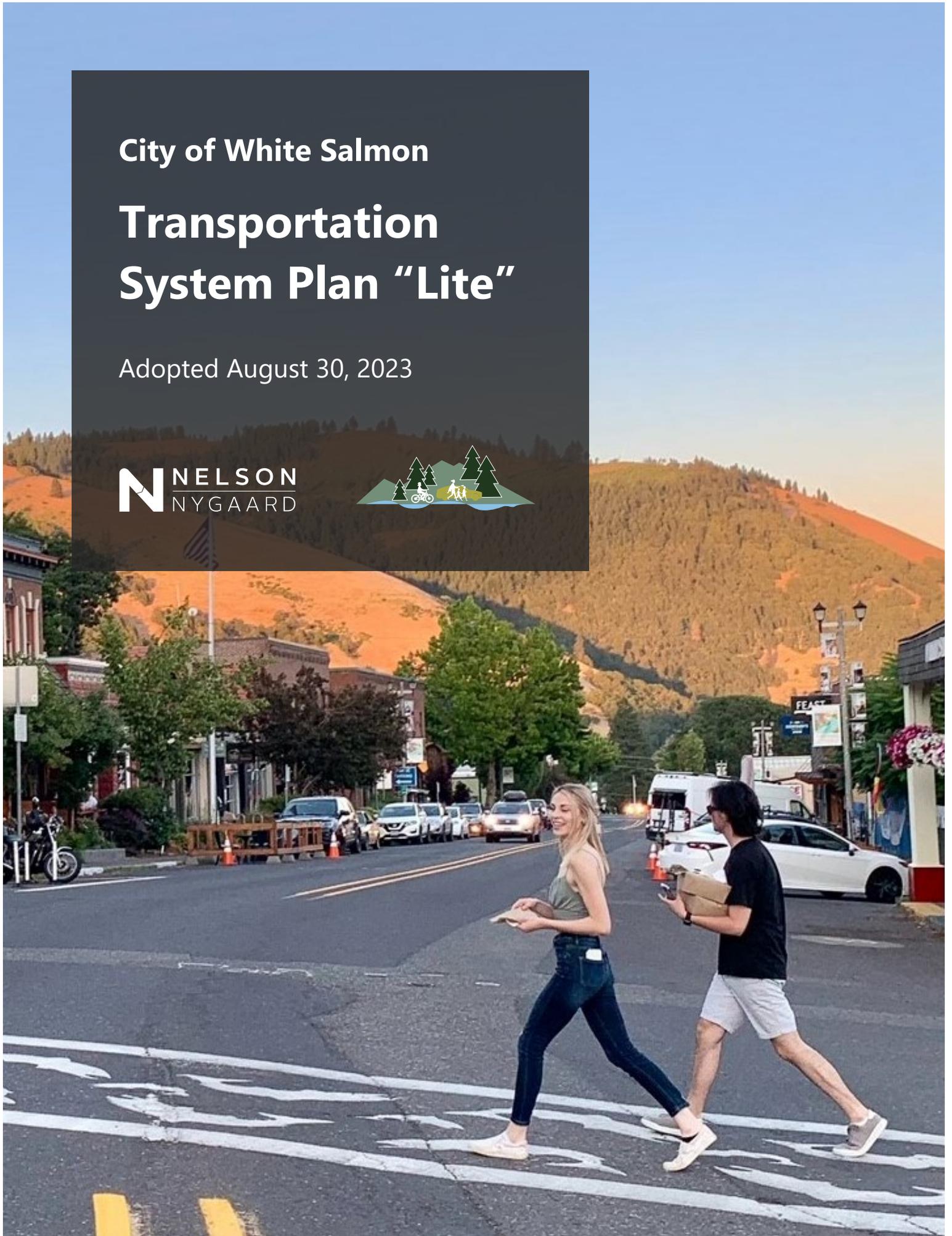


City of White Salmon Transportation System Plan "Lite"

Adopted August 30, 2023

N NELSON
NYGAARD



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- Public Works Crew
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- *City photo credits: Troy Rayburn*

Photos are from Nelson\Nygaard unless noted otherwise.

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1 INTRODUCTION

White Salmon will build a sustainable, safe, and attractive transportation system that provides mobility and connectivity for all people living in, working in, and visiting the city.

A Transportation System Plan (TSP) is a guiding document that identifies projects, programs, and policies to meet a city's transportation needs. It sets design guidelines for new developments within White Salmon and future expansion into the Urban Exempt Area, to account for anticipated demands on transportation infrastructure. Additionally, the TSP explores different funding mechanisms and strategies for implementing the recommended projects, programs, and policies.

The TSP is designed to complement White Salmon's Comprehensive Plan, charting a roadmap for integrating transportation improvements with the city's land use, local economy, and surrounding environment.



City of White Salmon

Why Now?

The population in White Salmon and the Urban Exempt Area is growing at 2.2% per year. However, developable land within White Salmon remains limited. To accommodate the expected population growth over the next 20 to 30 years, further annexation of the Urban Exempt Area may be necessary. This expansion into new areas will add to the existing burdens on the transportation system, highlighting the need for more sustainable infrastructure that serves multiple modes of travel.

The City of White Salmon is part of a regional economy and recreation network along the Columbia River Gorge, and has accordingly seen an uptick in tourism. This influx of people, combined with population growth and increasing geographic area, presents a unique challenge to the City's transportation system and demands proactive, intentional planning for the future.

Past and current policies, such as the lack of sidewalk requirements for new developments, mean that additional City resources will be needed to meet residents' expectations for safety and walkability on City streets.

A Community-Driven Approach

The TSP relied heavily on public engagement, which was conducted in three phases throughout the project. White Salmon residents, workers, and City staff were invited to:

- Identify and prioritize projects, programs, policies, and partnerships to improve multimodal access and walkability; and,
- Influence proposed design standards and guidelines for new developments and expansion into the Urban Exempt Area, as well as funding mechanisms and strategies.

The three phases included (Figure 1):

- Phase 1: Identify network gaps (Spring 2022)
- Phase 2: Feedback on project ideas (Spring 2023)
- Phase 3: Public comment and hearing on draft plan (Summer 2023)



Figure 1 Overview of Engagement Plan

Touchpoint	Intention	Timeframe	Objectives	Engagement Tools
Phase 1: Vision & Goals / Gaps & Needs	<ul style="list-style-type: none"> Introduce the TSP to the community Confirm the community's values/goals for transportation and mobility in White Salmon Refine understanding of current gaps and needs through public input 	Spring 2022	<ul style="list-style-type: none"> Understand people's transportation needs Document the existing transportation system Understand the barriers that prevent people from using non-auto modes for travel (both behavioral barriers and those related to infrastructure, cost, and other factors) Confirm the community's mobility values & goals for White Salmon Identify bicycle and pedestrian network gaps and infrastructure needs 	<ul style="list-style-type: none"> Online Wikimap to understand needs Online "goals" survey Presentations or pop-ups at existing community events with intercept "goal" survey or mapping Online wiki map to solicit project ideas and feedback
Phase 2: Evaluation Framework & Project Identification	<ul style="list-style-type: none"> Solicit input from the community on potential projects Introduce a values-driven approach to decision making. 	Spring 2023	<ul style="list-style-type: none"> Collect ideas for projects to improve multimodal transportation choices and overall mobility for White Salmon Establish a values-driven evaluation framework for prioritizing projects 	<ul style="list-style-type: none"> Online Storymap and survey Presentations or pop-ups at existing community events
Phase 3: Draft & Final Plan	<ul style="list-style-type: none"> Review recommendations (including near-term and long-term priorities) as part of the draft TSP review. 	Summer 2023	<ul style="list-style-type: none"> Measure support for the plan's key recommendations Understand people's willingness to fund transportation improvements 	<ul style="list-style-type: none"> Online draft plan 30 day comment opportunity Presentations to Planning Commission and City Council



Community Engagement Key Takeaways

Phase 1: Vision & Goals / Gaps & Needs

Phase 1 of engagement reached 80 people. Key takeaways identified the community's support to build and maintain a network of sidewalks, crossings, and bikeways that connect to schools, parks, and other destinations. There was additional emphasis on the need to manage parking, repave streets, and install green stormwater infrastructure.

Phase 2: Evaluation Framework & Project Identification

Phase 2 underscored feedback on project prioritization. 83 people were engaged in Phase 2. There was approximately equal importance placed on:

- Safety
- Connectivity
- Equity
- Public Support

Instead of the prioritization process determining if or when a project gets built, the public suggested looking at funding potential and ease of implementation as overlays to the other criteria.

Phase 2 also presented draft projects, programs, and policies. Community feedback indicated the strongest support for projects that improve regional connectivity and provide more protection for people bicycling and walking through shared-use paths. There was also strong support for programs and policies that enhance the walking environment and improve pedestrian connectivity.

Phase 3: Draft & Final Plan

This phase helped to publicize the TSP effort and measure the public's support to adopt this TSP as the city's guiding transportation document. A draft for public review was available on the City website for more than 30 days, from June 30 to August 2, 2023, and notices were published in the newspaper. More than 20 comments were received from city councilmembers, the Mayor, implementation partners including Washington State Department of Transportation, and from the general public. The project team incorporated this feedback into the final draft presented for Planning Commission approval and City Council adoption.



City of White Salmon

Related Planning Efforts

The TSP builds on ongoing and adopted planning efforts that build on community values to guide public and private short-term and long-term investments.

White Salmon Comprehensive Plan (2021)

White Salmon's 2040 Comprehensive Plan, updated in 2021, provides the goals and policies that guide the community's land use, growth and infrastructure decisions for the next 20 years. Transportation is one of the four key focus areas that were established at the outset of the Plan update, with this vision:

White Salmon's transportation system reflects a desire to develop on a human scale.

The community identified the creation of a network of small streets, pedestrian and bike paths, and connected parks and trails as key actions to help the City enact this vision. This right-sized infrastructure would conveniently connect residents to downtown, nature trails, and neighborhood destinations, while an integrated and balanced system of wider, centrally located roads and narrower shared residential roadways provides connections within and among neighborhoods, to safely accommodate all users.

The Comprehensive Plan is the authoritative guiding document for planning decisions in both the City of White Salmon, and the Urban Exempt Area. As the City iteratively updates its Comprehensive Plan, this Transportation System Plan will inform transportation components and be consistent with the goals of the Comprehensive Plan.

White Salmon Capital Improvements

White Salmon's Comprehensive Plan includes a series of long-term capital improvements, such as:

- Updates to the city's street network are guided by the Six-Year Transportation Improvement Program (STIP).
- Water System improvement plans were initially outlined in the 2014 City of White Salmon Water System Plan, updated in 2023 to reflect incomplete and continuing projects.

White Salmon also executes yearly projects for entities such as the police department, fire department, and City parks and general facilities in accordance with the yearly municipal budget.

Ongoing and planned STIP capital projects, along with other roadway improvements being conducted in coordination with the Washington State Department of Transportation



(WSDOT), are factored into the overall project list presented in this TSP for prioritization and implementation.

White Salmon Shoreline Master Plan (ongoing)

The Shoreline Master Plan (SMP) dictates the development of the City of White Salmon's Columbia River shoreline in accordance with the objectives of the state of Washington's Shoreline Management Act (passed in 1971). The SMP requires that development does not result in a net loss of ecological functions and shoreline ecological resources are preserved and enhanced as part of a new development's planning process. White Salmon has an approximately one-mile-long shoreline located along the Columbia River and it is of statewide significance per the Shoreline Management Act. As such, the SMP defines goals and policies including:

- Reconnect White Salmon with its waterfront by planning for public access and recreational opportunities such as a park and trail system.
- Preserve and enhance the shoreline environment by adequately identifying opportunities, and planning and implementing conservation and restoration opportunities within the financial resource constraints of the City and its partners.
- Promote the full economic potential of White Salmon's shoreline to accommodate water-oriented uses that preserve full ecological function.

WSDOT SR 14 Bingen/White Salmon Circulation Study (2018)

The SR 14 Bingen/White Salmon Circulation Study guides potential transportation and circulation improvements along the SR 14 corridor. This information is intended to identify future transportation needs and outline a few alternatives to improve circulation and address current travel impacts. The study pertains to the segment of state highway between the western end of White Salmon and eastern Bingen city limits. Without improvements to the current conditions, increased vehicle volumes and congestion are expected to negatively impact traffic flow along the targeted segment and other SR 14 segments by 2037. White Salmon related improvements recommended by this study include:

- Short-term/lower cost
 - Revise signal timing at the **intersection of SR 14 and the Hood River Bridge** to improve flow for people turning right onto SR 14 from the bridge.
 - Improve safety at the **SR 14/SR 141 Alt intersection** by updating striping and adding a radar speed feedback sign.



White Salmon Transportation System Plan

- Longer-term/higher cost
 - **Widen the SR 14 highway** to add one or more new through lanes.
 - **Construct a multi-use path along SR 14.**

Figure 2 Bingen/White Salmon Circulation Study Area



Source: SR-14/White Salmon Circulation Study for Southwest Washington Regional Transportation Council, December 2018



2 GOALS AND PRIORITIES

White Salmon will have a balanced, multimodal transportation system that prioritizes connectivity and safety for all.

The goals of this Transportation System Plan (TSP) are founded in the Comprehensive Plan vision, and based on themes that emerged during past planning efforts in White Salmon. Community members also had the opportunity to weigh in on these values during the first round of public engagement in April 2022. People highlighted the importance of sidewalks, crossings, bikeways, parking management, and stormwater infrastructure to the future of White Salmon.



People cross the street in one of White Salmon's distinctive salmon-stenciled downtown crosswalks.

Photo: City of White Salmon



City of White Salmon

Figure 3 City of White Salmon TSP “Lite” Plan Goals



3 EXISTING MOBILITY SYSTEM

Today, travelling in and around White Salmon can be challenging, especially when doing so without a vehicle.

The City of White Salmon sits on major land and water thoroughfares and experiences a high volume of through traffic on state routes 141 and 14, which are managed by the Washington State Department of Transportation (WSDOT). White Salmon also serves as the northern bridgehead for the Hood River-White Salmon Interstate Bridge, which is the only roadway infrastructure connecting Washington and Oregon for nearly 20 miles in either direction along the Columbia River. On an average weekday, 11,000 vehicle trips pass over the bridge in each direction. Dock Grade Road serves as a gateway into White Salmon from SR 14 and the Hood River Bridge, which has been reconfigured as a one-way road up a steep incline into the city. SR 141 serves as the primary roadway for vehicles entering and exiting White Salmon via the City of Bingen.

Getting Around White Salmon Today

Key destinations within White Salmon (shown in Figure 4) include the three schools, the offroad bike park, Skyline Hospital, and the downtown core. There is also a small riverfront campground/RV park and visitor's center near the northern bridgehead of the Hood River Bridge, which makes that area an attractive destination for visitors.

With growth, the schools, parks, and library can expect higher volumes of young people, who may not always have access to a personal vehicle. In particular, Columbia High School and Henkle Middle School fall outside municipal boundaries; yet they are the only post-elementary institutions serving White Salmon and Bingen, creating long trip distances for the journey to school. The Bike Park also has a dedicated BMX off-road trail, which is an attractive destination for mountain bike enthusiasts of all ages.



White Salmon Bike Park Map and Billboard



White Salmon Transportation System Plan

Figure 4 Key Community Destinations in White Salmon



City of White Salmon

Streets

Figure 5 presents most paved streets in White Salmon and Bingen, categorized by WSDOT's Functional Classification system.¹

Figure 5 Functional Classification



¹ Some more recently paved streets are not present in the GIS data source maintained by the City of White Salmon, and are thus omitted from the maps herein.



State Route 141, also known as Jewett Boulevard, is both a state highway and White Salmon's commercial main street. It is a designated state Scenic and Recreational Highway, and is one of the key corridors connecting to the Mount Adams recreational area north of White Salmon. As such, SR 141 attracts through-traffic as well as visitors. However, the route cuts through the downtowns of both White Salmon and Bingen, both of which see lively commercial activity. This results in a number of competing uses for Jewett Boulevard, where high throughput as a vehicular corridor needs to be balanced with slower, safer conditions for people visiting and exploring these downtown areas.

Main Street and Estes Avenue serve as the primary **north-south collectors** connecting most of White Salmon to SR 141 and ultimately SR 14. Both streets merge into Loop Road on the north side of the city, which serves as the most direct roadway between downtown White Salmon and the middle and high schools. Both Main St and Estes Ave are on an uphill incline to the north, which can be challenging for people walking, biking, or rolling on scooters, wheelchairs, and other mobility devices.

Dock Grade Road is a preferred direct route into White Salmon from SR 14 for many drivers as it avoids congestion through Bingen. It is periodically closed during winter due to snow buildup.

Minor collector streets provide important **east-west connections**, which include Spring Street and Lincoln Street. Both of these corridors provide connectivity for residents living in lower density neighborhoods on the city's western limits and beyond, intersecting the two major collectors in Main Street and Estes Avenue. As such, these intersections are key nexuses of transportation activity.

Speed limits within White Salmon are generally 20 and 25 mph, including on SR 141/Jewett Boulevard. In early 2020, White Salmon City Council, in collaboration with WSDOT, passed a resolution to lower the speed limit on SR 141/Jewett Boulevard within the city limits. Speed limits on SR 14/Jewett Boulevard range from 20 mph in downtown White Salmon, up to 25 and 35 mph outside the downtown core. NW Loop Road has a flashing 20 mph school zone speed limit near Henkle Middle School and Columbia High School. The speed limit on SR 14 is 40 mph.

Nearly all streets in White Salmon have **two travel lanes** (though many have no striped centerline). The exception is SR 14, which has a few segments with center two-way left turn lanes, left-turn pockets, and/or right turn pockets.

On-street **parking** is common throughout White Salmon. Designated on-street parallel parking spaces are striped along some streets in or near downtown, including Main Street, Tohomish Street, Estes Avenue, Lincoln Street, Washington Street, and E Jewett Boulevard. One block of E Jewett Boulevard, between 1st Avenue and 2nd Avenue, has head-in angle parking on the south side.



White Salmon Transportation System Plan



High visibility crosswalk with signage on NW Loop Road near Henkle Middle School.



Main Street in front of Whitson Elementary School is marked for both dedicated wheelchair-accessible parking and school bus parking.



Some streets that do have sidewalks do not have curb ramps at corners, even where marked crosswalks are striped. Maintenance of existing roadways remains a priority for the City.



Sidewalks, where present, are often narrow. Parking on the street is common throughout White Salmon.

White Salmon Transportation System Plan

Many streets throughout White Salmon have very deteriorated pavement surfaces, and many were not constructed with proper subbase and full thickness pavement to begin with, leading to shorter functional life spans of the roadways and contributing to increased maintenance needs. Poor quality roadway surfaces can make bicycling challenging and unsafe, and may inhibit some people from choosing to bicycle. The deteriorated surface can also make driving difficult, with narrow pavement sometimes making it challenging to pass other people driving, bicycling, or walking.



