




JUNE 2023

ROSEBURG BIKE ROUTES PLAN

VOLUME 2: APPENDICES

APPENDICES

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Appendices of the Roseburg Bike Routes Plan (Volume 2) include background memos and technical data that were the basis for Volume 1. These appendices include some information and details that are supplemental to what is in Volume 1. The contents of the appendices represent an iterative process in the development of the Plan. Refinements to various Plan elements occurred throughout the process as new information was obtained.

In all cases, the contents of Volume 1 supersede those in Volume 2: Appendices.

Appendix A

Memo 1 – Existing and Future System Conditions

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700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	November 5, 2021
TO:	John Lazur, City of Roseburg John McDonald, ODOT Region 3 Tom Guevara, ODOT Region 3
FROM:	Jason Nolin, Natalie Chavez, Ryan Farncomb (Parametrix)
SUBJECT:	Memo #1: Existing and Future System Conditions
CC:	
PROJECT NAME:	Roseburg Bike Routes Plan

Contents

MEMO #1: EXISTING AND FUTURE SYSTEM CONDITIONS

This memo documents existing and future conditions relevant to the City of Roseburg's Bike Routes Plan (the Plan). This includes the existing bicycle system, the existing transit system, planned bicycle facilities and other transportation improvements, land use, and population demographics. The information in this memo relies on readily available data sources, including GIS data provided by the City and ODOT and analysis from the 2020 Roseburg Transportation System Plan (TSP).

The Plan is building from work done for the 2020 TSP, which identified gaps in the bicycle network and included policies to improve bicycle facilities and circulation. The City of Roseburg Bike Route Plan will refine the designated bicycle route system, paying attention to include improvements that make biking comfortable for people of all ages and abilities. The Plan will also provide a plan for implementation, and will look for improvements that can be implemented quickly and easily. The Plan will establish and map designated bike routes throughout Roseburg, and use wayfinding techniques like route signage and thermoplastic striping to make the routes easy to identify and follow. The Plan intends to provide a complete bicycle system by creating a better connected, safer, and more inviting bicycle network.

This project is partially funded by a grant from the Transportation and Growth Management ("TGM") Program, a joint program of the Oregon Department of Transportation and Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Fixing America's Surface Transportation Act ("FAST Act), Federal Transit Administration, and the State of Oregon funds.

The Study Area is the City of Roseburg city limits and urban growth boundary. Roseburg is the social, commercial, and economic hub of central Douglas County. Many people who live in nearby communities work in or visit the City. The plan will also consider intercity connections and rural bicycle routes that extend beyond the Study Area to accommodate residents of the broader region.

The majority of the spatial data referenced in this memo is included in the interactive Memo #1 Companion Map. The Companion Map is an electronic map that allows for in-depth exploration of existing conditions. The Companion Map is available at:

https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=b512b24d3c914ec4b4e92c0c1194d863

EXISTING CONDITIONS

Roseburg's existing bicycle system is centered on a strong foundation of multi-use paths. Comfortable and convenient routes travel through Stewart Park, River Front Park, and along the South Umpqua River. Beyond multi-use paths, bike facilities are primarily bike lanes on busy collectors and arterials. Physical barriers such as Interstate 5 (I-5), the South Umpqua River, and hilly terrain create challenges for establishing a connected and comfortable system.

Roseburg's bicycle system was documented in the recently completed TSP. This section is based on the findings from the TSP, input from the City and ODOT, updated American Community Survey data, and observations from a September 15, 2021 city tour.

Existing Bicycle Network

The existing bicycle network is shown in both Figure 1 and the Companion Map. The maps categorize facilities in three classes:

- Class 1: separated trail, which includes multi-use paths.
- Class 2: road-adjacent physically separated bikeway, which includes the protected shared sidewalk on the Oak Avenue bridge. There are few of these.
- Class 3: shared roadway designated for bikes with striping/signing, which includes roads with bike lanes. This is the most common class of bike facility.

Roseburg has several multi-use paths. The Stewart Park Loop wraps the perimeter of Stewart Park at the center of Roseburg, which forms a "hub" of the bike network. The trail is 2.6 miles long and connects with other trails along the way. The Fir Grove Route intersects with the Stewart Park Route at Stewart Park Drive, crosses the South Umpqua River, then travels past Fir Grove Fields to West Harvard Avenue. The I-5 Route intersects with Stewart Park Loop at the southeast corner of Stewart Park, then follows I-5 south to West Harvard Avenue. The Deer Creek Route also intersects with the Stewart Park Loop at the southeast corner of Stewart Park, then follows the South Umpqua River east and south to Southeast Douglas Avenue. The Charles Gardiner Path follows Newton Creek from Northwest Edenbower Boulevard to Renann Street. It does not intersect with the Stewart Park Loop.

Class 3 bicycle facilities in Roseburg share the road with motor vehicles. These routes are typically striped bike lanes on collector or arterial streets. These are important for the bike network because they provide access to businesses and services on these streets and, in many locations, the routes are the only practical connection on the transportation system. Existing bike routes signs exist on streets, however their placement is inconsistent. Not all bike routes have signs, and signs do not always indicate the presence of a bike facility (Photograph 1).

Although bicycle lanes and multi-use paths exist throughout Roseburg, the existing bicycle network has gaps. Some of these gaps are documented in the maps as "not marked, commonly used streets." Harvard Avenue, for example, is the only continuous east/west connection in the southwest corner of the city, yet it lacks a dedicated facility for biking and has high volumes of fast-moving traffic. People will sometimes bike in the sidewalk in places like this because it feels safer than the roadway, which may pose safety concerns for pedestrians using the sidewalk., which may pose safety concerns for pedestrians The lack of connectivity discourages those who may be interested in biking from doing so because there are places where they would be forced to share the road with motor vehicles. It can be uncomfortable to ride alongside traffic on the arterial roadway system, and the bicycle network is not set up to serve users of all abilities.

Photograph 1. Bike Route Sign on Garden Valley Boulevard

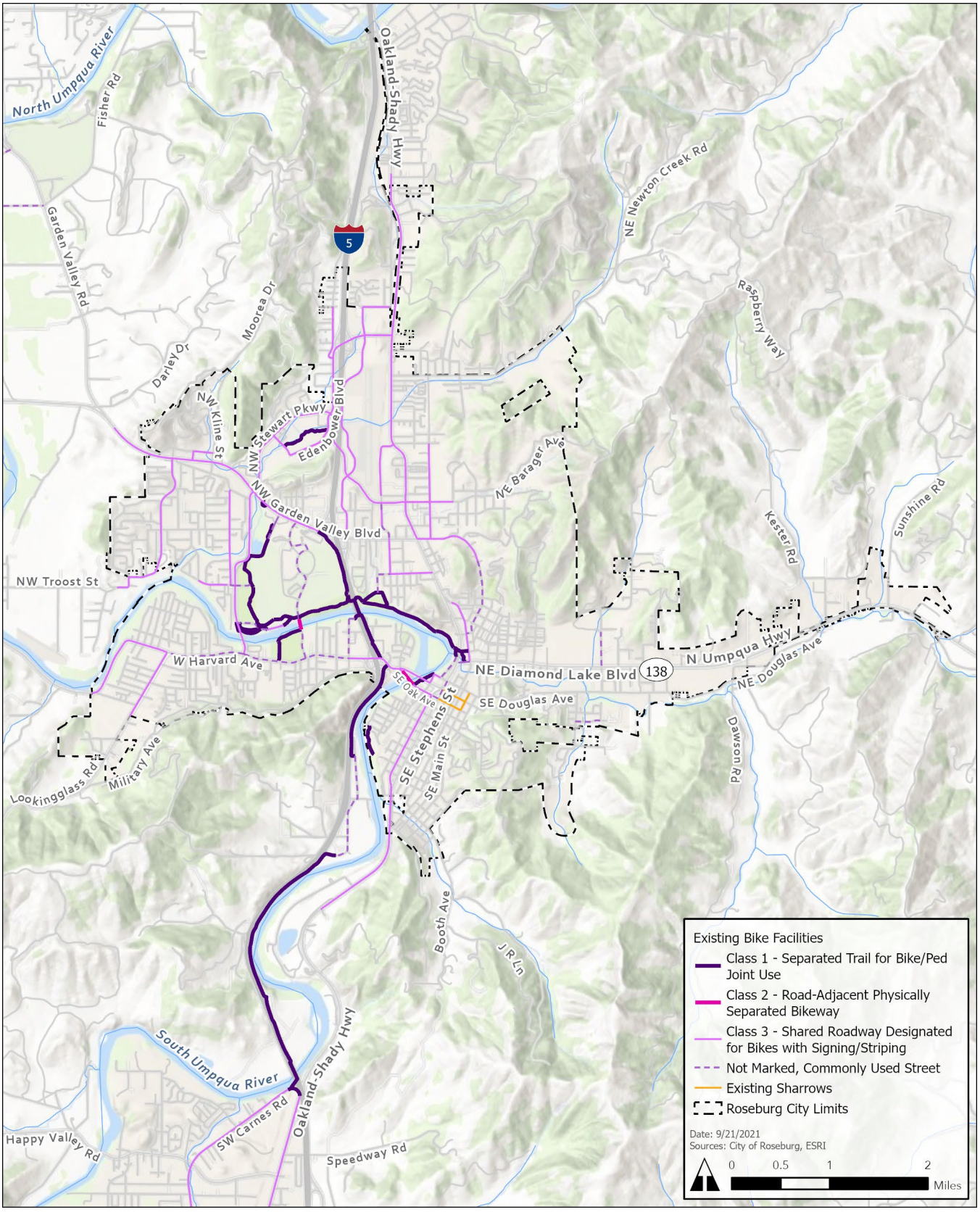


Figure 1. Existing Bike Routes in Roseburg

Bicycle Level of Traffic Stress

A Bicycle Level of Traffic Stress (LTS) assessment aids in identifying locations where the street system is the most and least stressful for cyclists. The bicycle operations within the study area were analyzed using ODOT's methodology for Bicycle LTS for roadway segments. Bicycle LTS measures the effect of traffic-based stress by quantifying the perceived comfort levels experienced when biking on a given facility. Some characteristics used to determine LTS are presence of a bicycle lane, width of facilities, posted speed, adjacent parking facilities, and land use (rural or urban). Roseburg's network is considered primarily urban. However, where roadway speeds exceed 40 miles per hour (mph) and curb or sidewalk is not present, the rural standard was applied.

Bicycle LTS can be classified as Level 1, 2, 3, or 4, where Level 1 is low stress and Level 4 is high stress (Figure 2).

Bicycle LTS is a useful tool for understanding gaps in the cycling network, particularly for more vulnerable users. However, it does not capture every aspect of the cycling experience on a given roadway and other factors – including stakeholder and public input, collision history, and steepness of the roadway – must be considered to develop a full picture of cycling system needs

Figure 2. Bicycle Level of Traffic Stress (2020 TSP)

Bicycle LTS for Roseburg was assessed for the TSP and is shown in Figure 3 and the Companion Map. Along Roseburg's most heavily trafficked roadways, people biking must share the road or bike next to fast-moving vehicles. Though the downtown street network has relatively low speed limits, people may have to dodge car doors or vehicles with hindered sight distance. Roadways measured at LTS 3 and LTS 4 had these levels as a result of a lack of facilities/lack of buffers and high vehicular speeds. The segments that are classified as LTS 1 have either separated bicycle facilities or low traffic speeds on low-volume roadways. It should be noted that steep roadways such as SE Lane Avenue are considered to operate at LTS 1, but they are likely to provide an uncomfortable experience for biking. Bike routes on hills can be challenging to use, especially for people with limited physical strength, such as children and older adults.

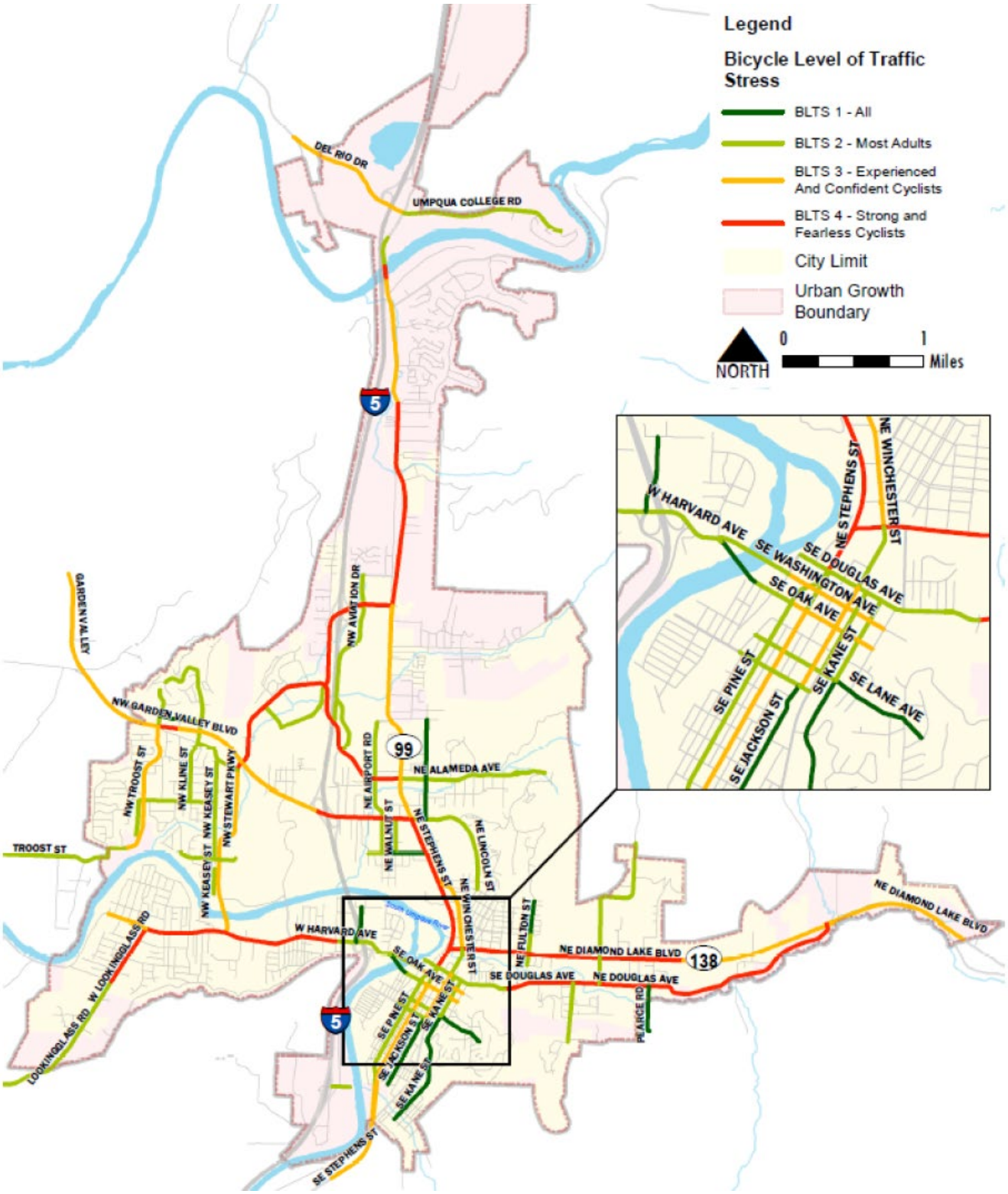


Figure 3. BLTS of Bicycle Routes (2020 TSP)

Existing Transit System

The transit system can complement the bicycle system by providing an option for traveling longer distances or to travel through less comfortable areas. People who live in Sutherlin, for example, could bike to the Umpqua Public Transportation District (UPTD) Blueline, ride the bus along the I-5/OR 99 corridor to Roseburg, then bike to their final destination in the city. This multimodal approach expands the potential service area of transit and allows people to go further than biking alone. The City of Roseburg's Bike Routes Plan will consider access to transit for people biking and strategies for transit that make biking more attractive.

Transit service in Roseburg is provided by UPTD. Six fixed route bus lines serve Roseburg as shown in the Fixed Transit Routes layer in the Companion Map. Service for most routes is limited to weekdays, though the Redline and Greenline also operate on Saturdays. Paratransit is available within 3/4 of a mile of a fixed route during fixed route service hours.

The 2020 TSP identified existing transit system needs. For example, transit routes are limited and fixed, and transit services are low frequency and have limited reliability. Limited route choices mean that many potential transit users have to use another form of transportation to start and end their trips. Improved bicycle routes are an opportunity to better connect people with transit routes. All UPTD buses are equipped with bike racks that can carry two to three standard-sized bikes.

