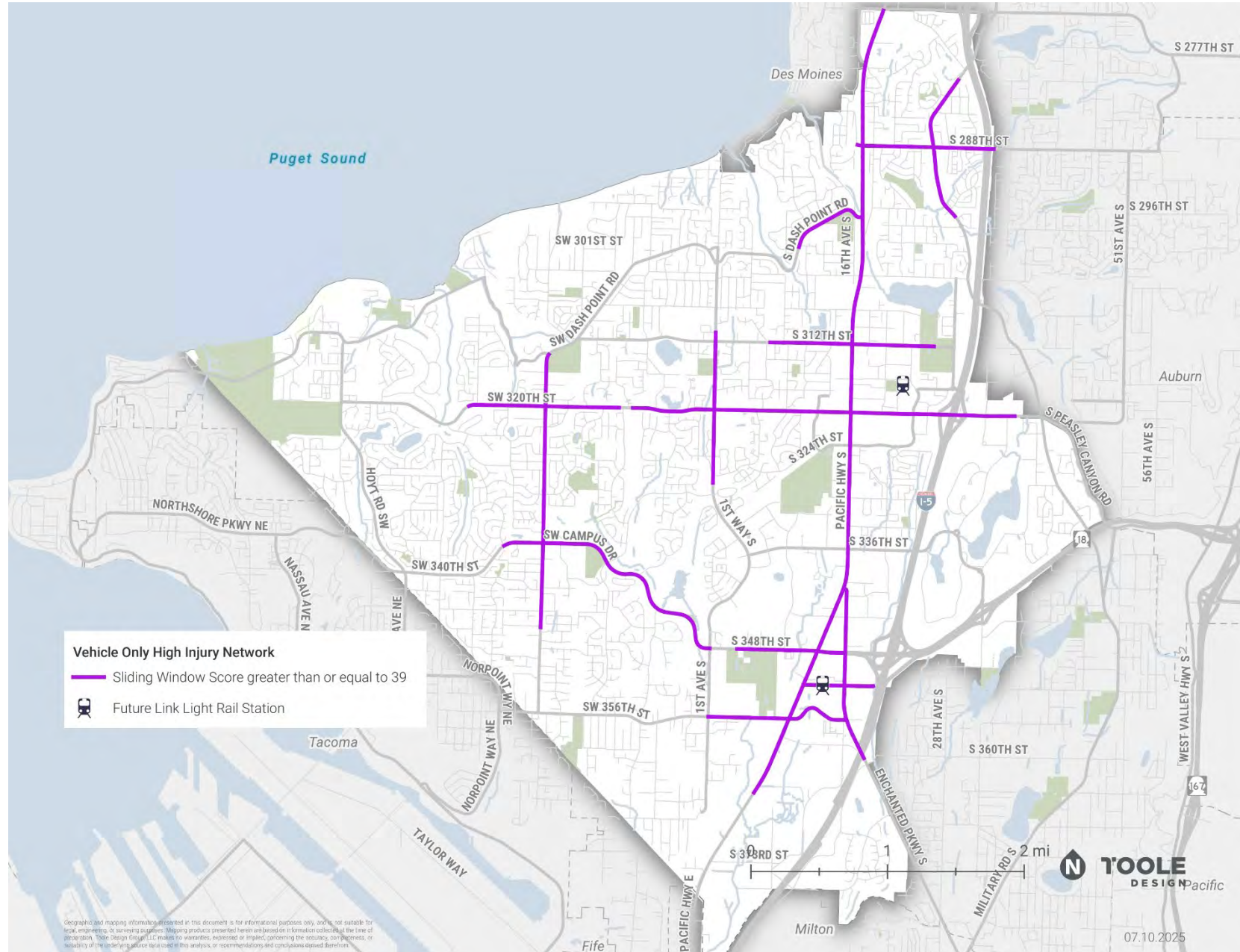
Map 6: Bicycle High Injury Network



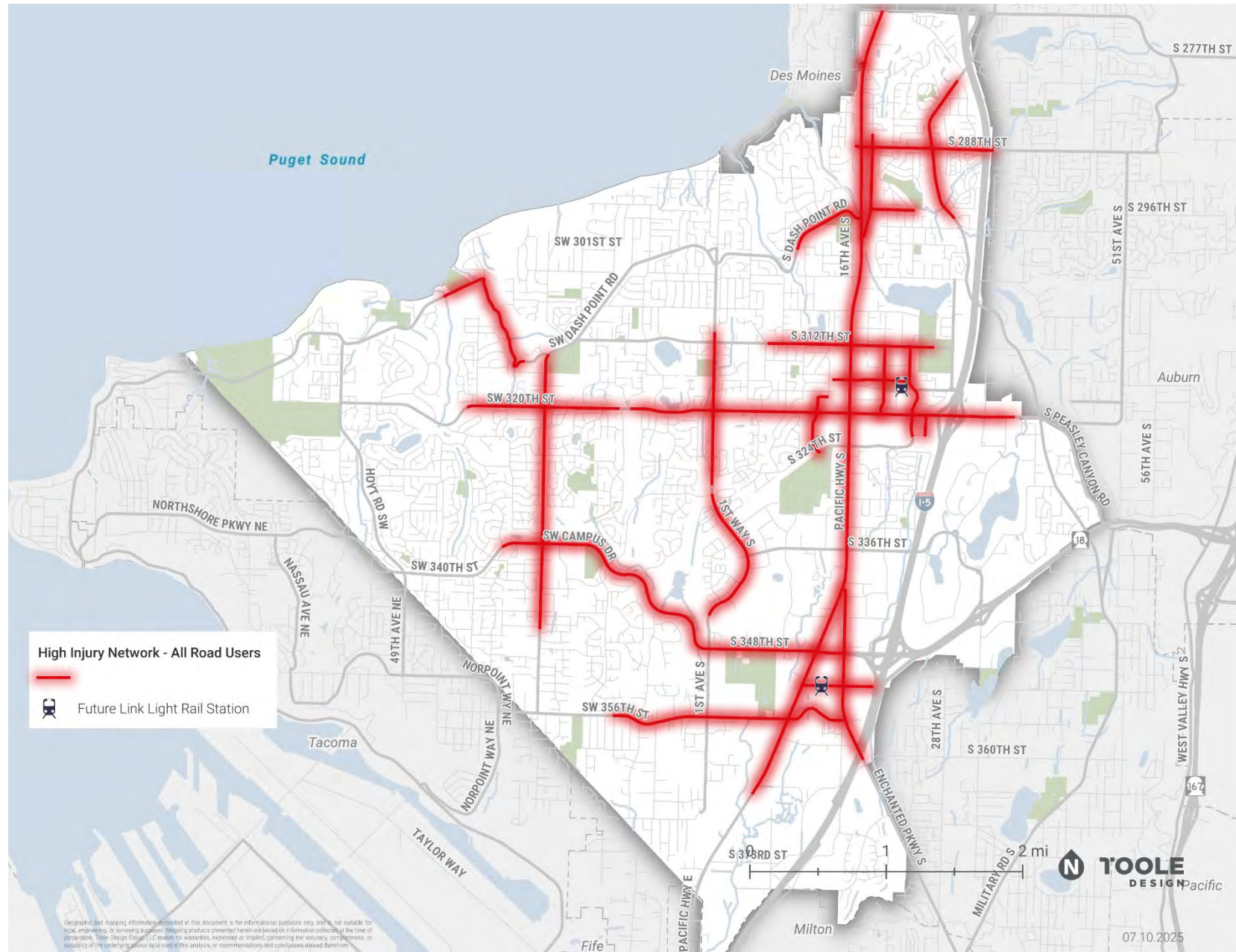
Map 7: Motorcycle High Injury Network



Map 8: Vehicle Only High Injury Network



Map 9: All Road User High Injury Network



Summary Statistics

Table 3 provides some summary statistics. The HIN is approximately 9% of the whole roadway network in Federal Way, and approximately 58% of FSI crashes occurred on these roadways.

Table 3: Summary Statistics

	Miles of roadway	Percent of network	Number of FSI crashes	Percent of FSI crashes	Number of all crashes	Percent of all crashes
HIN - All Modes (Map 9)	28.9	9%	162	58%	5,374	55%
Pedestrian HIN (Map 5)	13.0	4%	102	37%	3,352	34%
Bicyclist HIN (Map 6)	13.1	4%	90	32%	3,625	37%
Motorcyclist HIN (Map 7)	9.6	3%	53	19%	2,040	21%
Vehicle Only HIN (Map 8)	22.4	7%	148	53%	5,052	51%

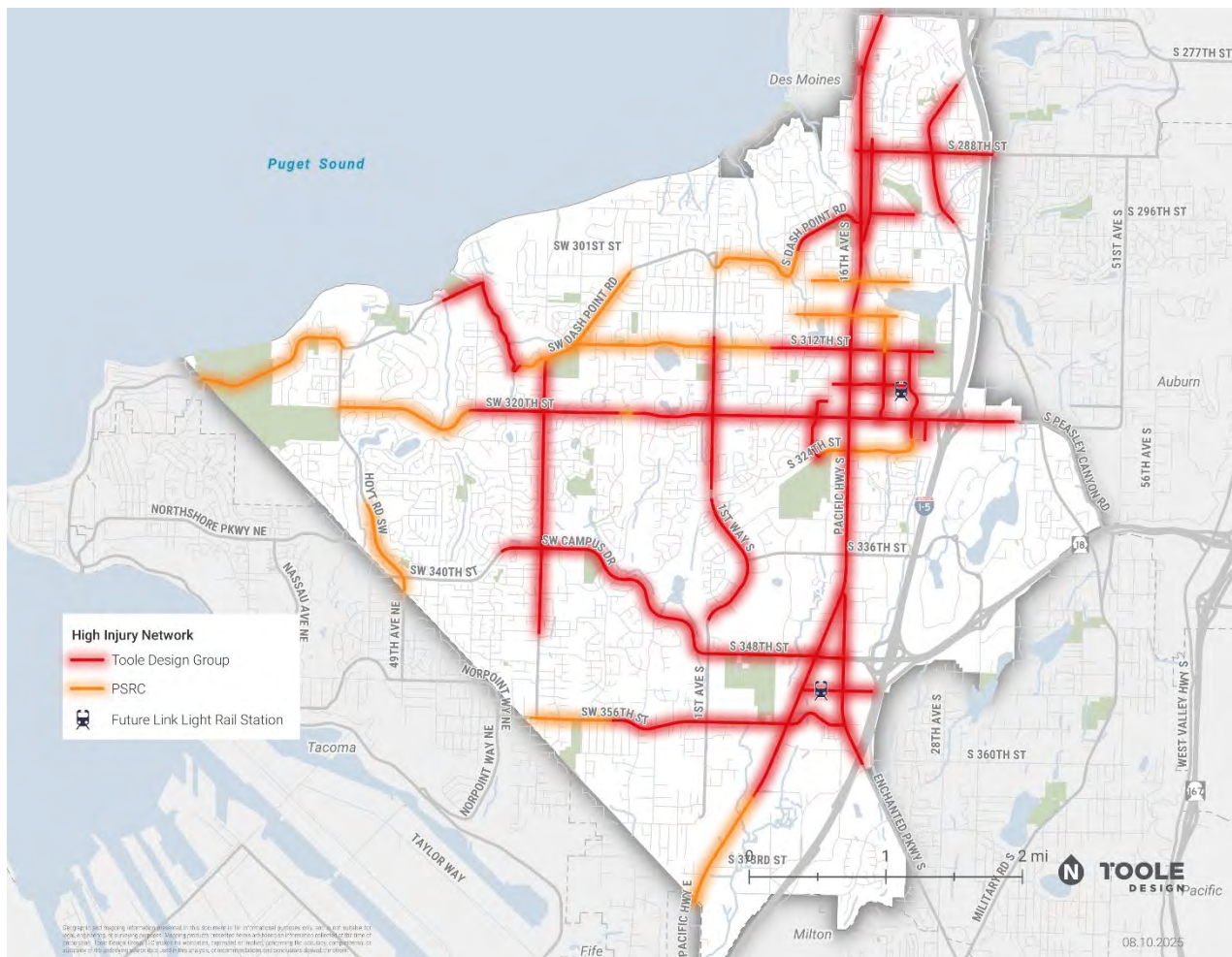
Comparison with PSRC HIN

The Puget Sound Regional Council (PSRC) developed a high injury network in the Regional Safety Action Plan.³ Their methodology differs from Toole Design Group’s (TDG). Firstly, PSRC’s HIN uses crash data from 2016 to 2023. TDG uses the most recent five years of data available, 2020 to 2024. PSRC sliding windows are also different from TDG’s. They break the network down into 10 meter segments and estimate the number of FSIs per mile.⁴ Whereas, TDG uses half-mile segments and assigns a weighted score where a segment receives 3 points per FSI and 1 point per non-FSI crash. Map 10 compares the PSRC HIN with the HIN developed by TDG. Orange segments are network links in PSRC’s HIN which did not appear in TDG’s HIN.

³ PSRC HIN Map Dashboard https://www.psrc.org/depts/data/website_data/hin-map/hin_map_dashboard.html

⁴ PSRC, “High Injury Network Workshop – October 25, 2024” (YouTube) https://www.youtube.com/watch?v=i_z80-5EjHk

Map 10: Comparing the HIN with PSRC



Appendix G: High Risk Network



MEMORANDUM

June 26, 2026

To: Jason Kennedy

Organization: City of Federal Way

From: Lucas Yu, Omar Peters, Joanna Wang

Project: Federal Way Comprehensive Safety Action Plan

Re: Task 3 Systemic Safety Analysis (High Risk Network) Technical Memorandum

The purpose of this memorandum is to document the systemic safety analysis process and results conducted as part of the Federal Way Comprehensive Safety Action Plan. This systemic analysis will help the agency identify roadway facilities with the greatest potential for safety improvements by identifying combinations of roadway attributes associated with elevated average fatal and serious injury (FSI) crash frequencies.

Systemic Screening Factors

One of the key outcomes of the systemic safety analysis is the identification of road attributes that correlate with high crash frequency. These are also known as systemic screening factors or correlating factors. Combinations of these factors identify roadway facility profiles that are associated with higher crash frequencies. **However, it is important to note that this does not necessarily indicate a causal relationship, nor that these individual factors should necessarily be the target of treatments.** For example, though the presence of nearby pedestrian generators may be found as a factor that correlates with elevated pedestrian crash frequencies, this does not mean that these generators should be removed. Instead, facilities near such generators may require additional safety investment.

The resulting High-Risk Network (HRN) will help City of Federal Way proactively prioritize roads with a high risk of experiencing Fatal and Severe Injury Crashes, even in areas without a crash history. The HRN is different from the High-Injury Network (HIN) because the HIN indicates roads where an elevated number of severe crashes have occurred, while the HRN indicates roads where an elevated number of severe crashes could occur, because those locations have similar characteristics to locations where severe crashes occurred.

Table 1 includes all road attributes that were identified as potential correlating factors to consider in the analysis. Factors considered in the analysis were limited by data quality and availability.

Table 1. Factors Screened for Systemic Analysis

Screening Factor	Data Source	Description
Functional Class (local designations)	City	High = Principal Arterial and Minor Arterial Roads Medium = Principal Collector and Minor Collector Roads Low = Local Streets
Speed Limit Ranges	City	≤25 MPH, 30 MPH, 35 MPH, 40 MPH, 45 MPH, ≥50 MPH
Zero Vehicle Households	ACS - 2023	Percentage of households with zero vehicles
Population Below 2x Poverty Level	ACS - 2023	Percentage of population below two times of poverty level
Black, Indigenous, and People of Color (BIPOC) Population	ACS - 2023	Percentage of Black, Indigenous, and People of Color population
School Proximity	City	Any school within quarter mile radius
Park Proximity	City	Any recreational facility (e.g., park) within quarter mile radius
Park-and-Ride Proximity	City	Any Park-and-Ride locations within quarter mile radius
Community (Equity) Need Category	WSDOT	Based on Sandy Williams Connecting Communities Equity Score (Lowest, Low, Moderate, High, Highest)

Commented [OP1]: Consider adding the source of the data for each factor as you did for zero car HHs

Analysis Methodology

The systemic analysis defined several facility profiles by analyzing the correlation between each screening factor (and/or combination of factors) shown in **Table 1** with the facility's respective crash density. The analysis focused on the study period of 2020 through 2024. The target study roadway facilities include all roadway segments within the city limits except privately owned roads, and access-controlled freeways and ramps. Roadway data was consolidated and analyzed to retain all pertinent roadway and contextual characteristics for the screening factors in **Table 1**. Additional census attributes were applied to the roadway data as needed to include the demographic-related screening factors.

The systemic analysis screening process is based on a decision tree machine learning algorithm where each factor is screened individually to determine whether the factor distinguishes between locations with relatively high and low average crash densities per mile. For categorical factors such as functional classification, speed limit, and demographic indices, the algorithm considers each unique classification individually. The algorithm screens all factors recursively to identify the most correlated factor and continues until a set of factors is identified as a facility profile. **Figure 1** illustrates the decision tree algorithm where three correlated factors define a facility profile.