Many streets throughout White Salmon have deteriorated pavement.

Photo: City of White Salmon

Walking and Bicycling

There are currently 7.6 miles of sidewalks in the city and 1.2 miles of shared-use paths just outside city limits. The sidewalk mileage represents roughly 10% of the paved street edges in the city, assuming all streets should ideally have sidewalk on both sides.

Figure 6 illustrates the locations of completed sidewalks and shared-use paths. Sidewalks are present along most major streets and on minor streets near downtown.

Some sidewalks have recently been installed including along Hood

Street, Wauna Avenue, Lincoln Street, Tohomish Street, and Snohomish Avenue. Sidewalks provide some connections to schools, parks, and shared-use paths along existing streets, whereas shared-use paths connect to and from the existing street network. Unpaved paths in parks do not provide substantial transportation connections. Sidewalks are generally built adjacent to the curb, with no planting strip for landscaping or buffer between people walking and motor vehicle traffic on the streets. An exception is along the north side of E Jewett Boulevard between Main Street and Wauna Avenue, which has a narrow sidewalk adjacent to the street, then a planted buffer with street trees and landscaping and another section of sidewalk adjacent to the building facades.

Similar to the roadway pavement conditions mentioned above, many sidewalks in White Salmon have deteriorating or buckled surfaces and crumbling edges. Poor sidewalk conditions can make travel especially challenging for disabled people, people pushing strollers, older adults, people with mobility challenges, and people using wheelchairs. The sidewalk data mapped in Figure 6 does not include a measure of sidewalk quality, but simply where sidewalks currently exist.



Most streets in White Salmon do not have sidewalks.

White Salmon Transportation System Plan



Many sidewalks have crumbling surfaces and edges.

Photos: City of White Salmon

Many street corners, especially those with no sidewalks, are missing curb ramps. New curb ramps have been installed along the segments of new sidewalk in the areas mentioned above. The compliance of curb ramps with current ADA standards is unknown. Along key crosstown corridors such as Jewett, Lincoln, Main, and Estes, curb ramps are present at most corners with sidewalks. All intersections in Washington State are legal crosswalks (unless signed otherwise) regardless of the presence or condition of crosswalk signage or striping. Marked crosswalks are present in some locations in White Salmon, primarily near schools, along and across Main Street and Estes Avenue, and in downtown. Marked crosswalk styles vary – most marked crosswalks use typical transverse bars, while some locations, particularly near Henkle Middle School and Columbia High School along NW Loop Road, use high visibility longitudinal bars (also called

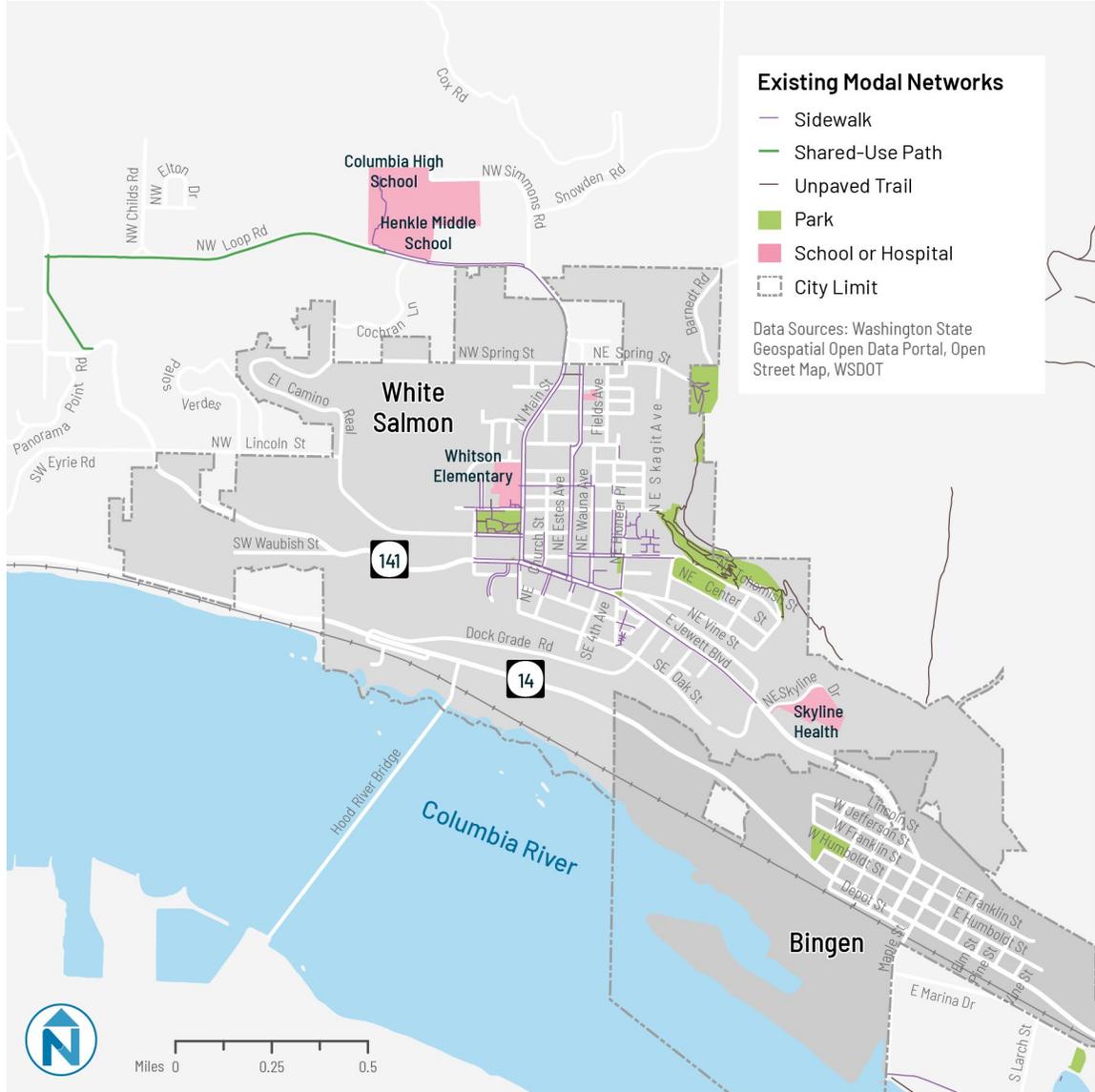


Salmon stencil crosswalk markings at 2nd Avenue and Jewett Boulevard reflect the city's character.

White Salmon Transportation System Plan

zebra or continental crosswalks). Some downtown crosswalks are marked with the distinctive salmon stencil shown in the image above.

Figure 6 Walking and Bicycling Infrastructure



There are no designated on-street bicycle facilities in White Salmon. However, about three-quarters of a mile of recreational bicycling trails exist at the White Salmon Bike Park.

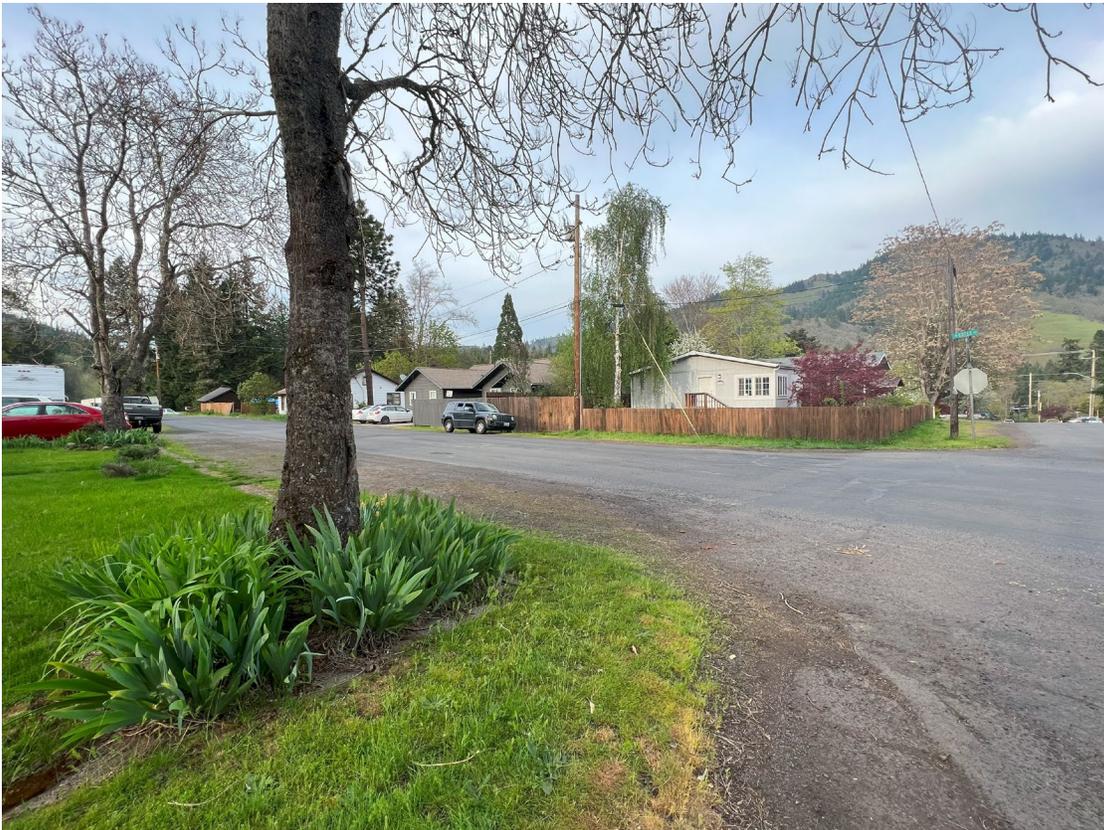
Despite being separated by only 1.25 miles there is no complete pedestrian or bicycling infrastructure to connect White Salmon and Bingen. This likely discourages bicycling and walking trips and may make driving the default choice for short local trips.



City of White Salmon

Safe Routes to School

White Salmon has designated a network of streets and walking paths as a Safe Routes to School (SRTS) network connecting to Whitson Elementary, the only public school inside the city limits. The network includes portions of Center, O’Keefe, Tohomish, Hood, Main, Jewett, Wauna, Fields, and Spring streets (Figure 7). This plan includes a December 2021 resolution considered by Klickitat County, which would extend the SRTS network to include areas outside the city limits connecting to Henkle Middle School and Columbia High School along NW Loop Road and NW Jewett Boulevard. Appropriate safety and access improvements for students along and across school walking and bicycling routes may include traffic calming (e.g., speed humps and neighborhood traffic circles), crosswalk and crossing improvements, modifications to speed limits and zones, lighting improvements, pathway connections, and bikeways. Projects along and across this SRTS network may be eligible for Washington State Safe Routes to School program funding (see the Funding section of Chapter 6 below for further detail). The City will work with the White Salmon Valley School District to update the SRTS map shown on the following page (Figure 7).



Many streets do not have sidewalks.

White Salmon Transportation System Plan

Figure 7 Safe Routes to School Network and County Extensions



City of White Salmon

Wayfinding

While some wayfinding signage exists in White Salmon, the designs are inconsistent and are not widespread enough to form a network that can reliably guide people across the city, regardless of mode. Examples of existing signage are shown below.



Signage indicating the location of the schools and sports fields in the northern area of White Salmon.



Directions to public parking and lodging are present at the intersection on Jewett Blvd and Church Ave.

While White Salmon is a popular destination for visitors and has many community destinations for local residents, the lack of a comprehensive wayfinding program may be a hindrance to people unfamiliar with the city. This is especially true for those trying to navigate without access to a smartphone or GPS device, and those who travel by non-motorized means.



A sign for Gaddis Park at the intersection of Main St and Spring St.

Freight/Logging

Designated freight/logging routes in White Salmon include SR 141/Jewett Boulevard, SR 14, and Estes Avenue (Figure 8). East of the intersection of SR 14 and SR 141, a rock cliff and curve in the road reduces visibility for drivers stopped on southbound SR 141 waiting for gaps in traffic on SR 14 to turn right or left. The intersection at SR 14 and Dock Grade Road has a high speed limit (40 mph on SR 14) and is uncontrolled. It is especially important to carefully plan and design for walking and bicycling facilities along and across freight/logging routes because crashes with heavy vehicles are more severe.

Figure 8 Freight/Logging Routes



Public Transit

One bus route serves White Salmon, operated by Klickitat County as Mount Adams Transportation Services (MATS). The route connects the city of White Salmon to the city of Hood River, via the city of Bingen and the Bingen Amtrak Station. Buses operate every 75 minutes between 7 a.m. and 7 p.m., Monday through Friday. The lack of weekend and night-time service may discourage ridership. MATS reported 10,274 unlinked passenger trips on its entire system for 2021, which includes this and one other route in Goldendale.² MATS is one of five rural public transportation providers comprising the Gorge Translink alliance that provides wider connectivity throughout the Columbia River Gorge. MATS routes are shown in orange in Figure 9, Skamania County Transit in green, Columbia Area Transit in purple, The LINK in Wasco County in blue, and Sherman County Transit in brown.

Figure 9 Gorge Translink Service Network Map



Source: <https://gorgetranslink.com>

Mt. Adams Park & Ride is a multimodal transportation facility located within White Salmon city limits, just to the south of SR 14 and west of the Hood River Bridge bridgehead. A visitor center is located at the facility and maintains an A-frame poster sign denoting the MATS bus stop. The park & ride also serves as an interchange station for Skamania County Transit services to Vancouver, WA, via Stevenson.

There are four bus stops located within White Salmon city limits, including the northern terminus at Pioneer Center. Stop locations are illustrated in Figure 10. Passenger amenities at bus stop locations are limited; most stops lack bus stop poles, passenger seating, or shelters. Certain locations such as



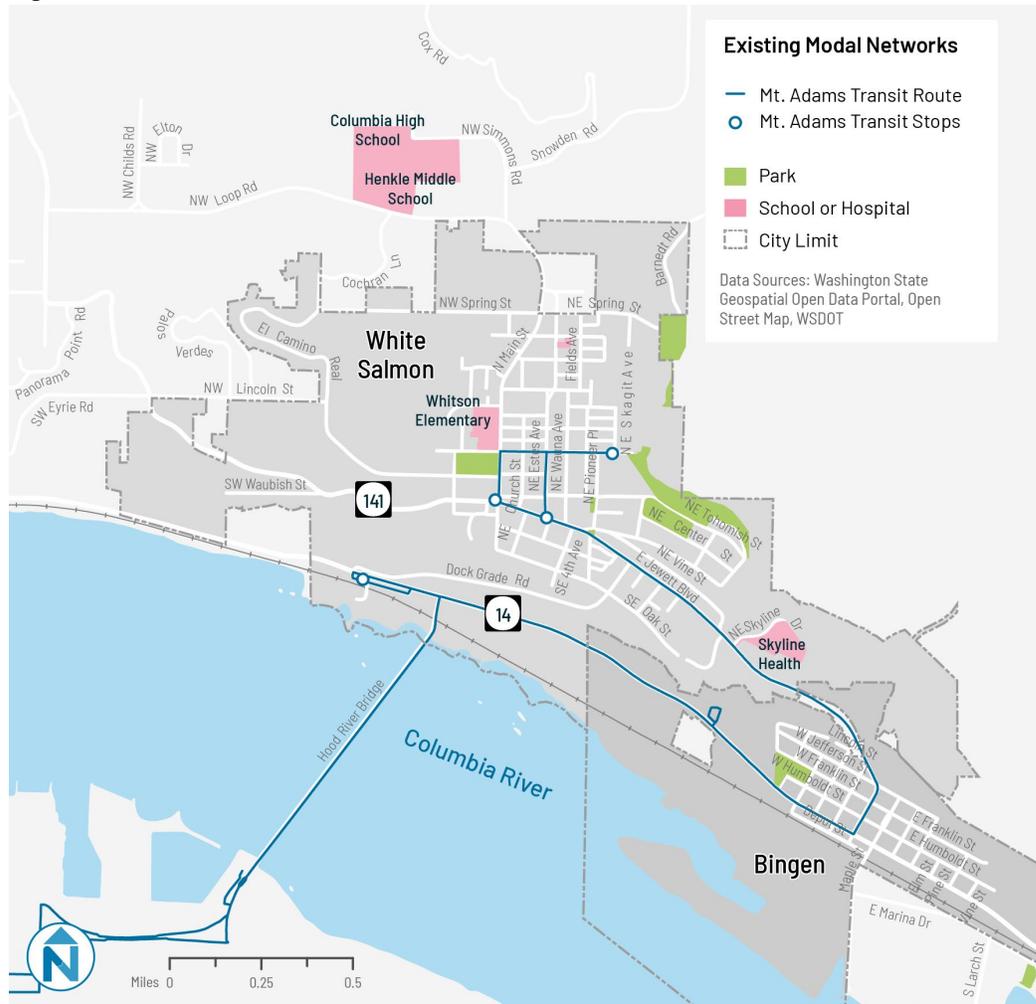
MATS bus stop on Main Street & Jewett Boulevard/SR 141

² [Federal Transit Administration, National Transit Database 2021 Annual Agency Profile 0R03-00299](https://www.federaltransitadministration.gov/national-transit-database-2021-annual-agency-profile-0R03-00299)

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downtown White Salmon (pictured above) and Mt. Adams Park & Ride have A-frame poster signs in place. There are also no marked stopping areas for buses. Notably, there are no stops in the northern areas of White Salmon including near the middle and high schools. MATS routes also accommodate deviations to pick up or drop off up to ¾-mile off the scheduled route. Passengers must call at least one day ahead to schedule a deviated pickup or drop-off. This can theoretically extend the reach of the scheduled route to include most areas of the city.

Figure 10 MATS Transit Network



MATS operates transit service with ADA-accessible buses, with special wheelchair lifts at the back of each vehicle. While the fixed route serves Pioneer Center and Senior Services, there is no regular designated stop at Skyline Hospital, a potentially significant destination for elderly residents and people with disabilities. Service directly to the hospital could be arranged with call-ahead deviations as mentioned above.