Attractors and Generators

A primary focus of the Roseburg Bike Routes Plan is to create a safe, comfortable, and connected network of bike routes for people to get to destinations and back home again. The Plan intends to improve mobility and independence for all users, with an emphasis on young people and families, and so will pay special attention to destinations important to children: schools, parks, commercial areas, and neighborhoods. The intention of emphasizing young people's safety is to create a more equitable bicycle system. Ideally, this plan would implement facilities that rate BLTS 1 throughout Roseburg so that the complete bicycle network would be suitable for children. However, facilities that rate BLTS 1 are expensive to implement. Therefore, this plan will focus on specific travel destinations that attract youth and families.

Key Destinations

The following list highlights some of the key destinations in Roseburg. This list focuses on destinations likely to be important for children, families, and other potentially vulnerable residents. It is not exhaustive. To see key destinations mapped, turn on the "Points of Interest" layer in the Companion Map.

Education
Eastwood Elementary
Fir Grove Elementary
Fullerton Elementary
Green Elementary
Hucrest Elementary
Melrose Elementary
Sunnyslope Elementary
Winchester Elementary
Fremont Middle School
Joseph Lane Middle School
Roseburg High School
Phoenix Charter School
Umpqua Community College
Roseburg Public Library

Arts
Umpqua Valley Arts Center

Parks
Fir Grove Park
Gaddis Park
Micelli Park
Riverfront Park
Riverside Park
Sunshine Park
Stewart Park
Templin Beach Park
Douglas County Fairgrounds

Government
City Hall
Douglas County Courthouse
State Department of Human Services
Bureau of Land Management Office
U.S. Forest Service Office

Commercial
Downtown Roseburg
Garden Valley Shopping Center
Roseburg Valley Mall

Social Services
United Community Action Network (UCAN)
YMCA

Health
Mercy Medical Center
VA Medical Center

Residential Areas

Residential areas are distributed throughout Roseburg, as seen in the Zoning layer of the Companion Map. Beyond the commercial parcels along arterials, much of the City is zoned for residential use. Winchester, north of the city limits but within the urban growth boundary, is also mostly residential. Future residential development is anticipated in a few areas of the City, including the area east of the airport and along Lookingglass Road, in the southwest corner of Roseburg. The Diamond Lake Urban Renewal Plan plans for mixed use growth along Diamond Lake Boulevard.

FUTURE CONDITIONS

The Roseburg Bike Routes Plan will build on the 2020 TSP and other plans that have already been developed and will coordinate with other projects in progress. The TSP includes many projects that will directly or indirectly improve biking in Roseburg, including projects originally identified in the Diamond Lake Urban Renewal Plan. The City's Capital Improvement Plan and Pavement Maintenance Plan list projects that are planned to be implemented in the next five years.

Transportation System Plan Projects

Projects identified in the Roseburg TSP aim to address identified deficiencies and gaps in connectivity, amenities, safety, and operations. Many of these projects directly improve the bicycle network or include opportunities to improve bicycle facilities within the project scope.

The TSP includes projects identified in the 2018 Diamond Lake Urban Renewal Plan (DLURP). The DLURP establishes an urban renewal area along the OR 138 (Diamond Lake Boulevard) corridor from Stephens Street to the eastern city limits. The DLURP includes transportation and other infrastructure and aesthetic improvements. Some projects identified in the DLURP overlap with the needs identified in the TSP and are incorporated in the TSP's project lists. Projects from the DLURP have an ID that begins with "UR".

Source: City of Roseburg

Figure 4. Diamond Lake Urban Renewal Area

Based on priority and the availability of funding, TSP recommended projects are organized into two tiers.

- Tier 1 includes financially constrained projects that could be implemented with funding anticipated through the TSP horizon year, 2040.
- Tier 2 includes needed projects that lack funding. Tier 2 projects are highly supported and the City is encouraged to pursue implementing them as funds become available, however the likelihood of their implementation is uncertain.

Tier 1 TSP projects that relate to bicycle facilities are listed in Table 1. Bold text highlights relationship to Bike Routes Plan.

Table 1. Tier 1: Financially Constrained Project List

TSP ID	Name	Location	Type	Description
BP1	Citywide Bicycle Wayfinding	Citywide	Wayfinding	Design and implement a **wayfinding project** to enable visitors to identify their location and destinations in and around the Heart of Roseburg.
BP2a	Douglas Ave Bike Facilities and Sidewalks	Douglas Ave: Fowler St to east city limit	Multimodal	Add sidewalk on both sides from Deer Creek to city limits and **bike facilities from Fowler Street to city limits**. Given the slopes found along Douglas Avenue, a mix of bike facility types may be most appropriate.
BP11	Main Street Sidewalks and Bike Facility	Main St: Rice Ave to Marsters Ave	Multimodal	Sidewalk on the east side of Main Street from Rice Avenue to Marsters Avenue, and on the west side from Hamilton Street to Marsters Avenue as well as **sharrows along Main Street from Douglas Avenue to Lane Street**.
BP20b	Diamond Lake Blvd Sidewalks, power poles, easements	Diamond Lake Blvd	Multimodal	This concept proposes local participation in the redevelopment of **Diamond Lake Blvd multimodal improvements**.
BP21e	Fir Grove Park Multi-Use Path	Fir Grove Park to Stewart Pkwy, along south bank of the South Umpqua River	Multi-use Path	**Multi-use path** connection paralleling the river between Fir Grove Park and Stewart Parkway.
BP24	OR 138E Design Concept Plan	Diamond Lake Blvd: Stephens St to Eastern UGB	Multimodal	ODOT will be preparing a refinement plan of Diamond Lake Blvd that considers the corridor, connecting and parallel roadways. The plan will revisit related projects from the DLURP and this TSP to refine the concepts and enhance **multimodal access and crossings** of the corridor.
R16e	Commercial Ave Extension (Phase 1)	Commercial Ave: Fulton St to Rifle Range St	Multimodal, Roadway	Extend Commercial Avenue between Fulton Street and Rifle Range Street. **[This would make a more comfortable alternative route parallel to Diamond Lake Blvd]**

TSP ID	Name	Location	Type	Description
R17	Stewart Pkwy -Harvey South Design	Stewart Pkwy: Harvey Ave to Harvard Ave	Multimodal, Roadway	This project would design the final phase of the Stewart Parkway Improvements (**multimodal facilities** and new structure).
CIP3	Valley View Dr Improvements	Valley View Dr	Multimodal, Roadway	This project would improve Valley View Drive between Keasey St and Kline St. **[This would make a improve an alternative route parallel to Garden Valley Blvd]**
UR1	Rifle Range St North of Diamond Lake Blvd	Rifle Range St: Diamond Lake Blvd to city limits	Multimodal, Roadway	Provide full street/**multimodal improvements** to Rifle Range Street from Diamond Lake Boulevard to the city limits. Project funding is not secured, despite its inclusion in the TSP Tier 1 category. Implementation feasibility requires further assessment.
UR2	DLURP Pathway improvements	Diamond Lake Urban Renewal Area	Multi-use Path	Local participation in **pathway improvement** in the urban renewal.

Source: Roseburg TSP Table 16

Tier 2 TSP projects that relate to bicycle facilities are listed in Table 2. Bold text highlights relationship to Bike Routes Plan.

Table 2. Tier 2: Needed but Unfunded Projects

TSP ID	Name	Location	Type	Description
BP4	Stephens Street Bike Facility (Alternate Route)	Stephens St: Garden Valley Blvd to Diamond Lake Blvd	Bicycle	Provide **bicycle facilities on local system as alternate route to Stephens St**.
BP6	South Umpqua River Sharrow Connections through Downtown	Local roads downtown	Sharrow	**Sharrows** would continue south from the north end of Flint Street, where the existing multi-use path terminates, and extend to Micelli Park via Flint Street, Mosher Avenue, and Fullerton Street.
BP7	South Umpqua River Multi-Use Path and Portland Avenue River Crossing	Bridge: Portland Ave to Micelli Park	Multimodal	This concept would build a **new multi-use path river crossing** at Portland Avenue and a new multi-use path connection from this bridge to the new bike facilities in Micelli Park.
BP8*	Fulton Street Sidewalks and Bike Facility	Fulton St: Diamond Lake Blvd to north end of public street	Multimodal	**Upgrade the street to minor collector standards with bike/ped facilities**.

TSP ID	Name	Location	Type	Description
BP12	Mosher Avenue Bike Facility and Railroad Crossing Improvements	Mosher Ave: Main St to S. Umpqua River	Sharrows	**Sharrows on Mosher Avenue**, improved pedestrian facilities at the railroad crossing. Signage would be added to provide guidance to bicyclists and motorists to share the road. Expected implementation in spring/summer 2022.
B13	Burke Street/Roberts Avenue Sharrows	Burke St and Roberts Ave	Sharrows	**Sharrows on Burke Street and Roberts Avenue**. Enhanced wayfinding signage may be necessary to direct travelers to the existing crossings of Pine Street and Stephens Street.
B14	Jackson Street Bike Facility	Jackson St: Diamond Lake Blvd to Douglas Ave; Jackson St: Douglas Ave to Mosher Ave	Sharrows	**Sharrows along Jackson Street** from Diamond Lake Boulevard to Douglas Avenue as well as along the one-way portion of Jackson Street from Douglas Avenue to Mosher Avenue.
BP16a	Duck Pond Trail Wayfinding and Connections on Existing Infrastructure	Duck Pond Street	Multi-use Path	The path on the west side of the parking would be formalized with signage to **establish the area as a multi-use path**. The remaining connection to Garden Valley Boulevard would be a continuation of the multi-use path on the west side of Duck Pond Street.
BP16b	Gaddis Park Trail Wayfinding and Connections on Existing Infrastructure	Gaddis Park	Multi-use Path	**Sharrows connection along Chestnut Avenue and Highland Street** to fill in gap between existing facilities on Cedar Street (north of Chestnut Avenue) and on Chestnut Avenue (east of Cedar Street) and the trails in Gaddis Park.
BP16c	Pine Street Trail Wayfinding and Connections on Existing Infrastructure	Pine Street	Multi-use Path	**Links the trail through Deer Creek Park along Pine Street, Douglas Avenue, and Spruce Street to the existing one-way bike lane along Stephens Street**. The multi-use path would continue on the north side of Pine Street, and then a bike lane along Douglas Avenue to connect to the existing multi-use path along the South Umpqua River.
BP18	Calkins Avenue Sharrows	Calkins Ave: Grove Ln to Keasey St	Sharrows	**Sharrows on Calkins Avenue** between Grove Lane and Keasey Street with wayfinding to nearby trail system.
BP19	Garden Valley Boulevard Midblock Crossing	Garden Valley Blvd at Fairmount Ave/Highland St	Midblock Crossing	**Midblock HAWK crossing near Garden Valley Boulevard at Fairmount Avenue/Highland Stree**t, providing an interconnect with the I-5 Exit 125 ramp signal. **Widen the sidewalks on Garden Valley to more comfortably accommodate cyclists** and **install sharrows on Fairmount Avenue and Highland Street** to formalize a bicycle route.

TSP ID	Name	Location	Type	Description
BP20a	Garden Valley Boulevard Arterial Upgrade Blvd	Garden Valley Blvd Diamond Lake	Corridor	This concept proposes more detailed study of opportunities to improve traffic flow and provide **multimodal accommodations** and new pedestrian crossings.
BP20c	Harvard Avenue Arterial Upgrade	Harvard Avenue	Corridor	This concept proposes more detailed study of opportunities to improve traffic flow and provide **multimodal accommodations** and new pedestrian crossings.
BP21a	Newton Creek New Multi-use Paths	YMCA (Harvey) to Hucrest Elementary, via Newton Creek	Multi-use Path	**Multi-use path** paralleling Newtown Creek between Jefferson Street and Keasey Street.
BP21b	Charles Gardiner Park New Multi-Use Paths	Charles Gardiner Park Connection to Stewart Pkwy and Garden Valley Blvd	Multi-use Path	**Extend the existing multi-use path** that parallels Newton Creek through Charles Gardiner Park. This option would extend this path west of Renann Street, paralleling Newton Creek to the Stewart Parkway access to the Walmart Supercenter.
BP21c	Vine St to Newton Creek New Multi-Use Paths	North end of Vine St to Newton Creek Rd	Multi-use Path	**New multi-use path** between the north end of Vine Street and Newton Creek Road.
BP21d	I-5 Frontage New Multi-use Paths	North-south through City along I-5 frontage on west side and continuing to UCC	Multi-use Path	**New multi-use path connections**: roughly parallel I-5 and Stephens Street and provide connections to existing facilities in the existing bike network where possible, including the existing path paralleling I-5 between Garden Valley Boulevard and the river. Create path from Club Ave (Winchester) to Page Rd via utility ROW to connect to UCC.
BP21e	Fir Grove Park to Stewart Pkwy New Multi-Use Paths	Fir Grove Park to Stewart Pkwy, along south bank of the South Umpqua River	Multi-use Path	**Multi-use path connection** paralleling the river between Fir Grove Park and Stewart Parkway.
BP22	New Bike Connection – Duck Pond Street to I-5 Multi-use Path	Duck Pond Street to I-5 Multi-use Path (GVB or VA options)	Bicycle	This concept would provide **a separated bike facility**, such as a multi-use path or two-way cycle track, to connect the existing multi-use path facilities found along Duck Pond Street and I-5. Option A: Within GVB right of way (cycle track or multi use path) Option B: Through VA campus
UR4	Patterson Street	Patterson St	Urban Renewal	Provide **multimodal improvements** that will provide an enhanced travel connection between Diamond Lake Boulevard and Douglas Avenue

TSP ID	Name	Location	Type	Description
UR6	Multi-Use Path north of and parallel to Douglas	Diamond Lake Urban Renewal Area	Urban Renewal	**Multi-use path** north of and parallel to Douglas
UR7	Fulton to Rocky Participation	Fulton St to Rocky Dr	Urban Renewal	To participate in widening and **multimodal improvements** to connect Rocky Drive and Fulton Street in conjunction with developers/property owners.

Source: Roseburg TSP Table 18

Diamond Lake Corridor Plan

A separate planning effort for the Diamond Lake Corridor, which follows OR 138 (Diamond Lake Boulevard), is currently getting started. OR 138 is the main east-west route through much of Roseburg, connecting local and regional traffic to destinations in the city and points east. The plan will consider how OR 138, and other routes in the corridor, can be improved to accommodate multimodal travel and support the development planned through the Urban Renewal Plan.

Sign Design for Multi-Use Paths

The City recently developed a standardized set of signs and wayfinding for the multi-use path system. This includes designs for directional signs, mile markers, and informational kiosks with maps (Figure 5). These signs will be implemented as path improvements are made and will eventually bring a consistent aesthetic and easy-to-understand wayfinding to the network of paths.

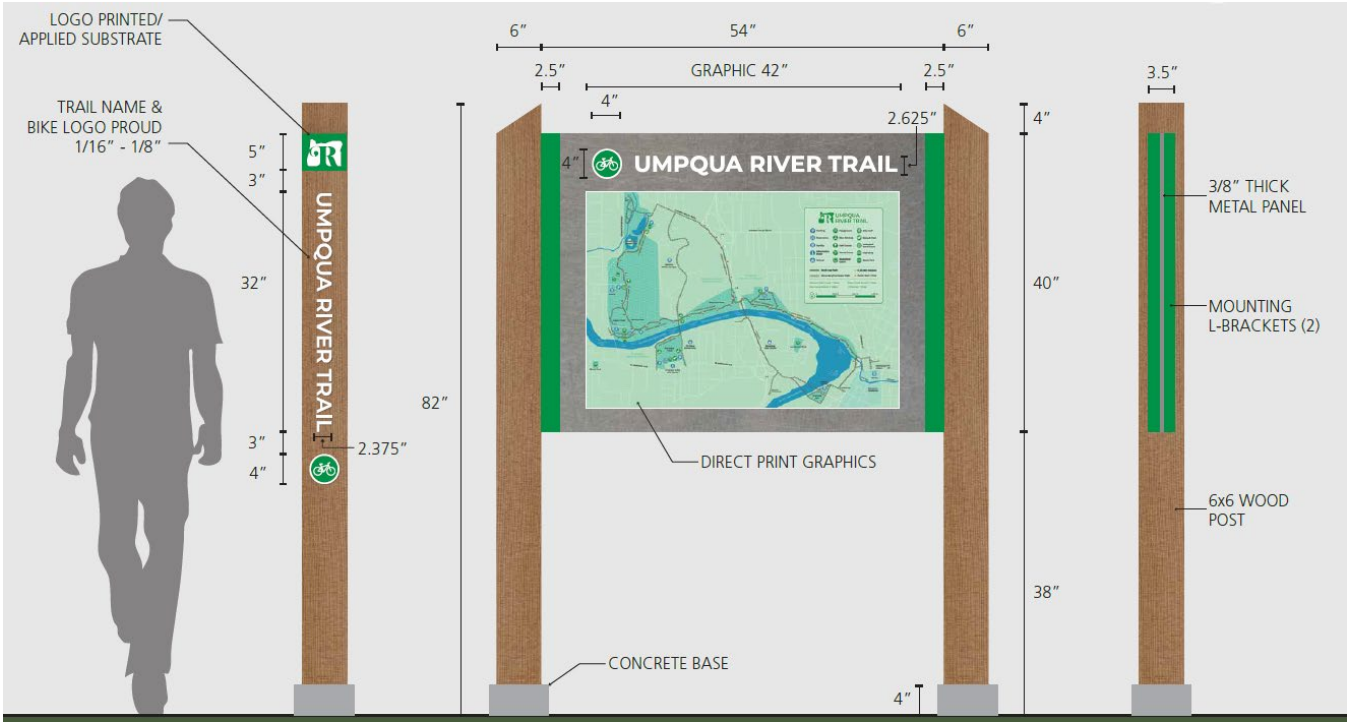


Figure 5. Design for Information Kiosk on Multi-Use Trail

Planned Capital Improvement Projects

Roseburg's 2021-2025 Capital Improvement Plan (CIP) is a five-year plan for implementing facility and infrastructure improvements. It lists improvements to the street system, bike network, water system, and storm drainage, among others. Here are highlights from the CIP relevant to the Roseburg Bike Routes Plan.