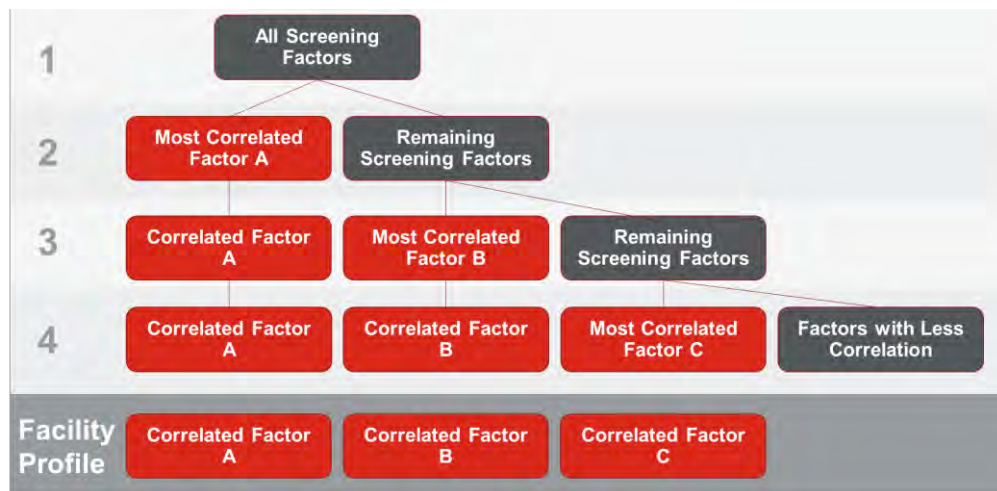


Figure 1. Illustration of decision tree screening process

Crash Data Sources and Limitations

The data utilized in this analysis consists of crash data from 2020 to 2024, attributes of each crash, such as severity, and mode involved based on information recorded by law enforcement officers in the crash report.

This analysis focuses primarily on fatal and serious injury crashes, defined as crashes where there was a fatality, also known as *K* severity crashes, according to the *KABCO* scale, as well as crashes that involved a suspected serious injury, also known as *A* severity.¹ However, for crashes involving pedestrians or bicyclists, the analysis includes crashes of all severities, except Property Damage Only (PDO) crashes, so that a larger number of crashes are in the screening process.

In the state of Washington, a crash will be classified a fatality when a person involved in the crash either dies at the scene, or injuries result in death within 30 days of the crash. Serious injury crashes are defined as a non-fatal injury that prevents a person from walking, driving, or participating in activities they were capable of prior to the crash. Serious injury crashes can also be defined as a crash where at least one person was hospitalized or taken from the crash scene by ambulance.

Focusing on high-severity crashes aligns with the goal of the Safe Streets and Roads for All (SS4A) program to eliminate fatalities and serious injuries through holistic safety solutions. This also directs attention to the most pressing transportation safety issues in the city.

Although crash reports are currently the best way to obtain information about a high number of crashes, they have limitations. Crash severity may have limited accuracy because those completing reports typically do not have medical training, and victims of crashes may be unaware of internal injuries. The total number of crashes

¹ The *KABCO* scale is used to assess the severity of a crash. For more information, see: https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_cstable_by_state.pdf

(especially vulnerable road users) may be underreported due to fears, language barriers, financial concerns, etc. Additionally, crash reports may not fully capture the effects of speed in crashes, as the first responders are typically on the scene after the crash has occurred and witnesses are not typically interviewed about operator speed. Crash reports also cannot capture near misses or the self-limiting behavior of travelers who do not feel safe in current roadway conditions. It is useful to keep these limitations in mind when using crash data as part of the planning process.

Analysis Results

The following subsections separate the systemic analysis results by transportation mode. The subsections provide definitions of unique facility profiles identified by the analysis and their associated correlating factors by mode, crash score, mileage metrics associated with these profiles, and a summary figure. Facility profiles are grouped into five tiers, from critical to minimal, highlighting the facilities that are associated with the highest to lowest risk for severe crashes based on present correlating factors. Based on these profiles and their tiers, road segments were identified that are associated with higher levels of crash risks for each mode.

All Modes

Figures in this section represent results for all modes (motorists, pedestrians, bicyclists, and motorcyclists). The analysis was conducted using FSI crashes.

Table 2 indicates that the screening factors most effective at indicating elevated FSI crash frequency (facilities in Critical, High, and Medium tiers) are:

- Functional classification
- Speed limit
- Zero vehicle households
- BIPOC population
- Community Need Category

Table 2. Facility profile definitions for crashes involving all modes

Facility Profile Tier	Facility Profile Definition				
	Functional Class	Speed Limit	Zero Vehicle Households	BIPOC Populations	Community Need Category
Critical	High	≥ 45 MPH	-	-	-
High	High	≤ 40 MPH	≥ 1%	-	≥ High
Medium	High	≤ 40 MPH	≥ 1%	-	≤ Moderate
	Low, Medium	≥ 30 MPH	-	≤ 60%	≤ Moderate
	High	≤ 40 MPH	< 1%	-	≥ High
	Low, Medium	≥ 30 MPH	-	> 80%	-
Low	Low, Medium	≥ 30 MPH	-	≤ 60%	≥ High
	High	≤ 40 MPH	< 1%	-	≤ Moderate
	Low, Medium	≥ 30 MPH	-	60-80%	-
Minimal	Low, Medium	≤ 25 MPH	-	-	-

The results of the facility profile analysis in **Table 2** show that Critical tiered facilities with elevated FSI crashes involving all modes are those on high functional class roads, and high speed limits (45+ MPH) roads, and High risk tier roads include roads with high functional class, less than 40 MPH, moderate zero vehicle household rate

(> 1%), and Community Need category as High or more. Functional class is the most important factor for indicating facility profiles, followed by speed limit, zero vehicle households, BIPOC population, and Community Need Category. Other correlating factors that did not show significant correlation to crash risks are not included in the facility profile definition. The facility profiles are mutually exclusive and do not overlap.

As shown in Error! Not a valid bookmark self-reference. and **Figure 2**, about three-quarters (79.4%) of FSI crashes in the study area are on Critical, High, and Medium tier facilities, but these facilities only represent 18.2% of the total share of road miles in the city.

Table 3. Facility profile metrics for crashes involving all modes

Facility Profile Tier	Facility Profile Metrics				
	Avg. FSI Crashes per Mile	Miles	FSI Crashes	Miles Share	FSI Crashes Share
Critical	2.17	4.2	23.0	1.7%	10.7%
High	0.71	21.8	92.0	8.6%	43.0%
Medium	0.52	19.8	55.0	7.9%	25.7%
Low	0.11	18.7	17.0	7.4%	7.9%
Minimal	0.02	187.8	27.0	74.4%	12.6%

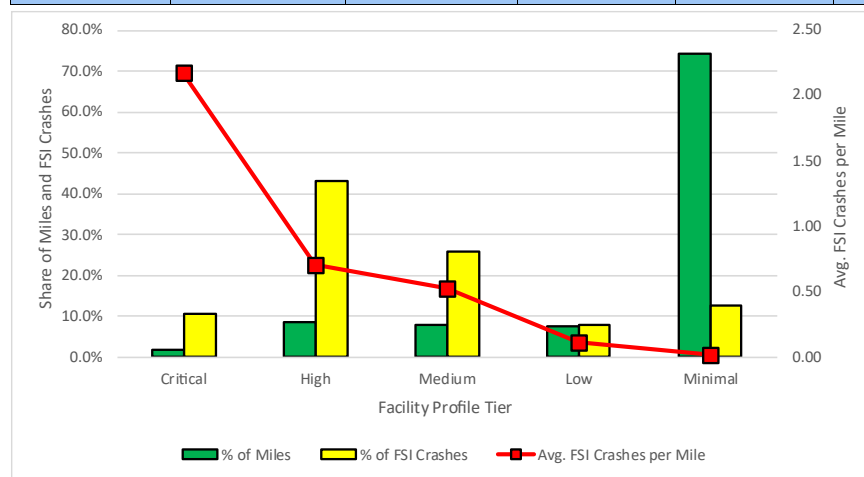


Figure 2. Facility profile tier metrics for crashes involving all modes

The corridors identified as Critical, High, and Medium in the analysis of all modes are shown in **Figure 3**. Together these roads indicate the HRN for all modes. Critical corridors in the HRN include Pacific Highway S and Military Road S.

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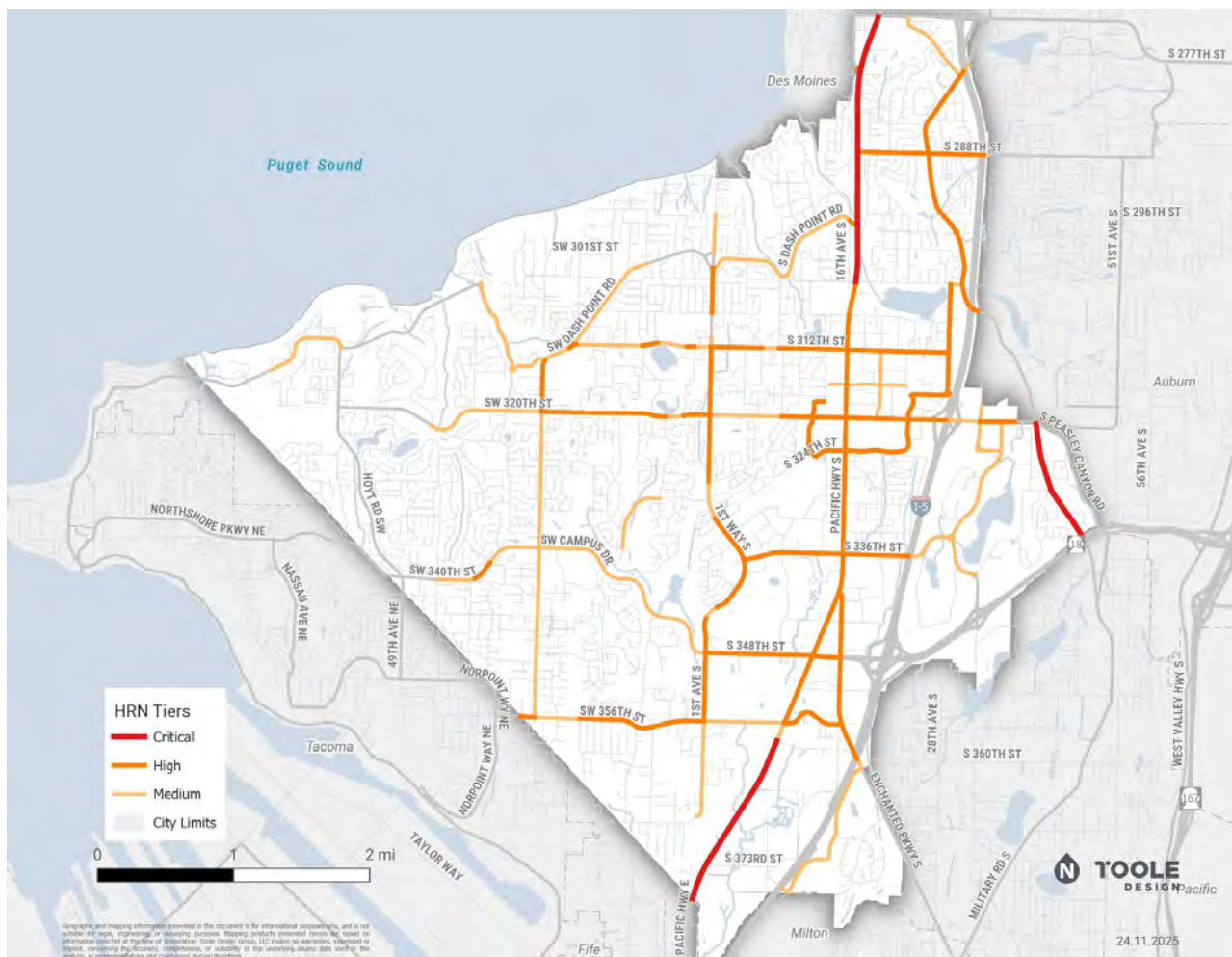


Figure 3. High Risk Network – All Modes

Motorists

Figures in this section represent results for crashes that only involved motorists. The analysis was conducted using FSI crashes.

Table 4 indicates that the screening factors most effective at indicating elevated FSI crash frequency for motorist-only crashes (facilities in Critical, High, and Medium tiers) are:

- Speed limit
- Functional class
- Zero vehicle households
- Community Need Category
- BIPOC Population
- Population below 2x poverty level

Table 4. Facility profile definitions for motorist-only crashes

Facility Profile Tier	Facility Profile Definition					
	<i>Speed Limit</i>	<i>Functional Class</i>	<i>Zero Vehicle Households</i>	<i>Community Need Category</i>	<i>BIPOC Population</i>	<i>Population Below 2X Poverty Level</i>
Critical	≥ 45 MPH	-	-	-	-	-
High	35-40 MPH	Low, Medium	-	≤ Moderate	-	-
	≤ 40 MPH	High	≥ 1%	-	≤ 60%	-
Medium	≤ 40 MPH	High	< 1%	-	-	>20%
	≤ 40 MPH	High	≥ 1%	-	> 60%	-
Low	≤ 40 MPH	High	< 1%	-	-	≤ 20%
	30 MPH	Low, Medium	-	-	-	-
	35-40 MPH	Low, Medium	-	≥ High	-	-
Minimal	≤ 25 MPH	Low, Medium	-	-	-	-

The results of the facility profile analysis in **Table 4** show that Critical tiered facilities for crashes only involving motorists are those on high-speed limit roads (45+ MPH). Speed limit is the most important factor for indicating facility profiles for motorist-only crashes, followed by functional class, zero vehicle households, community need category, BIPOC population, and population below two times poverty level. The facility profiles are mutually exclusive and do not overlap.

As shown in **Table 5** and **Figure 4**, over three-quarters (78.3%) of FSI crashes in the study area are on Critical, High, and Medium tier facilities, but these facilities only represent 16.8% the total share of road miles in the city.

Table 5. Facility profile metrics for motorist-only crashes

Facility Profile Tier	Facility Profile Metrics				
	Avg. FSI Crashes per Mile	Miles	FSI Crashes	Miles Share	FSI Crashes Share
Critical	1.40	4.2	14.0	1.7%	12.2%
High	0.48	15.4	36.0	6.1%	31.3%
Medium	0.30	22.8	40.0	9.0%	34.8%
Low	0.08	22.1	12.0	8.8%	10.4%
Minimal	0.01	187.8	13.0	74.4%	11.3%

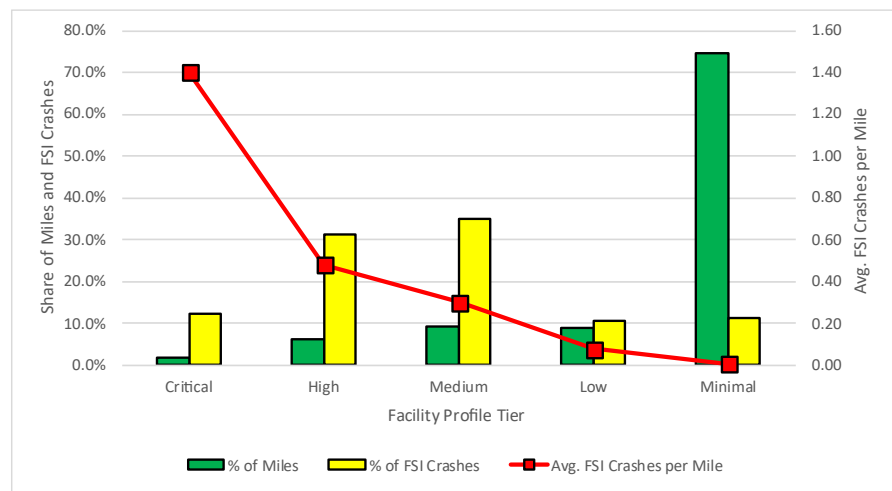


Figure 4. Facility profile tier metrics for motorist-only crashes

The corridors identified as Critical, High, and Medium in the analysis of motorists are shown in **Figure 5**. Together these roads indicate the HRN for motorists. Similar to the results for all modes, the critical corridors include Pacific Highway S and Military Road S.

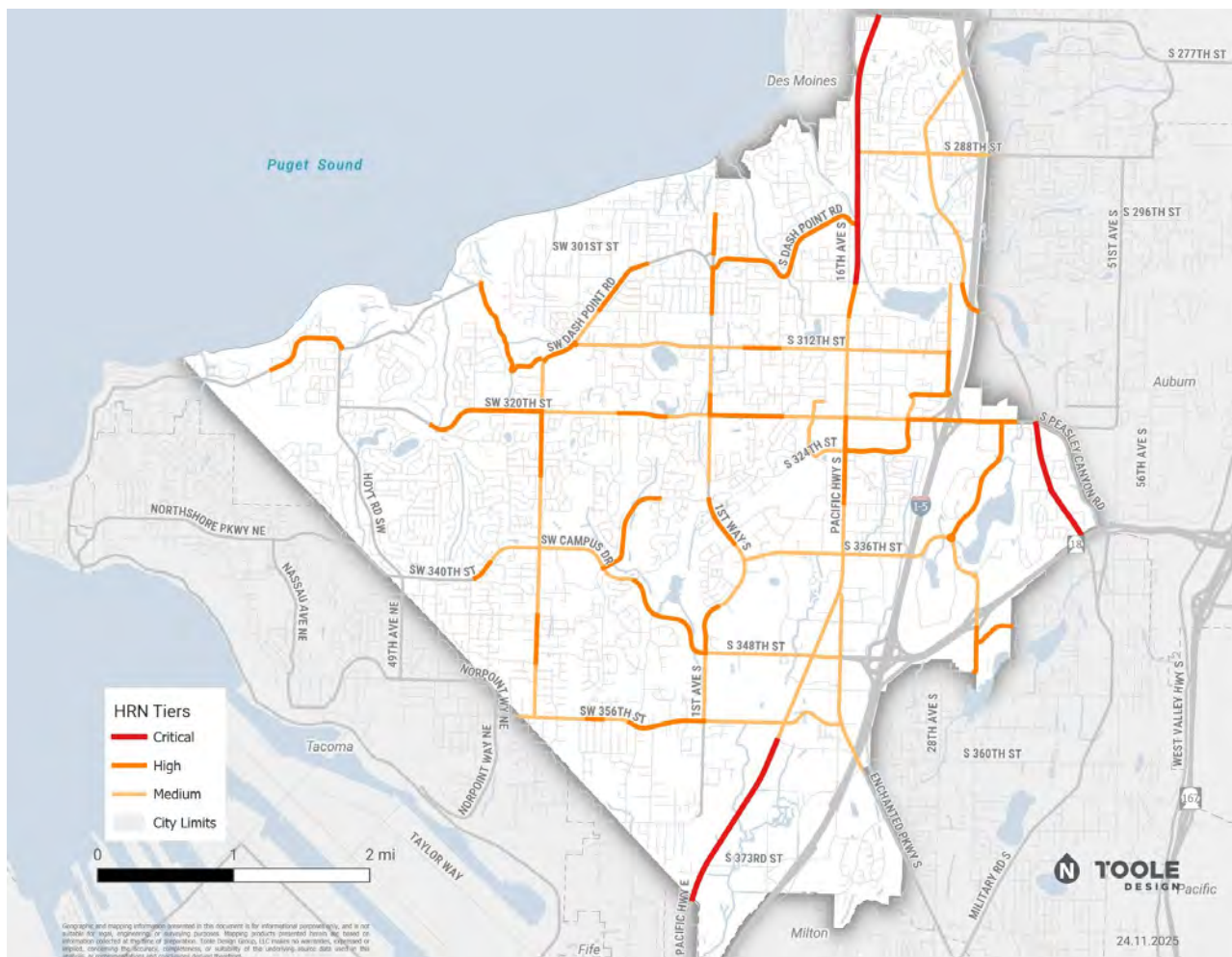


Figure 5. High Risk Network – Motorists

Pedestrians

Figures in this section represent results for pedestrians. To expand the sample size of crashes analyzed, the analysis used crashes of all injury levels, except for PDO crashes. To account for different crash severities, crashes were analyzed using 3:3:1:1 weighting for K, A, B, C crashes respectively, same weighting as the high injury network analysis.