White Salmon Transportation System Plan

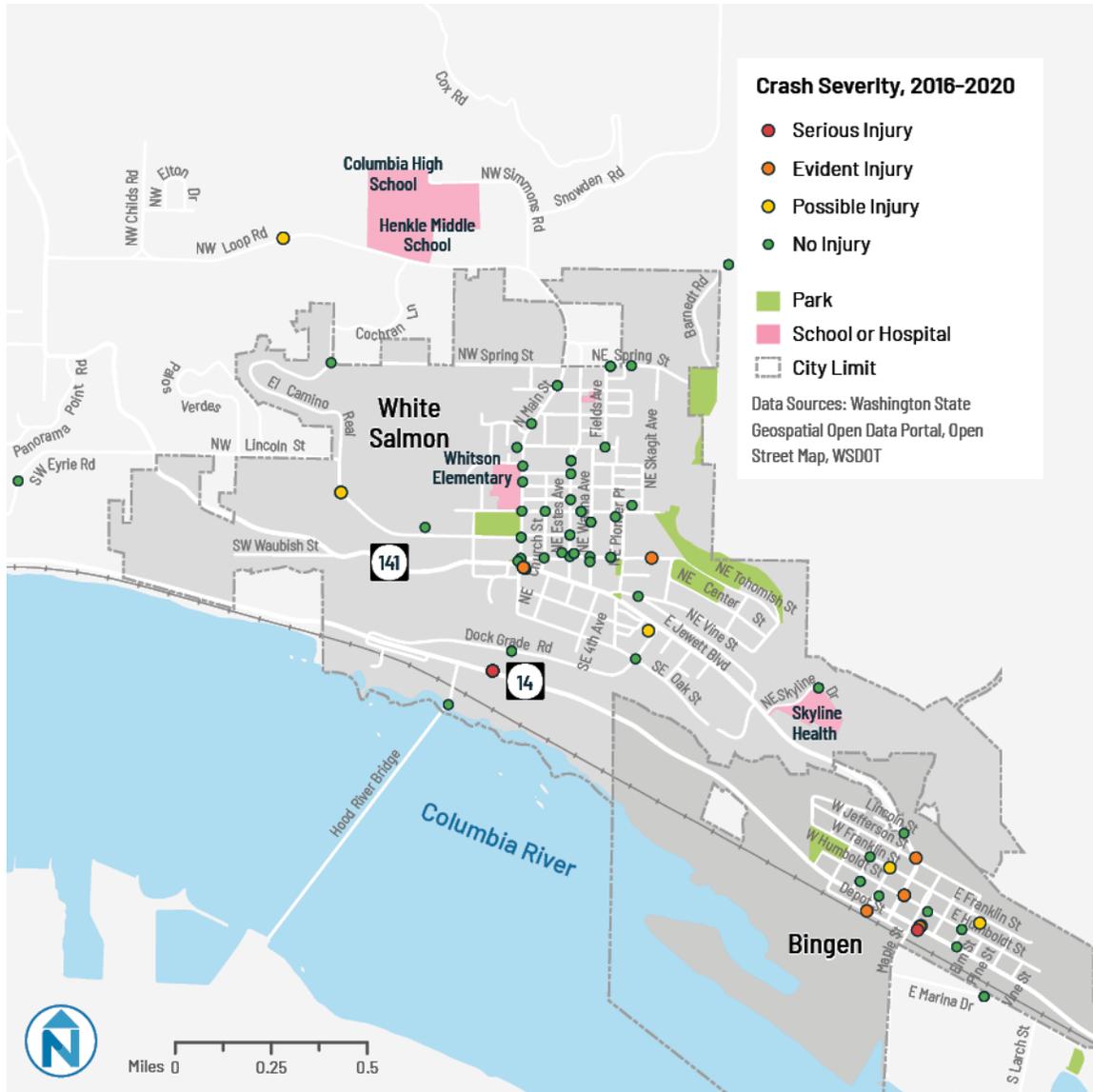
Enhancing transit service is key to advancing the City's climate and transportation goals for a more human-scale transportation option. The City will continue to work with the County's Mount Adams Transportation Service, the Gorge Translink consortium, and the Southwest Washington Regional Transportation Council to promote enhanced frequency and routes within the city of White Salmon as well as connections to neighborhoods and communities outside the city limits.



Safety

Between 2016 and 2020, there were two crashes that resulted in a serious injury, nine crashes that resulted in an evident injury, 18 crashes that resulted in a possible injury, and 131 crashes that resulted in no injury, within a quarter mile of White Salmon and Bingen (Figure 11). This is more than 66 crashes per square mile³ across both cities in this five-year period.

Figure 11 Crashes by Severity, 2016-2020



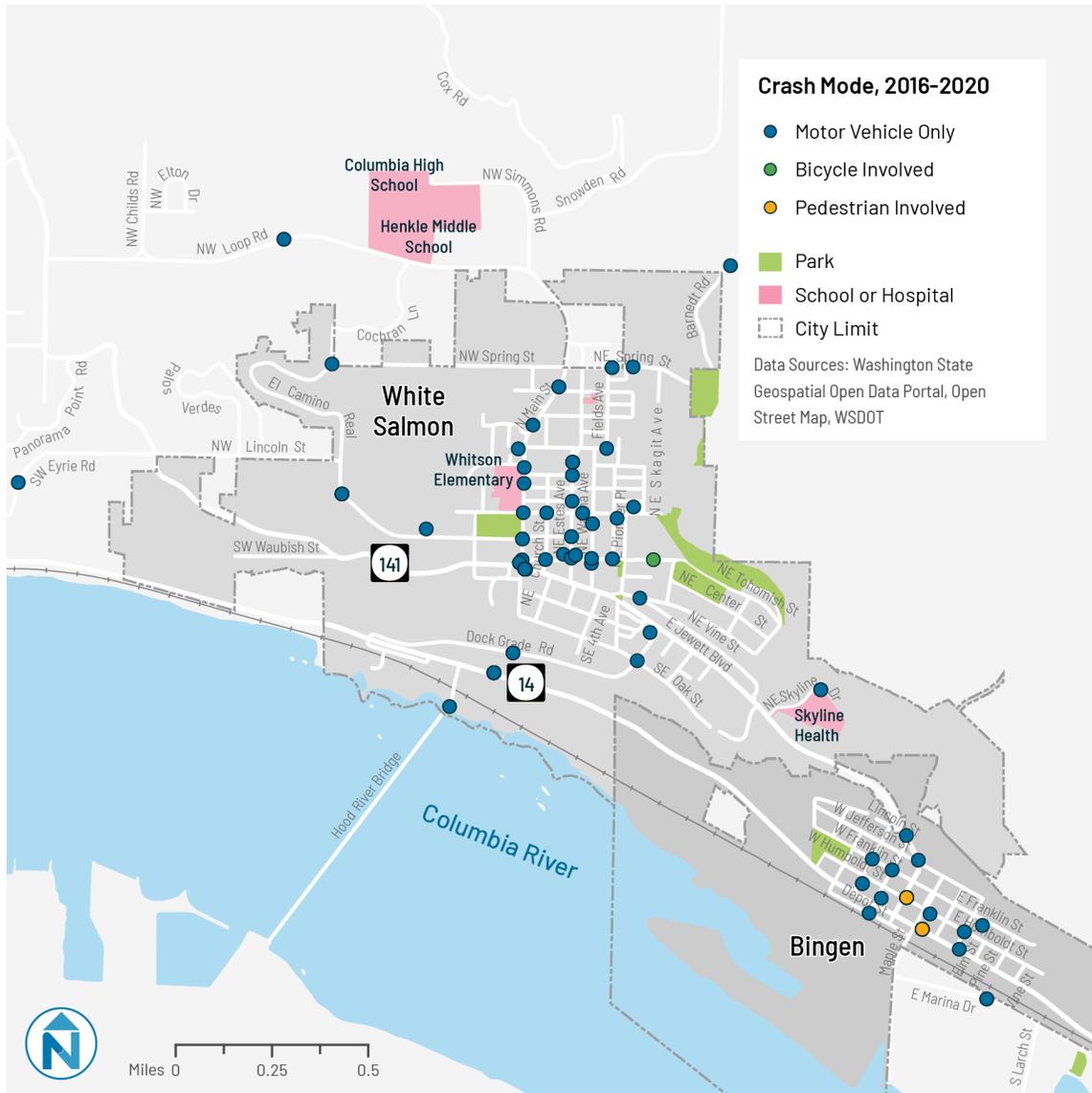
³ There were 160 crashes in White Salmon and Bingen between 2016 and 2020. Both cities comprise approximately 2.42 square miles.



White Salmon Transportation System Plan

Between 2016 and 2020, there were 155 crashes only involving motor vehicles, one crash involving someone bicycling, and four crashes involving people walking, within a quarter mile of White Salmon and Bingen (Figure 12).

Figure 12 Crashes by Mode, 2016-2020



Overall Network Assessment

As the previous sections demonstrate, the streets and roadways of White Salmon see a multitude of uses by a diverse range of people meeting a wide range of transportation needs. Figure 13 illustrates the locations of potential areas of conflict between different street users and their travel needs. The conflict zones are identified based on intersecting or overlapping modal networks that have limited separation features, such as places where high levels of pedestrian and general purpose traffic activity overlap without enhanced crossings.

Figure 13 Network Challenges and Areas of Conflict



The following descriptions spotlight some of the conflict zones and the considerations necessary to make these locations safer and more accessible to all. Together with public input, these considerations helped inform the preliminary project list for White Salmon.

- As a designated freight route, **Estes Avenue** should provide for logistics and freight vehicles while also allowing safe passage for people walking, biking, and driving light vehicles trying to cross from one side of the city to the other.
- **Jewett Boulevard** land uses generate visitors, while also serving as a high-demand through-corridor that is shared by people walking, biking, and driving passenger vehicles, plus heavy freight and light goods traffic, public transit, and emergency services. Intentional street design will be crucial to balancing the safety and needs of all these road users.
- **Skyline Hospital** is a central medical facility for both White Salmon and Bingen, equipped with the area's only emergency room. However, the site provides access infrastructure only for drivers, ambulances, and helicopters. Even for non-emergency trips, residents living less than a five-minute walk away would still be likely to drive due to lack of walkways and crossings. Providing sidewalks from SR 141 to Skyline Hospital would improve accessibility for medical emergencies and general accessibility for residents living behind the hospital at Rhine Village Low-Income Apartments.
- As the only roadway connection within city limits between SR 14 and downtown, **Dock Grade Road** generates high through-traffic volume on the residential streets between **Oak Street** and Jewett Boulevard/SR 141, with a stop-controlled intersection at the top of the hill.
- There is currently no infrastructure dedicated to people walking, bicycling or rolling from downtown White Salmon to the riverfront and the Hood River Bridge bridgehead. As a one-way uphill road, **Dock Grade Road** only serves a specific travel direction and travel mode despite being the most direct roadway connection.
- As previously identified, Spring Street, Lincoln Street, and Tohomish Street are the city's critical **east-west corridors**. Yet the first two lack pedestrian and bicycle facilities, while Tohomish has partial and segmented sidewalks.

Public Input

Beyond the technical analysis shown above, members of the public were also invited to share their experiences and concerns with the existing transportation network. During the second round of public engagement, respondents were invited to annotate an online map with their suggestions and thoughts on how the transportation infrastructure around them can be



White Salmon Transportation System Plan

improved. The results are summarized in the following maps, and the full descriptions of each suggestion are recorded in the full Public Engagement Summary in Appendix A.

Point-based projects in Figure 14 and Figure 15 are represented by dots at intersections and mid-blocks. Street improvements in both figures are represented by lines. Street improvement and point-based projects are symbolized by color depending on the type of project.

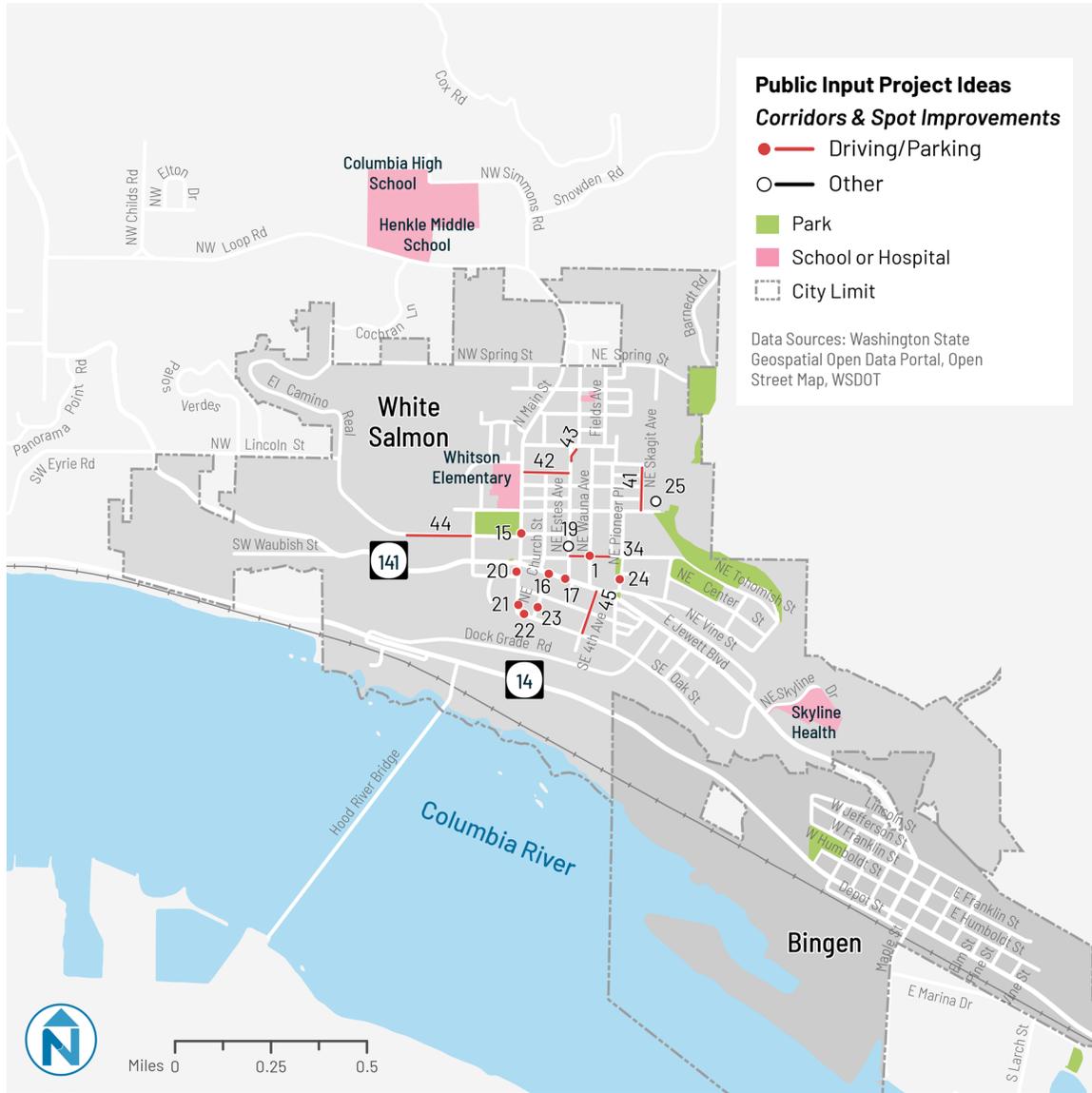
Figure 14 Walking and Bicycling Project Ideas from Public Input



City of White Salmon

White Salmon Transportation System Plan

Figure 15 Driving and Other Project Ideas from Public Input

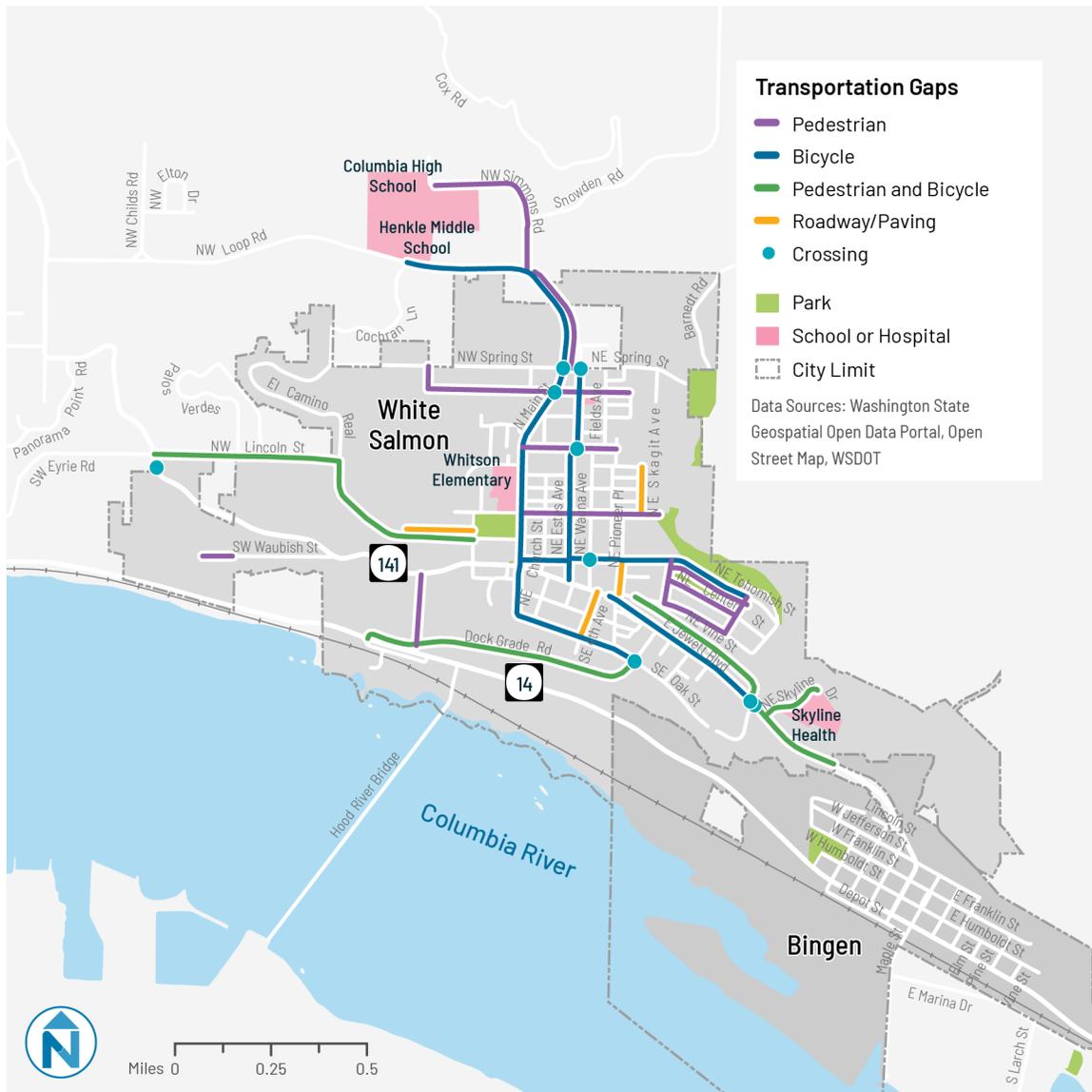


City of White Salmon

Key Issues and Opportunities

Based on the existing conditions analysis as well as community input, gaps in the transportation system were identified (Figure 16). There are many opportunities to improve safety, connectivity, and mobility for all people living in, working in, and visiting White Salmon, especially in areas where travel routes and modes converge. The identified locations and corridors inform the project and program recommendations presented in the next chapter. Issues and opportunities shown on the map are described in detail in Appendix A, and in summary in Figure 17.