Deer Creek Trail Renovation

Renovation of the Deer Creek Trail between Gaddis Park and Deer Creek is scheduled for fiscal year 2021-2022 with a budget of $150,000.

Sunshine Park Trail System Construction

The City of Roseburg is applying for grants to construct a recreational trail system in Sunshine Park. It is estimated to be $250,000 and begin in 2023.

Multi-Use Path Upgrades

The CIP plans for $300,000 in multi-use path upgrades beginning in 2024. These require grant funding.

ADA Upgrades

The CIP plans for continuous investment in ADA accessibility at $200,000 or more per year. These are typically sidewalk improvements, but could also include improvements for biking on shared facilities.

Sidewalk Construction and Reconstruction

The CIP plans for continuous investment in sidewalks construction and reconstruction at $50,000 per year. These could also include improvements for biking on shared facilities.

Douglas Avenue Improvements

The CIP plans for investing over $2 million in Douglas Avenue, including construction of the Douglas Avenue bridge, beginning in 2023. Douglas Avenue is an important parallel facility to Diamond Lake Boulevard and offers an opportunity for a comfortable and safe alternative bike route.

Water Main Replacements

Replacing water mains sometimes requires digging the street and repaving, however these projects more often require only a 3 to 4 foot wide trench patch that does not need repaving or restriping. It is still worth considering water main replacement projects because they have an opportunity to improve the bike facilities when they do include restriping.

The CIP plans to replace these mains over the next five years and only the Douglas Avenue project is expected to include repaving:

- Vine Street, 2021-2022
- Washington Bore Crossing, 2021-2022 (no impacts to pavement expected)
- Diamond Lake 18", 2022-2023 (no impacts to pavement expected)
- Douglas Avenue, 2023-2025 (part of the Doulas Avenue road reconstruction)
- NE Jackson and NE Commercial, 2023-2024

- Main Street, Douglas to Lane, 2024-2025
- Military Avenue, 2025-2026 (minimal pavement impacts expected)
- Portland Avenue Bore Crossing, 2025-2026 (no impacts to pavement expected)

Storm Drainage Projects

Storm drainage projects sometimes require digging the street and repaving. This can create an opportunity to restripe with improved bike facilities. The CIP plans drainage projects in these areas over the next five years:

- Ballf Area: Harvard Avenue from Ballf Street to Umpqua Street, 2022-2024 (in the turn lane on Harvard Avenue)
- Broccoli Street, 2021-2022 (no pavement impacts expected)
- Harvard Avenue, 2021-2022 (Kenwood Street to Pilger Street)
- Troost Street from north of Calkins Avenue to Witherspoon, 2023-2025 (likely in the northbound bike lane and parking lane)
- Diamond Lake Avenue, Freemont Avenue, and Fulton Street, 2024-2025

Pavement Maintenance Plan

The City of Roseburg has developed a five-year plan for maintaining pavement on City roads . Repaving projects (overlay, grind and inlay, or slurry seal) require restriping, which creates opportunities to improve the bike facilities with new striping and minimal additional resources. Streets with planned repaving projects that overlap with identified bike routes in the plan should be coordinated to include bike improvements before they are repaved.