Table 6 indicates that the screening factors most effective at indicating elevated pedestrian crash frequency (facilities in Critical, High, and Medium tiers) are:

- Speed Limit
- BIPOC Population
- Functional Class
- Community Need Category
- Park Proximity

Table 6. Facility profile definitions for pedestrian crashes

Facility Profile Tier	Facility Profile Definition				
	<i>Speed Limit</i>	<i>BIPOC Population</i>	<i>Functional Class</i>	<i>Community Need Category</i>	<i>Park Within Quarter Mile</i>
Critical	≥ 40 MPH	> 80%	-	-	-
High	≤ 35 MPH	> 80%	High	-	-
	≥ 40 MPH	≤ 80%	-	≥ High	TRUE
Medium	30-35 MPH	> 80%	Low, Medium	-	-
	≥ 40 MPH	≤ 80%	-	≥ High	FALSE
	≤ 35 MPH	≤ 80%	High	≥ High	-
Low	≥ 40 MPH	≤ 80%	-	≤ Moderate	-
	≤ 35 MPH	≤ 80%	High	≤ Moderate	-
	30-35 MPH	≤ 80%	Low, Medium	-	-
Minimal	≤ 25 MPH	-	Low, Medium	-	-

The results of the facility profile analysis in **Table 6** show that Critical tiered facilities for crashes involving pedestrians are higher speed limit (40+ MPH) roads and areas with high (>80%) BIPOC population. Speed limit is the most important factor, followed by BIPOC population, functional class, community need category, and park proximity. The facility profiles are mutually exclusive and do not overlap.

As shown in **Table 7** and **Figure 6**, more than half (69.8%) of pedestrian injury crashes in the study area are on Critical, High, and Medium tier facilities, but these facilities only represent 11.3% of the total share of road miles in the city.

Table 7. Facility profile metrics for pedestrian crashes

Facility Profile Tier	Facility Profile Metrics				
	Avg. Crash Score per Mile	Miles	Injury Crashes	Miles Share	Injury Crashes Share
Critical	3.92	2.1	24.0	0.8%	11.9%
High	2.56	6.9	50.0	2.7%	24.8%
Medium	0.90	19.6	67.0	7.8%	33.2%
Low	0.21	35.8	31.0	14.2%	15.3%
Minimal	0.03	187.8	30.0	74.4%	14.9%



Figure 6. Facility profile tier metrics for pedestrian crashes

The corridors identified as Critical, High, and Medium in the analysis of pedestrian crashes are shown in **Figure 7**. Together these roads indicate the HRN for pedestrians. Critical corridors in the HRN include Pacific Highway S and Military Road S.

Commented [OP3]: Same comment as table. Confirm FSI crashes is accurate here or if it should be all injury

Commented [LY4R3]: Yes, FSI only

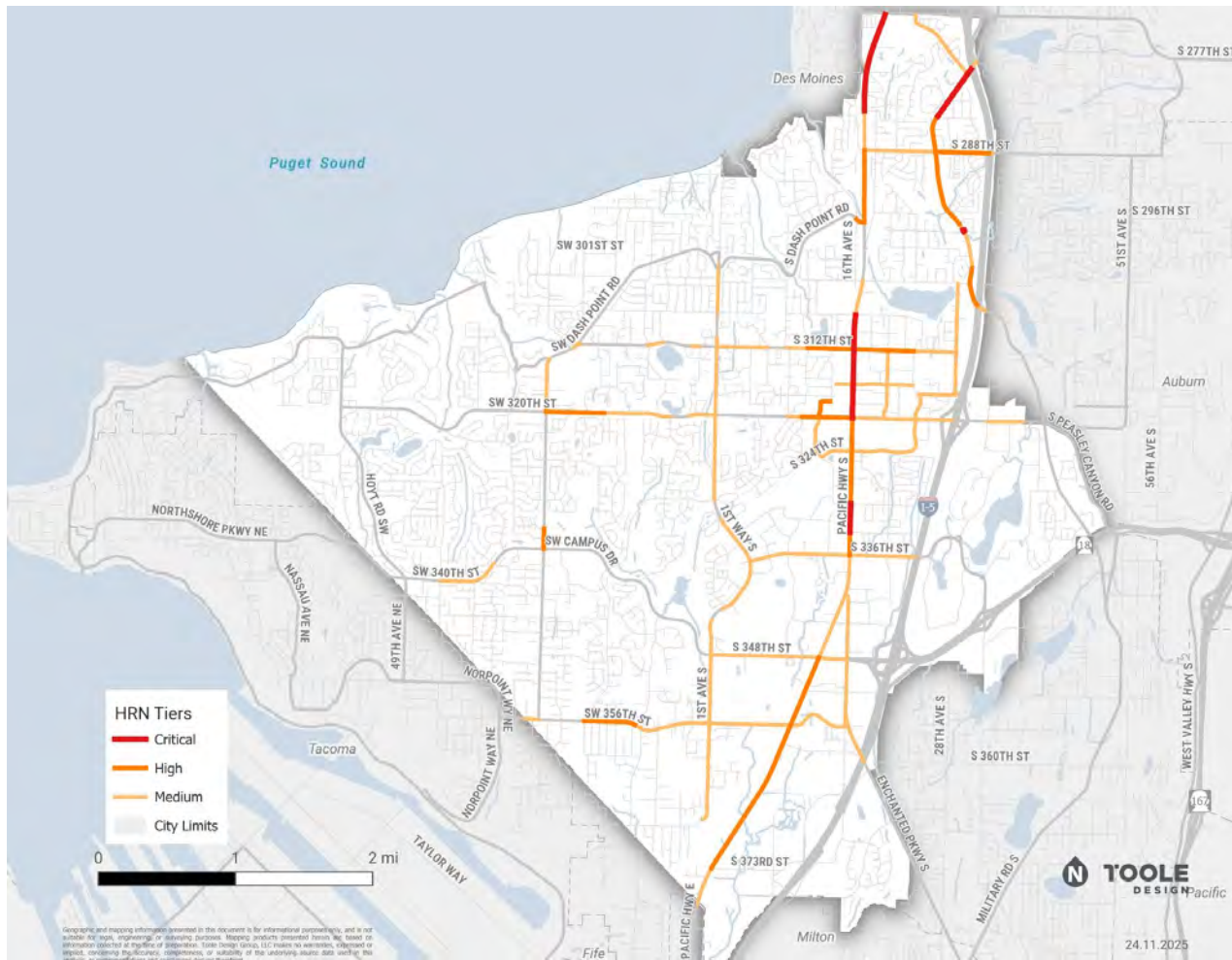


Figure 7. High Risk Network – Pedestrians

Bicyclists

Figures in this section represent results for bicyclists within the full study area. To expand the sample size of crashes analyzed, the analysis used crashes of all injury levels, except for PDO crashes. To account for different crash severities, crashes were analyzed using 3:3:1:1 weighting for K, A, B, C crashes respectively, same weighting as the high injury network analysis.

Table 8 indicates that the screening factors most effective at indicating elevated bicyclist crash frequency (facilities in Critical, High, and Medium tiers) are:

- Functional class
- BIPOC Population
- Speed Limit
- Population Below 2X Poverty Level
- Zero Vehicle Households
- Community Need Category

Table 8. Facility profile definitions for bicyclists crashes

Facility Profile Tier	Facility Profile Definition					
	Functional Class	BIPOC Population	Speed Limit	Population Below 2X Poverty Level	Zero Vehicle Households	Community Need Category
Critical	High	> 80%	-	> 40%	> 10%	-
High	High	> 80%	-	> 40%	≤ 10%	-
Medium	High	≤ 80%	-	-	≥ 1%	Highest
	Low, Medium	-	≥ 30 MPH	≤ 20%	≥ 5%	-
Low	High	≤ 80%	-	-	≥ 1%	Not Highest
Minimal	Low, Medium	-	≥ 30 MPH	> 20%	≥ 5%	-
	High	≤ 80%	-	-	< 1%	-
	Low, Medium	-	≤ 25 MPH	-	-	-
	Low, Medium	-	≥ 30 MPH	-	< 5%	-
	High	> 80%	-	≤ 40%	-	-

The results of the facility profile analysis in **Table 8** show that Critical tiered facilities for crashes involving bicyclists are roads with high functional class, in areas with more than 80% BIPOC Population, more than 40% of population below two times poverty level, and more than 10% of households with no access to vehicles. Functional class is the most important factor, followed by BIPOC population, speed limit, population below 2x poverty level, zero vehicle households, and community need category. The facility profiles are mutually exclusive and do not overlap.

As shown in **Table 9** and **Figure 8**, a majority (60.6%) of bicyclist injury crashes in the study area are on Critical, High, and Medium tier facilities, but these facilities only represent 7.4% of the total share of road miles in the city.

Table 9. Facility profile metrics for bicyclists crashes

Facility Profile Tier	Facility Profile Metrics				
	Avg. Crash Score per Mile	Miles	Injury Crashes	Miles Share	Injury Crashes Share
Critical	0.97	2.2	11.0	0.9%	16.7%
High	0.63	1.3	5.0	0.5%	7.6%
Medium	0.36	15.1	24.0	6.0%	36.4%
Low	0.19	19.9	13.0	7.9%	19.7%
Minimal	0.01	213.8	13.0	84.8%	19.7%

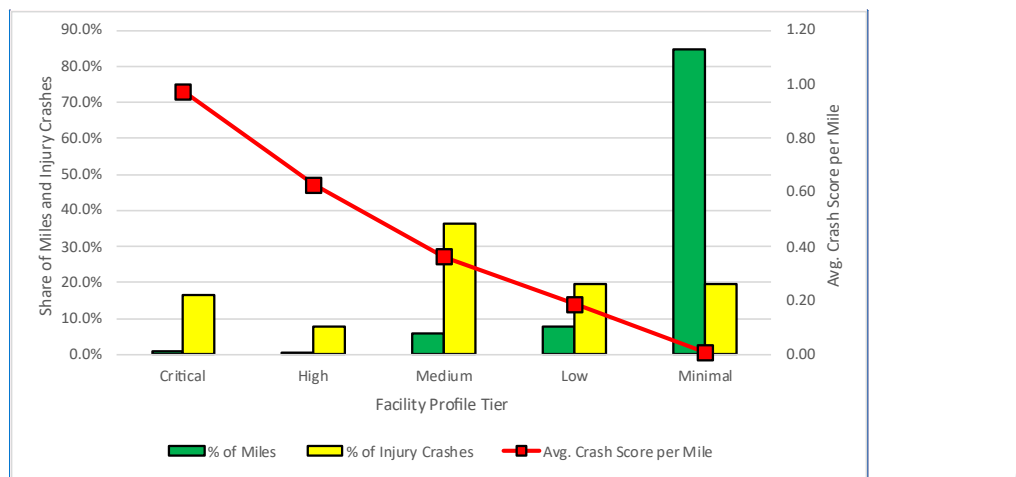


Figure 8. Facility profile tier metrics for bicycle crashes

The corridors identified as Critical, High, and Medium in the analysis of bicycle crashes are shown in **Figure 9**. Together these roads indicate the HRN for bicyclists. Critical corridors in the HRN include SW Dash Point Road, S 312th Street, 11th Street, Pacific Highway S, Military Road S, S 320th Street.

Commented [OP5]: Similar to ped tables - confirm the FSI is correct here when the analysis was run on all injury crashes

Commented [LY6R5]: FSI confirmed

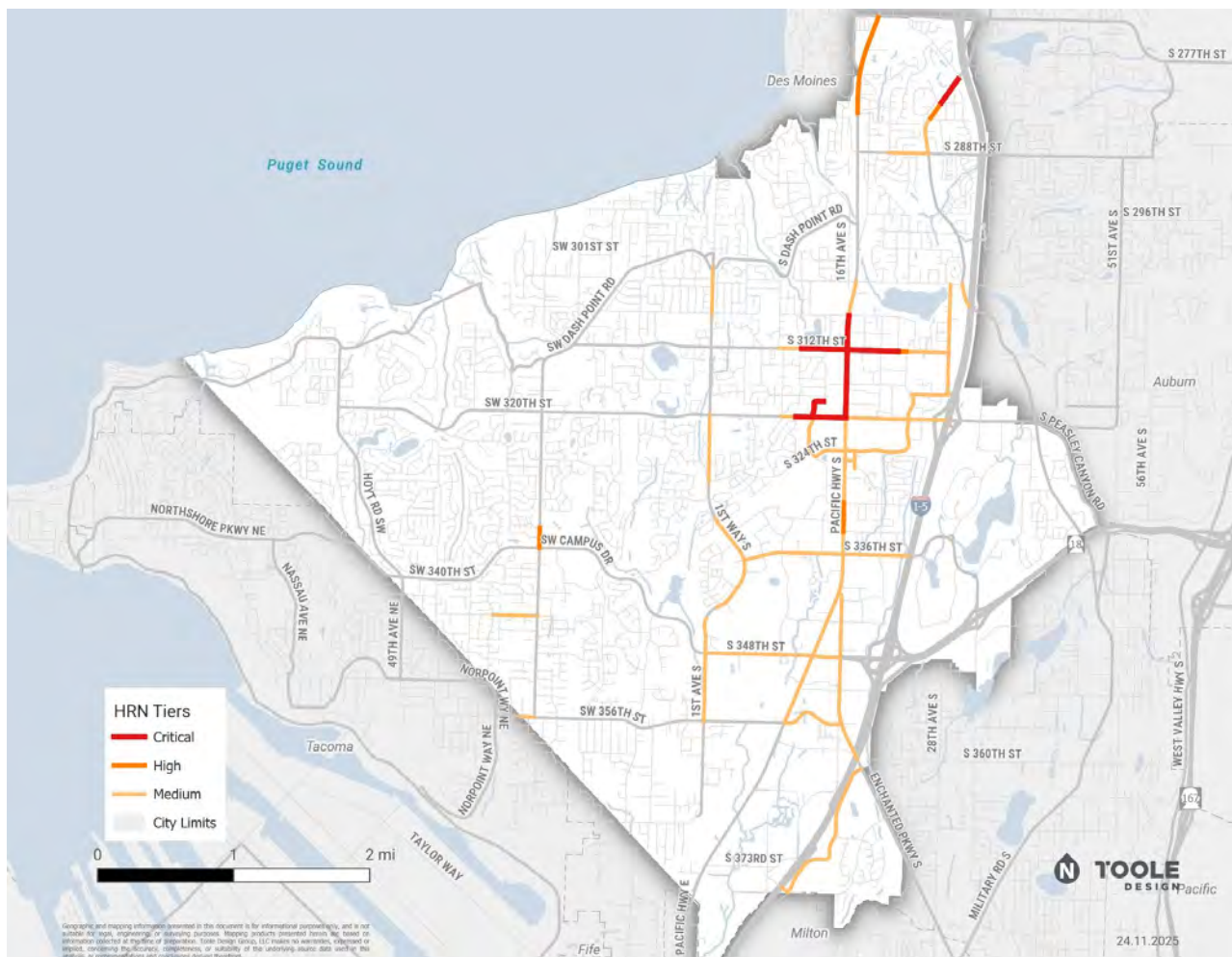


Figure 9. High Risk Network – Bicyclists

Motorcyclists

Figures in this section represent results for motorcyclists within the full study area. To expand the sample size of crashes analyzed, the analysis used crashes of all injury levels, except for PDO crashes. To account for different crash severities, crashes were analyzed using 3:3:1:1 weighting for K, A, B, C crashes respectively, same weighting as the high injury network analysis.