Figure 16 Network Gaps and Opportunities



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Figure 17 Mobility System Issues & Opportunities

Mode	Issue	Opportunity
Pedestrian	<ul style="list-style-type: none"> ▪ Lack of sidewalks along many streets and key connections including NW Simmons Rd, N Main St, NE Cherry St, Dock Grade Rd, NE Vine St, and NW Lincoln St. ▪ Sidewalks surfaces and edges are deteriorating. ▪ Crossing the street at some locations is challenging and feels unsafe, including Spring & Estes, Spring & Main, and Tohomish & Wauna. 	<ul style="list-style-type: none"> ▪ Install new sidewalks, or designate walking space in the street or on the shoulder with striping, curbs, or other vertical delineators. ▪ Improve existing sidewalks with ▪ Install appropriate crossing enhancements such as upgraded crosswalk markings, curb extensions, or flashing beacons.
Bicycle	<ul style="list-style-type: none"> ▪ Lack of dedicated bikeways in White Salmon. ▪ Insufficient bicycle parking. 	<ul style="list-style-type: none"> ▪ Install on- and off-street bikeways connecting to existing shared-use paths and key destinations to form a continuous bike network. ▪ Install bike racks, create a request-a-rack program, and require developers to install bicycle parking with new residential and commercial projects where appropriate.
Roadway	Deteriorated pavement surfaces and narrow streets.	Resurface and/or reconstruct to meet updated street design guidelines incorporating all travel modes as appropriate for context.



Downtown streets have pleasant but narrow sidewalks.

Photo: City of White Salmon



4 FUTURE MOBILITY SYSTEM

There are opportunities to collaboratively improve walking, bicycling, driving, and taking transit across White Salmon.

Proposed Projects, Programs, and Policies

This transportation system plan considered more than 70 projects, in addition to several new proposed programs and policies.

- A **project** is a specific capital project or a transportation service that is typically located in a defined geography. Projects can be part of programs and are carried out according to policies. An example of a project is Church Avenue Sidewalk and Street Rebuild (project ID number 39), which would reconstruct Church Avenue with curb on both sides and sidewalk on west side from Columbia to Jewett.
- A **program** is an ongoing coordinated effort to achieve specific results that may involve numerous small projects or activities. An example of a proposed program is citywide wayfinding, which will strategically install signs and maps to help residents and visitors find walking and bicycling routes to destinations.
- A **policy** is a guiding principle for decision making and project implementation. An example of a policy is to slow traffic speeds in front of schools.
- A **regulation** is an ordinance or law that defines legal and prohibited actions. An example of a regulation is establishing speed limits for small electric vehicles that may operate in bicycle lanes.

Developing the Project List

The draft project list was compiled using input from many different sources and stakeholders:

- Existing network gaps and conflicts from technical analysis, as presented in Chapter 3 above.
- Input from a workshop with city planning and public works staff.
- Input from the wider public and community members as part of Phase 1 public engagement.



These inputs and ideas were then individually reviewed by the project team for their feasibility and impacts on the wider transportation network. Consideration of existing street conditions and their connectivity implications were also qualitatively assessed before inclusion into the project list. Other projects, such as those funded or identified through the Six-Year Transportation Improvement Plan (STIP), or those developed by WSDOT plans and studies, were also added to the project list for a comprehensive outlook on the future transportation system.

A total of 74 projects was ultimately identified for consideration and implementation as part of this TSP. This list was then advanced for prioritization. The full set of identified projects is presented in Figure 18. This list was further refined through a prioritization and phasing process (described below) to arrive at the final list of projects recommended for implementation during the assumed 20-year time period covered by this TSP. Those projects that scored lower in the prioritization process are documented here as long-term projects but are not recommended for inclusion in the final TSP list due to implementation and funding challenges in the medium-term.

Project types

Projects are either linear/corridor-based or point-based. Linear or corridor-based projects are those that will occur along street segments. Point-based projects are those that will occur at intersections or mid-block locations, or at other discrete locations such as bus stops. Many projects include elements that serve multimodal travel needs (for example, a roadway reconstruction that builds a new road surface but also adds new sidewalks where none currently exist).

Bicycle

Bicycle projects are all linear or corridor-based projects concerning the construction of dedicated bicycle lanes with protective buffers, and the designation of a street as a bike boulevard with shared lane markings and traffic calming elements. Including the long-term projects, **there are three bicycle projects** in the project list.

Bicycle and Pedestrian

Bicycle and pedestrian projects are all linear or corridor-based projects. These projects involve reconstructing streets to include sidewalks or a pedestrian lane on both or either side of the street; the designation of streets as bicycle boulevards with or without shared lane markings; the construction of shared-use paths, bicycle paths, and bicycle lanes; and adding signage for bicyclists and pedestrians. Including the long-term projects, **there are 18 bicycle and pedestrian projects**.



New connections to existing streets

Projects that add new connections to existing streets are all linear or corridor-based projects. These projects are concerned with building new active transportation connections, extending existing streets, and building new network connections in undeveloped areas. The final design of these new connections will be determined by future land use plans in consideration of who the priority users should be. Connections could, for example, consist of paved paths that prioritize bicycling and walking while supporting emergency vehicle access, or Local Streets per the Street Typology and Design Toolbox described in detail in chapter 5 below. Including the long-term projects, **there are 13 projects that will provide new connections to existing streets.**

Pedestrian

Pedestrian projects are all linear or corridor-based projects. These projects involve reconstructing pedestrian facilities and the construction of new pedestrian facilities on one side or both sides of the street. Pedestrian facilities include curbs and curb extensions, sidewalks, pedestrian lanes, pedestrian trails, and crosswalks. Including the long-term projects, **there are 13 pedestrian projects.**

Roadway

Roadway projects are all linear or corridor-based projects. These projects would involve chipseal paving, reconstruction of streets and roads, and the integration of green stormwater infrastructure. These projects begin to address the identified need to repave and rebuild streets with deteriorated surfaces as mentioned above. Including the long-term projects, **there are four roadway projects.**

Intersection

Intersection projects are all point-based projects. These projects involve adding traffic circles, traffic signals, median crossing islands, new and upgraded marked crosswalks, sidewalk landing pads, signage for pedestrians and bicyclists, curb extensions, pedestrian and bicycle pathway entry points, RRFBs or other types of pedestrian-actuated signal. Including the long-term projects, **there are 19 intersection projects.**

Transit

Transit projects are all point-based projects. These projects involve improving and/or relocating bus stops. Including the long-term projects, **there are three transit projects.**



Other

There is one point-based project that stands alone from all other point-based projects. This project proposes building a public boat dock along the Columbia riverbank.



White Salmon has a wealth of natural assets, including easy access to the Columbia River Gorge and Mt. Hood.

Photo: City of White Salmon

Figure 18 Recommended TSP and Long-Term Projects

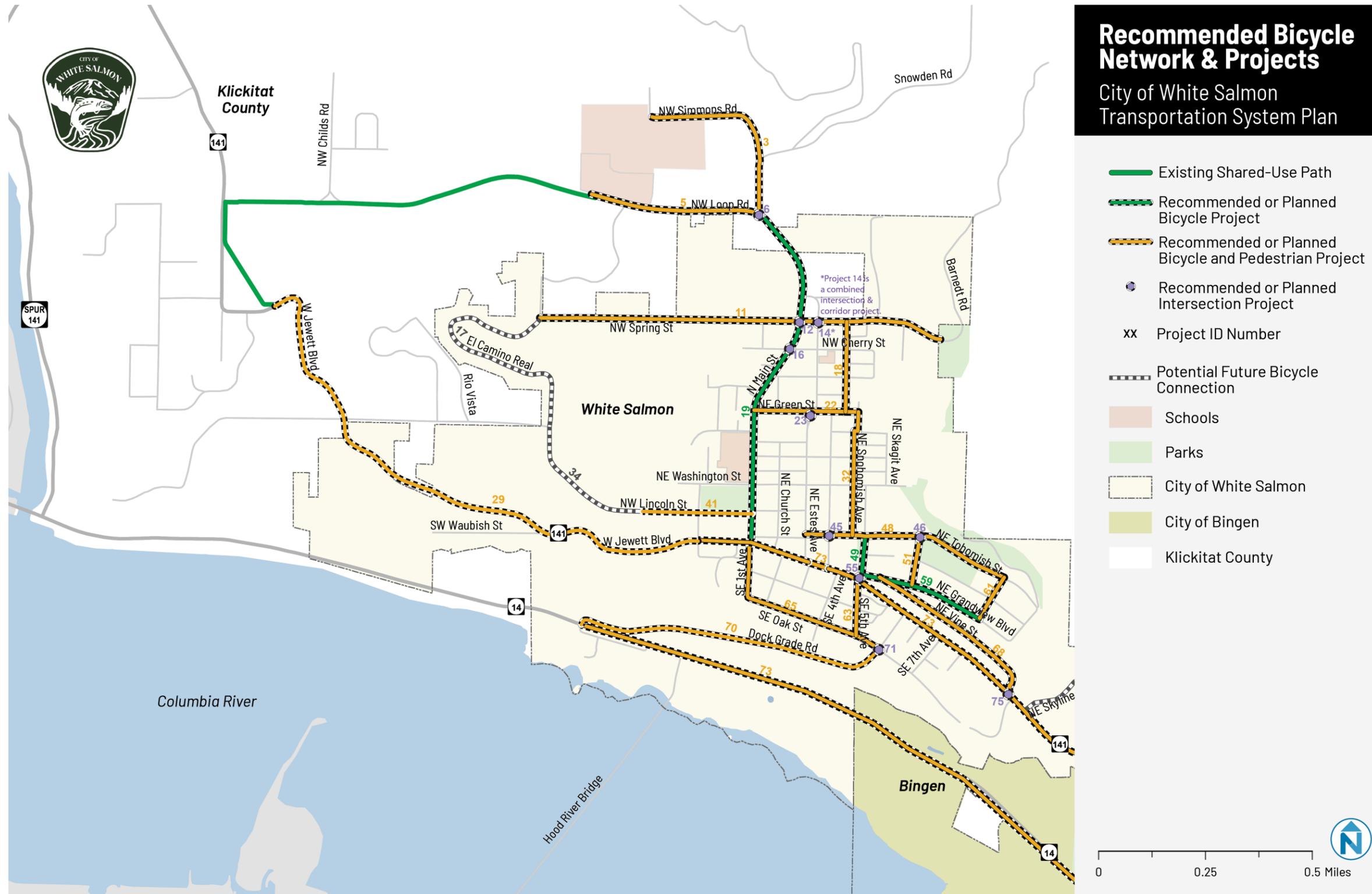


The Proposed Bicycle Network

A designated city-wide bicycle network was identified to connect people on bicycles seamlessly to key destinations. Similar to the main project list, public input played a foundational role in identifying how to complete this network. Projects on the proposed bike routes were factored into the prioritization process. This network would be a first for White Salmon, signifying the preferred routes that bicyclists should take where there are fewer conflicts with other travel modes and lower traffic stress. It was also important for the bicycle network to be accessible from all parts of the city and improve cross-town connectivity. Figure 19 presents the proposed bike network and the projects that lie therein.



Figure 19 Long-term Recommended Bicycle Network and Projects



Priority Projects

With more than seventy potential projects identified through the planning process, it was important to **prioritize** and **phase** the projects in accordance with how well they might meet the community's goals, and when they can practically be constructed. The prioritization scoring process illuminated **where it is most important** to invest in transportation improvements using a geographic overlay process. After projects were scored against the geographic evaluation criteria, two phasing criteria were applied to the top tier of projects that scored best in the prioritization scoring to understand which of the top tier projects are likely realistic to construct within the time frame of this plan. The project phasing criteria are a synthesis of the feasibility of including the project in the short-term implementation list.

At the conclusion of ranking and phasing all of the projects, a limited number can be advanced and included in the cost-constrained Six-Year Transportation Improvement Program (STIP) list. It is assumed that all eight of the near-term projects described below will be included in the 6-year STIP.

Each project on the list, whether identified as a near-term, medium-term, or long-term priority, will require additional planning, design, public input, and funding to become a reality.

Evaluation Criteria and Process

The project team developed a project evaluation process that provides a framework for data-based decision making based on the plan's goals. The framework used evaluation criteria that were applied to all draft projects in a geographic overlay method, which evaluates how well each project scores against each of the metrics. The evaluation criteria included metrics of Connectivity, Public Support, Equity, Safety, Funding Potential, and Ease of Implementation. Public input collected in Winter 2023 indicated top support for Safety and Connectivity criteria. Later City Council and Planning Commission feedback advised on how these metrics should be used for prioritization and phasing. More detail on the project evaluation can be found in Appendix B – Prioritization Framework, and final project scores can be found in Appendix C – Project List and Map.

Near-Term Projects

The near-term project list consists of eight high priority projects including street reconstruction, sidewalk installation, bikeway improvements, and pedestrian crossing upgrades (Figure 20). These were determined to be high priority by overlaying the City's current 6-year TIP list with all identified TSP projects and determining where TSP projects align with previously planned TIP projects. The 6-year TIP list was finalized in Spring 2023 by



key City staff including the mayor, public works director, city administrator, and finance officer. Those projects that line up with the 6-year TIP projects were designated as the near-term list, and will be advanced for design and funding opportunities beginning in Fall 2023. The total cost for the nine near-term projects is estimated at \$13 million, with costs for the Bluff Connector Trail (project number 66) to be determined at a later date.

Bluff Connector Trail



Conducting pre-engineering review for Bluff Connector Trail
Photo: City of White Salmon

One of the key near-term projects is the Bluff Connector Trail, which would provide a comfortable path for people walking between downtown White Salmon and the Hood River Bridge bridgehead/park & ride area. The City has already received grant funding for project planning and design. Together with the White Salmon-Bingen Loop Trail (project number 76), these trails would create a

continuous active transportation connection between key local destinations, including downtown White Salmon, downtown Bingen, and the Columbia River waterfront.

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Figure 20 High Priority Near-Term Projects

Category	Source	Map ID	Name	Description	Estimated Cost
Pedestrian	STIP	39	Church Avenue Sidewalk and Street Rebuild	Reconstruct with curb on both sides and sidewalk on west side from Columbia to Jewett.	\$2.1M
Bicycle and Pedestrian	STIP & TSP	65	Oak Street Multimodal Improvements and Street Rebuild	Reconstruct Oak from 1st to Dock Grade with sidewalk on one side. Designate as bike boulevard with shared lane marking until Dock Grade/6th. Reconstruct 2nd Ave with sidewalk on one side.	\$3.0M
Pedestrian	STIP	24	Columbia Street Sidewalk and Street Rebuild	Reconstruct with sidewalk on one side between Main and Estes.	\$0.9M
Pedestrian	STIP	31	Scenic Street Sidewalk and Street Rebuild	Reconstruct road and add sidewalks to both side from Main to Estes.	\$1.1M
Bicycle and Pedestrian	TSP	11	NW Spring Street Pedestrian and Bike Improvements	Designate NW Spring Street as bike boulevard for entire length. Add curb and sidewalk west of Estes or consider pedestrian lane between Country View Road and Estes.	\$2.0M
Roadway	STIP	44	Waubish Street Rebuild	Rebuild Waubish Street from Jewett to west end and add sidewalk on south side.	\$1.1M
Pedestrian	STIP	57	Grandview Boulevard Sidewalk and Street Rebuild	Reconstruct with sidewalk one side from Pioneer to O'Keefe.	\$0.9M
Pedestrian	STIP & TSP	14	Spring Street Pedestrian Improvements and Street Rebuild	Reconstruct, add sidewalk one side from Estes to Barnedt. Add high-visibility pedestrian and bicycle crossing with curb extensions on Estes freight corridor.	\$1.9M
Pedestrian	TSP	66	Bluff Connector Trail	Stairway/pedestrian trail proposed to connect White Salmon with Hood River Bridgehead and the Park & Ride, with viewing platforms and north- and south-end trailheads.	Cost TBD
Total Near-Term Project Costs: \$13M (Exclusive of Project 66)					



Developing Project Cost Estimates

Project costs for the near-term priority projects were developed utilizing a high-level composite cost methodology with reasonable design assumptions for implementation of improvements within a build environment. These assumptions include commonly-used project elements; including concrete sidewalk, concrete curb and gutter, installation of new drainage inlets, repaving with an asphalt cross section, and application of contingences to cover potential known and unknown costs.

For example, to fully replace and repave a side street, the existing pavement must be removed and disposed of, followed by excavation of subbase to remove existing subbase and prepare for a new subbase, installation of a new rock subbase, and finally paving with hot mix asphalt. Each of these steps has a unit cost associated with it, and these steps can be combined in a “composite” form, when combined with a roadway width, to create a per-route-foot cost for paving. These assumptions are reasonable given how common this type of street reconstruction is.

Unit costs were derived from WSDOT Unit Bid Analysis, a recent White Salmon Safe Routes to School Project, Seattle Department of Transportation, City of Vancouver, and internal Nelson\Nygaard Cost Estimating tools. As project design advances, costs are further defined and refined, reducing contingency and reducing risks associated with high-level cost estimating. As of the writing of this report in June 2023, and given the ongoing nature of inflation, global supply chain issues, and changing commodity costs, these estimates presented represent an educated guess, while the final project installation costs may change significantly over time.

Due to variability in costs projected into the future, only the near-term projects were costed.

Medium-Term Projects

After the eight near-term projects were identified, 66 projects were left on the potential TSP list. From these 66, the project team took the 20 projects that scored highest in the project evaluation described above, and based on City Council and Planning Commission guidance applied two phasing criteria to suggest an order in which the medium-term projects should be considered for implementation. The two phasing criteria were:

- **Funding Potential** – The project team evaluated the applicability of each funding source described below in chapter 6 to each project. Projects that may be eligible for more grant funding sources received a higher Funding Potential score.
- **Implementation Challenges** – The project team and the City public works director assessed each project location for high-level implementation challenges such as right-of-way limitations, environmental and modal conflicts, and major excavation



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needs. Those projects with lower barriers to implementation received a higher Implementation score.

The list of medium-term projects is shown in Figure 21. It is assumed that these 18 projects may be feasible to construct within the 20-year TSP timeframe. All 20 medium-term projects came from public input and analysis conducted for this TSP effort; none are drawn from previous planning efforts such as WSDOT and City of White Salmon plans.