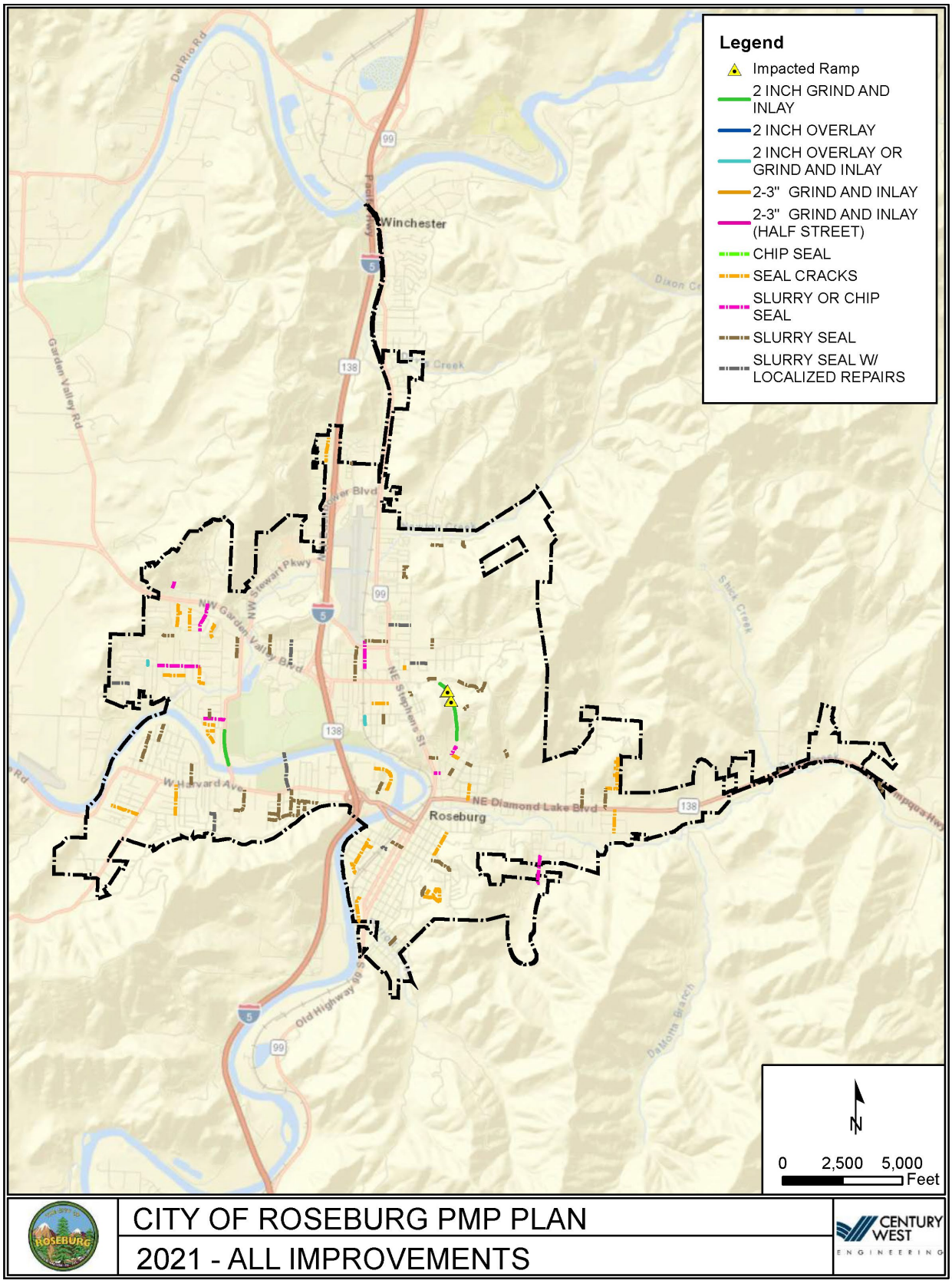


Figure 6. Five-Year Pavement Maintenance Plan: 2021

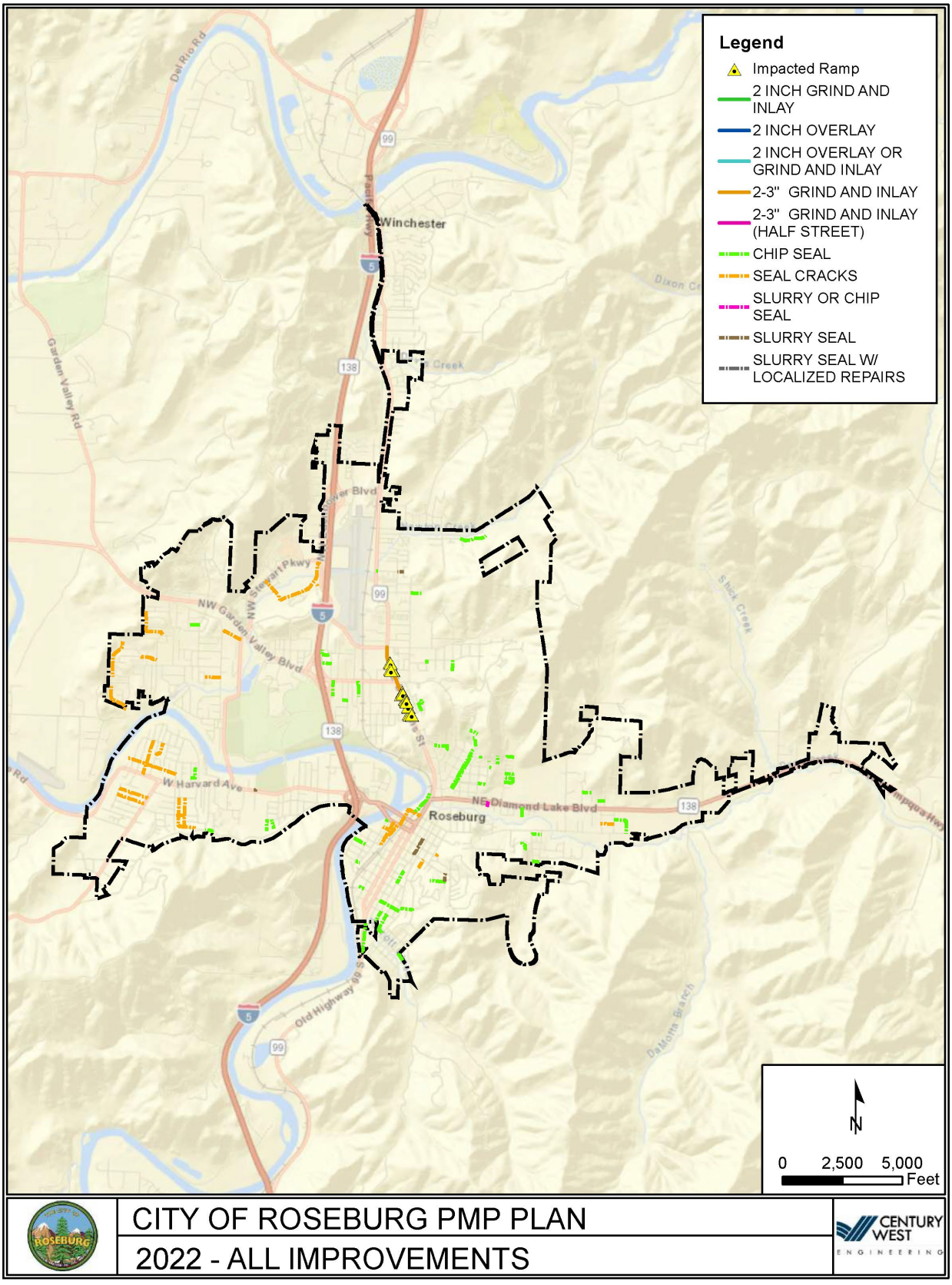


Figure 7. Five-Year Pavement Maintenance Plan: 2022

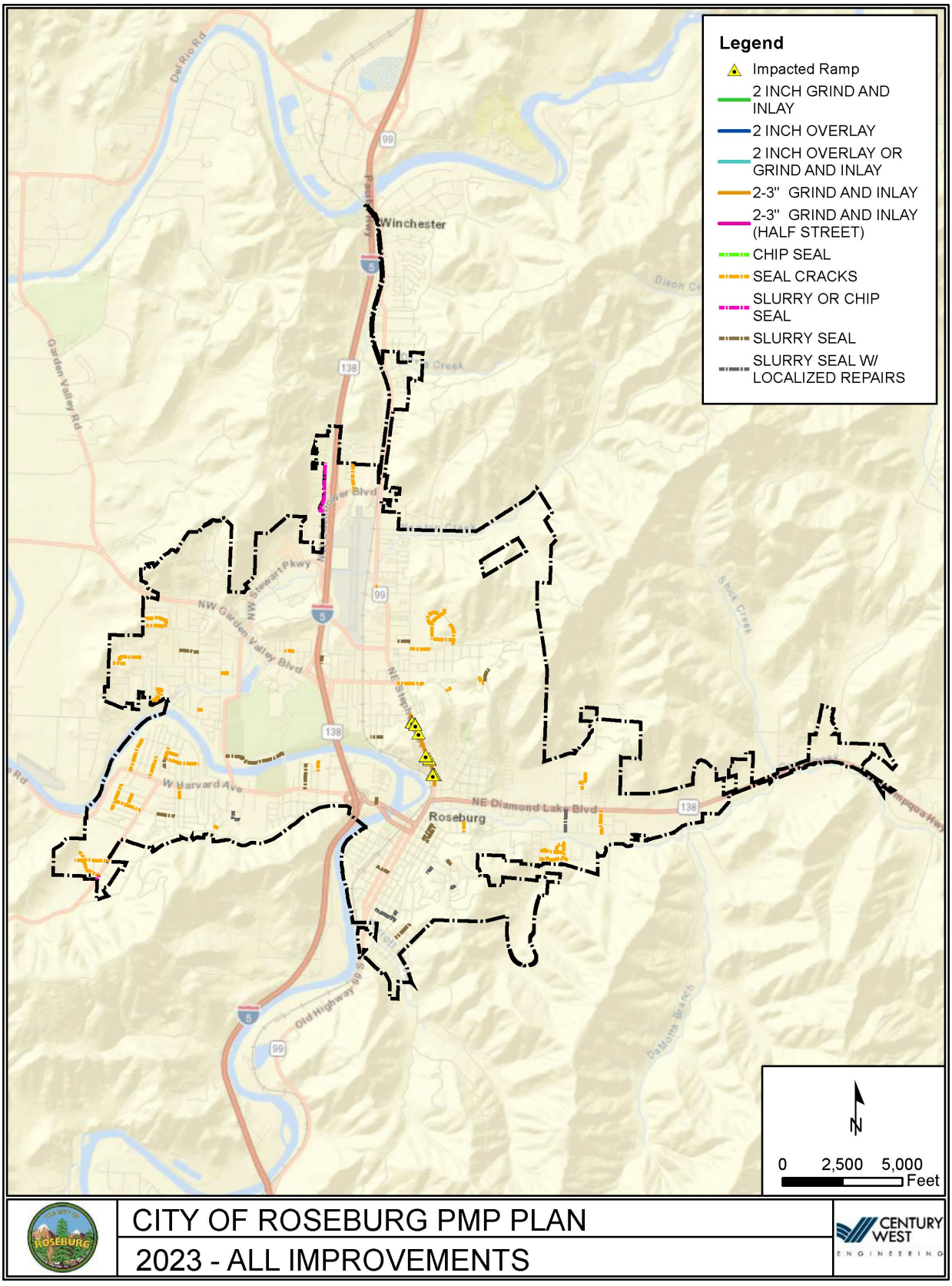


Figure 8. Five-Year Pavement Maintenance Plan: 2023

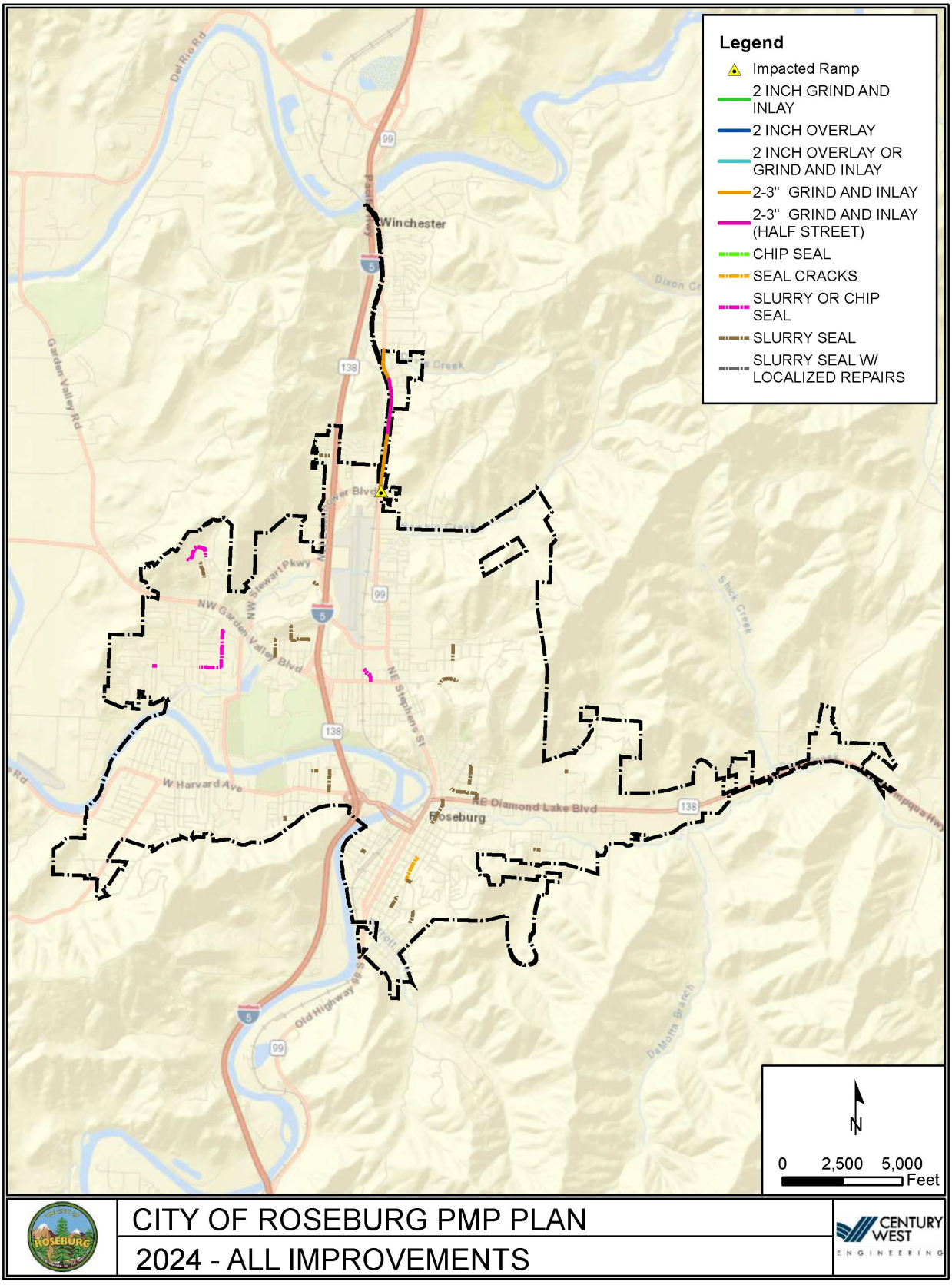


Figure 9. Five-Year Pavement Maintenance Plan: 2024

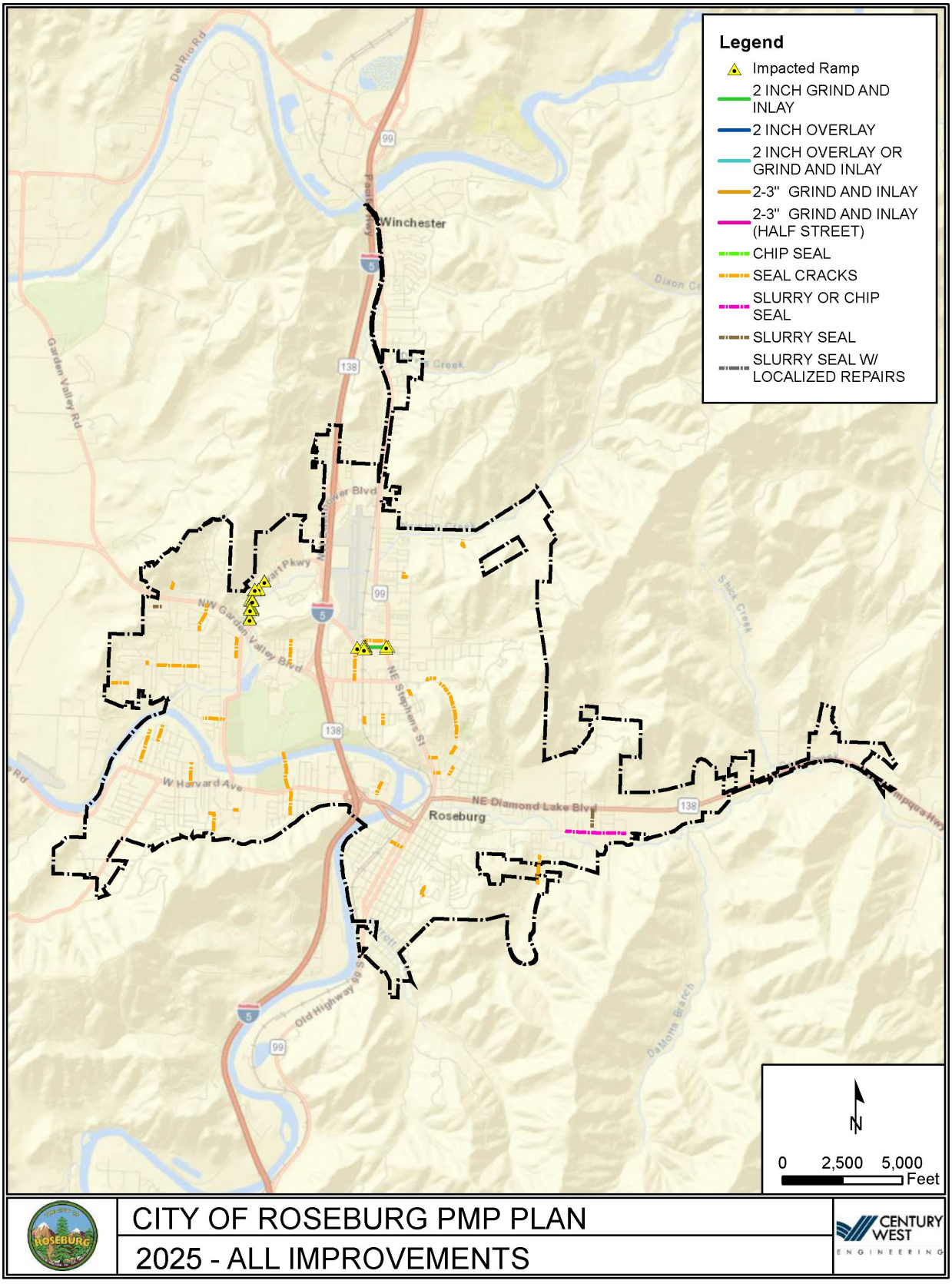


Figure 10. Five-Year Pavement Maintenance Plan: 2025

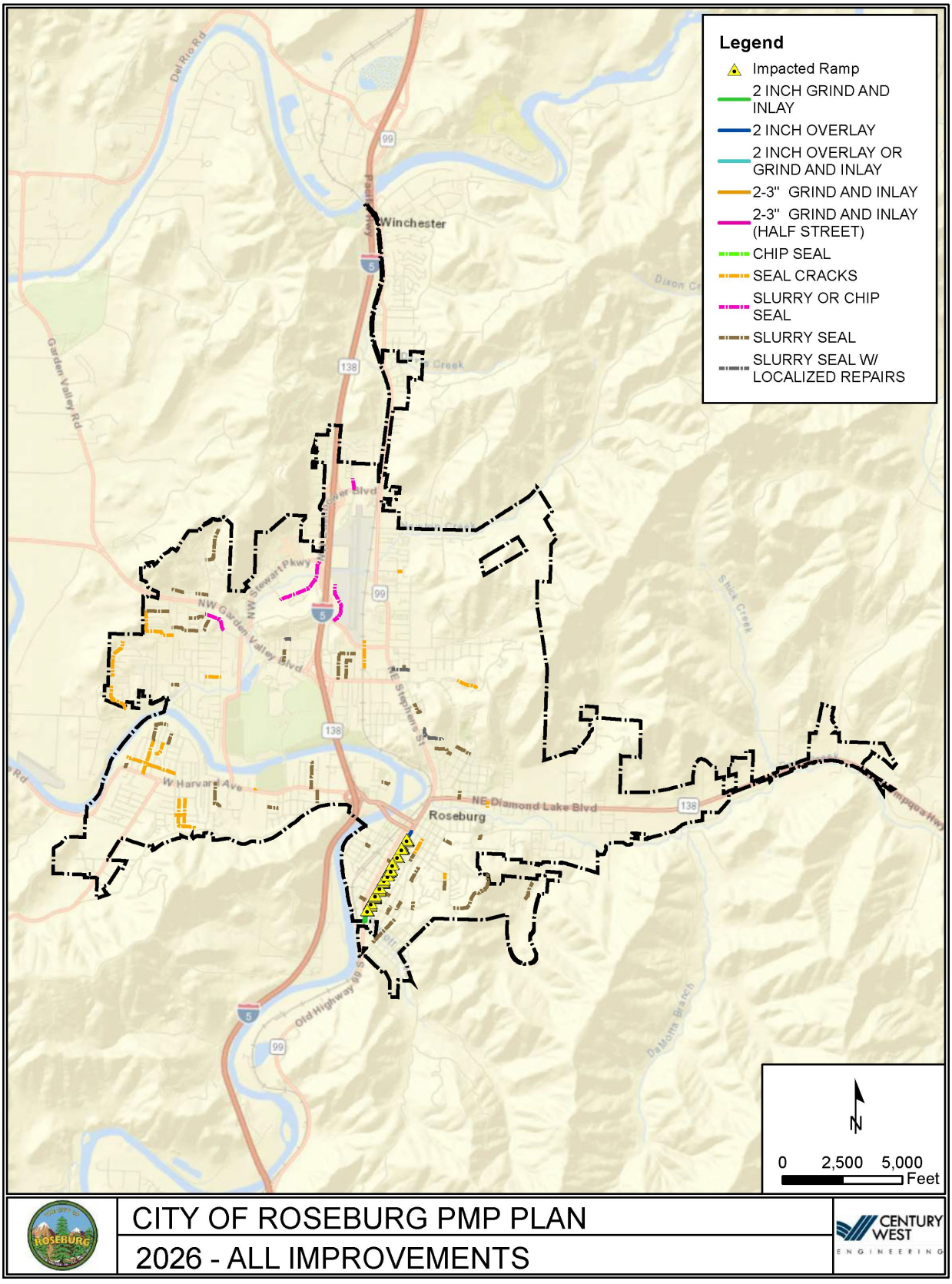


Figure 11. Five-Year Pavement Maintenance Plan: 2026

ROADWAY

The roadway network and roadway design are integral to the quality of bike routes. A well-connected road network gives people multiple route options to bike along. And roads designed with safe, comfortable bike facilities help make biking an attractive transportation option. The opposite is also true: a disconnected street grid forces all travelers, including people driving and biking, to use just a few streets, making them heavily trafficked and uncomfortable to bike along. Roads with insufficient bike facilities can mix people biking with people driving, which can feel unsafe.

This section considers plans for roadway design that are relevant to the Roseburg Bike Routes Plan.

City of Roseburg Street Standards

The Roseburg TSP includes updated roadway standards for local streets. Standards are applied when new roads are built or existing roads are improved. Standards are intended to provide consistency in the street network, but they also allow some flexibility to accommodate actual conditions and differing contexts. Standards for collector and arterial streets require bike facilities, preferably dedicated bike lanes, as illustrated in the TSP's sample cross sections (Figure 12).

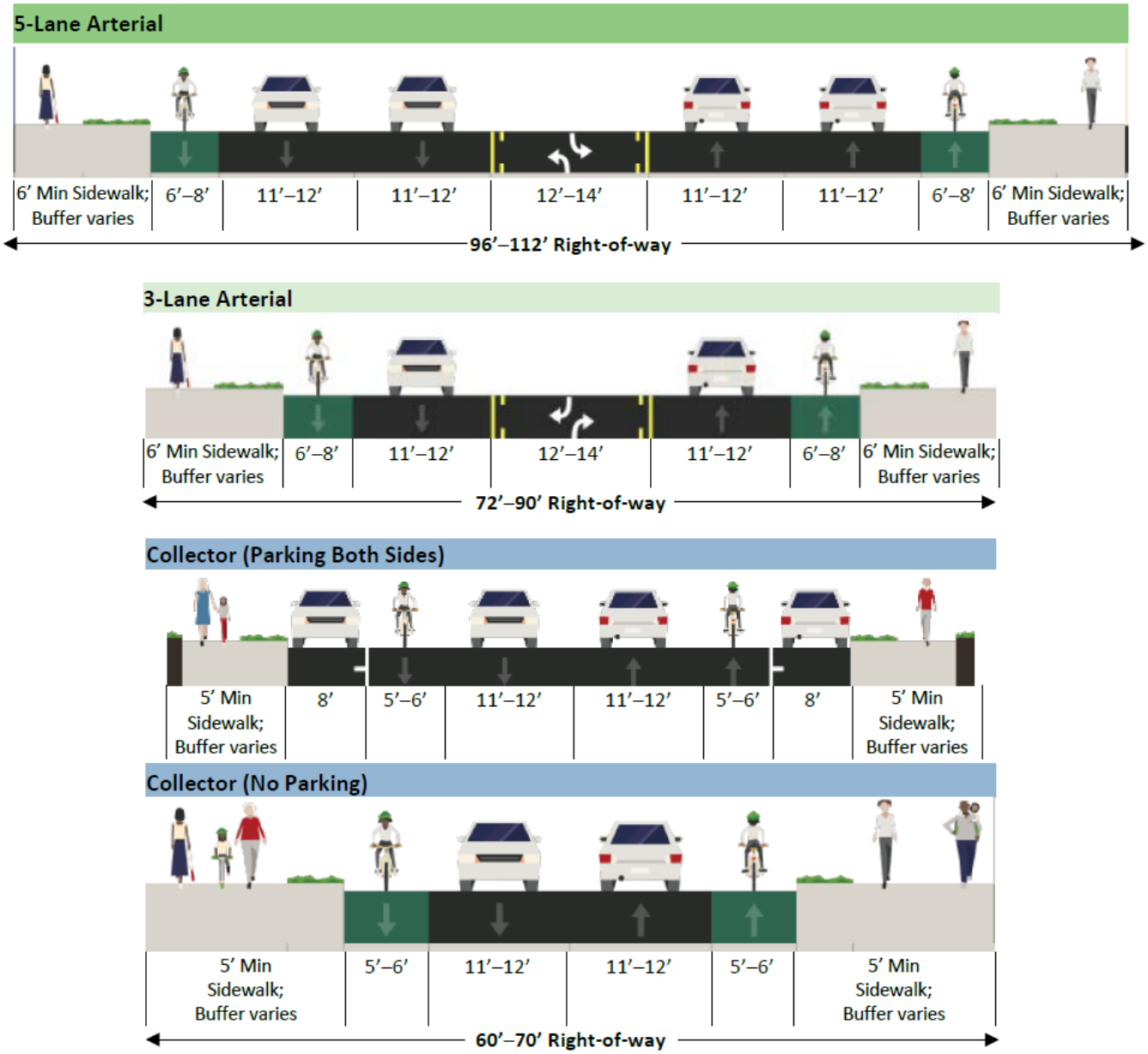


Figure 12. Sample Roadway Standard Cross Sections (2020 TSP)

ODOT Blueprint for Urban Design

State-owned routes in Roseburg have separate design standards, guided by the Blueprint for Urban Design (BUD) and rooted in the Oregon Highway Design Manual. Two highways in Roseburg are state-owned: I-5 and OR 138. I-5 is state-owned, but is not assessed here because this plan will not include bike routes on the Interstate.

OR 138 is a state-owned highway entering Roseburg at the eastern city limits and continuing through merging with and following I-5 out of the city. The couplet of Washington Avenue and Oak Avenue are state-owned for the segments where OR 138 is collocated, including their bridges over the South Umpqua River. The segment of OR 99 is also state-owned for the segment where OR 138 is collocated.