Table 10 indicates that the screening factors most effective at indicating elevated motorcyclist crash frequency (facilities in Critical, High, and Medium tiers) are:

- Functional Class
- Zero Vehicle Households
- Speed Limit
- Population Below 2x Poverty Level
- Park Proximity
- School Proximity

Table 10. Facility profile definitions for motorcyclists crashes

Facility Profile Tier	Facility Profile Definition					
	Functional Class	Zero Vehicle Households	Speed Limit	Population Below 2X Poverty Level	Park Within Quarter Mile	School Within Quarter Mile
Critical	High	≤ 5%	-	> 40%	TRUE	-
High	Low	-	≥ 30 MPH	-	-	FALSE
	High	≤ 5%	-	≤ 10%	-	-
Medium	Medium	> 10%	≥ 30 MPH	-	-	-
	High	≤ 5%	-	> 40%	FALSE	-
	High	≤ 5%	-	10-40%	-	-
Low	High	> 5%	-	-	-	-
Minimal	Low	-	≥ 30 MPH	-	-	TRUE
	Medium	≤ 10%	≥ 30 MPH	-	-	-
	Low, Medium	-	≤ 25 MPH	-	-	-

The results of the facility profile analysis in **Table 10** show that Critical tiered facilities for crashes involving motorcyclists are high functional class road, with 5% or less households with no vehicle, more than 40% population is below two times of poverty level, and near recreational facility. Speed limit is the most important factor for indicating facility profiles, followed by zero vehicle households, population under two times poverty level, and recreational facility proximity. The facility profiles are mutually exclusive and do not overlap.

As shown in Error! Not a valid bookmark self-reference. and **Figure 10**, more than half (63.9%) of motorcycle injury crashes in the study area are on Critical, High, and Medium tier facilities, but these facilities only represent 13.8% of the total share of road miles in the city. Over 80% of the roadway miles in the city are Minimal tier facilities.

Table 11. Facility profile metrics for motorcyclists crashes

Facility Profile Tier	Facility Profile Metrics				
	Avg. Crash Score per Mile	Miles	Injury Crashes	Miles Share	Injury Crashes Share
Critical	2.81	2.2	10.0	0.9%	12.0%
High	0.72	9.6	14.0	3.8%	16.9%
Medium	0.33	23.1	29.0	9.2%	34.9%
Low	0.20	17.1	17.0	6.8%	20.5%
Minimal	0.01	200.2	13.0	79.4%	15.7%

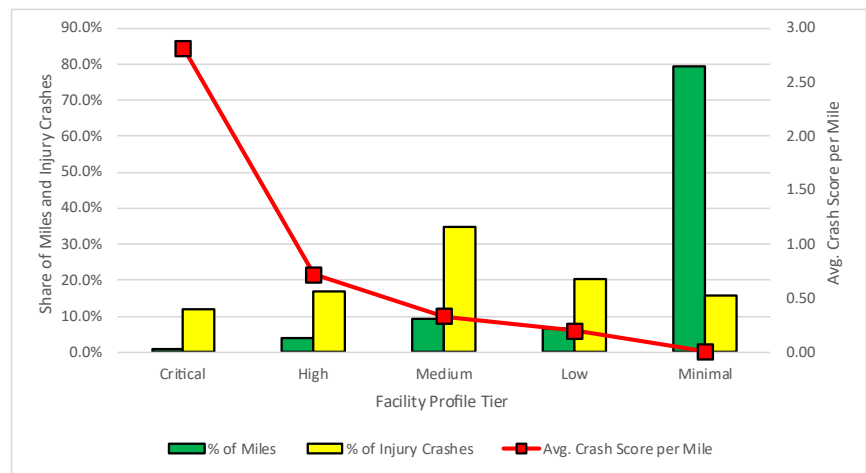


Figure 10. Facility profile tier metrics for motorcyclists crashes

The corridors identified as Critical, High, and Medium in the Facility Profile Analysis of motorcycle crashes are shown in **Figure 11**. Together these roads indicate the HRN for motorcyclists. Critical corridors in the HRN include 1st Way S, S 348th Street, Pacific Highway S, S 336th Street, and S 356th Street.

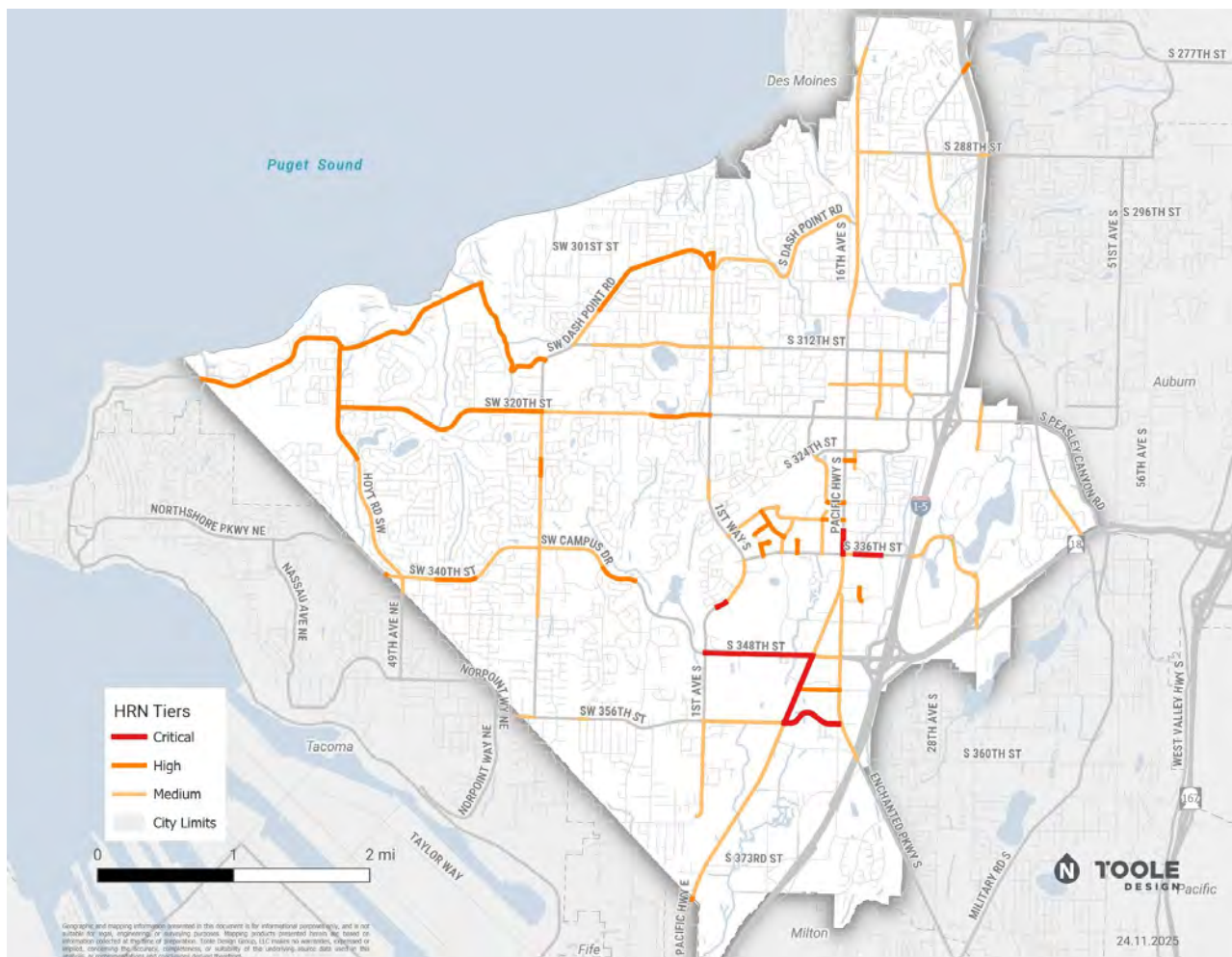


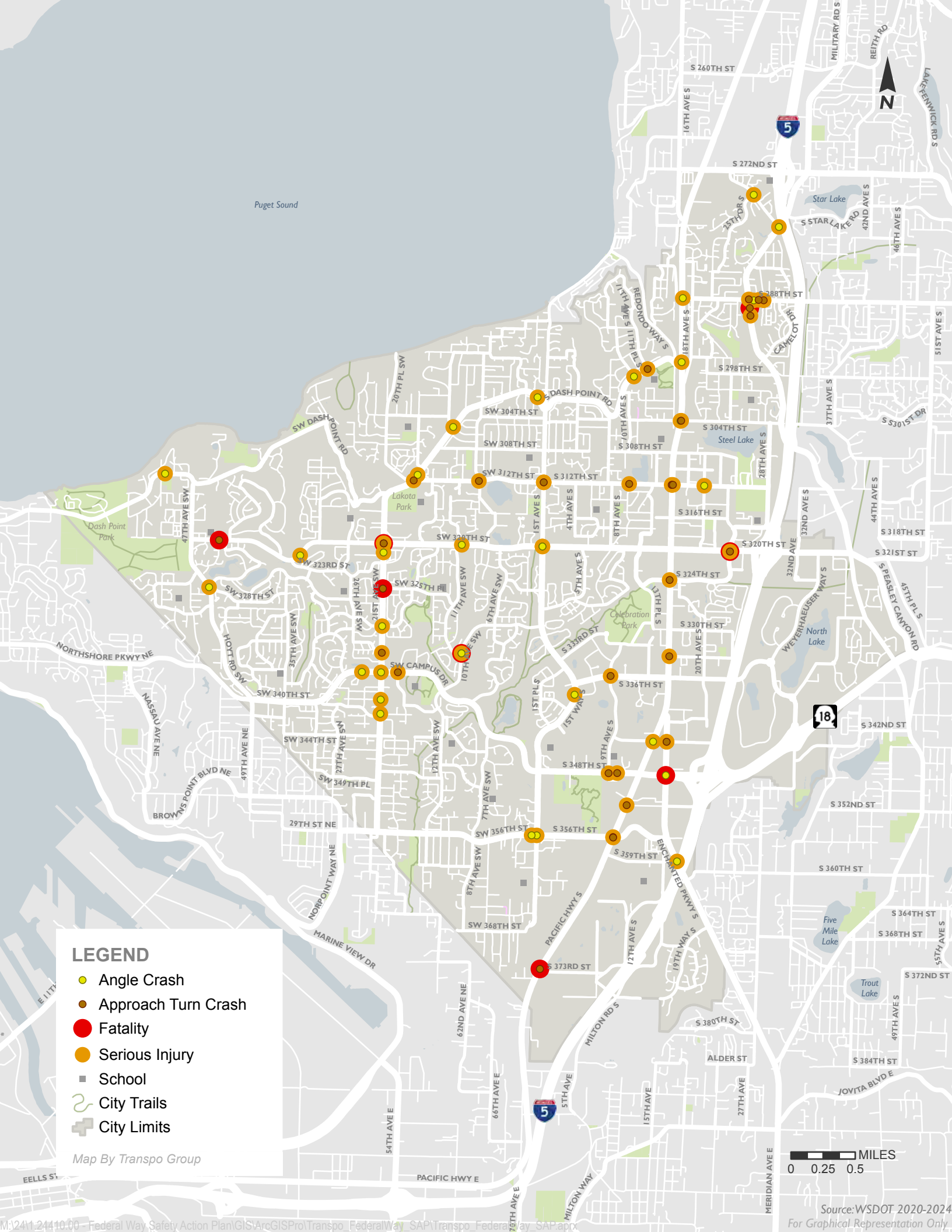
Figure 11. High Risk Network – Motorcyclist

Conclusions and Next Steps

The correlating factors captured in the systemic analysis can be used to identify potential risk on non-privately-owned, non-access-controlled freeway. Locations on the Critical, High, and Medium tiers of the HRN should be targeted for safety improvements, regardless of crash history (i.e., a proactive approach as opposed to a reactive approach since these facilities represent 18.2% of miles in the city but had 79.4% of FSI crashes). A few roads were consistently identified as critical risk level, including Pacific Highway S and Military Road S. While speed limit is the sole factor for identifying critical risk roads for motor vehicles, demographic information and proximity to point-of-interests (such as schools and parks) played more important roles in defining high risk facility types for pedestrian, bicyclists, and motorcyclist crashes.

Appendix H: Crash Maps





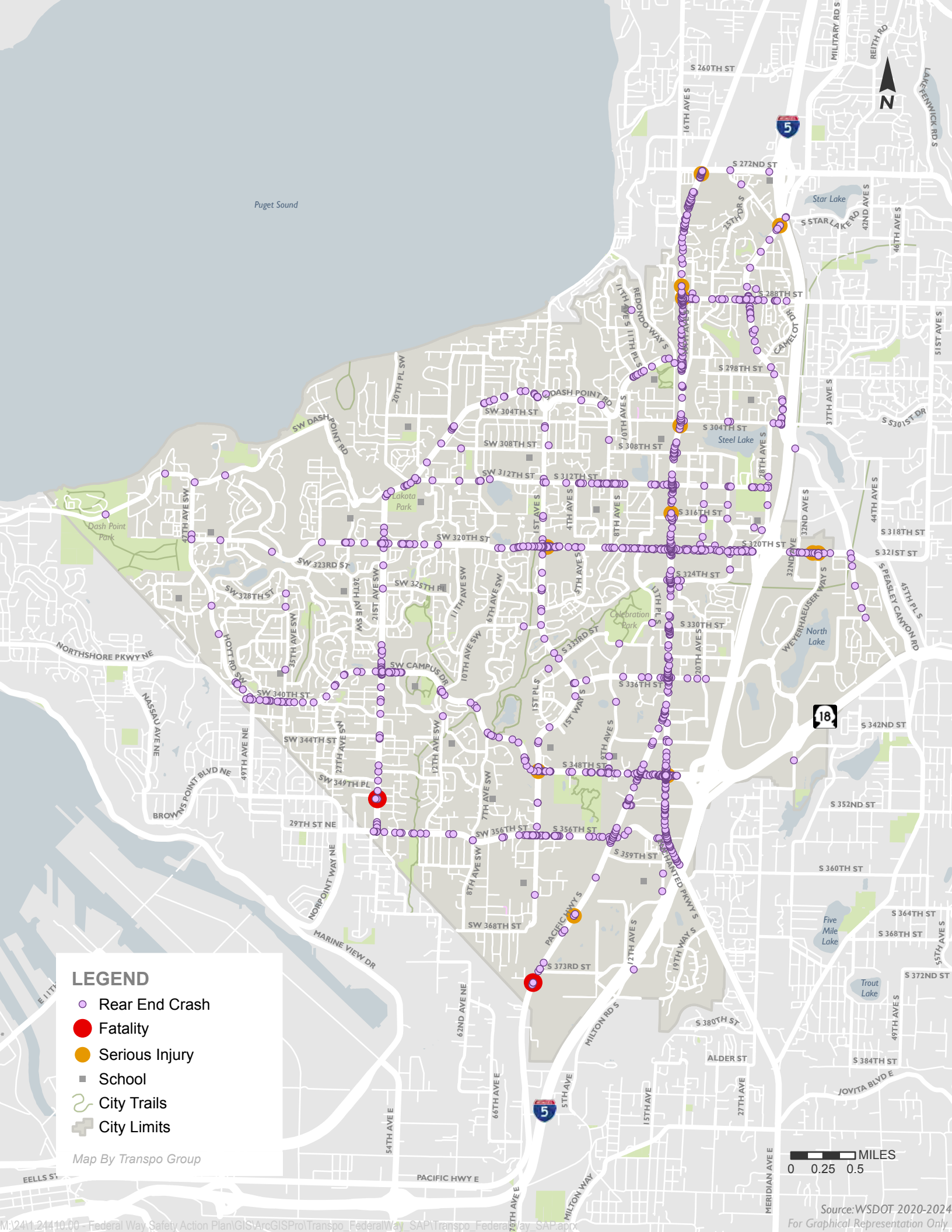
LEGEND

- Angle Crash
- Approach Turn Crash
- Fatality
- Serious Injury
- School
- City Trails
- City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



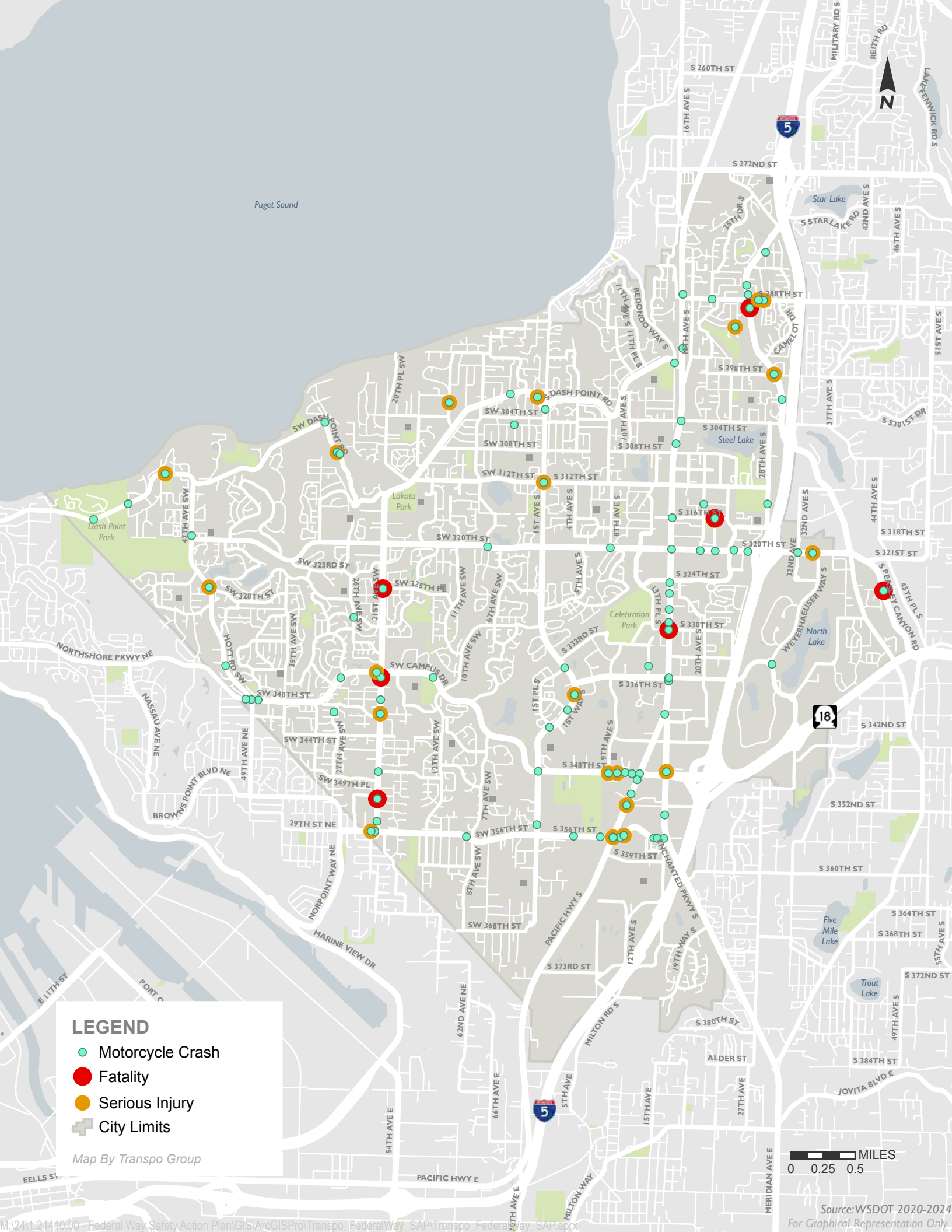
LEGEND

- Rear End Crash
- Fatality
- Serious Injury
- School
- City Trails
- City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