Figure 21 Medium-Term Project List (remaining top tier projects in descending score order)

Category	Map ID	Description	Location	Score
Bicycle	19	Construct dedicated bicycle lanes with protective buffers. Green stormwater infrastructure where possible instead of parking.	N Main St	43.3
Intersection	16	Add high-visibility pedestrian and bicycle crossing across Main. Repaint crossing on Cherry if needed.	Main St & Cherry St	32.8
Bicycle and Pedestrian	18	Designate as bike boulevard with shared lane marking and striped pedestrian lane.	Fields Ave	28.1
Bicycle and Pedestrian	73	White Salmon-Bingen Loop Trail - Build new bike and pedestrian improvements on the south side of SR-14 and along SR 141, via Oak St in Bingen, connecting Heritage Plaza to new Bluff Trail crossing, riverside park, dock, and downtown White Salmon to downtown Bingen. Construct planted parkway, and narrow travel lanes. Improvements may include a combination of bike lanes, shared-use paths, and sidewalks, with a target of achieving level of traffic stress 2 or better. Consider speed limit reduction to 35 or 30 mph.	SR 141/Jewett Blvd, Oak St, & SR 14	27.7
Bicycle and Pedestrian	5	Consider a bike path on the north side adjacent to the sidewalk for students bicycling to school. Consider widening existing asphalt shared-use path on south side.	NW Loop Rd	26.8
Bicycle and Pedestrian	68	Designate as bike boulevard with sidewalk or pedestrian lane on one side. Provides option for pedestrians and bicyclists who prefer not using Jewett/141.	NE Vine St	26.3
Bicycle and Pedestrian	29	Install bicycle and pedestrian improvements. Improvements may include a combination of bike lanes, shared-use paths, and sidewalks, with a target of achieving level of traffic stress 2 or better. Consider speed limit reductions.	SR-141	26.1



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Category	Map ID	Description	Location	Score
Bicycle and Pedestrian	22	Reconstruct with sidewalks on both sides, and designate as bike boulevard.	NE Green St	25.9
Pedestrian	15	Add sidewalk on north side east of Main, consider pedestrian lane west of Main.	NE Cherry St	25.5
Pedestrian	34	Add pedestrian facilities such as sidewalks or pedestrian lanes along the El Camino Real - Lincoln corridor.	NW Lincoln St	25.0
Transit	30	Bus stop improvements and possible relocation.	Main St Bus Stop	24.0
Pedestrian	36	Reconstruct with sidewalk and curb on both sides.	NE Washington St	23.6
Intersection	12	Mini traffic circle to intersect bicycle boulevard with bike facilities on Main and act as traffic calming device.	Spring St & Main St	23.5
Intersection	45	Consider curb extensions and bike route signage.	Tohomish St & Wauna Ave	22.5
Roadway	25	Freight route. Incorporate green stormwater infrastructure where possible instead of parking.	NE Estes Ave	21.7
Intersection	55	Create bicycle and pedestrian pathway through Firemen's Park, connecting to high-visibility crosswalks on Grandview and Jewett. Repaint 5th St ped crossing. Add ped-activated signal or RRFB for Jewett crossing.	Jewett/141 & Grandview, Pioneer, and 5th	21.5
Bicycle and Pedestrian	70	In the short term, add a railing on Dock Grade Rd. In the longer term, stabilize the cut and fill portions of the road base and widen for two-way travel. Add protected shared-use path for walking and bicycling access.	Dock Grade Rd	21.5
Bicycle and Pedestrian	41	Repave until extent of residential settlement. Add sidepath for walking and bicycling along one side of roadway for full extent.	NW Lincoln St	18.6

All Other Projects (Long-Term)

These 45 projects are shown in Appendix C as long-term projects for future consideration. In many instances, these projects have been added by staff to address long-term considerations (e.g., annexation access or fire safety) as the city grows. However, some of the long-term projects may be considered within a shorter timeframe if they align with annexation, new development, or planned maintenance where funds are made available from other



government agencies (e.g., WSDOT, Klickitat County, City of Bingen) or through private sources. If a project moves from long-term to short-term implementation, the City will work with local neighbors to review the overall scope and focus for the project.

Programs and Policies

Programs

The program list is oriented towards providing active public spaces, a supportive and interesting environment for walking and riding a bike, and public transit service that is more useful for a wide variety of daily needs. In the first round of public engagement, people shared that they wanted bike parking, more public art, and street furniture like benches, while City Council feedback suggested a need for expanded transit service. The following programs can help achieve these objectives in collaboration with businesses and residents.

- **Placemaking** programs encourage residents to come together to create public art and community spaces in the right-of-way.
- **Wayfinding** programs put up signs and maps to help residents and visitors find walking and bicycling routes to destinations. The City should develop a comprehensive wayfinding program with special attention to serving the needs of tourists and out-of-town overnight guests, whose visits peak during the months of May through October. The locations highlighted in Figure 4 can provide an initial list of key community destinations to serve with the comprehensive wayfinding program.
- **Curb Ramp** programs complete access ramps citywide, starting with locations requested by the public, on school routes, and where high volumes of pedestrians exist.
- **Request-a-rack** programs help businesses work with the City to install **bike parking** where it is needed.
- The City will work closely with White Salmon Valley School District and Klickitat County to develop an active **Safe Routes to School program**. The program will coordinate projects, policies, and educational programs to make it easier and safer to walk, roll, and bicycle to school, and will update the SRTS map as shown in Figure 7.
- Enhancing transit service is key to advancing the City's climate and transportation goals for a more human-scale transportation system. Work with transit providers (Mt Adams Transit and Columbia Area Transit (Hood River)) and Klickitat County to study transit opportunities and identify funding to **expand public transit service**, including:
 - Streamlined service between White Salmon, Bingen, and Hood River seven days per week (up from the current Monday-Friday schedule).



- Expand deviated fixed-route service between White Salmon and Bingen to six days per week, with service to Pioneer Center, Main Street, Loop Road, Pucker Huddle Road, Jewett Boulevard, Insitu, Inc., and other destinations in Bingen. Ensure timed connections to fixed-route service in Hood River.
- Explore adding service to Trout Lake and Snowden.

Policies

These policies were identified through analyzing the TSP goals against needs identified through community outreach. White Salmon residents shared that they are interested in safety through a comfortable and complete network for people to walk or roll at any hour, improved multimodal network connectivity, and sustainable transportation that emphasizes prioritizing the roadway for people instead of cars. To maximize space and ensure everyone in White Salmon feels safe on the roadway, the TSP is proposing policies related to three topics:

- **Small mobility** – Small mobility refers to small, electric assisted vehicles that may be publicly shared.
 - **Support safe use of e-scooters** and other newer forms of small mobility.
 - **Set speed limits** for small electric vehicles in bike lanes at 15 mph.
 - **Allow small mobility and bicycles on all streets;** prohibit on sidewalks in downtown.
- **Parking**
 - Consider **reducing minimum parking requirements** in downtown and other mixed-use areas. Reducing minimum parking requirements can reduce barriers to development and reduce development costs, while making cities and streets more welcoming to people by right-sizing the area devoted to motor vehicle parking.
 - **Establish shared parking** (based on hours of operation) as an option for meeting minimum parking requirements. Shared parking refers to an arrangement between tenants, owners, and property managers that helps right-size the parking supply of a site or district to meet the parking demands of users more efficiently.
 - **Add bicycle parking requirements** for some multi-family residential and commercial uses. Requiring bike parking can encourage people to bicycle for daily needs by ensuring they have a safe, secure, protected space to store bicycles at both ends of a bicycle trip.



- **Land Development**
 - Consider requiring a **Transportation Impact Analysis** (TIA) for new development projects. TIAs can be tailored to local context to illuminate the anticipated travel impact on the multimodal network resulting from planned development projects and can help cities to set reasonable requirements for developers to construct or contribute toward multimodal improvements to accommodate the impact.
 - Set **standards for pedestrian connectivity** in new developments (maximum block lengths, additional access points, cul-de-sac connections).
- **Complete Streets**
 - Complete Streets is the integration of people and place in the planning, design, construction, operation, and maintenance of transportation networks. The concept supports planning for all modes in appropriate context when designing and constructing street improvements. The adoption of **Complete Streets policies and ordinances** to codify this thinking into White Salmon projects and programs would increase funding eligibility.
- **WSDOT Coordination**
 - Roadways controlled by WSDOT provide several key community and regional connections. Establish a working relationship with WSDOT Southwest Region team to coordinate improvements proposed in this TSP and in future WSDOT projects, including possible speed limit reductions on SR 14 and SR 141.



Distinctive salmon stencil markings in downtown crosswalks contribute to a sense of place.

Photo: City of White Salmon

5 STREET DESIGN TOOLBOX

A multitude of street treatments and typologies will make White Salmon comfortable for people of all ages and abilities traveling by any mode.

Street Design Guidelines

The White Salmon Transportation System Plan is focused on improving walkability, bike-ability, and access in White Salmon. These Street Design Guidelines describe a system of street classification, known as a typology, and include a design toolbox with elements that support connectivity and a low-stress experience for people traveling in White Salmon.

Street Typology

The Federal Highway Administration (FHWA) uses functional classification to define streets based on the level of mobility and access they provide people traveling in automobiles. The State of Washington Department of Transportation (WSDOT) applies functional classifications to public roads statewide. The TSP street typology adds another layer beyond functional classifications for streets in White Salmon. This typology considers land use and the experience of people using all modes, including walking and bicycling. The street types described here are meant to capture the unique characteristics of streets in White Salmon.

The TSP street typology is the basis for street design guidelines. These guidelines set standards while still allowing flexibility in how each individual street is designed. Each street type includes unique examples of potential cross-sections with recommended dimensions and design elements such as sidewalks, bike facilities, and green infrastructure. The typology and design guidelines can be applied to existing streets when they are redesigned and to new streets as they develop, which allows for streets to change as land uses and priorities change.



Figure 22 Street Typology and Functional Classifications

White Salmon Street Type	Federal Functional Classification
Main Street	Arterial/Highway
Regional Thoroughfare	Arterial/Highway or Major Collector
Connector Street	Major Collector
Neighborhood Street	Minor Collector or Local Access Street

Downtown Street

Design Objectives

- A main activity spine of the city
- Wide sidewalks for pedestrian access and lingering
- Distinct, activated streetscapes with furnishings and plantings
- On-street parking for business access

Example Locations

- Jewett Blvd in downtown White Salmon



Figure 23 Cross-Section for Downtown Street Option 1

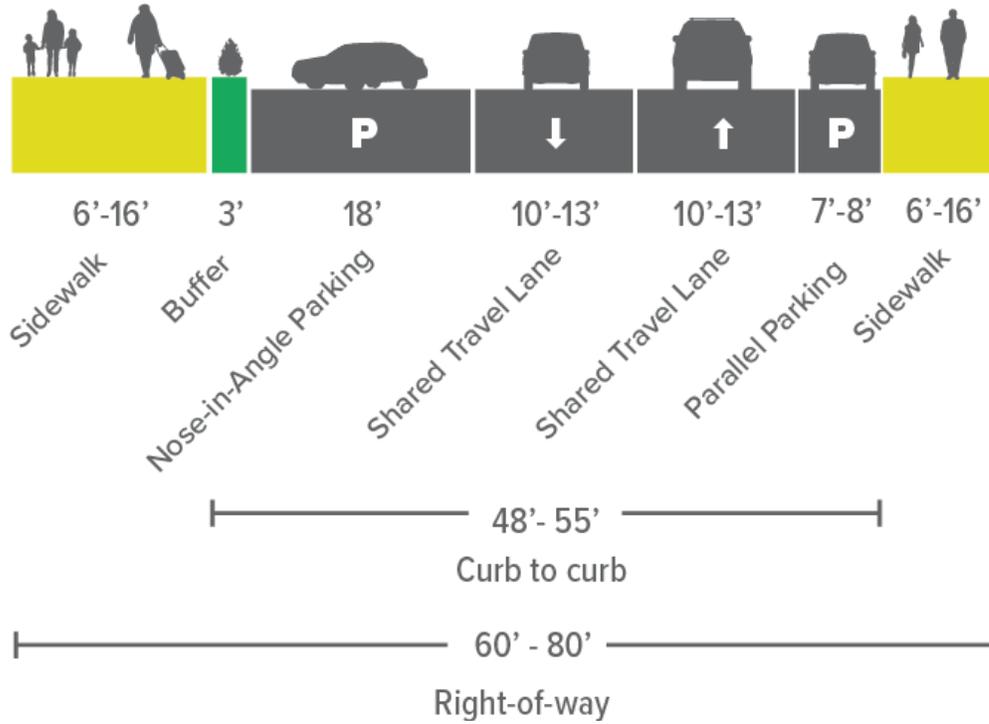
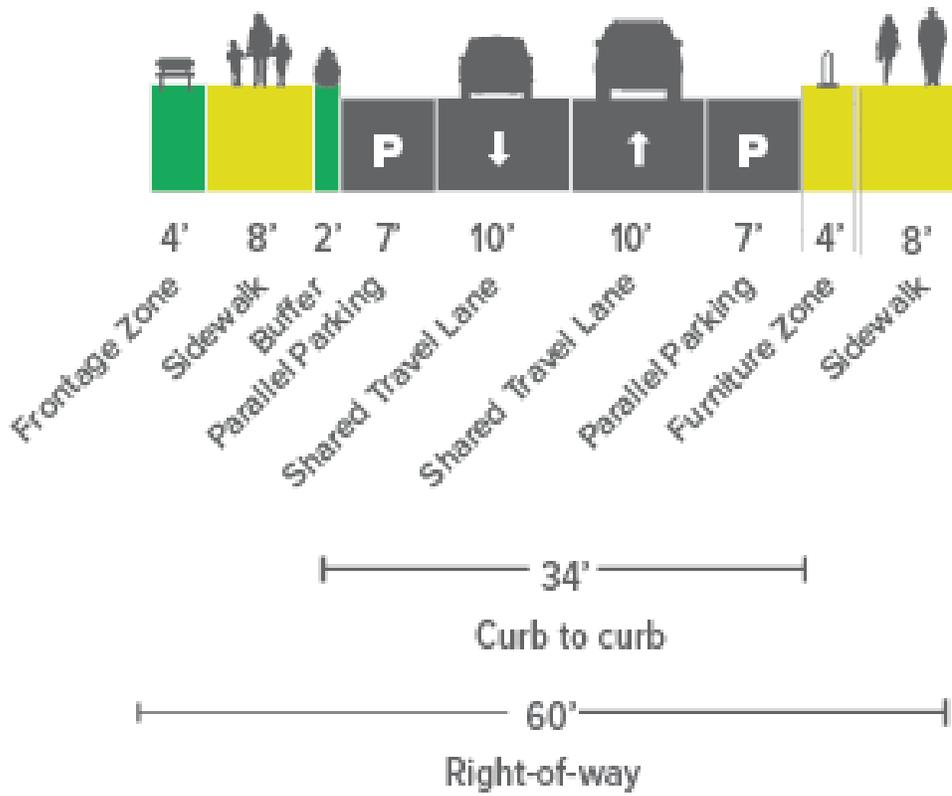


Figure 24 Cross-Section for Downtown Street Option 2



Downtown Street



Regional Thoroughfare

Design Objectives

- Provides regional access
- Moves people using all modes
- Biking and walking facilities are separated from automobiles

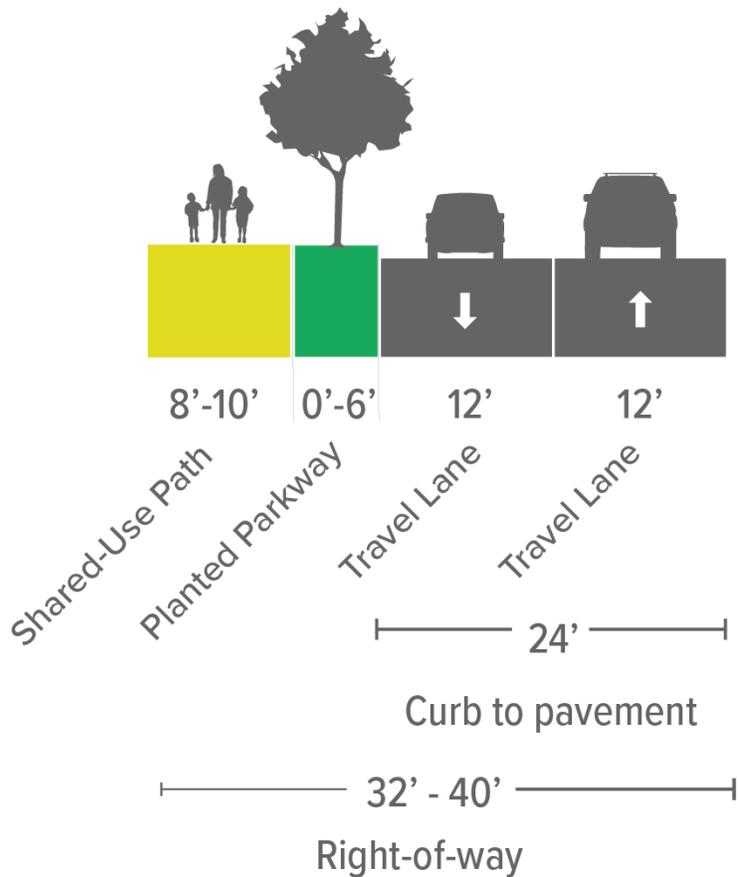
Example Locations

- Jewett/SR 141 outside of downtown
- Loop Road



Photo: Google Streetview

Figure 25 Cross-Section for Regional Thoroughfare



Connector Street

Design Objectives

- Provides access across the city for all travel modes
- Slow vehicular travel speeds through design
- Bike infrastructure could include protected facility, shared use path, or bike lanes
- Safe pedestrian crossings at convenient intervals
- Integrate green stormwater infrastructure



Example Locations

- Main Ave
- Estes Ave

Figure 26 Cross-Section for Connector Street on the Bicycle Network (Standard or Protected Bicycle Lane)