The Roseburg Bike Routes Plan will recommend a range of improvement types for OR 138 that are consistent with the BUD. These will help inform a separate planning process, the OR 138E Design Concept Plan, which will study and recommend facilities for walking and biking on OR 138 between Southeast Douglas Avenue and Sunshine Park.

The BUD considers design standards appropriate for a roadway based on how it fits certain urban contexts. When determining the appropriate urban context for a roadway, the BUD instructs to consider the predominate land use, modal priorities, roadway function, and anticipated future planned land use.[1]

The current urban context of OR 138 is a mix of commercial and industrial uses, with some single family residential in the neighborhoods beyond. Undeveloped parcels are interspersed more frequently further east (away from downtown) along the corridor. The street grid along OR 138 is inconsistent, impeded by Deer Creek to the south and large industrial and lumber land uses to the north. This current context aligns with the Suburban Fringe context.

The desired future urban context of OR 138 is outlined in the 2018 Diamond Lake Urban Renewal Plan, which designates more land for mixed use, commercial, and residential developments. The plan also includes objectives to improve transportation connectivity and multimodal improvements. This future planned land use is better aligned with the Urban Mix context, with commercial uses fronting the street, residential neighborhoods immediately beyond, and a well-connected roadway network. The team compared BUD-recommended design standards for the Urban Mix context compared with the existing conditions on OR 138 in Table 3.

[1] Page 2-3

Table 3: OR 138 Comparison to Urban Context

Element	BUD Guidance: Urban Mix	Existing Conditions
Target Speed	25 to 30 mph	35 to 55 mph
Travel Lanes	Start with minimum widths, wider by roadway characteristics	4 travel lanes at 12 ft. wide
Turn Lanes	Minimize additional crossing width at intersections	12 ft. Center turn lane
Shy Distance	Minimal	0 to 6 ft. paved shoulders
Median	Optional, use as pedestrian crossing refuge. Raised median (no turn lane): 8 to 11 ft. Raised median (with left turn lane): 12 to 14 ft.	No median
Bicycle Facility	Start with separated bicycle facility, consider roadway characteristics. Separated: 8 to 7 ft. On-street: 6 ft.	No dedicated bicycle facility. Intermittent shoulders between 0 and 6 ft. wide.
Sidewalk	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters) Pedestrian zone: 8 to 5 ft.	Intermittent sidewalks. Where they exist, widths vary from 4 to 9 ft.
Target Pedestrian Crossing Spacing Range	250 to 550 ft. (1 to 2 blocks)	Over 5,000 ft.
On-Street Parking	Consider on-street parking if space allows	No on-street parking

Sources: BUD Table 2-6, Table 3-12

DEMOGRAPHICS AND SOCIO-ECONOMIC CHARACTERISTICS

Census data estimates Roseburg's population at 23,083 people, making it the most populous city in Douglas County. Table 4 documents the demographics of Roseburg, Douglas County, and Oregon. County numbers are reported to illustrate the demographics of the nearby communities who are likely to work in, shop in, or visit Roseburg. The Companion Map includes demographic layers for the project area, including:

- Median Household Income
- Percent Low Income (200 Percent Poverty Level)
- Percent Minority (Not White Alone)
- Percent Limited English-Speaking Households

Data is from the American Community Survey 5 Year Estimate (2015-2019) and is reported at the block group level.

Table 4. Roseburg Community Characteristics

	Roseburg	Douglas County	Oregon
Population	23,083	109,114	4,129,803
Race and Ethnicity			
American Indian and Alaska Native alone	<1 %	1 %	1%
Asian alone	1 %	1 %	4 %
Black or African American alone	1 %	<1 %	2 %
Hispanic or Latino alone	7 %	6 %	13 %
Native Hawaiian and Other Pacific Islander alone	<1 %	<1 %	<1 %
White alone	87 %	88 %	76 %
Some other race alone	<1 %	<1 %	<1 %
Two or more races	4 %	4 %	4 %
Limited English-Speaking Households	<1 %	1 %	2 %
Income Characteristics			
Median household income	$44,970	$47,267	$62,818
Low Income Population (200 percent or less of the Federal poverty level)	42%	39%	31%
Age			
Youth (under 18)	21%	19%	21%
Older adults (65 years+)	22%	25%	17%
Persons with Disabilities	19 %	21 %	14 %
Transportation Characteristics			
Households with Zero Vehicles Available	12 %	6 %	7 %
Drove alone	75 %	79%	72 %
Carpool	15 %	11%	10 %
Public transportation	1 %	<1 %	5 %

	Roseburg	Douglas County	Oregon
Walked	4 %	3%	4 %
Other Means	1 %	<1 %	1 %
Worked at home	4 %	6 %	7 %

Source: American Community Survey: 5-Year Estimates 2015-2019

Title VI and Environmental Justice Communities

Title VI and the Environmental Protection Agency's (EPA) Environmental Justice program intend to protect vulnerable residents from disparate social, economic, and environmental impacts caused by various public and private actions or programs. Title VI is a component of the Civil Rights Act that prohibits federal funding and actions from resulting in discrimination based on race, color, or national origin.[2] Similarly, the EPA defines environmental justice as "[t]he fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[3]

For the purposes of the Roseburg Bike Routes Plan, members of Title VI and Environmental Justice communities include:

- Black, Indigenous, and People of Color (BIPOC)
- Low income (at or below 200 percent of the poverty level)
- Limited English proficiency households

Roseburg and Douglas County have a higher proportion of white people than the overall state. Roseburg's population is 87 percent white, Douglas County's population is 88 percent white, and Oregon's is 76 percent. The Hispanic and Latino population is the city's largest BIPOC population at seven percent. Four percent of the population identify as two or more races. The Companion Map estimates a combined BIPOC population by indicating the percentage of people who identified a race or ethnicity other than white alone. Most block groups in Roseburg have a BIPOC population of between 0 and 15 percent. The block group south of Harvard Avenue between Pilger Street and Umpqua Street, including the Fremont Middle School, stands out with a notably high BIPOC population of 48.8 percent.

Incomes in Roseburg are relatively low when compared with Douglas County or Oregon. City median household income is $44,970, nearly $18,000 below the state median of $62,818. At 42 percent, Roseburg has a larger proportion of people with low incomes than the county or the state, respectively at 39 percent and 30 percent. The Companion Map illustrates that income is not evenly distributed across the city. Median incomes range between $97,159 at the west edge of the city to as low as $27,288 east of the airport. Similarly, the proportion of people with low incomes ranges from 15.5 percent to 73 percent (near the intersection with I-5) and 71.8 percent (south of OR 138 near the intersection with Stephens St).

[2] Title VI and Environmental Justice, The United States Environmental Protection Agency, https://www.epa.gov/environmentaljustice/title-vi-and-environmental-justice

[3] Environmental Justice, The United States Environmental Protection Agency, https://www.epa.gov/environmentaljustice

The percentage of limited English-speaking households is below one percent at the city level. However, the Companion Map indicates a single block group with a relatively high percentage. East of OR 99 at the intersection with OR 138, 6.9 percent of households are identified as limited English speaking.

Other Demographic Characteristics

Other demographic characteristics are relevant to the Roseburg Bike Routes Plan. The proportion of younger and older people is one such characteristic. Bike routes can provide mobility and freedom to children and older people who cannot or do not want to drive. A focus of the Plan is to create a safe, comfortable, and connected network of routes for children to get to school and around town. The population of young people is similar for Roseburg, Douglas County, and Oregon, between 19 and 21 percent. The population of people age 65 and older is higher in Douglas County (25 percent) than in Roseburg (22 percent) and in Oregon (17 percent).

Another relevant characteristic is the proportion of people with disabilities because disabilities can affect how a person may use a bike route. For example, a person with balance issues may prefer to ride a wider tricycle rather than a bicycle and require more space on the facility. The proportion of people with disabilities is higher in Roseburg and Douglas County than in Oregon, at 19 and 20 percent, respectively, compared with 14 percent for the state overall.

A third characteristic is residents' access to motor vehicles and method of commuting. The portion of Roseburg households without access to a motor vehicle (12 percent) is substantially higher than the county (6 percent) or the state (7 percent). This is reflected in commuting mode. In Roseburg, 15 percent of commutes are done by carpool, higher than the county (11 percent) or state (10 percent). Improved bike routes aim to give more mobility and independence to people with limited access to automobiles.

FUNDING OPPORTUNITIES

This section analyzes the availability of funding and identifies other potential funding sources for implementing the improvements identified in the Roseburg Bike Routes Plan.

Revenues and Expenses

The City of Roseburg maintains three funds that could fund bicycle improvements:

- Transportation Fund
- Streetlight and Sidewalk Fund
- Bike Trail Improvement Fund

An overview of the revenue for these funds is listed in Table 5, and an overview of their expenses is listed in (Table 6).

The Transportation Fund accounts for the financial resources used for infrastructure construction and major improvements other than those related to drainage, parks and proprietary fund assets. Historically, street reconstruction and new street projects have been funded through this. Revenue for the Transportation Fund comes primarily from a mix of state gas tax revenue, franchise fees, and SDC fees. Expenses are split roughly equally between Materials/Services and Capital Improvements.

The Streetlights and Sidewalk Fund finances the sidewalk rehabilitation program. It can also fund sidewalks or streetlights on major improvement projects. Many of these resources are dedicated to ADA improvements in the Five Year Capital Improvement Plan. Revenue is primarily through the Hotel/Motel Fund.

The Bike Trail Fund accounts for the state mandated one percent share of gasoline subventions and grant revenues for the construction and maintenance of bike trails. Projects in the Bike Trail Fund are coordinated through the Parks Division and Parks & Recreation Commission.

Table 5. Budgeted Revenue

Revenue	Adopted Budget 2021-2022
Transportation Fund	
City Franchise Fees	$516,144
Gas State Subventions	$1,887,660
Transportation SDC	$150,000
Other	$24,000
Streetlights/Sidewalk Fund	
Interest Income	$3,500
Transfer from Hotel/Motel Fund	$399,477
Bike Trail Fund	
Gasoline Subvention	$18,000
Other Grants	$132,450
Interest Income	$1,700
Transfer from Transportation Fund	$10,000
Total Expenses	**$3,143,431**

Source: City of Roseburg, Oregon Adopted Budget 2021-2022

Table 6. Total Expenses

Expense	Adopted Budget 2021-2022
Transportation Fund	
Materials and Services	$1,392,393
Capital Improvements	$1,480,000
Streetlights/Sidewalk Fund	
Materials and Services	$88,655
Capital Outlay	$410,000
Bike Trail Fund	
Bike Trail Maintenance	$10,000
Bike Trail Improvements	$147,610
Total Expenses	**$3,528,658**

Source: City of Roseburg, Oregon Adopted Budget 2021-2022

Funding Options

Various funding sources are available to fund projects and programs depending on the type of project, the roadway (state or local) the project is on, and project cost. This section reviews local transportation funding sources that could be enacted or modified to increase general levels of transportation funding.

Local Options

System Development Charges

The City already levies SDCs on new development in an amount set by City Council resolution and based on estimated traffic generated by the development. SDCs are imposed on all new residential, commercial and industrial development and existing development being modified to increase the impact such development has on the City's transportation system. Revenues are deposited in the Capital Improvement Fund. SDCs, per state law, must be spent only on projects that increase capacity of the system; maintenance or preservation projects generally are not eligible for SDC use.

Local Gas Tax

Dozens of Oregon communities levy local gas taxes, the revenues from which are entirely available for use locally. Of those cities that currently assess local gas taxes, most cities the size of Roseburg charge between $0.01 and

$0.03 per gallon.[4] A local gas tax can be enacted through legislative action by the City Council or by putting the tax to a public vote.

Property Taxes and Bonds

Revenue or general obligation bonds can help finance construction of capital improvement projects by borrowing money and paying it back over time in smaller installments. Bonds are typically backed by new revenue, like an additional property tax levy. Usually, a specific package of improvements is identified, and a levy is put to a local vote, then the revenue stream is bonded.

Tax Increment Financing (Urban Renewal Areas)

Roseburg has effectively used urban renewal in the past and is now using it in the rejuvenation of the Diamond Lake Boulevard Area. Declaration of an urban renewal area (URA), based on the conditions described in state statutes, is a potential strategy for funding transportation (and other public improvements) within a defined URA boundary. URAs facilitate "tax increment financing;" in short, property tax receipts are frozen at URA inception and property tax revenue is then distributed via two streams – the frozen base revenue is distributed normally to taxing districts, while the "increment" of increased revenue due to increased property values in the URA is set aside for improvements. As property values increase, the additional tax revenue collected above the frozen base is used for improvement projects in the URA. This revenue stream can be bonded to fund more substantial projects early on.

Leveraging Utility Funds

There are opportunities to coordinate utility maintenance and replacement projects with street projects, including overlays and sidewalk construction. For example, combining a sewer main replacement with a desired overlay and sidewalk project would save the City money on construction costs.

Table 7 summarizes grant funding opportunities, the types of improvements that would be eligible, and provides a high-level assessment of the viability of each grant option for funding projects in Roseburg.

Grants

Table 7. Promising Grant Sources for Bike Plan Projects

Grant Source	Project Eligibility	Match Required	Funding Amount	Likelihood of Success (Consultant Team Subjective Assessment)
STIP	Many types; generally must be of regional significance	Varies	~$2 billion statewide	Low. Major projects on OR 138 are most likely for funding, though the STIP process is extremely competitive.

[4] https://www.oregon.gov/ODOT/FTG/Pages/Current%20Fuel%20Tax%20Rates.aspx?wp4401=p:2#g_2d60aa8d_2408_4664_bd10_d745b56f361d

Grant Source	Project Eligibility	Match Required	Funding Amount	Likelihood of Success (Consultant Team Subjective Assessment)
Oregon Community Paths	Paths and trails, generally of regional significance or that fill gaps in a trail network	10 to 30% depending on funding source (federal or state)	$75,000–750,000 for project refinement $200,000–$4,000,000 for construction	Medium. Trails projects would need to demonstrate merit in terms of closing gaps or enhancing regional connectivity.
Safe Routes to School	Projects within a one-mile radius of a school, within a local roadway, and in a jurisdictional plan	20 to 40%	$60,000–$2,000,000	High. Roseburg Bike Routes Plan is likely to include multiple projects that would have a direct impact on cycling and walking to school.
Recreational Trails Program	Wide variety of trail projects in local communities	20% match	$10,000 to $150,000 for most projects	Medium. Small overall funding pool, but could be a great opportunity to fund local trail improvements.

STIP = Statewide Transportation Improvement Program

Statewide Transportation Improvement Program

The Statewide Transportation Improvement Program (STIP) is the 4-year capital improvement program for the state of Oregon. It provides a schedule and identifies funding for projects throughout the state. Projects included in the STIP are generally regionally significant and are prioritized by ODOT, metropolitan planning organizations, and Area Commissions on Transportation. All regionally significant state and local projects and federally funded projects and programs must be included in the STIP. Approximately 80 percent of STIP projects use federal funds, most of which originate from FAST Act[5] programs. The Oregon Transportation Commission approved an allocation of $2.2 billion for the upcoming 2024–27 STIP.

Projects along OR 138 may be eligible for STIP funding. However, STIP funds are extremely competitive, and a strong case must be made for the regional importance of projects funded in the STIP.

Oregon Community Paths Program

The Community Paths Program is a new funding program that ties together several pre-existing as well as new funding sources for trails and multimodal pathway improvements. The program is funded through both state and federal sources including funding from the new state bicycle excise tax as well as federal funding from the Transportation Alternatives pot of federal transportation monies. There are two main funding tracks with the Community Paths Program:

- Project refinement – Furthers planning, environmental or permitting work, and design on projects, but does not fund construction explicitly.
- Construction – Funding for final design and construction of trails projects. These can be state or federal funds.

In 2021, the Oregon Transportation Commission approved approximately $15 million in funding for projects across the state. To be competitive, projects need to be well defined, ideally link communities together, fill a

[5] Fixing America's Surface Transportation Act

critical missing link in a corridor, or serve as an element of the larger regional trail network. Roseburg would be eligible to apply for both project refinement and construction funds.

More information: https://www.oregon.gov/odot/Programs/Pages/OCP.aspx

Safe Routes to School

House Bill 2017 provided a major funding boost to SRTS funding statewide. By 2023, the program will have $15 million annually available for construction projects, in addition to about $2 million annually for programs (non-infrastructure). The majority of construction grant funds are let through a competitive solicitation process. A 40 percent match is required; however, match of 20 percent may be allowed if certain criteria are met, including the share of students eligible for free or reduced lunch (minimum 40 percent). Many of Roseburg's schools meet this threshold.