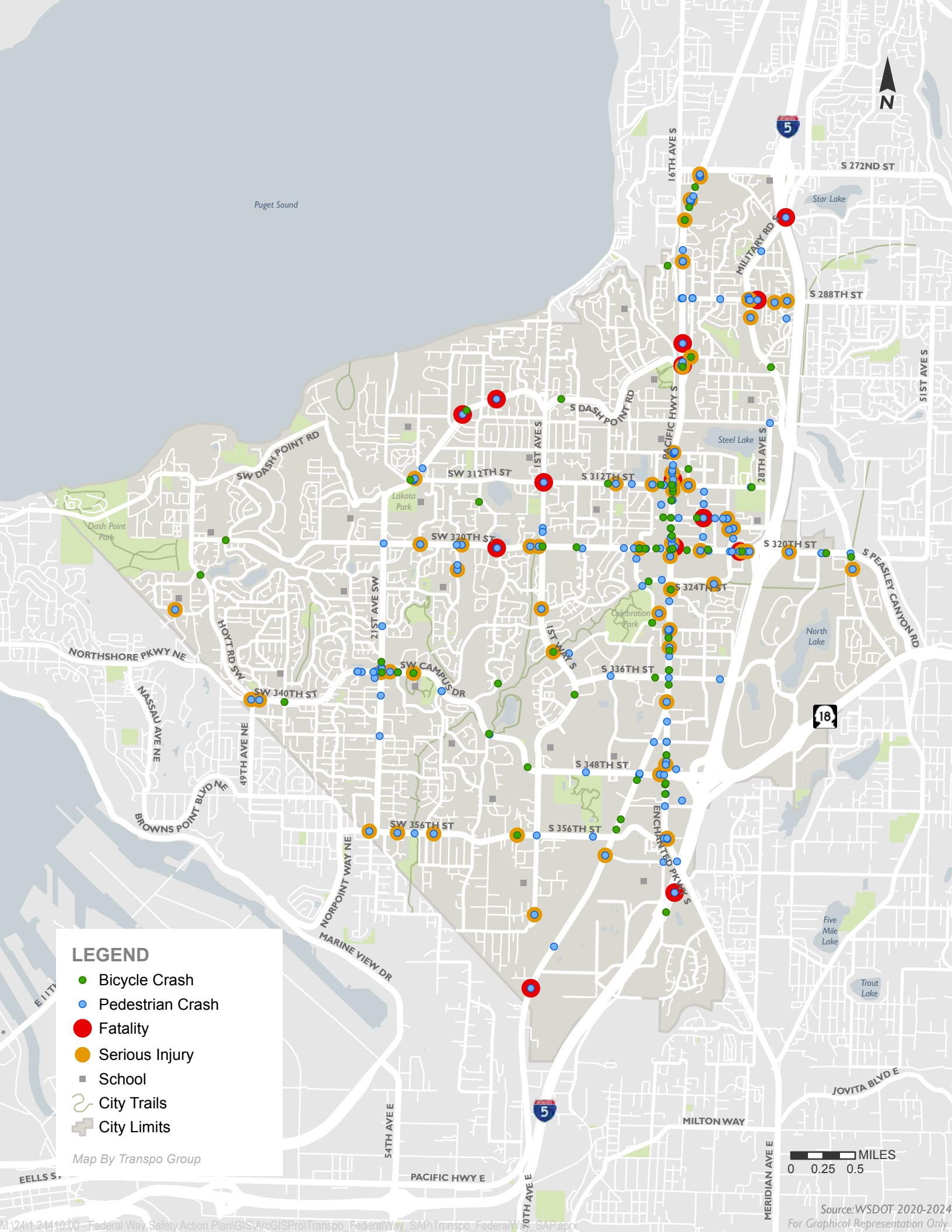
LEGEND

- Motorcycle Crash
- Fatality
- Serious Injury
- City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



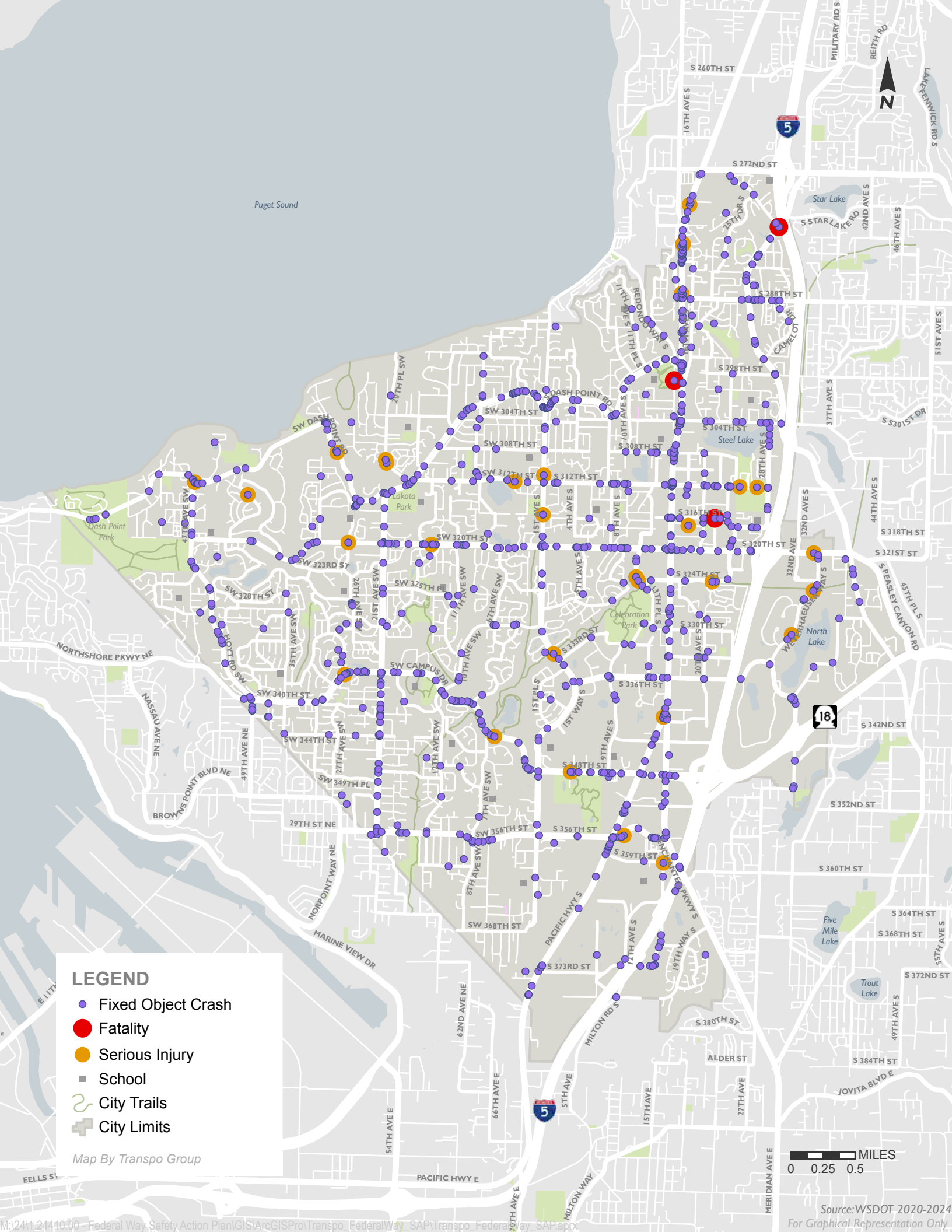
LEGEND

- Bicycle Crash
- Pedestrian Crash
- Fatality
- Serious Injury
- School
- City Trails
- City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



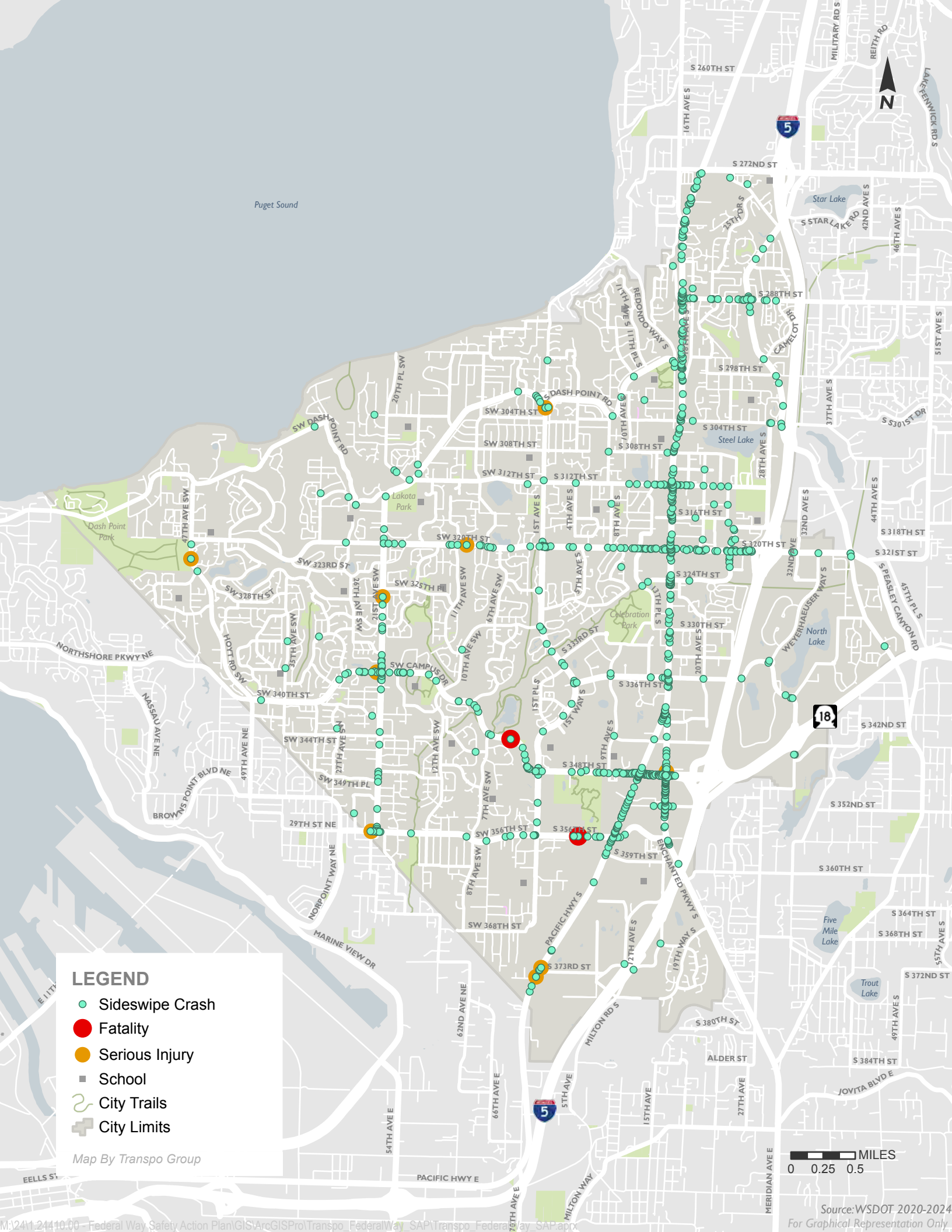
LEGEND

- Fixed Object Crash
- Fatality
- Serious Injury
- School
- City Trails
- City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



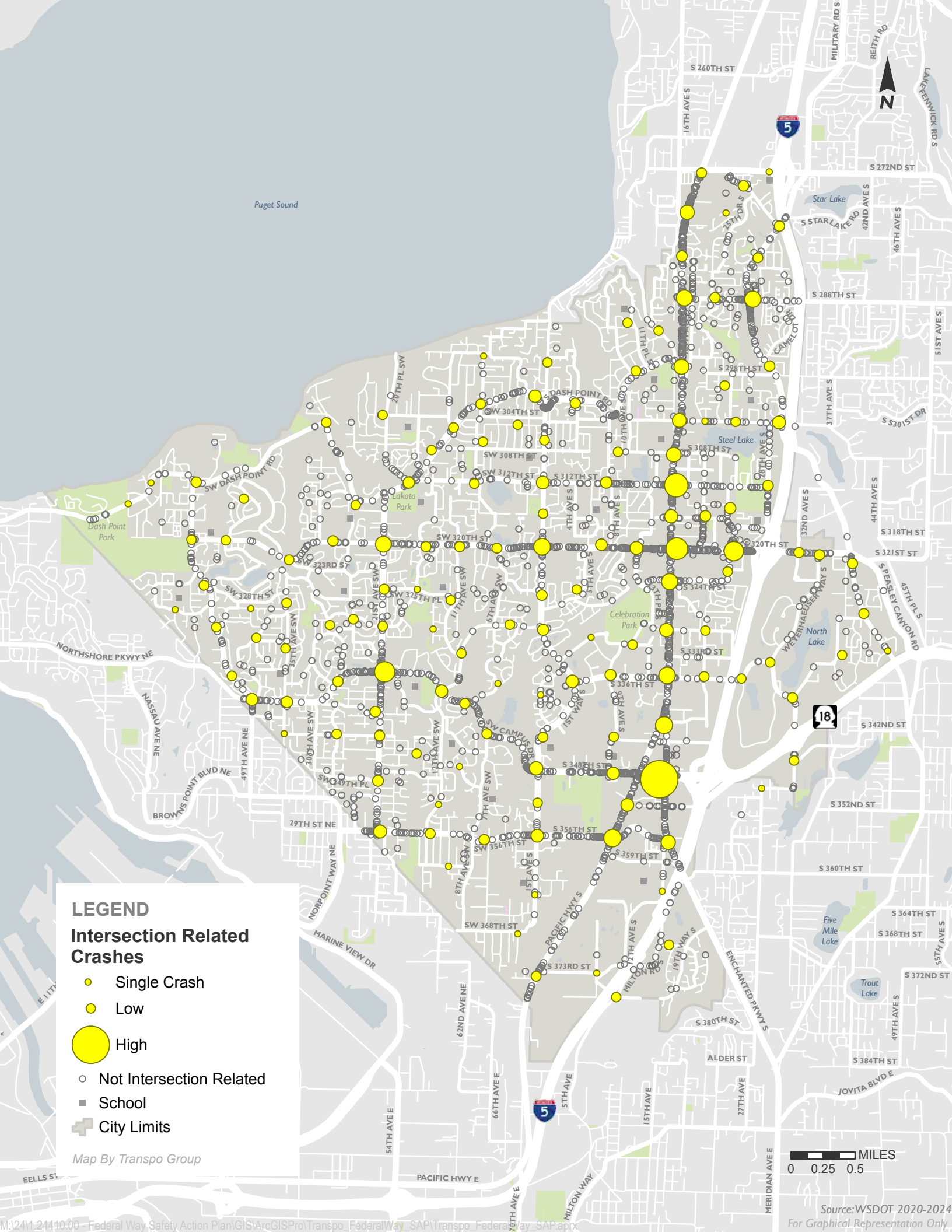
LEGEND

- Sideswipe Crash
- Fatality
- Serious Injury
- School
- ~ City Trails
- + City Limits

Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only



LEGEND

Intersection Related Crashes

- Single Crash
- Low
- High
- Not Intersection Related
- School
- City Limits

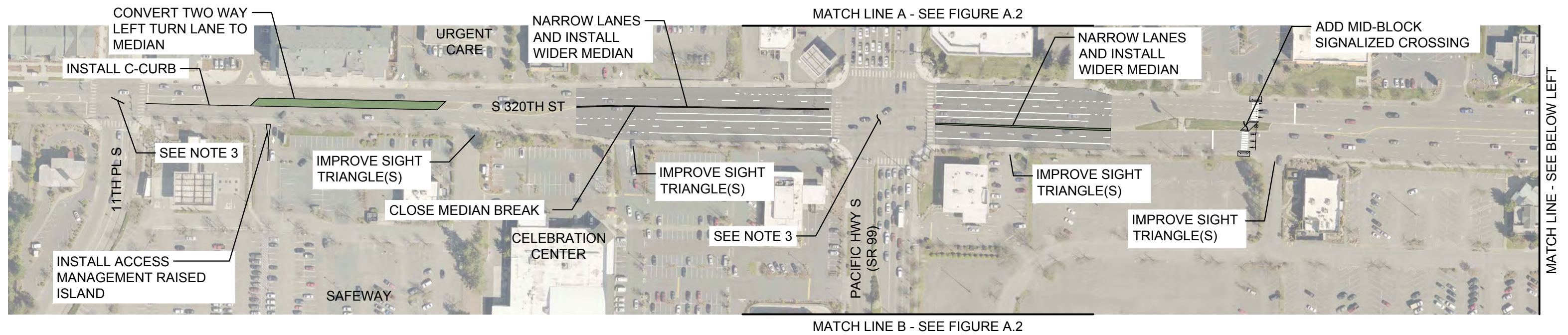
Map By Transpo Group

0 0.25 0.5 MILES

Source: WSDOT 2020-2024
For Graphical Representation Only

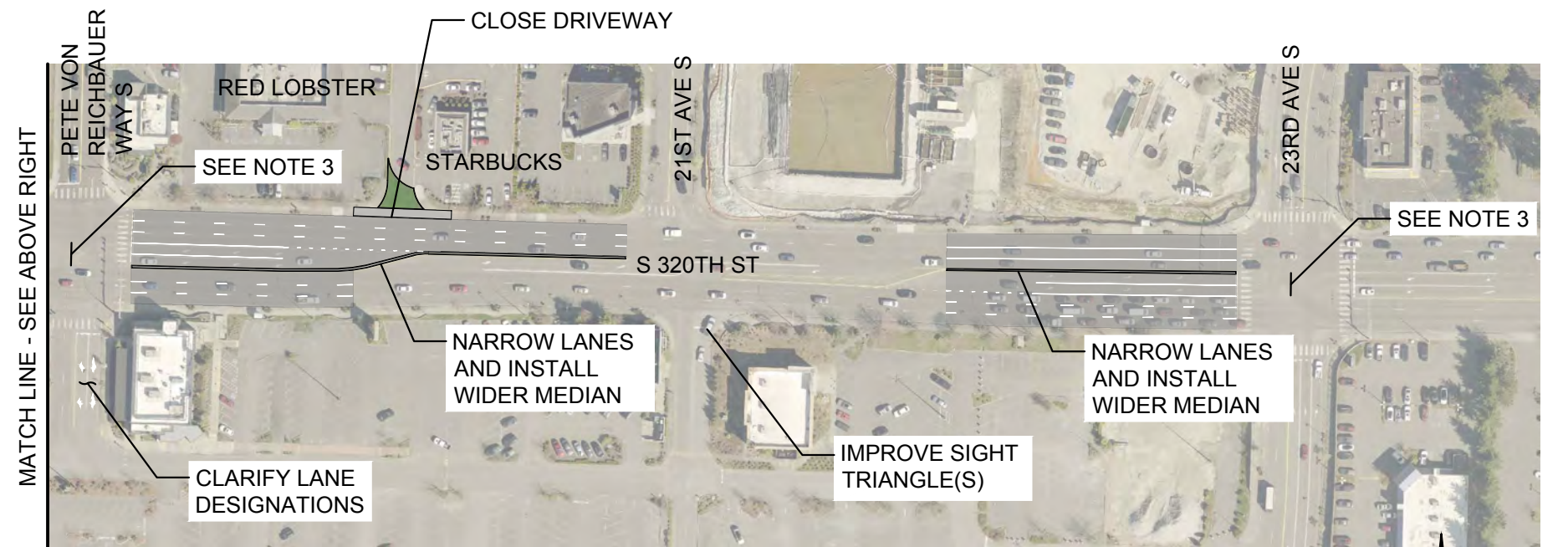
Appendix I: Countermeasures





ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. INSTALL ADVANCE LANE CONFIGURATION SIGNS.
2. REEVALUATE EXISTING ROAD SIGNING; UPDATE TO CURRENT STANDARDS, ADD SIGNS WHERE NEEDED, AND REMOVE UNNEEDED SIGNS.
3. RECONFIGURE SIGNAL TIMING TO ADD LEADING PEDESTRIAN INTERVALS.



Project A: The Downtown Area

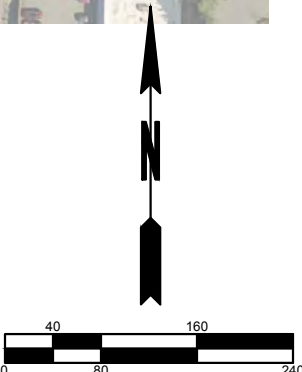
1.24410.00 - Federal Way Safety Action Plan

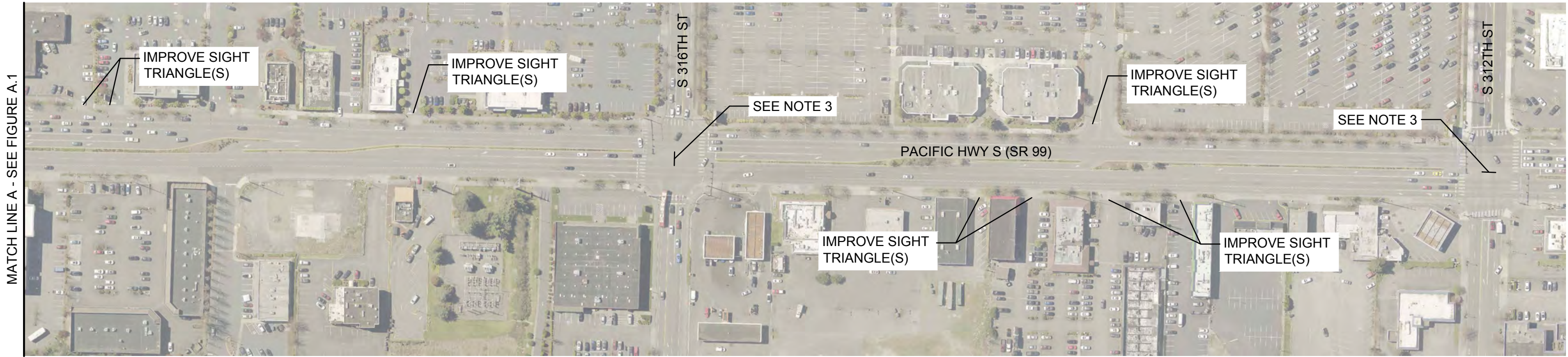
Aug 03, 2026 - 7:22pm santiagom \\srv-dfs-wa\Projects\24\1.24410.00 - Federal Way Safety Action Plan\Engineering\CAD\Conceptual\Preliminary Countermeasures.dwg Layout: A1

August 3, 2026

transpogroup  WHAT TRANSPORTATION CAN BE.

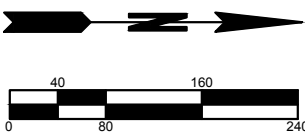
FIGURE
A.1





ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. INSTALL ADVANCE LANE CONFIGURATION SIGNS.
2. REEVALUATE EXISTING ROAD SIGNING; UPDATE TO CURRENT STANDARDS, ADD SIGNS WHERE NEEDED, AND REMOVE UNNEEDED SIGNS.
3. RECONFIGURE SIGNAL TIMING TO ADD LEADING PEDESTRIAN INTERVALS.



Project A: The Downtown Area

1.24410.00 - Federal Way Safety Action Plan

Aug 03, 2026 - 7:13pm santiagom \\srv-dfs-wa\Projects\2411.24410.00 - Federal Way Safety Action Plan\Engineering\CAD\Conceptual\Preliminary Countermeasures.dwg Layout: A2

August 3, 2026

transpogroup 
WHAT TRANSPORTATION CAN BE.

FIGURE
A.2



MATCH LINE - SEE BELOW LEFT



MATCH LINE - SEE ABOVE RIGHT

MATCH LINE A - SEE FIGURE B.2

ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. APPLY CONSISTENT TREATMENTS (PAVEMENT MARKINGS, SIGNS, ETC.) TO SIDE STREET APPROACHES.
2. RECONFIGURE SIGNAL TIMING TO ADD LEADING PEDESTRIAN INTERVALS.



Project B: 21st Avenue SW

1.24410.00 - Federal Way Safety Action Plan

August 3, 2026

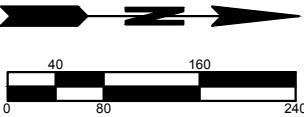


FIGURE
B.1



ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. APPLY CONSISTENT TREATMENTS (PAVEMENT MARKINGS, SIGNS, ETC.) TO SIDE STREET APPROACHES.
2. ADD ADVANCED LANE CONTROL SIGNS ALONG SW CAMPUS DR APPROACHING 21ST AVE SW.
3. RECONFIGURE SIGNAL TIMING TO ADD LEADING PEDESTRIAN INTERVALS.



Project B: 21st Avenue SW

1.24410.00 - Federal Way Safety Action Plan

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ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. APPLY CONSISTENT TREATMENTS (PAVEMENT MARKINGS, SIGNS, ETC.) TO SIDE STREET APPROACHES.



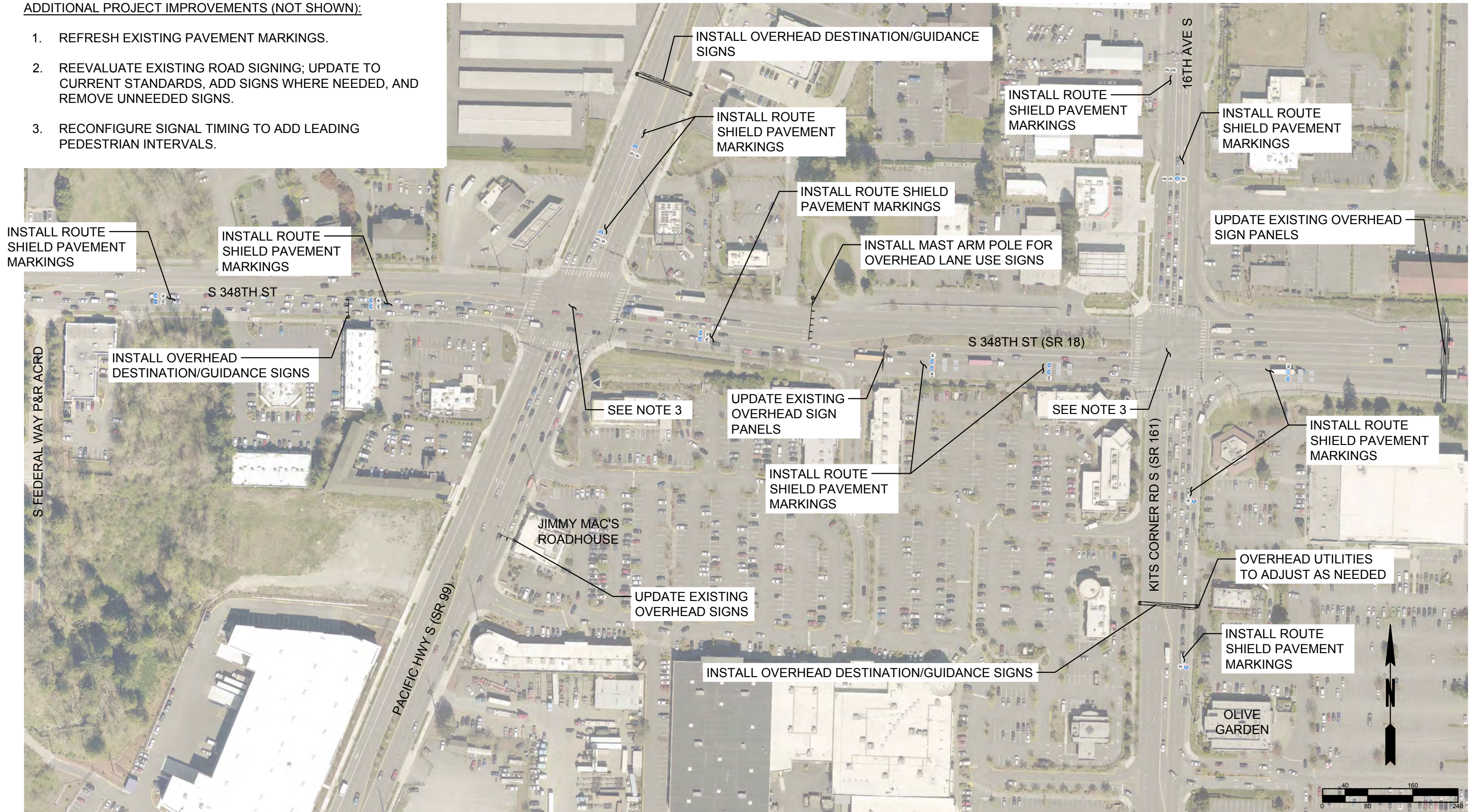
Project B: 21st Avenue SW

1.24410.00 - Federal Way Safety Action Plan

Aug 03, 2026 - 7:13pm santiagom \\srv-dfs-wa\Projects\24\1.24410.00 - Federal Way Safety Action Plan\Engineering\CAD\Conceptual\Preliminary Countermeasures.dwg Layout: B3

ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. REFRESH EXISTING PAVEMENT MARKINGS.
2. REEVALUATE EXISTING ROAD SIGNING; UPDATE TO CURRENT STANDARDS, ADD SIGNS WHERE NEEDED, AND REMOVE UNNEEDED SIGNS.
3. RECONFIGURE SIGNAL TIMING TO ADD LEADING PEDESTRIAN INTERVALS.



Project C: S 348th Street Intersections with SR 99 and SR 161

1.24410.00 - Federal Way Safety Action Plan

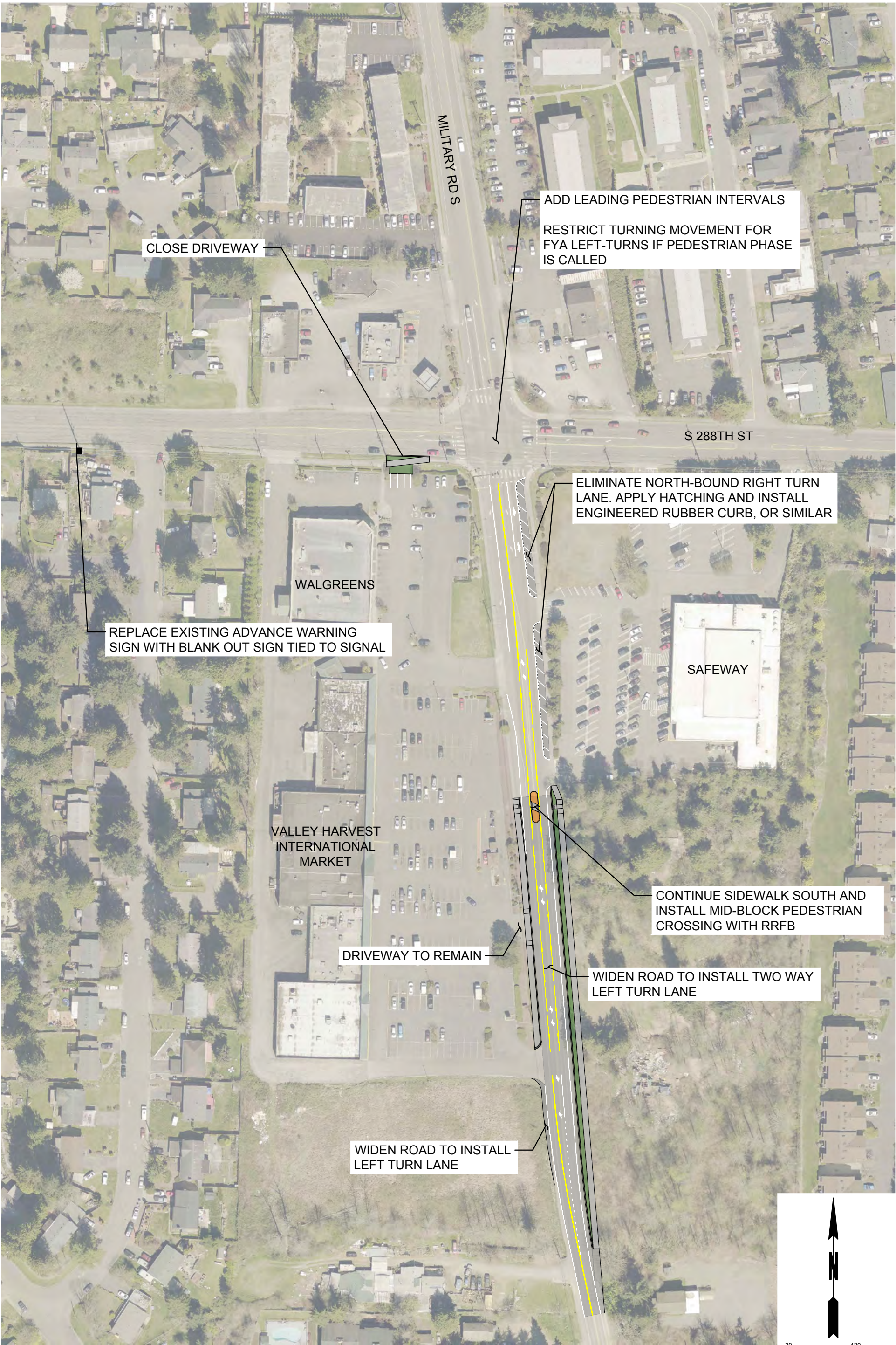
Aug 03, 2026 - 7:13pm santiagom \\srv-dfs-wa\Projects\24\1.24410.00 - Federal Way Safety Action Plan\Engineering\CAD\Conceptual\Preliminary Countermeasures.dwg Layout: C

August 3, 2026

FIGURE

transpogroup 
WHAT TRANSPORTATION CAN BE.