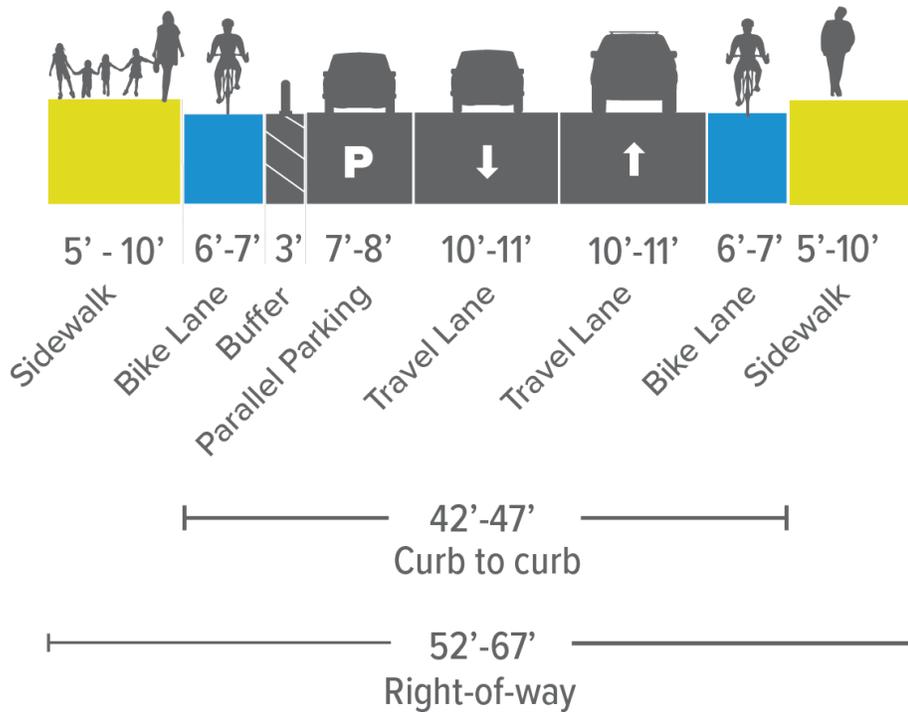
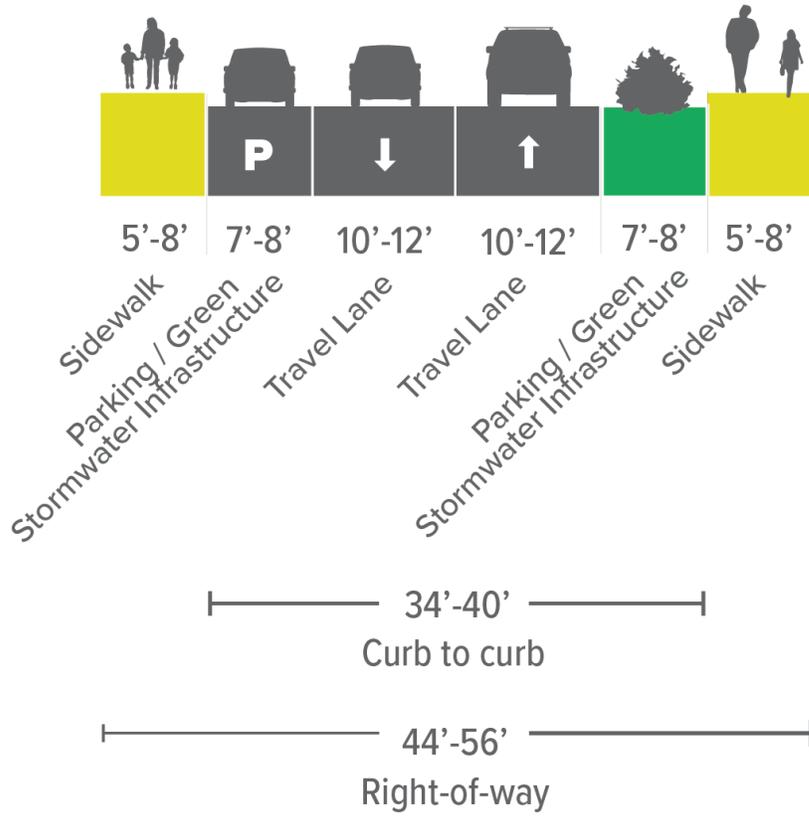


Figure 27 Cross-Section for Connector Street on the Freight Network



Neighborhood Street

Design Objectives

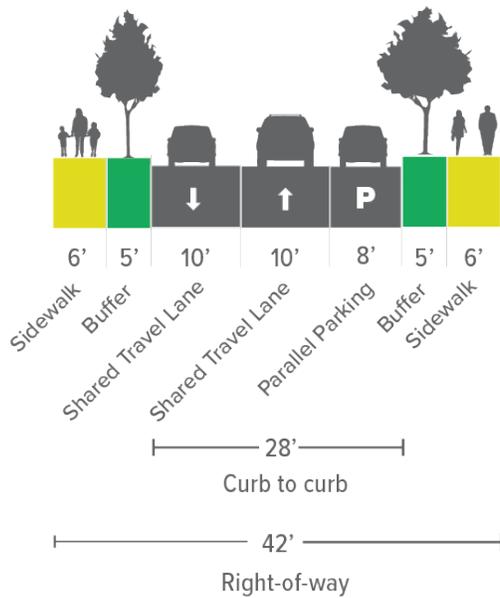
- Provide access to homes and community destinations
- Low vehicular volumes
- Slow vehicular travel speeds through traffic calming
- Safe pedestrian crossings
- Bicycles can be accommodated in the travel way intermixed with slow moving traffic



Example Locations

- Lincoln St
- Hood St

Figure 28 Cross-Section for Neighborhood Street



Neighborhood Street



Figure 29 Cross-Section for Constrained Neighborhood Street



DESIGN TOOLBOX

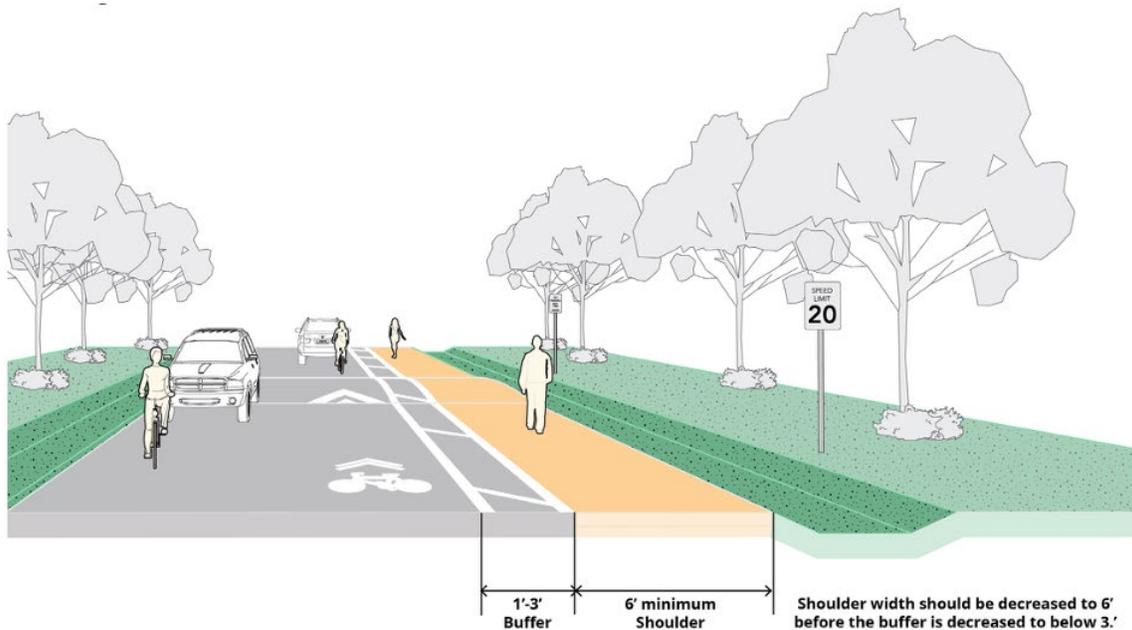
All photos are from Nelson\Nygaard unless otherwise noted.

The Design Toolbox describes improvements that the City of White Salmon could make to streets and sidewalks to complement the basic elements that are shown in the cross-section for each street type in the previous section. Many of these elements are referenced in the TSP project list.

Streets

Pedestrian Lane

Figure 30 Example Pedestrian Lane Treatment



Source: Portland Pedestrian Design Guidelines, p. 45 *Slower Safer Shoulder*

Description

Pedestrian lanes are an interim or temporary type of walkway that can be applied to fill gaps in the walking network where a sidewalk is not feasible in the near-term. There are two main types: a Slow Safer Shoulder, which is a paved roadway shoulder with lane striping to protect pedestrians from traffic, and a Protected Safer Shoulder, which is a paved roadway shoulder that separates pedestrians from traffic with a physical barrier. Seattle is an example of a city

that allows this treatment under certain circumstances, including topographic conditions and/or mature vegetation that does not allow for traditional sidewalks.

Design considerations

Slow Safe Shoulders are appropriate on streets with traffic speeds at 20 mph or lower and vehicle volume of 3,000 ADT or less. The minimum walkway width should be 6 feet of clear space, with narrower spaces only to be used on a case-by-case basis. The shoulder should be separated from the travel lane by striping and diagonal hatching, if the buffer width supports it. Buffers narrower than 2.5 feet can be delineated with a broken lane line with 3 feet line segments and 6 feet gaps, plus an additional solid white line for clearer separation. However, the roadway should not be marked. No street parking is allowed. Tactile warning surface indicators should indicate crossing areas and side street crossings should be marked.

Protected Safer Shoulder considerations are like those of Slow Safe Shoulder, but Protected Safer Shoulders can be applied on larger streets with traffic speeds up to 35 mph and no ADT limit. They must have a vertical delineator, which likely would be a bollard but could be a wheel stop or extruded curb. Optional elements include on-street parking or a directional tactical edge away from roadway using rumble strips, thickened MMA/thermoplastic, or roadside bioretention to enhance safety conditions.

Street type it can be applied to

- Neighborhood Street
- Connector Street

Design guidance references

- [Seattle Right-Of-Way Improvements Manual](#)
- [PBOT Pedestrian Design Guide](#)
- [FHWA Small Town and Rural Multimodal Networks](#)

Relative cost

\$



Examples

Figure 31 19th Ave NE between NE 130th Pl and NE Brockman Pl, Seattle, WA

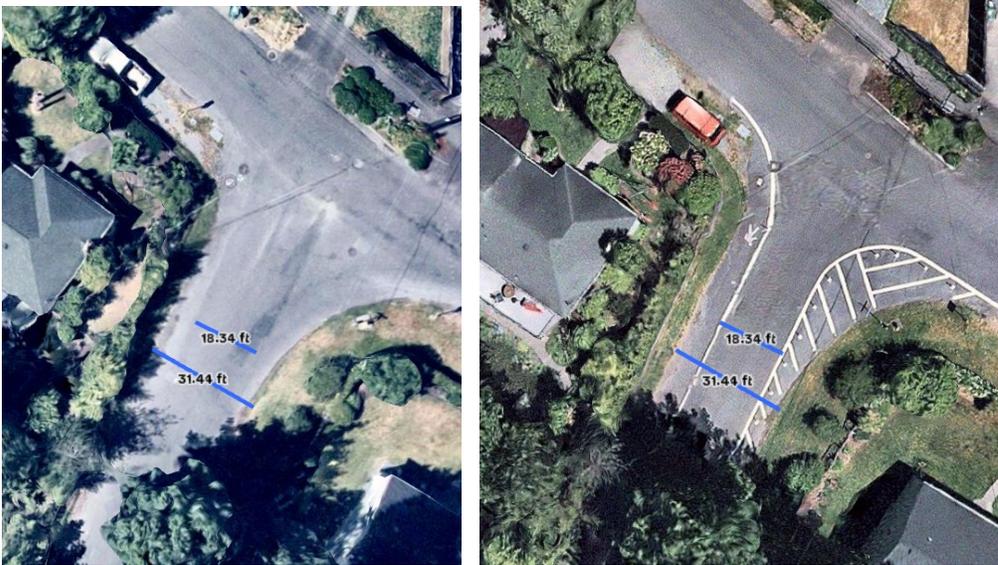
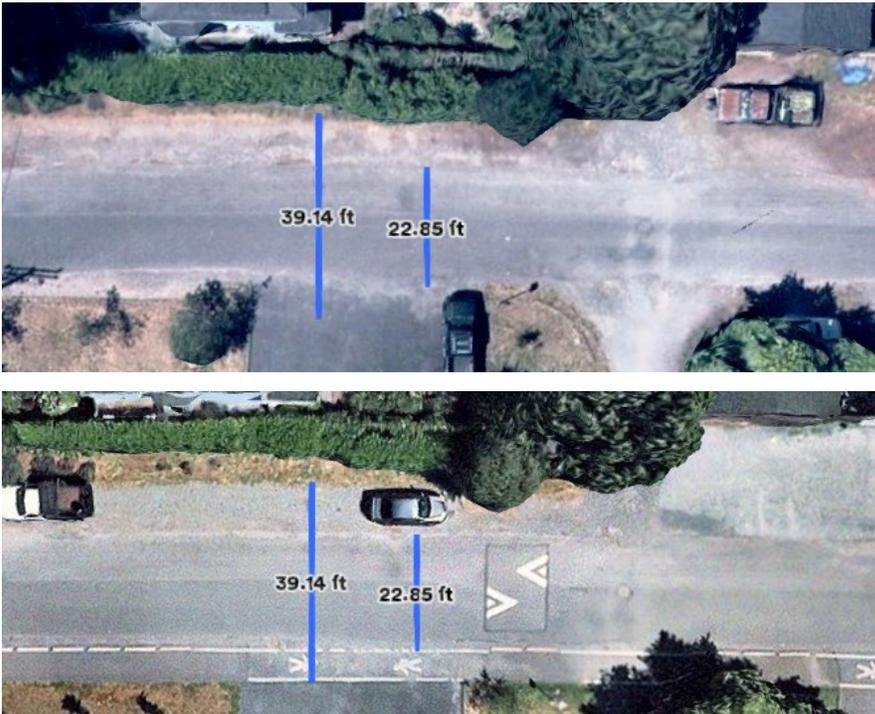


Figure 32 NE 113th St between 34th Ave NE and 35th Ave NE, Seattle, WA



Bike Boulevard

Description

Bike boulevards are streets where people bicycling share the travel lane with automobiles. A low-stress environment for people bicycling is accomplished through signs, pavement markings, and traffic calming elements to manage automobile speeds and volumes. Bike boulevards are appropriate for streets with maximum traffic volumes of about 3,500 daily vehicles and speeds of no more than 25 mph, according to the Washington State Department of Transportation (WSDOT). The desired condition for a bike boulevard is 1,500 or fewer daily vehicles and speeds of 20 mph.

Design considerations

Bike boulevards should be designed so that local streets can be enhanced to create safe options for people riding bikes. There are eight types of design treatments that can be used as safety enhancements.

1. Route planning and wayfinding
2. Signs and pavement markings
3. Speed management
4. Volume management
5. Minor street crossings
6. Major street crossings
7. Offset crossings
8. Green infrastructure

Street type it can be applied to

- Neighborhood Street

Design guidance references

- [WSDOT Design Manual m22-01, Chapter 1520 Bicycle Facilities](#)
- [NACTO Urban Bikeway Design Guide](#)
- [FHWA Small Town and Rural Multimodal Networks](#)

Relative cost

\$ (pavement markings) - \$\$\$\$ (green infrastructure)



Bike Lane

Description

Bike lanes are preferential lanes for people biking demarcated with striping, pavement markings and signs. Bike lanes are used to protect people biking from vehicle traffic and people walking from people biking. Bike lanes allow for an increase in bicycle traffic. According to WSDOT, conventional bike lanes should be installed when daily traffic volumes are less than 7,500 vehicles and speeds are between 25 and 30 mph. The ideal conditions for a conventional bike lane are when daily traffic volume is between 1,500 and 3,000 vehicles and speeds are less than 25 mph. The addition of a striped buffer at least 18 inches wide is recommended for bike lanes on streets with traffic volumes between 3,000 and 6,000 daily vehicles.

Design considerations

Bike lanes are usually installed between the travel lane and curb, road edge, or parking lane. Parking lane width should always be minimized to favor the bike lane. A desirable bike lane width is 6 feet, exclusive of gutter. A bike lane next to a parking lane must be at least 5 feet. A bike lane next to a guardrail or other physical boundary must increase by 2 feet. There must be a 6-to-8-inch solid white lane marking to indicate the separation between the travel lane and bike lane.

Street type it can be applied to

- Main Street
- Connector Street
- Neighborhood Street

Design guidance references

- [WSDOT Design Manual m22-01, Chapter 1520 Bicycle Facilities](#)
- [NACTO Urban Bikeway Design Guide](#)

Relative cost

\$-\$\$



Protected Bike Lane

Description

Protected bike lanes have the skeletal structure of conventional bike lanes with added physical protection from vehicle traffic provided by a vertical buffer. Protected bike lanes offer dedicated and protected space, eliminated risk from collisions with vehicles, and prevention from double-parking. Protected bike lanes should be installed on streets with traffic volumes above 8,000 daily vehicles and speeds of 35 to 50 mph, according to WSDOT. NACTO guidance recommends protected bike lanes when daily traffic volume is greater than 6,000 vehicles and speeds consistently exceed 25 mph.

Design considerations

The bike lane itself must be a minimum of 5 feet wide (exclusive of gutter) and up to 7 feet wide. Depending upon the adjacency to on-street parking, the buffer that includes the physical barrier must be at least 2 feet wide (3 feet adjacent to parking). Existing pavement and drainage as well as parking lanes can be used as the physical barrier. Bike only markings or legends must be marked along the bike lane. Special attention must be given to transit stops along the bike lane to ensure safety for pedestrians and bicyclists.

Street type it can be applied to

- Regional Thoroughfare
- Main Street
- Connector Street

Design guidance references

- [WSDOT Design Manual m22-01, Chapter 1520 Bicycle Facilities](#)
- [NACTO Urban Bikeway Design Guide](#)
- [FHWA Small Town and Rural Multimodal Networks](#)

Relative cost

\$\$\$



Advisory Bike Lane



Description

Advisory bike lanes are wide bike lanes used on streets that are too narrow for dedicated bike lanes, have low vehicle traffic (5,000 or fewer ADT) and 30 mph or lower speeds. Vehicles use the center lane as bi-directional, pulling into the advisory bike lanes, as available, when needed for passing.

Design considerations

Streets with advisory bike lanes should be at least 16 feet wide; however, there are case studies with narrower roads. This width includes one vehicle travel lane and one bike lane on either side. The lanes should be accompanied by signage indicating two-way traffic warning sign or yielding behavior: both between vehicles and bikes and vehicles with each other when they are trying to pass each other. There should not be a marked center line, unless for a short segment to demarcate opposing traffic flows at specific locations. Advisory Bike Lanes are best implemented when there is a clear sight distance. When there are obstacles, such as at-grade crossings, around curves, over hills, and at bridges, the road should be widened enough to make space for conventional general purpose travel lanes as well as bike lanes. Advisory Bike Lanes must use bike lane pavement markings that should be continued



through the crossings of minor intersections but stopped 50 feet before intersections controlled by stop signs or traffic signals.

FHWA has approved advisory bike lanes as an experimental treatment and several jurisdictions currently have them in place. However, FHWA is not considering new requests for advisory bike lanes as of this writing.

Street type it can be applied to

- Main Street
- Neighborhood Street

Design guidance references

- [PBOT Advisory Bike Lanes](#)
- [NACTO Edge Lane Roads](#)
- [FHWA MUTCD FAQ Traffic Control for Bicycle Facilities](#)
- [Alta Planning + Design: Lessons Learned, Advisory Bike Lanes in North America](#)

Relative cost

\$

Guardrail



Photo from FHWA.