Projects funded through the program must provide clear benefit in terms of improving cycling and walking to schools. Projects in smaller communities, for elementary and middle schools, and that can demonstrate substantial need are likely to fare best. Because this program has received a significant injection of new funding and the Roseburg Bike Routes Plan will include projects that support cycling and walking to school, SRTS is likely a promising source of funding for projects.

More information: https://www.oregon.gov/ODOT/Programs/Pages/SRTS.aspx.

Recreational Trails Program

This program is administered by the Oregon Parks and Recreation Department. Recreational Trails Program funding is intended for recreational trail projects and can be used for acquiring land and easements, as well as for building new trails. Grant funds pay up to 80 percent of project costs, while project sponsors must match project costs by at least 20 percent. Approximately $1.5 million in statewide funds are available annually. This funding source is very competitive, and funding is generally based on the needs identified in the Oregon statewide trails plan by region of Oregon. For example, in Douglas County, "connecting trails to larger regional systems" is the top need.

More information: http://www.oregon.gov/oprd/grants/Pages/trails.aspx.

Appendix B

Memo 2 – Goals and Objectives

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	November 5, 2021
TO:	John Lazur, City of Roseburg John McDonald, ODOT Region 3 Tom Guevara, ODOT Region 3
FROM:	Ryan Farncomb, Emily Mannisto (Parametrix)
SUBJECT:	Memo #2: Goals and Objectives
CC:	
PROJECT NAME:	Roseburg Bike Routes Plan

INTRODUCTION

This memorandum documents existing cycling-related goals and policies that will support the Roseburg Bike Routes Plan. These goals and policies will guide the development of the City's bicycle infrastructure improvement and development plan and will determine project priorities and future funding allocation. The establishment of goals and objectives, and the acknowledgement of the policies that will shape these, are essential to establishing a measurable, performance-based bike plan. These goals and policies may be updated based on feedback from the Advisory Committee, City staff, and public outreach.

The following goals and policies reflect the stated goals, objectives, and policies of the 2020 Roseburg Transportation System Plan (TSP) and take into consideration the bicycle-related goals of the Diamond Lake Urban Renewal Plan, Roseburg Capital Improvement Plan (CIP), Douglas County TSP, project advisory committee, and additional recommended objectives determined by the project team.

This memorandum also reviews design standards in the Blueprint for Urban Design (BUD), Oregon Highway Design Manual, and National Association of City Transportation Officials Bikeway Design Guide.

DEFINITIONS

According to the Roseburg TSP, "Goals are broad statements of philosophy that describe the hopes of the community for the future, as it relates to transportation. A goal may never be completely attainable, but it is used as a point towards which to strive. Pursuit of these goals underpins all of the TSP's objectives, policies, and projects. Policies are statements adopted to provide a consistent course of action, moving the community towards attainment of its goals. Objectives are attainable targets that the community attempts to reach in striving to meet a goal. An objective may also be considered as an intermediate point that will help fulfill the overall goal."[1]

[1] City of Roseburg Transportation System Plan

ROSEBURG TSP GOALS, POLICIES, AND OBJECTIVES

The Roseburg Bike Routes Plan represents implementation and refinement of cycling-related goals, policies, and projects expressed in the 2020 Roseburg TSP. These goals, policies, and objectives guide the Bike Routes Plan and influence the refined Plan-specific objectives described later in this memo.

The following are specifically focused on bicycle and multimodal aspects of the 2020 TSP.

GOAL 1 – MOBILITY AND ACCESSIBLITY

Provide a comfortable, reliable, and accessible transportation system that ensures safety and mobility for all members of the community.

Policies

- Provide mobility and accessibility for all transportation modes where feasible while continuing to preserve the intended function of existing transportation assets.
- Support multimodal access, with a focus on youth, seniors, persons with disabilities, and other disadvantaged populations.
- Increase access to the transportation system for all modes regardless of age, ability, income, and geographic location.
- Improve pedestrian and bicycle circulation within and between neighborhoods and commercial centers.

Objectives

- Continue to modernize existing streets and transportation facilities within the Roseburg UGB to current design standards.
- Reduce overall traffic-related fatalities and serious injury collisions.

GOAL 2 – VIBRANT COMMUNITY

Create an integrated multimodal transportation system that enhances community livability.

Policies

- Design access points along major arterials to reduce conflicts among vehicles and other modes.
- Continue to develop safe, connected pedestrian and bicycle facilities near schools, residential districts, downtown, employment centers, and riverfront areas.
- Improve pedestrian facilities, bikeways, and trails as well as directional signs to points of interest.
- Encourage use of the transportation system to improve community health.
- Provide pedestrian and bicycle amenities downtown and at social spaces.

Objectives

- Improve quality of existing infrastructure to be in alignment with current design standards.
- Provide multimodal connections to social spaces and schools.

GOAL 3 – TRANSPORTATION OPTIONS

Provide for a multimodal transportation system that enhances connectivity.

Policies

- Continue to develop a multimodal transportation system that integrates all modes and addresses system gaps or deficiencies.
- As development occurs, maintain a network of arterials, collectors, local streets, and paths that are interconnected, appropriately spaced, and reasonably direct.
- Ensure neighborhood and local connections provide adequate circulation into and out of neighborhoods.
- Provide appropriate multimodal links to schools, commercial areas, and tourist destinations.

Objectives

- Improve cross-town connectivity where feasible considering environmental, land use, and topographical factors.
- Develop unused rights-of-way for pedestrian facilities and bikeways or trails where appropriate.

GOAL 4 – ECONOMIC VITALITY

Advance regional sustainability by providing a transportation system that improves economic vitality and facilitates the local and regional movement of people, goods, and services.

Policies

- Facilitate access to local businesses and business districts by all modes of transportation.

Objectives

- Focus potential capacity improvements on routes accessing major employment areas.

GOAL 5 – IMPLEMENTATION

Provide a sustainable transportation system through responsible stewardship of financial and environmental resources.

Policies

- Support community education and involvement in transportation planning.
- Encourage preservation of the existing transportation system.
- Plan for an economically viable and cost-effective transportation system.

Objectives

- Adequately fund and maintain the existing transportation system.
- Implement new sources of funding to increase local transportation dollars.
- Prioritize funding of projects that are most effective at meeting the goals and policies of the TSP.
- Ensure open communication and collaboration across agencies.

ADDITIONAL PLAN AND POLICY CONTEXT

This section summarizes other plans and documents that may influence the goals and objectives of the Bike Routes Plan. These plans and documents contain a breadth of transportation-related goals and objectives, with the following selections considered relevant to bicycle specific projects.

Capital Improvement Plan (CIP)[2]

- Provide quality public infrastructure at the lowest life-cycle cost.
- Provide quality management of the CIP and fiscally responsible decisions.
- Provide updates to the City Council on program implementation.
- Ensure timely information is provided to Finance and to the City Council for cost differences.
- Improve street and landscaping aesthetics and street surface ridership for vehicles and bicycles.

Diamond Lake Urban Renewal Plan[3]

- Improve the safety, aesthetics, and overall quality of existing transportation infrastructure in the Area.
- Install signals to enhance safety of the transportation network.
- Add transportation connections or extensions to facilitate an effective transportation network.
- Provide widening and multimodal improvements.
- Refer to specific multimodal transportation urban renewal projects as stated in Section V.

Bike and Pedestrian Plan (2009)[4]

- Policy 3.4 Adopt practice for resurfacing projects on arterial and collector roadways to stripe bicycle lanes or wide curb lanes where practical.
- Policy 3.5 Require above ground utilities/amenities to be located outside of sidewalk area and in furniture zone or buffer strips where practical. Leverage city's development requirements to improve the biking and walking
- Policy 4.1 Require sufficient right of way to be set aside for bicycle and pedestrian facilities during redevelopment.
- Policy 4.2 Ensure that appropriate bicycle and pedestrian facilities are built in new developments in accordance with the Transportation Systems Plan.

Douglas County TSP[5]

These goals and objectives reflect those of the current TSP update process that Douglas County is engaged in.

- *Safety: Maintain a transportation system that is safe and secure for all transportation modes and for people of all ability levels.*
    - Objective 1.3. Identify and improve the safety of crossings for vehicles, bicycles, and pedestrians on highways and major arterials, and at rail crossings.
- *Mobility: Optimize the performance of the transportation system for the efficient movement of people and goods.*
    - Objective 2.1. Develop safe and comfortable bicycle and pedestrian facilities for use by people of all ages and abilities.
    - Objective 2.4. Balance the needs of different system users by identifying the priority network for different modes.

[2] City of Roseburg 2018-2023 Capital Improvement Plan

[3] Diamond Lake Urban Renewal Plan, Adopted by City of Roseburg (2018)

[4] City of Roseburg Bike and Pedestrian Plan (2009)

[5] Technical Memorandum #2 County Transportation Framework, Douglas County Transportation System Plan (2020)

- *Connectivity: Develop an interconnected, multimodal transportation network that connects all members of the community to destinations within and beyond the County.*
    - Objective 3.1. Support off-roadway walkways and bikeways that help to connect communities, provide options to non-motorized travel, and promote and support walking and biking tourism.
    - Objective 3.2. Ensure access to schools, parks, and other activity centers for all members of the community, including for those who are disabled, low-income, youth, and older adults.
- *Livability: Provide a transportation system that supports the financial, physical, and social well-being of County residents.*
    - Objective 4.1. Ensure that the transportation system provides equitable access to underserved and vulnerable populations, including people who have disabilities.
    - Objective 4.6. Prioritize "complete streets" multimodal treatments on roads in unincorporated urban communities.

Blueprint for Urban Design (ODOT)[6]

The Blueprint for Urban Design developed by the Oregon Department of Transportation (ODOT) provides guidance for roadway design on state highways that accommodate all modes of transportation. Guidance found in the BUD is applicable to state-owned facilities in Roseburg.The BUD includes design criteria based on the urban context of the roadway being redeveloped, that in turn guide the types of multimodal treatments that are most appropriate for that context and anticipated uses (Table 1). Highway contexts should be determined early in the project planning process. Memo #1 includes analysis of the appropriate urban contexts for relevant state-owned facilities in Roseburg.

OR 138 is the primary state-owned facility in Roseburg that is relevant to the Bike Routes Plan (see Memo #1 for more details). The Plan will recommend a range of improvement types for OR 138 that are consistent with the BUD. These will help inform a separate planning process, the OR 138E Design Concept Plan, which will study and recommend facilities for walking and biking on OR 138 between Southeast Douglas Avenue and Sunshine Park.

[6] Blueprint for Urban Design, ODOT's Approach for Design in Oregon Communities (2020)

Urban Context	Tier 1 – Separated Bikeway [1] Delineation options in the bicycle/street buffer zone	Tier 2 Bicycle Facility[2]	Tier 3 Bicycle Facility[3]
Traditional Downtown/ CBD	Parking, raised island, flexible delineator posts, rigid bollards, parking stops, planters, bioswale	Evaluate Bicycle Lane Buffer	Evaluate Bicycle Lane vs Shared Lane
Urban Mix	Parking, raised island, flexible delineator posts, parking stops, planters, bioswale	Evaluate Bicycle Lane Buffer	Evaluate Bicycle Lane vs Shared Lane
Commercial Corridor	Raised island, flexible delineator posts, concrete barrier, guardrail, bioswale, ditch	Evaluate Bicycle Lane Buffer	Evaluate Bicycle Lane vs Shared Lane
Residential Corridor	Raised island, flexible delineator posts, concrete barrier, guardrail, bioswale, ditch	Evaluate Bicycle Lane Buffer	Evaluate Bicycle Lane vs Shared Lane
Suburban Fringe	Raised island, flexible delineator posts, concrete barrier, guardrail, bioswale, ditch	Bicycle lane or wide shoulder. Evaluate Buffer	Evaluate Bicycle Lane vs Shared Lane
Rural Community	Parking, raised island, flexible delineator posts, planters, concrete barrier, guardrail, bioswale, ditch	Bicycle lane or wide shoulder. Evaluate Buffer	Evaluate Bicycle Lane vs Shared Lane

[1] Separated Bikeways may include shared use paths, sidewalk level separated bicycle lanes, or buffered bicycle lanes with vertical delineation in the buffer zone. See ODOT Bicycle and Pedestrian Design Guide for more information on various separated bikeway designs.

[2] Considerations whether to provide additional buffer width for a bicycle lane are given on page 24 of the FHWA Bikeway Selection Guide. See ODOT Blueprint for Urban Design, Chapter 3, 3-11 through 3-16 for bicycle/street buffer widths.

[3] Evaluate by considering factors that influence the appropriateness of a shared travel lane condition, which are discussed in the ODOT Bicycle and Pedestrian Design Guide (on pages 1-4 to 1-5). Note that shared lanes should only be used where operating speeds are 25 mph or lower.

4. When painted buffers or vertical elements like curbing or flexible delineators are proposed to provide separation in a facility design, evaluate long-term maintenance needs and provide a solution to identified problems.

Table 1: Bicycle Facility Design for ODOT Highways in Urban Areas - Blueprint for Urban Design (ODOT)

BIKE ROUTES PLAN REFINED OBJECTIVES

Based on input from the Roseburg Bike Routes Plan Advisory Committee, Roseburg staff, and ODOT, the project team developed the following refined Bike Routes Plan objectives that will guide the development, selection, and prioritization of alternatives. These objectives do not supersede existing TSP goals, but instead reflect those goals and provide more specificity for the Bike Routes Plan.

- **Develop accessible bike routes for all users.** Focus on developing and improving bicycle routes that will increase safety, accessibility, and comfort for all bicycle users, especially children and older adults.
- **Identify and prioritize short- and long-term improvement possibilities.** Develop an incremental improvement plan: priority short-term improvement projects that require minimal funding and are easily implemented, and long-term capital improvement programs that encompass broader goals.
- **Engage community members to determine project priorities.** Identify the facilities most needed to improve and increase bicycle use. Understand the needs of those who may not regularly cycle, including more vulnerable roadway users such as children and older adults.
- **Improve mapping, wayfinding, and educational programs.** Develop an implementation plan for wayfinding through maps, signage, and cycling encouragement programs to promote bicycle use by all members of the community.
- **Create a connected network of trails.** Develop connections from new bicycle routes to existing facilities including to and between the Umpqua River Trail and surrounding neighborhoods, commercial areas, parks and schools.
- **Expand existing multi-use routes and trail systems.** Identify locations in which the existing Umpqua River Trail can be expanded or a new multi-use trail should be established.
- **Explore traffic calming measures to increase safety for cyclists.** Determine whether additional traffic calming measures are appropriate or necessary along portions of the bicycle routes.

Appendix C

Memo 3 – Evaluation Criteria and Alternatives Development

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	February 16, 2022
TO:	John Lazur and Stu Cowie, City of Roseburg John McDonald and Tom Guevarra, ODOT Region 3
FROM:	Ryan Farncomb, Jason Nolin, Emily Mannisto (Parametrix)
SUBJECT:	Memo #3: Evaluation Criteria and Alternatives Development (Final)
CC:	
PROJECT NAME:	City of Roseburg Bike Routes Plan

Contents

INTRODUCTION

This memorandum proposes evaluation criteria and improvement alternative concepts to be used during development of the Roseburg Bike Routes Plan. The evaluation criteria will determine if proposed alternatives address the Bike Plan goals and policies and will provide a system for prioritizing projects. Criteria are based on Memo #2: Goals and Policies, and takes into consideration the Existing Conditions described in Memo #1.

Proposed solution concepts include short term and long term bike route networks, as well as improvement concepts which may be applied to each route. This memo also includes programmatic concepts to increase awareness and accessibility for all bike users, including children and older adults. This memo provides a menu of alternatives that can be applied to varying roadway contexts, and is meant to be a high-level introduction to proposed improvements. All concepts will be refined based on feedback and discussed in greater detail in future memos.

The existing bike route network is shown in Figure 1. Proposed short term and long term bike route networks are shown in Figure 7 and Figure 8, respectively. Existing and proposed bike networks are also displayed in more detail and with additional information in the interactive Companion Map at: https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=b512b24d3c914ec4b4e92c0c1194d863

Note: This memorandum has been superseded by *Memo 5: Refined Project Alternatives* and may contain outdated or inaccurate information.

Needs Summary

Roseburg's biking needs derive from the 2019 City of Roseburg Transportation System Plan (TSP), an existing conditions analysis (Memo #1), and feedback from the Advisory Committee (AC), City staff, and other stakeholders.