C



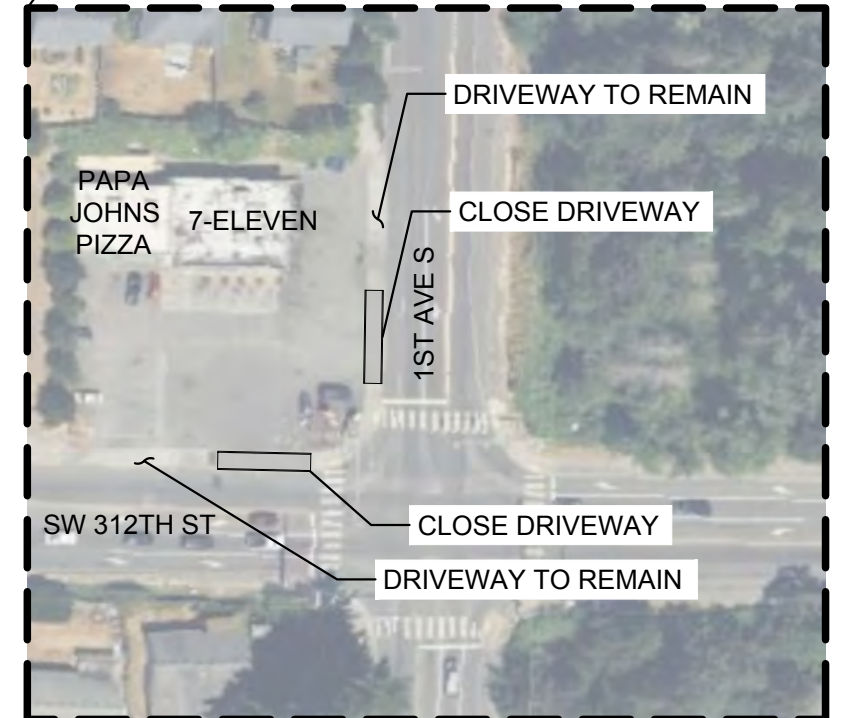
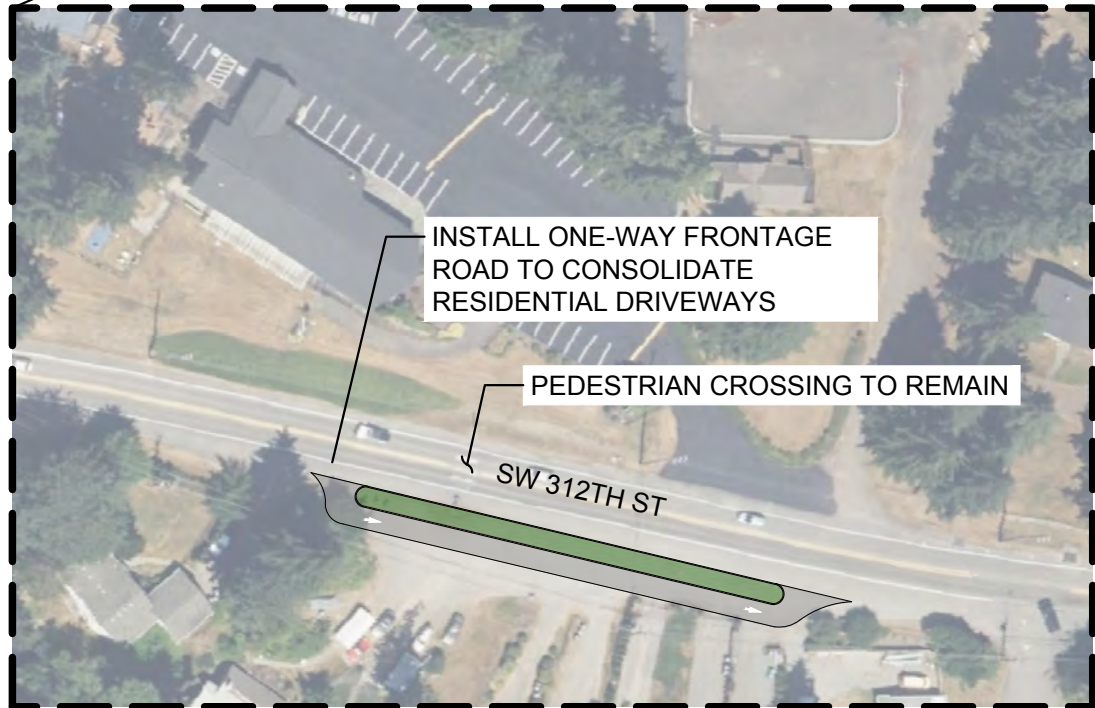
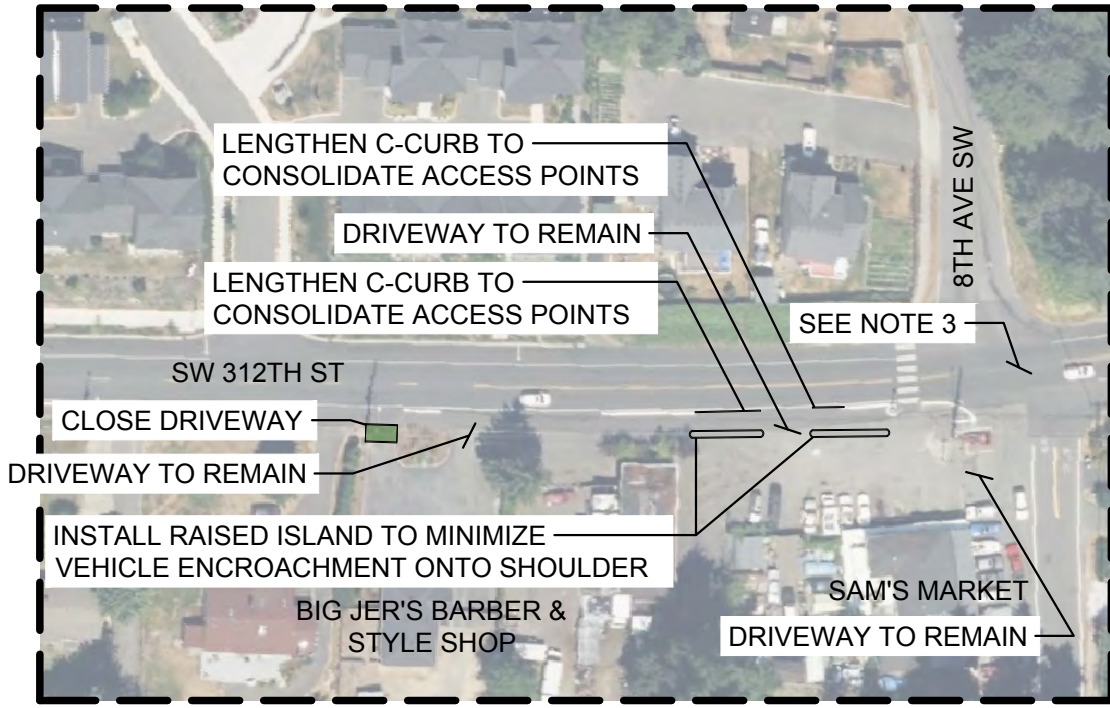
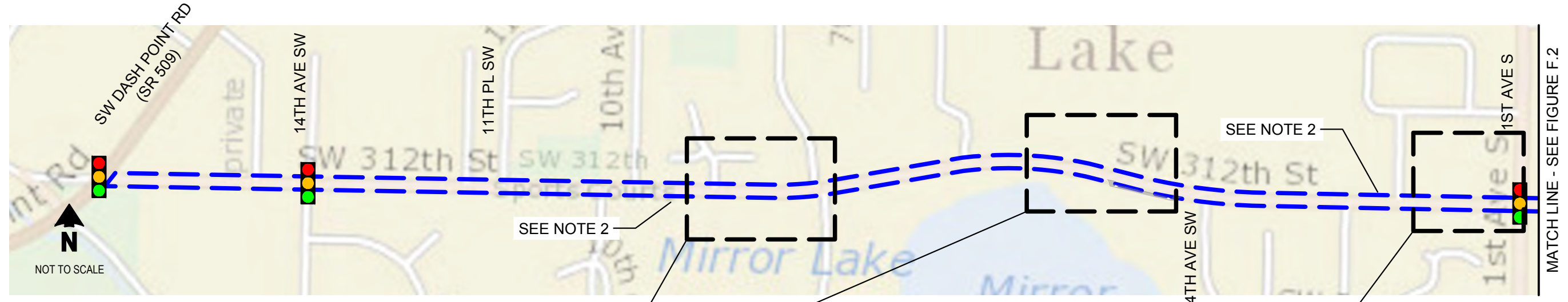
Project D: Military Road S / S 288th Street Intersection

1.24410.00 - Federal Way Safety Action Plan

August 3, 2026

FIGURE

D



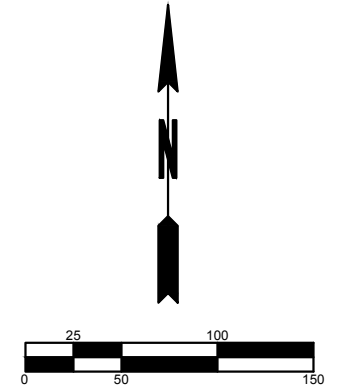
ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. APPLY CONSISTENT TREATMENTS (PAVEMENT MARKINGS, SIGNS, ETC.) TO SIDE STREET APPROACHES.
2. INSTALL RADAR SPEED FEEDBACK SIGNS (EXACT LOCATIONS TBD).
3. LIGHTING IMPROVEMENTS AT SELECT INTERSECTIONS (EXACT LOCATIONS TBD).

LEGEND

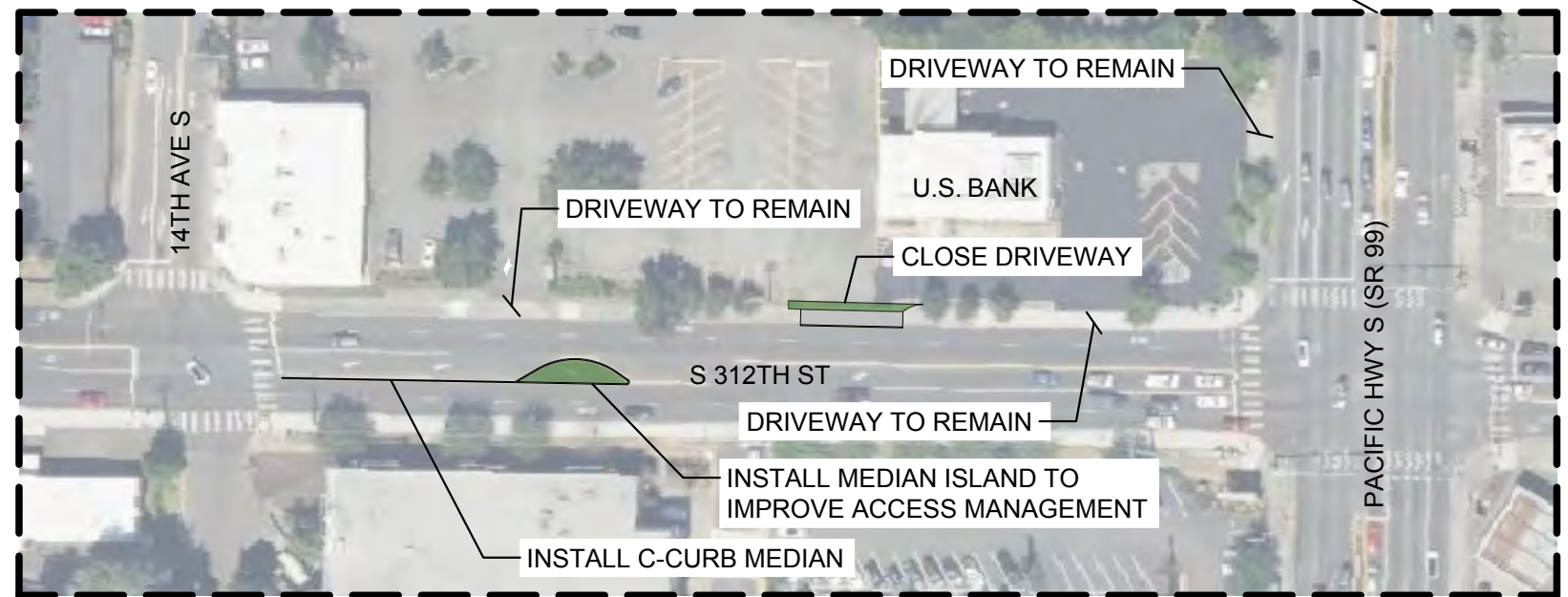
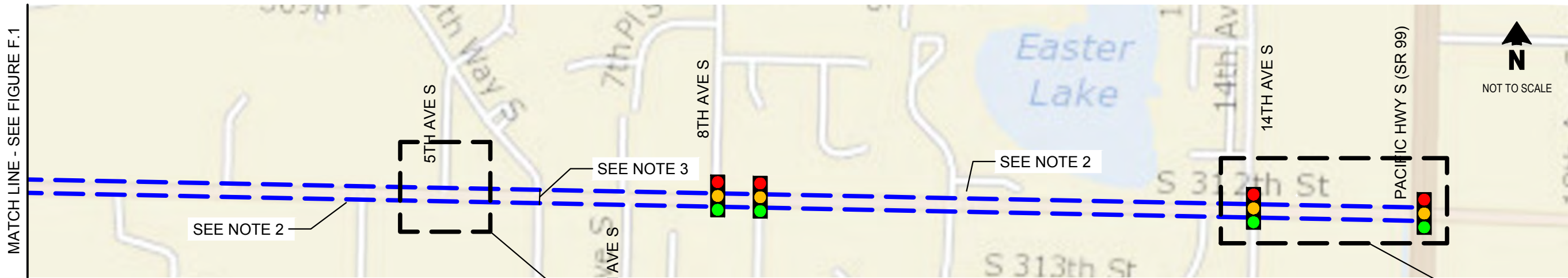
— — — — — APPROXIMATE PROJECT LIMITS

 EXISTING TRAFFIC SIGNAL



Project F: S/SW 312th Street Access Management

1.24410.00 - Federal Way Safety Action Plan

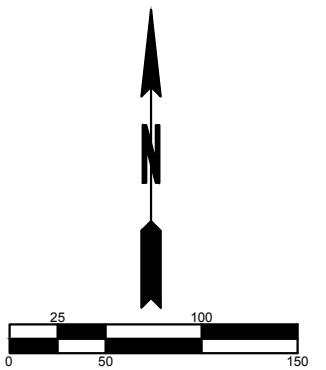


ADDITIONAL PROJECT IMPROVEMENTS (NOT SHOWN):

1. APPLY CONSISTENT TREATMENTS (PAVEMENT MARKINGS, SIGNS, ETC.) TO SIDE STREET APPROACHES.
2. INSTALL RADAR SPEED FEEDBACK SIGNS (EXACT LOCATIONS TBD).
3. LIGHTING IMPROVEMENTS AT SELECT INTERSECTIONS (EXACT LOCATIONS TBD).

LEGEND

- — — — — APPROXIMATE PROJECT LIMITS
- EXISTING TRAFFIC SIGNAL



Project F: S/SW 312th Street Access Management

1.24410.00 - Federal Way Safety Action Plan

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August 3, 2026

transpogroup **7**
WHAT TRANSPORTATION CAN BE.

FIGURE
F.2

City of Federal Way - Comprehensive Traffic Safety Action Plan
Project A: The Downtown Area
S 320th St and Pacific Hwy S (SR 99)

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Trimming and landscaping to improve intersection sight lines
2. Signing updates
3. Rechannelization, median modification/installation, and access management improvements
4. New midblock pedestrian crossing
5. Leading pedestrian intervals

Assumptions and Exclusions:

1. No permanent right of way acquisition required; temporary construction easements needed
2. WSDOT and property owner approval of modifications required, as applicable
3. Pedestrian crossing will require signalization

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description	Quantity	Unit	Unit Cost	Total
Vegetation Trimming and Removal	2800	SY	\$ 15	\$ 42,000
Remove and Replace Median	1500	SY	\$ 60	\$ 90,000
Replace Curb Ramps	2	EA	\$ 5,000	\$ 10,000
Commercial Driveway Closure	1	EA	\$ 15,000	\$ 15,000
Existing Median Modification	500	LF	\$ 135	\$ 67,500
New Medians	1200	LF	\$ 165	\$ 198,000
C-Curbing	175	LF	\$ 135	\$ 23,625
Asphalt Repair/Thin Overlay	27000	SY	\$ 8	\$ 216,000
Overhead Signing and Structure	1	LS	\$ 30,000	\$ 30,000
Ground-Mount Signing	1	LS	\$ 50,000	\$ 50,000
Intersection Channelization Modification	18000	LF	\$ 5	\$ 90,000
Traffic Signal Modifications - Timing only	1	LS	\$ 10,000	\$ 10,000
Pedestrian Traffic Signal	1	LS	\$ 215,000	\$ 215,000

		Subtotal ₁	\$	1,057,125
CN	SPCC and TESC	4%	of Subtotal ₁	\$ 42,285
CN	Stormwater	5%	of Subtotal ₁	\$ 52,856
CN	Utility Adjustments	5%	of Subtotal ₁	\$ 52,856
		Subtotal ₂	\$	1,205,123
CN	Mobilization	10%	of Subtotal ₂	\$ 120,512
CN	Temporary Traffic Control	12%	of Subtotal ₂	\$ 144,615
		Subtotal ₃	\$	265,127
CN	Contingency & Changes	30%		\$ 441,075
		Subtotal ₄	\$	1,911,324
CN	Construction Management	10%	of Subtotal ₄	\$ 191,132
		Construction Total	\$	2,102,457

PE	Engineering Design, Outreach, & Environmental	25%	of Subtotal ₄	\$ 477,831
PE	Agency Project Management	5%	of Subtotal ₄	\$ 95,566
PE	Right of Way Administration (PE Activities)	2	Parcels (EA)	\$ 5,000 \$ 10,000
PE	Legal Description & Figure	2	Parcels (EA)	\$ 4,000 \$ 8,000
PE	Appraisal/Appraisal Review	2	Parcels (EA)	\$ 6,000 \$ 12,000
		Prelim. Engineering Total	\$	603,397