Description

Guardrails are used to protect drivers by deflecting cars that have accidentally left the roadway. They are best used when installed in places where there are embankments, side slopes, tree linings, bridge piers, retaining walls, or utility poles that lead to more severe outcomes when a car leaves the roadway.

Design considerations

Guardrails should be installed where high speeds occur and the conditions noted above make roadway departure crashes more severe; however, the guardrail can also encourage vehicles to drive at speeds over the speed limit. The guardrail has two main components: the guardrail face and the end terminal. The guardrail face is used to redirect the vehicle and the end terminal is used to absorb the impact of a vehicle hitting the guardrail. To do so, the end terminal must be treated, most commonly with an energy-absorbing end treatment. This will allow the impact to slide down the guardrail face.

Street type it can be applied to

- Regional Thoroughfare
- Connector Street

Design guidance references

- [FHWA Roadway Departure](#)

Relative cost

\$



Public Art and Streetscape



Photo from City Repair Portland. 8th and Holman.

Description

Public art and streetscaping enliven the experience of a neighborhood, provide an opportunity for cultural expression, and encourage people to connect with each other and use public space in new ways. Many communities have created “livable streets” or “open streets” programs to rethink the use of public right-of-way and create safe, welcoming active spaces in neighborhoods. Livable or open street programs usually include:

- Murals and other public art, including street paintings
- Street furniture and amenities such as temporary or permanent seating, planters, and pedestrian-scale lighting

Design considerations

Streetscaping can include elements like light poles, benches, trash receptacles, and planters. Street furniture should be placed on streets with high pedestrian activity, popular gathering spaces or key destinations, or those serving a recreational or lingering role. Street furniture must be placed outside of the pedestrian through zone, which must be at least 5-feet wide.

Public art should be located to be pedestrian amenity that enhances the park, plaza, or walkway. Art needs to support accessibility, including detectable warning strips, if in close proximity to the through walking zone. Street and original art murals cannot use moving structural elements, light elements of any kind, and design that would make the art appear to have moved or changed. Some cities have programs that allow community members to design and paint murals directly on the pavement of neighborhood streets, for short term enjoyment or as part of a long term installation.

Street type it can be applied to

- Main Street
- Neighborhood Streets
- Shared Streets

Design guidance references

- [City Repair](#)
- [SF Better Streets, Public Art](#)
- [SF Better Streets, Street Furniture](#)
- [PBOT Healthy Block Permit](#)
- [PBOT News Release](#)
- [Portland Public Street Plazas](#)
- [Portland City Code](#)

Relative cost

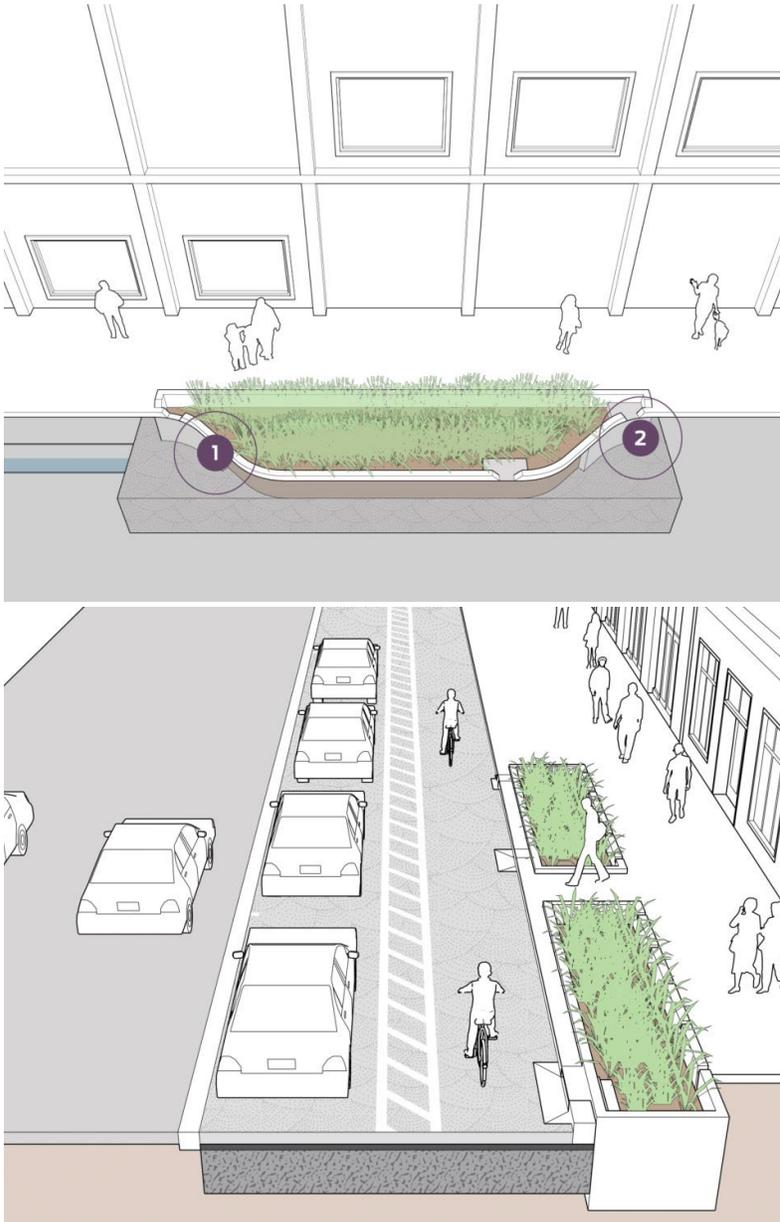
Figure 33 Street furniture estimated costs

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Street Furniture	Street Trees	\$460	\$430	\$54	\$940	Each	7(7)
Street Furniture	Bench	\$1,660	\$1,550	\$220	\$5,750	Each	15(17)
Street Furniture	Bus Shelter	\$11,490	\$11,560	\$5,230	\$41,850	Each	4(4)
Street Furniture	Trash/Recycling Receptacle	\$1,330	\$1,420	\$310	\$3,220	Each	12(13)

Source: pedbikesafe.org



Green Infrastructure



Both photos from NACTO.

Description

Green infrastructure is a term for elements that capture, filter, and infiltrate stormwater. Green infrastructure that can be installed in streets and public right-of-way includes pervious pavement, which allows water to flow through an otherwise impermeable surface, and



bioretention planters, which capture water runoff from impermeable surfaces. Street trees and vegetation in bioswales intercept and filter stormwater, and provide shade and evaporative cooling. Green infrastructure also helps enhance multi-modal safety and accessibility when it is used as a buffer between automobile, bicycle, and/or pedestrian travelways, achieving both environmental and mobility goals.

Design considerations

Many different green infrastructure elements may be used in combination. It is important to consider context-specific ecological needs and the placement of underground utilities when locating and designing green infrastructure. Maintaining these facilities may require specialized expertise and equipment.

Pervious pavement design must consider the ability to both support traffic and store water long-term. Pervious concrete must have a depth between 4-5 feet for sidewalks or pathways, 5-6 inches for residential driveways and light duty parking lots, and 8-10 inches for heavier truck areas. Colder climate areas that use pervious pavement must account for biodegradable, non-corrosive de-icing agents and moderation of salt application.

When designing bioretention elements, considerations include: sizing the bioretention element to fit the available space and meet water absorption needs; maintaining a minimum of 3 vertical feet between the bottom of the infiltration method and water table or bedrock layer; choosing soil and plantings that support drainage and filtration needs; and siting the stormwater infiltration system at least 100 feet from any sensitive public water supply.

Street type it can be applied to

- Main Street
- Connector Street
- Neighborhood Street

Design guidance references

- [NACTO Pervious Pavement](#)
- [NACTO Urban Street Stormwater Guide](#)
- [Washington Pervious Concrete](#)
- [NACTO Case Study, Street Edge Alternatives Street Pilot](#)
- [City of Seattle, Broadview Green Grid Brochure](#)

Relative cost

\$-\$\$\$



Crossings

Curb Extension



Source: NACTO Urban Street Design Guide

Description

A curb extension is a section of sidewalk or landscaped area extending into the roadway at an intersection or mid-block crossing that physically narrows the roadway. They are used to create safer, shorter crossings for pedestrians; increase visibility of people waiting to cross the street; slow traffic speeds around corners; and/or increase pedestrian zone space for street furniture, benches, plantings, and street trees. These are also referred to as curb bulb-outs or bump-outs. Curb extensions on streets that accommodate transit vehicles will need to carefully consider the turning radii of those vehicles. Regardless of street type, curb extensions may only be used where a curb lane is present and used for parking, parklets, or loading, not bicycle or motor vehicle travel. Curb extensions are particularly beneficial in commercial frontage contexts where pedestrian volumes are high, where traffic calming is desired, and on very wide streets.

Design considerations

Curb extensions should not narrow any bike or general traffic lanes to an unsafe width. Extensions should preserve one to two feet of shy distance between the curb face and the first travel lane or bicycle lane. When applied to streets with on-street parking, they are typically six to seven feet wide; alternatively, extensions can shadow the length of the parking stall if parking is on the diagonal. Corner or mid-block extensions with crosswalks should be at least as wide as the crosswalk, and ideally extend to the stop bar. The curve of the extension must fit outside of any crosswalks. Extensions are intended to narrow pedestrian

crossing distance and slow traffic speeds. To accomplish this, maintain tight turning radii no greater than 20 feet. The effective turning radius may be wider.

Street type it can be applied to

- Regional Thoroughfare
- Main Street
- Neighborhood Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013](#)
- [FHWA: Small Town and Rural Multimodal Networks, 2016, Chapter 2, Page 14](#)
- [AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004](#)

Relative cost

\$-\$\$

Pedestrian Refuge Island



Description

Pedestrian refuge islands are raised or physically separated areas within the roadway. They provide a safe landing zone for people walking and bicycling to use while crossing a street with multiple travel lanes. Also known as median pedestrian and bicycle refuge islands, they make roadway crossings easier and safer by 1) limiting exposure to through moving vehicles; 2) enabling crossings to commence when there are gaps in traffic from one direction at a time; and 3) providing a safe stopping place in the middle of the roadway for pedestrians who are not able to make the complete street crossing during a pedestrian signal phase. They may be used at signalized and unsignalized intersections or mid-block crossings.

Design considerations

Pedestrian refuge islands are most often used on multi-lane roadways where a pedestrian must cross 44 feet or more of continuous roadway or where they are necessary to provide a safe crossing. Pedestrian refuge islands may also be used as a traffic calming or traffic channelization device, often in concert with mini roundabouts or acute angle right turns. Pedestrian refuge islands should be a minimum of eight feet deep, and preferably 10, to comfortably accommodate single pedestrians, pedestrians with strollers or assisted mobility

devices, or people with bicycles. Signs and pavement markings provide guidance to drivers about where to stop for people crossing.

Street type it can be applied to

- Regional Thoroughfare
- Connector Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013](#)
- [AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004](#)
- [Federal Highway Administration: Small Town and Rural Multimodal Networks, Chapter 2: Mixed Traffic Facilities](#)

Relative cost

\$\$



Pedestrian Crossing Signage



Description

Pedestrian crossing signage includes Stop for Pedestrian and in-street pedestrian crossing signs. The Stop for Pedestrians sign is regulatory. It is used in advance of unsignalized marked or unmarked crosswalks. In-street pedestrian crossing signs use the same sign type, installed on the centerline. They can be used in high activity locations to complement other signs and pavement markings. The in-street signs require periodic inspection and replacement.

Design considerations

Crosswalk ahead signs can be placed 20 to 50 feet before the nearest crosswalk markings, and Stop Here for Pedestrians signs are placed at the crosswalk. In-Street Pedestrians signs can be used temporarily on a seasonal basis to prevent damage due to plowing operations.

Street type it can be applied to

- Main Street
- Connector Street
- Neighborhood Street

Design guidance references

- [MUTCD FHWA Chapter 2B. Regulatory Signs](#)



White Salmon Transportation System Plan

- [FHWA Course on Bicycle and Pedestrian Transportation, Lesson 14](#)
- [PedBikeSafe: Pedestrian Safety Guide and Countermeasure Selection System](#)

Relative cost

\$



City of White Salmon

Rectangular rapid flashing beacon



Description

Rectangular Rapid Flashing Beacons (RRFBs) are devices using LED flashing beacons in combination with pedestrian and bicycle warning signs to provide a high-visibility strobe-like warning to drivers when pedestrians and bicyclists use a crosswalk. RRFBs can be used when a signal is not warranted at an unsignalized crossing. They are not appropriate at intersections with signals or "STOP" signs.

Design considerations

RRFBs should be used in conjunction with advance yield pavement lines and high-visibility crosswalks. They should be placed curbside on both sides of the road below the pedestrian crossing sign and above the arrow indication pointing at the crossing. If there is a pedestrian refuge or other type of median, an additional beacon should be installed in the median. A push button is used to activate the beacon, or another activation method used by the person to signal the intent to cross. The push button and other components of the crosswalk must meet all other accessibility requirements. RRFBs should be limited to locations with critical safety concerns and high-volume pedestrian crossings but may also be considered for priority bicycle route crossings and at locations with high volume pedestrian destinations on either side of a street without a nearby controlled crossing.

Street type it can be applied to

- Regional Thoroughfare



- Connector Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013: Intersection Design Elements: Traffic Signals](#)
- [AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004: Section 4.1: Pedestrian Signals](#)

Relative cost

\$\$



Traffic Calming

Roundabouts/Traffic Circles



Description

Roundabouts and traffic circles are circular designs for intersections. One or more lanes curve around a central circular island. Entering vehicles yield to traffic that is already circulating through. Roundabouts have significant safety benefits because they reduce conflict points and slow traffic. They can reduce crashes by 82% when they replace a stop-controlled intersection and by 72% when they replace a signalized intersection.⁴ They are also effective at keeping people moving and reducing delay.

Design considerations

Roundabouts can be used in a variety of different settings. On major roads, they can be used to provide a transition between higher-speed portions and lower-speed areas. Smaller traffic circles can be used at the intersection of local streets to slow the speed of traffic.

Traffic circles can be installed using simple markings or raised islands, but they also provide opportunities to include stormwater management facilities or pieces of art. They may or may not be used in conjunction with stop signs. Design requirements include:

- Design speeds or alternative routing to support people walking or bicycling
- Regulatory and/or warning signage should be provided to remind traffic to proceed counterclockwise around the circle.

⁴ <https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>

- At least 15 feet of clearance is needed between the street corner and the central circle.

Street type it can be applied to

- Main Street
- Regional Thoroughfare
- Connector Street
- Neighborhood Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013](#)
- [AASHTO: Guide for the Development of Bicycle Facilities, 2012](#)
- [ITE: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, 2010](#)

Relative cost

\$\$



Speed humps



Description

Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are three to four inches high and 12–14 feet wide, with a ramp length of three to six feet, depending on target speed. Speed humps reduce speeds to 15–20 mph and are often referred to as “bumps” on signage and by the general public. They will be most common on lower order streets (local and residential). They may also be used on streets where traffic volumes are higher than desired or those that are used by cut-through traffic on a regular basis. Speed cushions achieve the same goals as speed humps but are installed on routes classified as key emergency response corridors. Speed cushions have cut-outs to allow for the wheels of the emergency vehicles to travel through and are flatter than speed humps.

Design considerations

Vertical speed control elements should be applied on streets with speeds limits less than 30 mph, and where there is higher than desired operating speeds. Vertical speed control elements should be accompanied by a sign warning driver of the upcoming device. Speed humps should not be placed in front of driveways or other significant access areas. They

should be located where there is sufficient visibility and available lighting. Spacing for vertical speed controls should be determined based on the target speed of the roadway. Speed humps should be spaced no more than a maximum of 500 feet apart to achieve an 85th percentile speed of 25–35 mph. To achieve greater speed reductions, space speed humps close together.

Street type it can be applied to

- Main Street
- Neighborhood Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013](#)
- [AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004](#)
- [AASHTO: Guide for the Development of Bicycle Facilities, 2012](#)
- [PBOT North Portland Traffic Calming Project](#)

Relative cost

\$



Diverters



Description

Diverters are physical or regulatory barriers that restrict motor vehicle access and movement. They may prevent turning or through movements or restrict access to local traffic only, while allowing passage of bicycle and pedestrian traffic. On bike boulevards, they are designed so people biking can continue on the road, but larger vehicles need to turn. This decreases traffic volumes. Diverters and medians can create opportunities for landscaping.

Design considerations

Sometimes called a “half street closure,” semi-diverters prevent vehicles from crossing an intersection in one direction of a street while permitting traffic in the opposite direction to pass through. It is an alternative to one-way street operation for a block and it allows residents on the block limited two-way travel opportunity. A semi-diverter should be located at the end of a block to prevent vehicles from entering but allowing exits. Diagonal diverters are barriers installed across an intersection, allowing people on bikes through and requiring vehicles to turn right.

Street type it can be applied to

- Neighborhood street

Design guidance references

- [AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004](#)
- [AASHTO: Guide for the Development of Bicycle Facilities, 2012](#)
- [FHWA: Small Town and Rural Multimodal Networks, Chapter 2: Mixed Traffic Facilities](#)

Relative cost

\$\$



Chicanes



Both photos from NACTO.

Description

A chicane is a narrowing or turn constructed into a road that causes motorists to slightly shift lanes to travel forward in a straight travel path. The curvilinear path is intended to reduce the speed at which a motorist is comfortable travelling through the feature. The offset curb extensions allow for an increase of public space, space for amenities, and landscaping space.

Design considerations

Reflective markings, striping and signs reinforce the artificial curve in the curbline to alert drivers of the lateral shift in the lane. If drainage is an issue, chicanes can be designed as bioswales or installed 1-2 feet away from curb, also called edge islands. Chicanes can also be achieved with alternating on-street parking if there is parking demand high enough to always be occupied. It is preferred to install chicanes at a midblock location near a streetlight.