The existing bike network has a strong foundation of multi-use paths (MUPs) through the city's park system. However, beyond these paths the network is disconnected and interrupted by arterial roadways, I-5, the South Umpqua River, and hilly topography. Many segments of the current system share the road with high volumes of fast-moving motor vehicles, which may feel uncomfortable and unsafe for people biking or driving. The lack of connectivity also makes it so people who are willing to bike often use routes that lack bike facilities.

A Bicycle Level of Traffic Stress (BLTS) analysis of the existing bicycle facilities reveals a high quantity of routes are rated "BLTS 4," indicating high levels traffic-based stress and low levels of comfort for people biking. Figure 2 displays the BLTS of bicycle routes in Roseburg developed for the Roseburg TSP.

Proposed solutions seek to address deficiencies in the existing bicycle network and gaps in connectivity. Programmatic concepts aim to increase awareness of biking in Roseburg and encourage people to bike.

As mentioned above, these solutions will be refined based on feedback, applied to specific locations, and discussed in greater detail in future memos.

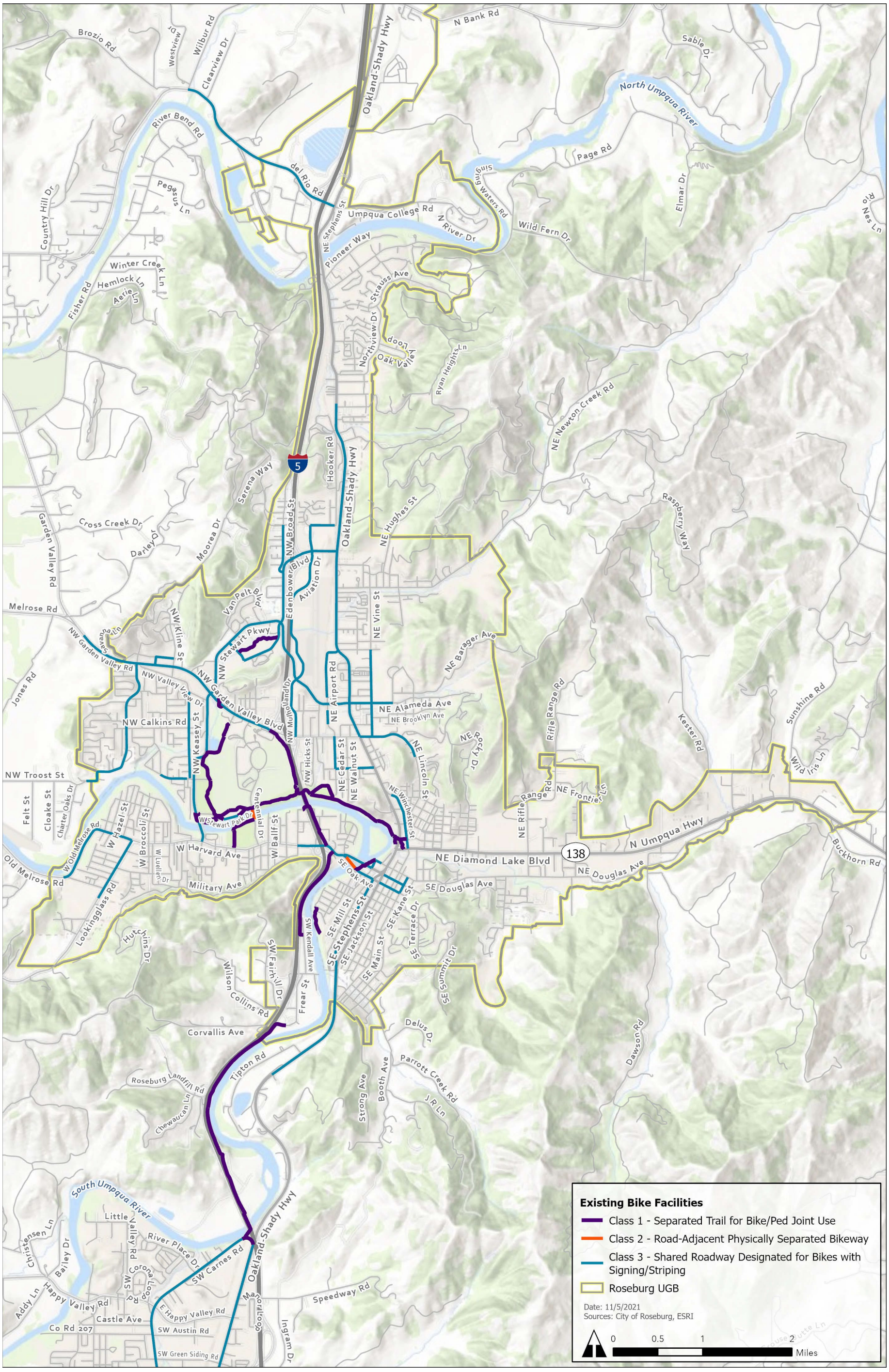


Figure 1. Existing Bike Routes

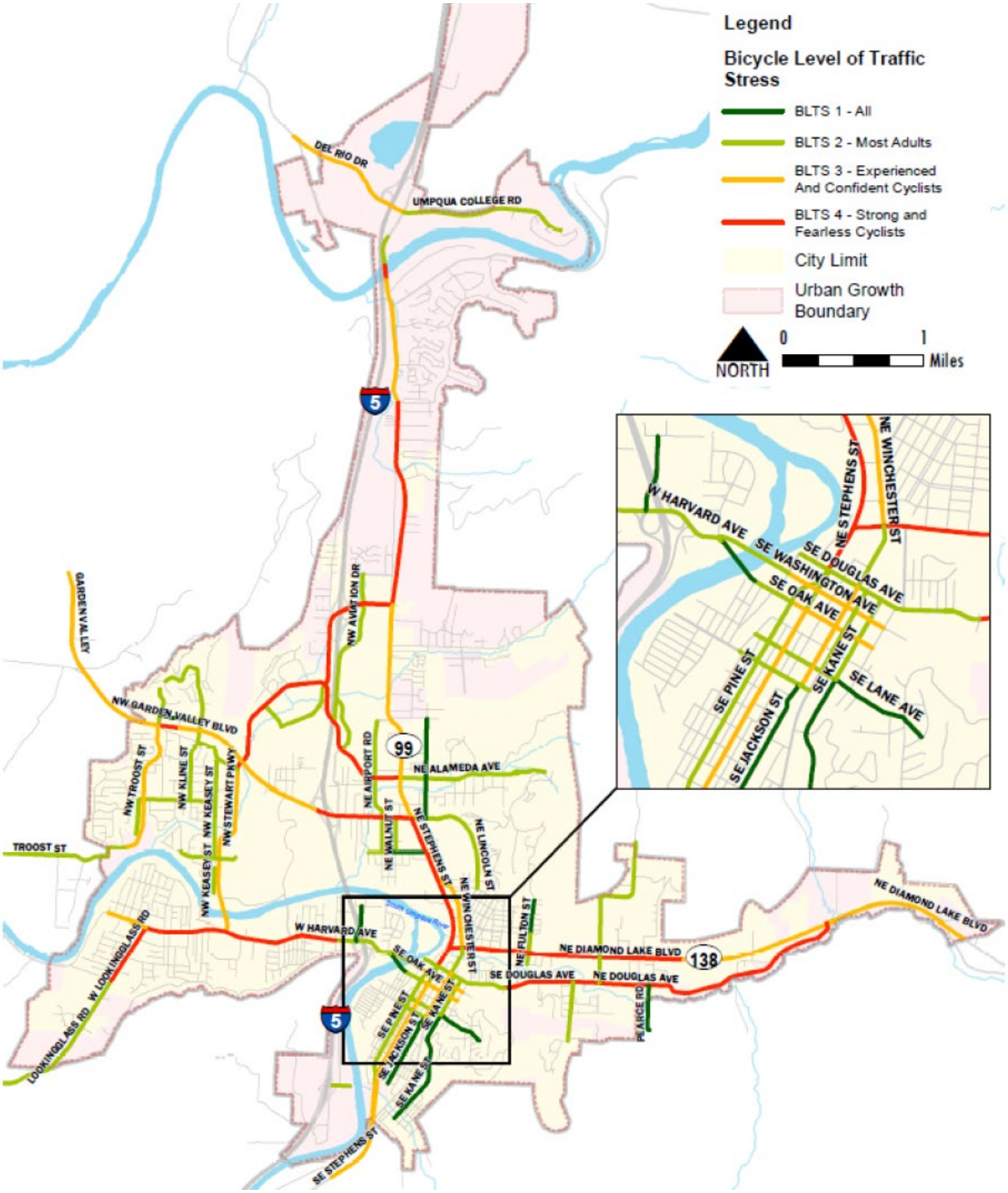


Figure 2. BLTS of Bicycle Routes – Roseburg 2020 TSP

PROPOSED EVALUATION CRITERIA

This section proposes criteria for evaluating solution alternatives based on the goals and objectives established in Memo #2. This section will also serve as a tool for prioritizing projects and can be used to establish whether a project is recommended to be implemented in the near- or long-term. Alternatives will be evaluated based on these measures in Memo #4.

Table 1. Solutions Evaluation Criteria

OBJECTIVE	CRITERIA	MEASURE
Develop accessible bike routes for all users. Focus on developing and improving bicycle routes that will increase safety, accessibility, and comfort for all bicycle users, especially children and older adults.	Increases comfort for children, older adults, and less experienced cyclists. Increases access to economic hubs, commercial destinations, education centers, parks, and social/health services.	Increases miles of low stress (BLTS 1 or 2) bikeways. Increases number of destinations accessible by a low stress (BLTS 1 or 2) bikeway.
Identify and prioritize short- and long-term improvement possibilities. Develop an incremental improvement plan: priority short-term improvement projects that require minimal funding and are easily implemented, and long-term capital improvement programs that encompass broader goals.	Improvements are phased based on priority and simplicity of implementation, are cost effective, and comply with existing plans and policies	Project has high likelihood of obtaining grant funding. Project is low-cost, can be implemented in phases, and/or can be implemented as part of other planned projects. Qualitative assessment of consistency with existing plans and policies.
Engage community members and stakeholder organizations to determine project priorities. Identify the facilities most needed to improve and increase bicycle use.	Community members support the preferred improvements. Needs of more vulnerable roadway users such as children and older adults are considered.	Qualitative assessment of consistency with the TSP and the priorities identified by the TSP's public process.
Improve mapping, wayfinding, and support educational programs. Develop an implementation plan for wayfinding signage and cycling encouragement programs to promote bicycle use by all members of the community.	Less confident riders and those unfamiliar with the area are able to navigate bike network with ease. Bicycle network is comprehensive and easily identifiable.	Wayfinding provides clear and easy-to-follow and clear routes to popular destinations. Mapping is readily available and clearly communicates safe and comfortable routes for people to use when biking.
Create and improve connections to MUPs and trails. Develop connections from new bicycle routes to existing facilities including the Umpqua River Trail.	Expands multi-use path and trail networks. Connects bike routes to multi-use path and trail networks. Improves existing bikeways and multi-use paths.	Bikeways connect destinations (including surrounding neighborhoods, commercial areas, parks, and schools) to multi-use path or trail network. Increases miles of Class 1 bikeways. Adds a Class 1 bikeway to an area that does not already have a Class 1 bikeway.
Explore traffic calming measures to increase safety for cyclists. Determine whether additional traffic calming measures are appropriate or necessary along portions of the bicycle routes.	Makes biking more comfortable and safer by calming nearby traffic.	Slows traffic and/or provide physical separation between vehicles and people biking. Improves safety at a location with an identified safety concern for biking.

BICYCLE NETWORK CLASSIFICATION

The existing bicycle network is shown in both Figure 1 and the Companion Map. The maps categorize facilities in three classes:

- Class 1: separated trail, which includes multi-use paths.
- Class 2: road-adjacent physically separated bikeway, including protected shared sidewalks
- Class 3: shared roadway designated for bikes with striping/signing, which includes roads with bike lanes. This is the most common class of bike facility.

This classification system has been in use by the City of Roseburg, but note that it may differ from classifications used by other jurisdictions.

Images in Figure 4, Figure 5, and Figure 6 were sourced from National Association of City Transportation Officials (NACTO).

Class 1

Class 1 bikeways can take the form of a trail or a MUP, also called a "shared use path," as seen in Figure 3. MUPs provide a right-of-way for biking, walking, and using mobility devices that is minimally disrupted by vehicular traffic. Class 1 facilities are usually comfortable for people of all ages and abilities and can substantially mitigate levels of traffic stress when implemented along high-volume, high-speed roadway corridors.

Multi-use paths are generally designed for two-way travel and require roadway crossings to access destinations on both sides of the street. MUPs can be useful when there is limited right-of-way because they are not located on the roadway and can be narrower than the combined width of walking facilities and two bike lanes (one for each direction).

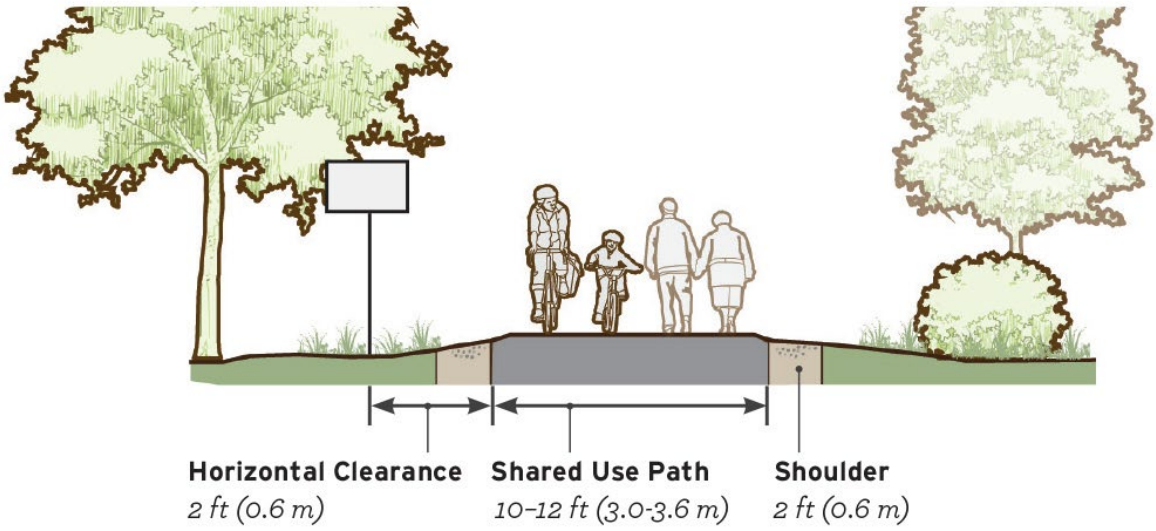


Figure 3. Multi-Use Path (Class 1 Bikeway) - FHWA Rural Design Guide

Class 2

Class 2 bikeways, as seen in Figure 4, are physically separated from automobile traffic and are designed to be used exclusively for bicycling. For the purposes of this plan, Class 2 bikeways include protected bike lanes (i.e., bike lanes separated by a barrier, such as a median, bollards, or on-street parking) and buffered bike lanes (separated by a painted buffer of 2 feet or more). If the bikeway is elevated to the sidewalk level, different pavement color or texture may be used to distinguish the bikeway from the walkway. Class 2 bikeways can feel more comfortable and safer than traditional bike lanes.[1] Class 2 bikeways can be designed for two-way travel or one-way travel (on each side of the street, with bikes moving in the same direction as motor vehicles).

Figure 4. Class 2 Bikeways: Protected Bike Lane (left) - NACTO Urban Bikeway Design Guide
Buffered Bike Lane (right) – City of Corvallis, Oregon

[1] NACTO Urban Bikeway Design Guide - National Association of City Transportation Officials - https://nacto.org/publication/urban-bikeway-design-guide

Class 3

Class 3 bikeways are shared with automobiles and have no marked or physically separated space for biking. These bikeways have pavement markings designating either a bike lane (Class 3a), or a shared lane (Class 3b).

3a. Bike Lanes

Bike lanes are visually separated from automobile traffic by striping or pavement markers, as seen in Figure 5. They are intended to be used exclusively for biking without interference from motor vehicles. They are not physically separated from motorized traffic and run adjacent to traffic lanes, typically in the same direction as motorized traffic.