RW	Right of Way Administration (RW Activities)	2	Parcels (EA)	\$ 5,000 \$ 10,000
RW	Title & Escrow	2	Parcels (EA)	\$ 3,500 \$ 7,000
RW	Statutory Evaluation Allowance	2	Parcels (EA)	\$ 750 \$ 1,500
RW	Right of Way Acquisition	1000	Area (SF)	\$ 2 \$ 2,000
		Subtotal ₅	\$	20,500
RW	Contingency	10%	of Subtotal ₅	\$ 2,050
		Right of Way Total	\$	22,550

Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)			\$	2,730,000
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City of Federal Way - Comprehensive Traffic Safety Action Plan
Project B: 21st Avenue Southwest
21st Ave SW and SW Campus Dr

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Trimming and landscaping to improve intersection sight lines
2. Signing updates and advanced lane control signing
3. Median modification/installation, and access management improvements
4. Channelization and signing improvements for unsignalized side street approaches
5. Leading pedestrian intervals

Assumptions and Exclusions:

1. No permanent right of way acquisition required; temporary construction easements needed
2. WSDOT and property owner approval of modifications required, as applicable

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description		Quantity	Unit	Unit Cost		Total
	Vegetation Trimming and Removal	3800	SY	\$	15	\$ 57,000
	Commercial Driveway Closure	3	EA	\$	15,000	\$ 45,000
	C-Curbing	100	LF	\$	135	\$ 13,500
	RIRO Median	1	LS	\$	20,000	\$ 20,000
	Ground-Mount Signing	1	LS	\$	60,000	\$ 60,000
	Traffic Signal Modifications - Timing only	1	LS	\$	15,000	\$ 15,000
	Side Street Chan Mods	4600	LF	\$	7	\$ 32,200
Subtotal ₁						\$ 242,700
CN	SPCC and TESC		4%	of Subtotal ₁	\$	9,708
CN	Stormwater		10%	of Subtotal ₁	\$	24,270
CN	Utility Adjustments		5%	of Subtotal ₁	\$	12,135
Subtotal ₂						\$ 288,813
CN	Mobilization		10%	of Subtotal ₂	\$	28,881
CN	Temporary Traffic Control		15%	of Subtotal ₂	\$	43,322
Subtotal ₃						\$ 72,203
CN	Contingency & Changes		30%		\$	108,305
Subtotal ₄						\$ 469,321
CN	Construction Management		10%	of Subtotal ₄	\$	46,932
Construction Total						\$ 516,253
PE	Engineering Design, Outreach, & Environmental		30%	of Subtotal ₄	\$	140,796
PE	Agency Project Management		10%	of Subtotal ₄	\$	46,932
PE	Right of Way Administration (PE Activities)	3	Parcels (EA)	\$	5,000	\$ 15,000
PE	Legal Description & Figure	3	Parcels (EA)	\$	4,000	\$ 12,000
PE	Appraisal/Appraisal Review	3	Parcels (EA)	\$	6,000	\$ 18,000
Prelim. Engineering Total						\$ 232,728
RW	Right of Way Administration (RW Activities)	3	Parcels (EA)	\$	5,000	\$ 15,000
RW	Title & Escrow	3	Parcels (EA)	\$	3,500	\$ 10,500
RW	Statutory Evaluation Allowance	3	Parcels (EA)	\$	750	\$ 2,250
RW	Right of Way Acquisition	3000	Area (SF)	\$	2	\$ 6,000
Subtotal ₅						\$ 33,750
RW	Contingency		10%	of Subtotal ₅	\$	3,375
Right of Way Total						\$ 37,125
Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)						\$ 790,000

City of Federal Way - Comprehensive Traffic Safety Action Plan

Project C: S 348th St Intersections with Pacific Hwy S and Kits Corner Rd S/16th Ave S
S 348th St and Pacific Hwy S (SR 99)/Enchanted Pkwy S (SR 161)

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Signing updates
2. Overhead destination and/or lane control signing
3. Channelization refreshing
4. Lane designation pavement markings
5. Leading pedestrian intervals

Assumptions and Exclusions:

1. Permanent right of way impacts
2. WSDOT approval of modifications required, as applicable

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description	Quantity	Unit	Unit Cost	Total
Overhead Signing	1	LS	\$ 100,000	\$ 100,000
Overhead Signing Structures	1	LS	\$ 500,000	\$ 400,000
Ground-Mount Signing	1	LS	\$ 50,000	\$ 50,000
Refresh Pavement Markings	34000	LF	\$ 7	\$ 238,000
Lane Designation Pavement Markings	50	EA	\$ 2,000	\$ 100,000
Traffic Signal Modifications - Timing only	1	LS	\$ 10,000	\$ 10,000

Subtotal ₁				\$	898,000
CN	SPCC and TESC	4%	of Subtotal ₁	\$	35,920
CN	Stormwater	5%	of Subtotal ₁	\$	44,900
CN	Utility Adjustments	10%	of Subtotal ₁	\$	89,800
Subtotal ₂				\$	1,068,620
CN	Mobilization	10%	of Subtotal ₂	\$	106,862
CN	Temporary Traffic Control	20%	of Subtotal ₂	\$	213,724
Subtotal ₃				\$	320,586
CN	Contingency & Changes	30%		\$	416,762
Subtotal ₄				\$	1,805,968
CN	Construction Management	10%	of Subtotal ₄	\$	180,597
Construction Total				\$	1,986,565

PE	Engineering Design, Outreach, & Environmental	25%	of Subtotal ₄	\$	451,492
PE	Agency Project Management	5%	of Subtotal ₄	\$	90,298
PE	Right of Way Administration (PE Activities)	1	Parcels (EA)	\$ 5,000	\$ 5,000
PE	Legal Description & Figure	1	Parcels (EA)	\$ 4,000	\$ 4,000
PE	Appraisal/Appraisal Review	1	Parcels (EA)	\$ 6,000	\$ 6,000
Prelim. Engineering Total				\$	556,790

RW	Right of Way Administration (RW Activities)	1	Parcels (EA)	\$ 5,000	\$ 5,000
RW	Title & Escrow	1	Parcels (EA)	\$ 3,500	\$ 3,500
RW	Statutory Evaluation Allowance	1	Parcels (EA)	\$ 750	\$ 750
RW	Right of Way Acquisition	100	Area (SF)	\$ 60	\$ 6,000
Subtotal ₅				\$	15,250
RW	Contingency	10%	of Subtotal ₅	\$	1,525
Right of Way Total				\$	16,775

Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)				\$	2,570,000
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City of Federal Way - Comprehensive Traffic Safety Action Plan
Project D: Military Road South / South 288th Street Intersection
Military Rd S and S 288th St

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Extension of two way left turn lane (TWLTL)
2. Extension of sidewalks
3. Right turn lane removal
4. Mid-block pedestrian crossing with RRFB
5. Access management improvements
6. Signing updates and installation of blank-out sign
7. Leading pedestrian intervals and turning movement restrictions for FYA LTs when ped phase is called

Assumptions and Exclusions:

1. Property owner approval of modifications required, as applicable
2. Right turn lane removal will not involve moving curb line
3. Blank out sign will connect to signal through existing conduit pathways
4. Solar powered signing will be used
5. Permanent right of way impacts; temporary construction easements

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description	Quantity	Unit	Unit Cost	Total
Commercial Driveway Closure	1	EA	\$ 15,000	\$ 15,000
Pavement Widening	5000	SF	\$ 15	\$ 75,000
Sidewalk	911	SY	\$ 115	\$ 104,778
Planter	411	SY	\$ 80	\$ 32,889
Surface Mounted Rubber Crub	400	LF	\$ 50	\$ 20,000
Curb and Gutter	1200	LF	\$ 65	\$ 78,000
Ground-Mount Signing	1	LS	\$ 25,000	\$ 25,000
Pavement Markings	6000	LF	\$ 7	\$ 42,000
Traffic Signal Modifications - Timing only	1	LS	\$ 10,000	\$ 10,000
Blank Out Sign	1	EA	\$ 12,500	\$ 12,500
RRFB System, Complete, Solar	1	EA	\$ 50,000	\$ 50,000

			Subtotal ₁	\$	465,167
CN	SPCC and TESC	4%	of Subtotal ₁	\$	18,607
CN	Stormwater	35%	of Subtotal ₁	\$	162,808
CN	Utility Adjustments	5%	of Subtotal ₁	\$	23,258
			Subtotal ₂	\$	669,840
CN	Mobilization	10%	of Subtotal ₂	\$	66,984
CN	Temporary Traffic Control	12%	of Subtotal ₂	\$	80,381
			Subtotal ₃	\$	147,365
CN	Contingency & Changes	30%		\$	245,161
			Subtotal ₄	\$	1,062,366
CN	Construction Management	10%	of Subtotal ₄	\$	106,237
			Construction Total	\$	1,168,603

PE	Engineering Design, Outreach, & Environmental	20%	of Subtotal ₄	\$	212,473
PE	Agency Project Management	5%	of Subtotal ₄	\$	53,118
PE	Right of Way Administration (PE Activities)	5	Parcels (EA)	\$ 5,000	\$ 25,000
PE	Legal Description & Figure	5	Parcels (EA)	\$ 4,000	\$ 20,000
PE	Appraisal/Appraisal Review	5	Parcels (EA)	\$ 6,000	\$ 30,000
			Prelim. Engineering Total	\$	340,592

RW	Right of Way Administration (RW Activities)	5	Parcels (EA)	\$ 5,000	\$ 25,000
RW	Title & Escrow	5	Parcels (EA)	\$ 3,500	\$ 17,500
RW	Statutory Evaluation Allowance	5	Parcels (EA)	\$ 750	\$ 3,750
RW	Right of Way Acquisition	5000	Area (SF)	\$ 15	\$ 75,000
			Subtotal ₅	\$	121,250
RW	Contingency	10%	of Subtotal ₅	\$	12,125
			Right of Way Total	\$	133,375

Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)			\$	1,650,000
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City of Federal Way - Comprehensive Traffic Safety Action Plan
Project E: Southwest Campus Drive Horizontal Curves
SW Campus Dr

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Curve warning chevron signs with reflective posts and radar speed feedback signs
2. Restripe lanes to narrow widths and install profiled edge lines
3. Fixed object signage

Assumptions and Exclusions:

1. No right of way impacts
2. Solar powered signing will be used

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description		Quantity	Unit	Unit Cost		Total
	Ground-Mount Signing and Reflective Posts - Static	1	LS	\$	54,000	\$ 54,000
	Ground-Mount Signing - Radar Speed Feedback	1	EA	\$	15,000	\$ 15,000
	Asphalt Repair/Thin Overlay	80000	SY	\$	8	\$ 640,000
	Corridor Channelization Modification - Lane Narrowing	44000	LF	\$	5	\$ 220,000
	Corridor Channelization Profile Edge Lines	16000	LF	\$	10	\$ 160,000
Subtotal ₁					\$	1,089,000
CN	SPCC and TESC		4%	of Subtotal ₁	\$	43,560
CN	Stormwater		5%	of Subtotal ₁	\$	54,450
CN	Utility Adjustments		5%	of Subtotal ₁	\$	54,450
Subtotal ₂					\$	1,241,460
CN	Mobilization		10%	of Subtotal ₂	\$	124,146
CN	Temporary Traffic Control		12%	of Subtotal ₂	\$	148,975
Subtotal ₃					\$	273,121
CN	Contingency & Changes		30%		\$	454,374
Subtotal ₄					\$	1,968,956
CN	Construction Management		10%	of Subtotal ₄	\$	196,896
Construction Total					\$	2,165,851
PE	Engineering Design, Outreach, & Environmental		20%	of Subtotal ₄	\$	393,791
PE	Agency Project Management		5%	of Subtotal ₄	\$	98,448
PE	Right of Way Administration (PE Activities)	0	Parcels (EA)	\$	5,000	\$ -
PE	Legal Description & Figure	0	Parcels (EA)	\$	4,000	\$ -
PE	Appraisal/Appraisal Review	0	Parcels (EA)	\$	6,000	\$ -
Prelim. Engineering Total					\$	492,239
RW	Right of Way Administration (RW Activities)	0	Parcels (EA)	\$	5,000	\$ -
RW	Title & Escrow	0	Parcels (EA)	\$	3,500	\$ -
RW	Statutory Evaluation Allowance	0	Parcels (EA)	\$	750	\$ -
RW	Right of Way Acquisition	0	Area (SF)	\$	5	\$ -
Subtotal ₅					\$	-
RW	Contingency		10%	of Subtotal ₅	\$	-
Right of Way Total					\$	-
Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)					\$	2,660,000

City of Federal Way - Comprehensive Traffic Safety Action Plan
Project F: South/Southwest 312th Street Access Management
S/SW 312th St

Engineer's Opinion of Probable Cost for Planning Level Design

Description of Work:

1. Driveway consolidation and access management improvements
2. Closure of 5th Ave S connection to/from S/SW 312th St
3. Channelization and signing improvements for unsignalized side street approaches
4. Illumination upgrades at select intersections
5. Radar speed feedback signs

Assumptions and Exclusions:

1. No permanent right of way acquisition required; temporary construction easements needed
2. Property owner approval of modifications required, as applicable
3. Solar powered signing will be used

Date completed: 8/3/2026

Estimate by: SMP

Checked by: CAC

TG: 1.24410.00

Item Description	Quantity	Unit	Unit Cost	Total
Vegetation Trimming and Removal	1000	SY	\$ 5	\$ 5,000
Driveway Closure	4	EA	\$ 15,000	\$ 60,000
Driveway Consolidation	1	EA	\$ 85,000	\$ 85,000
C-Curbing	225	LF	\$ 135	\$ 30,375
New Medians	100	LF	\$ 165	\$ 16,500
Side Street Closure	1	EA	\$ 30,000	\$ 30,000
Ground-Mount Signing	1	LS	\$ 60,000	\$ 60,000
Radar Speed Feedback Signs	4	EA	\$ 15,000	\$ 60,000
Intersection Channelization Modification	7500	LF	\$ 7	\$ 52,500
Illumination system upgrades, Complete	1	LS	\$ 160,000	\$ 160,000

		Subtotal ₁	\$	559,375
CN	SPCC and TESC	4%	of Subtotal ₁	\$ 22,375
CN	Stormwater	15%	of Subtotal ₁	\$ 83,906
CN	Utility Adjustments	5%	of Subtotal ₁	\$ 27,969
		Subtotal ₂	\$	693,625
CN	Mobilization	10%	of Subtotal ₂	\$ 69,363
CN	Temporary Traffic Control	12%	of Subtotal ₂	\$ 83,235
		Subtotal ₃	\$	152,598
CN	Contingency & Changes	30%		\$ 253,867
		Subtotal ₄	\$	1,100,089
CN	Construction Management	10%	of Subtotal ₄	\$ 110,009
		Construction Total	\$	1,210,098

PE	Engineering Design, Outreach, & Environmental	25%	of Subtotal ₄	\$ 275,022
PE	Agency Project Management	5%	of Subtotal ₄	\$ 55,004
PE	Right of Way Administration (PE Activities)	4	Parcels (EA)	\$ 5,000 \$ 20,000
PE	Legal Description & Figure	4	Parcels (EA)	\$ 4,000 \$ 16,000
PE	Appraisal/Appraisal Review	4	Parcels (EA)	\$ 6,000 \$ 24,000
		Prelim. Engineering Total	\$	390,027

RW	Right of Way Administration (RW Activities)	4	Parcels (EA)	\$ 5,000 \$ 20,000
RW	Title & Escrow	4	Parcels (EA)	\$ 3,500 \$ 14,000
RW	Statutory Evaluation Allowance	4	Parcels (EA)	\$ 750 \$ 3,000
RW	Right of Way Acquisition	5000	Area (SF)	\$ 2 \$ 10,000
		Subtotal ₅	\$	47,000
RW	Contingency	10%	of Subtotal ₅	\$ 4,700
		Right of Way Total	\$	51,700

Total Planning Level Cost Estimate (Rounded up to Nearest Ten Thousand)			\$	1,660,000
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Appendix J: Countermeasure Prioritization



Federal Way TSAP Project Prioritization			COLLISION CRITERIA													LOCATION CRITERIA				DEMOGRAPHICS		OTHER			
			Fatal/Severe Injury Collision History							High Injury Network	Systemic Safety Network			Top Crash Risk Factors Addressed			Proximity to:			Overall Equity Need			Aligns with Current City Project		
			Fatal 1	Fatal 2	Fatal 3	Severe Injury 1	Severe Injury 2	Severe Injury 3	Severe Injury 4	Severe Injury 5	Yes	Critical	High	Medium	Angle / Approach	Rear End	Fixed Object	Commercial Center	Schools	Trail Crossings / Parks	Highest / High	Moderate	Low / Lowest		Total
Intersection/Corridor Project	Project Type		4	4	4	2	2	2	2	2	1	5	3	1	2	1	2	3	2	1	3	2	1	3	max = 45
The Downtown Area	Intersection		X	X		X	X	X	X	X	X		X		X	X		X			X			X	34 /45
21st Avenue SW	Corridor		X	X	X	X	X	X	X	X	X			X	X	X		X	X			X		X	37 /45
S 348th Street Intersections with Pacific Highway S and Kits Corner Road S/16th Avenue S	Intersection		X			X	X	X			X		X			X		X	X		X				23 /45
Military Road S / S 288th Street Intersection	Intersection		X	X		X	X	X	X	X	X		X		X	X					X			X	31 /45
SW Campus Drive Horizontal Curves	Corridor		X			X	X	X			X			X			X		X	X		X			19 /45
S/SW 312th Street Access Management	Corridor		X			X	X	X	X	X			X		X	X			X			X			24 /45