Street type it can be applied to

- Neighborhood Street

Design guidance references

- [NACTO: Urban Street Design Guide, 2013](#)
- [FHWA Traffic Calming ePrimer](#)

Relative cost

\$\$-\$\$\$

Hillside Connections

Public Stairs

Figure 34 Public Stair Design Example

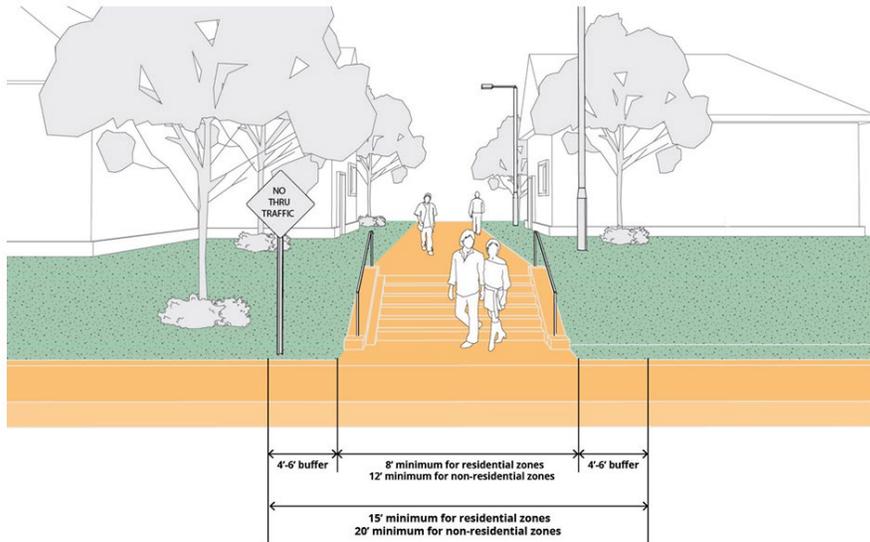


Figure B-34: Pedestrian/Bicycle Connection - stairway

Portland Pedestrian Design Guide, pg. 43

Description

Public stairs can be used as a pedestrian/bicycle connection where topography is too steep for a path. Stairs are typically short segments of walkway that are not adjacent to vehicular roadways, instead located midblock within rights-of-way. They could be used to meet pedestrian connectivity guidelines where direct alternative routes are not feasible. However, they are not accessible to people who use wheelchairs, requiring that there be suitable alternative routes or design accommodations.

Design considerations

Stairs should be at least 8 feet wide for residential zones and at least 12 feet wide for non-residential zones. There should be a 4- to 6-foot buffer on each side of the bottom of the stairs, making the entire width including both buffer zones at least 15 feet wide for residential zones and at least 20 feet wide for non-residential zones. Where no alternative routes are available for people with disabilities, ramps between stair landings will increase the width substantially.



Street type it can be applied to

Midblock within rights-of-way of any street type

Design guidance references

- [Portland Pedestrian Design Guide, B.5.4.2 Pedestrian/Bicycle Connection](#)
- [Portland City Code, Chapter 17.88 Street Access](#)

Relative cost

\$\$\$

Funicular/Aerial Tram

Description

Aerial trams and cable-operated funicular railways are a form of public transportation used to connect destinations that are separated by steep topography. They are an alternative to building out streets. Both aerial trams and railways are often associated with tourism, and most funiculars in the U.S and Europe are historic.

Design Considerations

The unique infrastructure and maintenance needs of these relatively rare forms of transportation can be expensive and require specialized experience. Both aerial trams and funiculars rely on cables for their operations that require regular maintenance and inspection.

Examples

Portland's Aerial Tram connects the South Waterfront to Marquam Hill. South Waterfront serves other forms of active transportation like buses, shuttles, a streetcar, a cycle track, dense bike parking, and a pedestrian bridge. Marquam Hill serves a residential neighborhood, natural trails, and major hospitals. The aerial tram travels 3,300 linear feet and rises 500 feet during the 4-minute ride.



Photo from Go By Tram.

Los Angeles' Angels Flight Railway travels between Hill Street (downtown) and Grand Avenue on Bunker Hill (fashionable residential district). It serves as an historic landmark for the city.



Photo from Wikipedia.

Sandia Tram in Albuquerque travels above the Cibola National Forest and takes passengers to an elevation of 10,378 feet.



Photo from NewMexico.org

Design guidance references

- [Go By Tram](#)
- [Angels Flight](#)
- [Los Angeles Conservancy](#)
- [Visit Albuquerque](#)

Relative cost

\$\$\$\$

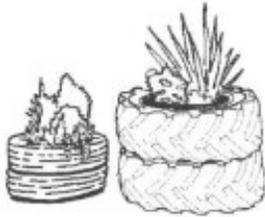


City of White Salmon

Temporary and Low-Cost Materials

Lower budget and temporary design materials⁵ allow safety improvements and street enhancements to be put in place quickly. They also have the advantage of allowing the city to easily make adjustments to the designs if needed. All materials placed in the roadway must be supplemented with reflective materials, either on the feature or via signs or posts.

TIRE PLANTERS



- Lowest cost option, can be donated
- For median islands: place 2-3 feet apart with a minimum of 6 feet for crosswalk and pedestrian access
- For curb extensions and plazas: place every 8 to 10 feet
- For mini roundabouts: use to demarcate perimeter, along with signs

CUSTOM WOOD PLANTERS



- Medium cost, approximately \$40 per planter
- For bikeways: place 8 to 20 feet apart to create buffer, 1.5 feet minimum installation width needed
- For median islands: place 2-3 feet apart with a minimum of 6 feet for crosswalk and pedestrian access
- For curb extensions: place every 6 to 8 feet
- For plazas: place every 8 to 10 feet
- For mini roundabouts: use to demarcate perimeter, along with signs

GALVANIZED STEEL PLANTERS

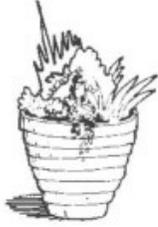


- High cost, approximately \$90 per 4 feet or \$150 per 6 feet
- For bikeways: place 8 to 20 feet apart to create buffer, 3 feet minimum installation width needed
- For curb extensions and plazas: place every 8 to 10 feet
- For plazas: place every 8 to 10 feet
- For mini roundabouts: use to demarcate perimeter, along with signs

⁵ https://issuu.com/streetplanscollaborative/docs/tu-guide_to_materials_and_design_v1



LARGE POLYMER PLANTERS



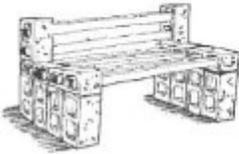
- Highest cost, approximately \$441 for 34 inches by 27 inches or \$785 for 42 inches by 33 inches
- For bikeways: place 8 to 20 feet apart to create buffer, 4 feet minimum installation width needed
- For curb extensions and plazas: place every 8 to 10 feet
- For plazas: place every 8 to 10 feet
- For mini roundabouts: use to demarcate perimeter, along with signs

MILK CRATES



- Lowest cost, \$4.75 for a square crate or \$8 for a rectangular crate
- Can be used like wooden planters for barriers
- Can be used as seats for curb extensions and plazas

BENCH - CINDER BLOCK + WOOD



- Medium cost, \$1.25 per block and \$5 to \$10 per board
- Can be used as bench seats for parklets and curb extensions
- Place blocks every 4 feet for stability

BENCH - HAY BALE



- Higher cost, \$10 to \$40 per bale
- Can be used as barriers for bikeways, pedestrian crossings, curb extensions, and plazas
- Can be used to define mini roundabouts
- Temporary, only lasts 1 to 3 days



STREET STANDARDS AND MUNICIPAL CODE RECOMMENDATIONS

To align with the TSP goals and community priorities identified throughout the engagement phases, Appendix D provides a list of street standards and municipal code recommendations. These recommendations are divided into two areas: transportation focused standards and land and housing focused standards. The review of the municipal code identifies revisions from the existing code to provide clarity and structure to uphold the TSP vision and goals.



People ride bicycles in White Salmon in spite of a lack of designated on-street bikeways.



6 IMPLEMENTATION AND NEXT STEPS

FUNDING

Funding to implement the projects and programs identified in this TSP can come from a wide range of sources. Some of the most applicable potential sources for White Salmon are described below.

Local Funding

Transportation Benefits District

Street improvements in White Salmon have historically been funded by property taxes. In 2023, White Salmon created a Transportation Benefit District (TBD). Funds are generated by a .1% sales tax and may be expanded to include a local car registration fee if approved in future City ordinance. Revenues may be used for transportation improvements identified in the Six-Year Transportation Improvement Program, Transportation System Plan, and Capital Improvement Plan. The TBD is initially expected to generate \$72,791 annually. These funds can be used as a local match for grant funding opportunities.

State Grants

Statewide Transportation improvement Program (STIP)

The STIP is a fiscally constrained, prioritized multimodal transportation program of state, local, tribal, and public transit projects. It includes highways, streets, roads, sidewalks, bike lanes, trails and safety projects funded with federal, state, tribal, and local resources. The STIP list consists of projects identified and developed through local, county, and regional transportation improvement programs and plans.

Projects identified as a priority in this plan should be added to the STIP, which can also be amended should the City solicit federal funding.



City Safety Program

The City Safety Program is funded through the federal Highway Safety Improvement Program, which allows states and local governments to target safety funds to their most critical safety needs. The development of a local road safety plan is a prerequisite for receiving City Safety Program funding.⁶ The City Safety Program provides funds for projects that reduce fatal and severe injury crashes on city or town streets and state highways using engineering improvements and targeted safety countermeasures that provide the highest safety impacts per dollar. The program includes two subprograms: Spot Location program for specific intersections, spots, or mid-block locations or corridors that address at least one fatal or severe injury crash within the past five years (TSP projects along SR 14 may be eligible based on the location of severe injury crashes – see Figure 11); and Systemic program for projects identified through a city's local road safety plan. \$26.8 million was awarded in the 2022 funding cycle.

Pedestrian & Bicycle Program and Safe Routes to School

The Pedestrian & Bicycle Program and Safe Routes to School Program are funded on a two-year cycle by the state legislature, and are administered by WSDOT. Projects on the bicycle network and school routes are good candidates for this program.

Pedestrian & Bicycle Program

The purpose of the Pedestrian and Bicycle Program is to eliminate fatal and serious injury traffic crashes involving people walking and bicycling, and build low-stress walking and bicycling networks. Improvements along streets with higher rates of collisions and projects along the bicycle and shared-use trail network could be candidates for this funding source.⁷

Safe Routes to School

The purpose of the WSDOT Safe Routes to School (SRTS) Program is to increase the number of students walking and bicycling to school safely. SRTS promotes and supports walking and bicycling to school through infrastructure improvements, enforcement, and safety programming and education.⁸ The City of White Salmon can partner with local schools to

⁶ WSDOT Local Road Safety Plan brochure. Available at <https://wsdot.wa.gov/sites/default/files/2021-10/LP-Local-Road-Safety-Plan.pdf>.

⁷ WSDOT Pedestrian & Bicycle Program. Available at <https://wsdot.wa.gov/business-wsdot/support-local-programs/funding-programs/pedestrian-bicycle-program>.

⁸ WSDOT Safe Routes to School Program. Available at <https://wsdot.wa.gov/business-wsdot/support-local-programs/funding-programs/safe-routes-school-program>.



apply for federal SRTS funds to improve streets within 2 miles of K-12 schools. White Salmon had previously received grant funding in this way for Hood Street improvements.

Program timeline & Funding

The Pedestrian & Bicycle and Safe Routes to School programs operate on a 2-year cycle, with the following general timeline:

- Even numbered years: Call for projects launches in January-February, with application deadlines in May-June.
- Odd-numbered years: The legislature sets the funding level in the spring, and WSDOT confirms project details and awards projects.

The most recent round of funding approved in 2023 included a total of \$103.9 million awarded to 38 SRTS projects and 28 Pedestrian & Bicycle Program projects. The next call for projects is expected in early 2024.

Washington Transportation Improvement Board (TIB)

The TIB is a State of Washington's program to invest in quality local transportation projects. The TIB distributes grant funding to cities and counties each year using revenue generated by the three-cent statewide gas tax. White Salmon has received TIB funding in the past for street reconstruction. White Salmon would apply under the Small City Programs, designed to serve cities and towns with populations less than 5,000 people.⁹ A local match is required, the percentage of which varies by the city assessed valuation; White Salmon's local match for TIB funding is 5%. The call for projects is typically issued each June, with applications due at the end of August and funding decisions announced in November-December. Funding for the 2023 Small City Program is anticipated at \$25 million for arterial streets, preservation, and maintenance, and \$5 million for active transportation.

Complete Streets Program

TIB's Complete Streets Award is a funding opportunity for local governments that have adopted a Complete Streets ordinance. White Salmon could become eligible for TIB Complete Streets Award funding if the City adopts a Complete Streets ordinance in the future. The next Complete Streets Award opportunity is anticipated in either 2023 or 2024.¹⁰

⁹ 2023 TIB Funding Workshop – Small City Programs booklet. Available at http://www.tib.wa.gov/tibinfo/publications/Training/2023/2023%20TIB%20Funding%20Workshop%20-%20SMALL%20CITY_print%20version.pdf.

¹⁰ Transportation Improvement Board – Other Funding Opportunities. Available at <http://www.tib.wa.gov/grants/grants.cfm>.



Federal Grants

Under the Department of Transportation, the federal government offers a number of funding programs that local jurisdictions (such as the City of White Salmon) can apply for. Many of the programs were created and/or funded by the 2021 Infrastructure Investment and Jobs Act (IIJA) or the 2022 Inflation Reduction Act (IRA). Other funding for TSP projects may be available through the United States Department of Agriculture.

Safe Streets and Roads for All (SS4A)

The IIJA established this discretionary program to fund initiatives that prevent roadway deaths and serious injuries. SS4A Planning Grants to complete Action Plans are available at the City, County, regional and State level, and are a prerequisite for implementation grants. Work conducted in this TSP can be augmented to complete an Action Plan.

Carbon Reduction Program (CRP)

The IIJA in 2021 also established the CRP, which provides funding for projects that are designed to reduce transportation emissions, specifically carbon dioxide emissions. This grant is administered through the Federal Highway Trust Fund, passed through to Southwest RTC MPO via WSDOT. White Salmon can apply for funds through Southwest RTC, to implement projects such as:

- Deploying energy-efficient traffic control devices and street lighting
- Implementing vehicle electrification technology
- Planning and implementing transportation alternative initiatives and projects such as micromobility and bicycling infrastructure
- Certain public transportation projects such as transit corridors and bus lanes

Recreational Trails Program (RTP) and Land and Water Conservation Fund

These programs, also funded by the IIJA, provide grants that can be used for recreational trail planning, acquisition, and construction. The former can also be used to maintain and restore existing trails, and for programming.

Surface Transportation Block Grant (STBG)

The STBG is a flexible funding source administered by the Federal Highway Administration (FHWA) for states and localities to address local transportation needs. Klickitat County



currently receives STBG funds that are disbursed to local cities including White Salmon. While there is no application available as the County is the receiver of funds, coordination will be important to make sure Klickitat County is aware of efforts to implement TSP projects.

STBG – Transportation Alternatives

The Transportation Alternatives grant is a legislative set-aside under the wider STBG grant funding, specifically for smaller scale projects such as pedestrian and bicycle facilities, recreational trails, and Safe Routes to School (SRTS). Transportation Alternatives grants are disbursed through and managed by the regional MPO, Southwest RTC.

Based on current figures, the 2023-2024 Rural sub-allocation is \$145,000, although there is an additional \$480,000 in “flexible” allocation that could be used for urban or rural projects. It may be more challenging to compete for these flexible funds with larger metropolitan areas such as neighboring Clark County, which is also within the MPO.

Federal Lands Access Program (FLAP)

FLAP funds can be used by entities that own or have responsibility for a public highway, road, bridge, trail, or transit system and are located on, are adjacent to, or provide access to Federal lands (such as the Columbia River Gorge National Scenic Area, White Salmon National Wild and Scenic River, and Gifford Pinchot National Forest). Funds are administered by the state. The most recent round of funding approved in December 2020 included a project near White Salmon, the Dog Mountain Trailhead Safety Mitigation/Relocation.

Active Transportation Infrastructure Investment Program (ATIIP)

The Fiscal Year 2023 Omnibus Appropriations Bill, passed in December 2022, includes \$45 million to kick-start the ATIIP. The program will establish competitive grants that invest in projects that connect active transportation networks and spines. The US Department of Transportation has not yet released details on the application requirements or timeline.

USDA Forest Service Urban & Community Forestry (UCF) Program

The UCF Program, funded through the IRA, provides monetary support to communities who are affected by low urban tree canopy and climate change impacts. This funding improves communities’ resilience and expands access to environmentally focused careers to directly improve economic, social, and environmental challenges. Many projects identified in this TSP could include the addition of green infrastructure and street trees, which may qualify for UCF



grant funding. The Inflation Reduction Act will award up to 1.5 billion dollars to eligible applicants to diversify and restore access to nature through multiyear programmatic efforts. The first Public Notice of Funding Opportunity (NOFO) closed in June 2023, but the funding will be available through 2031, depending on the amount awarded to the first NOFO applicant and administrative and legislative matters.¹¹ However, White Salmon is not considered a disadvantaged community and would need to provide a full match to increase the chances of eligibility. Other federal funds would not match but volunteers, city staff time, and state resources could maximize the City's eligibility for UCF funding if the proposed project directly invested and benefitted the community.

PARTNERSHIPS

To implement the wide array of projects and programs, the City of White Salmon should partner with a range of stakeholders and organizations to coordinate efforts and identify opportunities for mutual benefit. Examples include:

- Partnerships with **state agencies** to develop grant applications
- Partnerships **with transit agencies** to expand service and improve and/or relocate stops, in coordination with streetscape and amenity improvements on sidewalks
- Partnerships **with developers** to give them incentives to go above and beyond transportation improvement requirements
- Partnerships **with neighboring jurisdictions** such as WSDOT, Klickitat County, and Bingen to complete critical connections,
- Partnerships **with schools** to understand and support students travel needs and develop SRTS plans and grant applications

As previously described, White Salmon is part of a wider Columbia River Gorge regional economy. Partnership with the city of Hood River, Oregon and other cities along the gorge can further develop and manage inter-city mobility, as tourism demand continues to grow.

CONCLUSION

The White Salmon community confirmed, through their participation in this plan, that the way forward to a human-scaled transportation system is to make decisions and funding investments that build and maintain a network of sidewalks, crossings, and bikeways that connect to schools, parks, and other destinations. The near-term and longer looking

¹¹ USDA Forest Service Urban & Community Forestry Inflation Reduction Act Notice of Funding Opportunity (NOFO). Available at <https://iraucfgrants.urbanandcommunityforests.org/>.



commitments that will make White Salmon a fabulous place to walk and bicycle are summarized below.

Near-Term Actions (Next 1-5 Years)

- Amend STIP to include high priority projects.
- Develop Wayfinding program and transit service coordination.
- Develop planning and design concepts for the High-Priority Near-Term priority projects (Figure 20).
- Consider staffing needs to support transportation project, program, and policy implementation , including creating a new transportation planner position.
- Develop grant applications and apply for funding.
- Consider developing and adopting a Complete Streets ordinance to enable White Salmon to compete for Complete Streets grant funding.
- Continue to update STIP as projects are built, adding projects from the Medium-Term list.

Medium/Long-Term Actions (5-20 Years)

- Continue to update Medium-Term project list as projects are built.
- Look for opportunities to install projects at the same time as planned maintenance projects and as an element of new developments.
- Update Medium-Term project list with high-scoring projects in the Long-Term list (those not recommended during TSP time frame).

Develop other program and policies described above, perhaps starting with the curb ramps program, small mobility policies, and parking reforms.



APPENDICES

A - Public Engagement Summary

B – Prioritization Framework

C – Full Prioritized Project List and Map

D - Street Standards and Municipal Code Recommendations