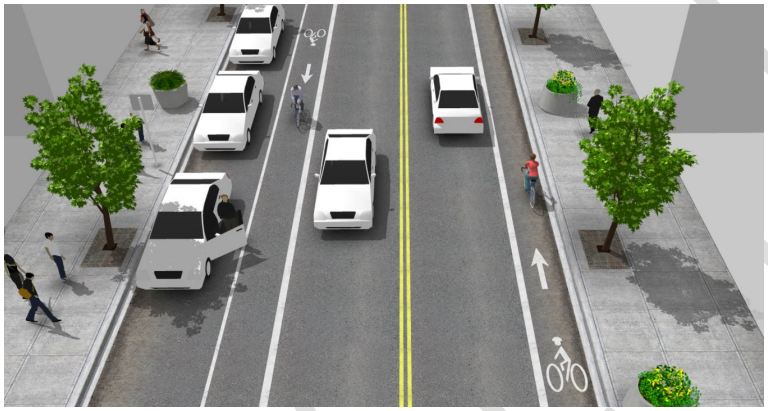


Figure 5. Conventional Bike Lane and Buffered Bike Lane (Class 3 Bikeway) - NACTO Urban Bikeway Design Guide

3b. Shared Lanes

Shared lanes lack a separation — either physical or visual — between people biking and motorized traffic. These streets are intended to be shared by people biking and people driving and should be implemented only on roadways where traffic volumes under 1,500 vehicles per day and speeds are 25 mph or less, such as local streets. They may use shared lane markings, or "sharrows," to remind drivers that people may be biking on the roadway, as seen in Figure 6. These bikeways may include directional signs or pavement markings to create a continuous route that is easy to navigate. Traffic calming measures help improve comfort and safety.

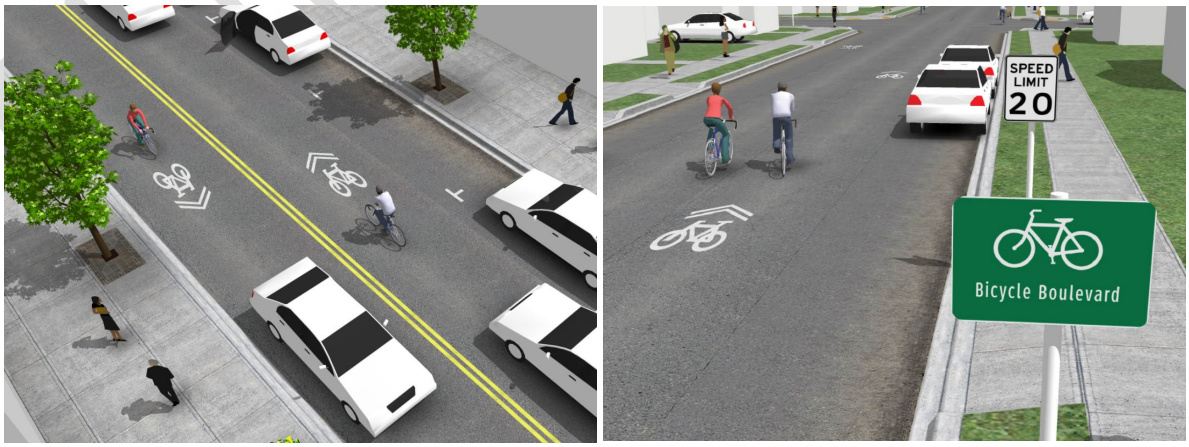


Figure 6. Shared Lanes (Class 3 Bikeway) - NACTO Urban Bikeway Design Guide

State and Local Design Guidance

State Design Guidance

Alternatives on state-owned facilities will be consistent with the ODOT Highway Design Manual and the 2020 Blueprint for Urban Design (BUD). OR 138 is the primary state-owned facility relevant to the Roseburg Bike Routes Plan (see Memo #1). OR 138 is an ORS 366.215 Freight Route and Regional Highway. State highway designations will need to be taken into consideration when roadway alternatives are selected.

A separate planning process, the OR 138E Design Concept Plan, is currently underway and is studying potential improvements for OR 138 from Douglas Boulevard to Sunshine Park. Because of this separate planning process, this Roseburg Bike Routes Plan will recommend a range of potential improvement alternatives that will be compatible with the overall bike network instead of recommending a single preferred solution on OR 138. This Roseburg Bike Routes Plan will also recommend improvements for the segments of OR 138 that are outside of the scope of the OR 138 Design Concept Plan. These recommendations can also help inform the OR 138E Design Concept Plan.

The BUD urban context along OR 138 was evaluated based on existing and planned land use. It is practical to consider the corridor in three segments:

- I-5 interchange to Douglas Avenue: most closely resembles "Urban Mix" due to the small to medium block sizes, mostly off-street parking, medium building coverage, and commercial fronting with existing or planned residential areas behind.
- Douglas Avenue to Sunshine Park: will be assessed in the OR 138E Design Concept Plan. Not included in this BUD assessment.
- Sunshine Park to Roseburg urban growth boundary: resembles a rural context. Not included in this BUD assessment.

Table 2 compares BUD guidance for Urban Mix with existing conditions along OR 138 between the I-5 interchange and Douglas Avenue. Design guidance recommends a lower speed limit (25 to 30 miles per hour) than currently exists (35 to 55 miles per hour). ODOT would require a speed study to change the speed limit. Guidance also recommends a separated bike facility and more frequently spaced crossings than are currently in place. Improvements would need to consider available right-of-way. New crossings would need to be approved by ODOT Traffic. Any roadway design exceptions for OR 138 would need to be approved by ODOT Region 3 Roadway Section prior to City adoption.

Table 2. OR 138 Comparison to Urban Context

Element	BUD Guidance: Urban Mix	Existing Conditions
Target Speed	25 to 30 mph	25 to 35 mph
Travel Lanes	Start with minimum widths, wider by roadway characteristics	4 travel lanes at 12 ft. wide
Turn Lanes	Minimize additional crossing width at intersections	12 ft. center turn lane
Shy Distance	Minimal	0 to 6 ft. paved shoulder bike lanes
Median	Optional, use as pedestrian crossing refuge. Raised median (no turn lane): 8 to 11 ft. Raised median (with left turn lane): 12 to 14 ft.	No median
Bicycle Facility	Start with separated bicycle facility, consider roadway characteristics. Separated: 8 to 7 ft. On-street: 6 ft.	6 ft. shoulder bike lanes through most of the segment Shared sidewalk/MUP on south side of Harvard Ave. and over the Oak Ave. bridge.
Sidewalk	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters) Pedestrian zone: 8 to 5 ft.	Sidewalk widths vary from 4 to 9 ft.
Target Pedestrian Crossing Spacing Range	250 to 550 ft. (1 to 2 blocks)	Approximately 200-500 ft.
On-Street Parking	Consider on-street parking if space allows	No on-street parking

Sources: BUD Table 2-6, Table 3-12

Local Design Guidance

Alternatives on local facilities will be consistent with current City of Roseburg design standards and guidelines, as described in the TSP and Memo #1.

Proposed Bicycle Network

Proposed bike networks and classifications are intended to be starting points for conversation with City staff and public stakeholders. These will be refined based on feedback from the City of Roseburg, ODOT, the Advisory Committee, and public feedback. They will be further developed into specific project alternatives in Memo #4, with the preferred alternatives carried forward in Memo #5.

The proposed bike networks aim to achieve the project objectives, specifically so that routes are accessible for all users, connect to the multi-use path network, and make use of multi-use paths. The proposed bike networks were developed with the intention of connecting popular destinations to the existing multi-use path network.. The routes chosen are intended to be low stress and minimize steep terrain so that they may be accessible to as many people as possible.

The proposed networks were categorized into short term and long term projects and are shown in the Companion Map. They are also described in more detail below.

Short Term Network

The short term network would expand the existing network with routes that are relatively low stress and could realistically be implemented within five years. The short term network takes advantage of improvements that are relatively low-cost, implementable by City public works staff, and relatively uncomplex. New routes in the short term network focus on connecting existing Class 1 and Class 2 bikeways with new low stress Class 3 routes on neighborhood streets (example shown in Photograph 1).

The proposed short term network is shown in Figure 7 and the Companion Map.

Class 3 routes are relatively straightforward to implement because they usually only require paint/thermoplastic and signs. They generally do not need additional right-of-way or substantial construction. New Class 3 routes are proposed on low traffic, low speed streets through neighborhoods so that they will be low stress and comfortable for inexperienced users. Class 3 bikeways are proposed to be marked with sharrows and wayfinding signs. Bikeways have been called “Bicycle Boulevards.” More recently they are called “Neighborhood Greenways” to reflect the benefits they bring to a neighborhood beyond biking, such as quieter and safer streets for walking, jogging, and playing.

Photograph 1. Neighborhood Greenway – seattlegreenways.org

The proposed short term network also includes new Class 2 bikeways on streets with planned projects that may be implemented in the next five years. These include improvements on Douglas Avenue and other connector streets along the OR 138 corridor as part of projects identified in the Diamond Lake Urban Renewal Plan (DLURP), TSP, and CIP. A Class 2 bikeway is also proposed for Lookingglass Road because it could be bundled with the sidewalk improvements planned with TSP project BP-23.

Long Term Network

Improvements for the long term network are proposed to be implemented in five to twenty years.[2] The vision for the long term network is a system of bike routes that are comfortable and accessible for people of all ages and abilities. While the short term network aims to realize a connected network in a short amount of time, the long term network includes more expensive projects that would be more comfortable for people of all ages and abilities.

The proposed long term network is shown in Figure 8 and the Companion Map.

The long term network relies on low stress bikeways, primarily:

- Multi-use paths (Class 1).
- Physically protected bike lanes on arterials (Class 2).
- Shared lanes on low traffic neighborhood streets developed in the short term network (Class 3).

These improvements typically require more substantial work to implement, including potential right-of-way expansion and road construction and reconstruction. This requires additional planning, design, and resources for construction.

Multi-use Paths

The long term network expands multi-use paths throughout Roseburg, including planned projects (Newton Creek, north-south route to Winchester, Harvard Avenue) and newly proposed projects (along the east edge of the airport, along I-5 near the fairground). While some of these are on existing public right-of-way, others require additional right-of-way or easements.

[2] "Proposed Bike Routes (Long Term)" layer in the Companion Map.

Arterials

The aspirational, long term vision of the bicycle network would have comfortable bike facilities serving all arterials with high traffic volumes or speeds. These bike facilities could be either along the roadway (as Class 1 or Class 2 bikeways) or along a convenient parallel route. Arterials tend to be the most direct and flattest routes, and they connect to important destinations. They are also generally high stress and uncomfortable for biking because of their wide roadways, high speeds, and high volumes of traffic. Installing Class 1 or Class 2 bicycle facilities helps to mitigate this stress, making the road more comfortable by separating bike traffic from motor vehicle traffic.

However, arterials often have constrained rights of way, which limit opportunities for implementing Class 1 or Class 2 bikeways. For example, the right of way along Garden Valley Boulevard between I-5 and NE Stephens Street (OR 99) is fully occupied by the existing narrow sidewalks and relatively narrow driving lanes. Adding a separated bike facility would require a reduction in the number of driving lanes or substantial and expensive property acquisitions. Along segments such as these, parallel routes (as described below) can provide more feasible and potentially more attractive bike routes than facilities on the arterials. Solutions may also consider other creative improvements along constrained arterials, such as using the sidewalk for short segments to make necessary connections.

Parallel Routes and New Connections

Even with Class 2 bikeways, arterials will likely still feel uncomfortable for cycling due to higher traffic speeds, more frequent driveways, and busy intersections. Therefore, the long term network also proposes new connections within neighborhoods to create parallel routes.[3] These make it possible for people to bike through Roseburg without needing to ride on busy arterials. Parallel routes are important for making a bike network that feels comfortable and safe for children. Existing neighborhood streets are often disconnected or interrupted by housing development. The proposed long term map identifies areas where a new connection, with an easement or additional right-of-way, is needed. The map does not identify an exact route because this can be done opportunistically as properties change hands, are redeveloped, or when a property owner is willing to support neighborhood connectivity. Establishing desired future connections and the type of connection (Class 1, 2, or 3) would provide the City with leverage to require their construction as a condition of future development.

New Bike Routes with Future Development

As Roseburg continues to grow with new development, the bike network should be expanded commensurately. In addition to implementing low stress bikeways with new road construction, new development could be guided to avoid some of the current challenges of the bike network. For example, new development should be well connected with redundant and parallel paths for people walking and biking. The current street grid has dead ends and cul-de-sacs that force everyone to travel on major roads, which requires additional out-of-direction travel, often making the trip unreasonably long to walk or bike. A disconnected street grid also increases traffic on major roads because everyone is channeled on to the same few roadways.

Another consideration is the grade change of new bikeways. Much of the Roseburg's new development is in the hills outside of the central city. Given the hilly topography of Roseburg's urban growth boundary, future bike route connections should be prioritized on streets with the lowest grades.

[3] "Potential Bike Facility Connections (Long Term)" layer in the Companion Map.

Finally, the City should consider how to balance the roadway priorities when a new road is built so that is it feels comfortable, safe, and convenient for people to bike. This includes roadway bike facilities and intersection treatments.

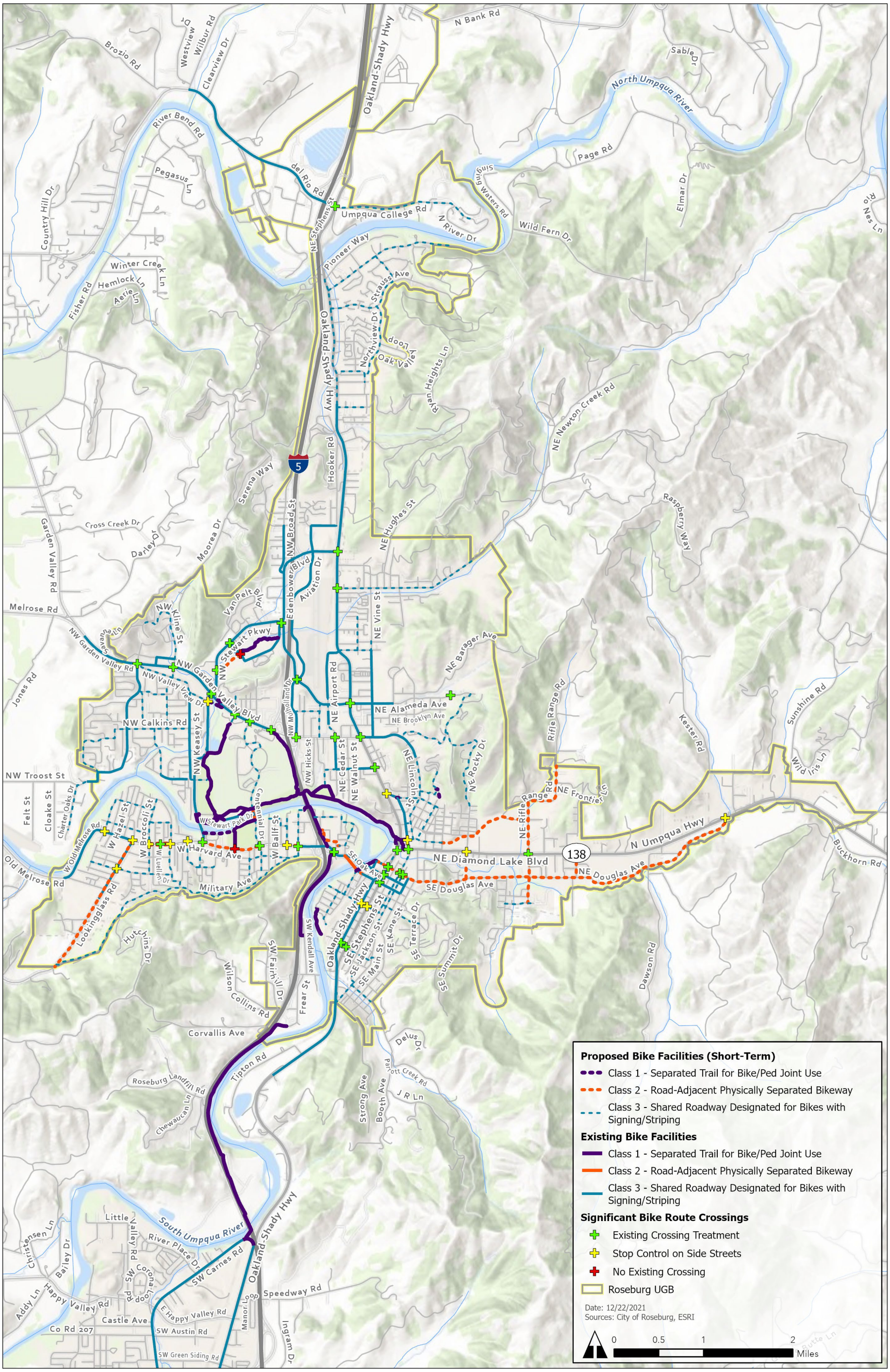


Figure 7. Proposed Short Term Bike Network

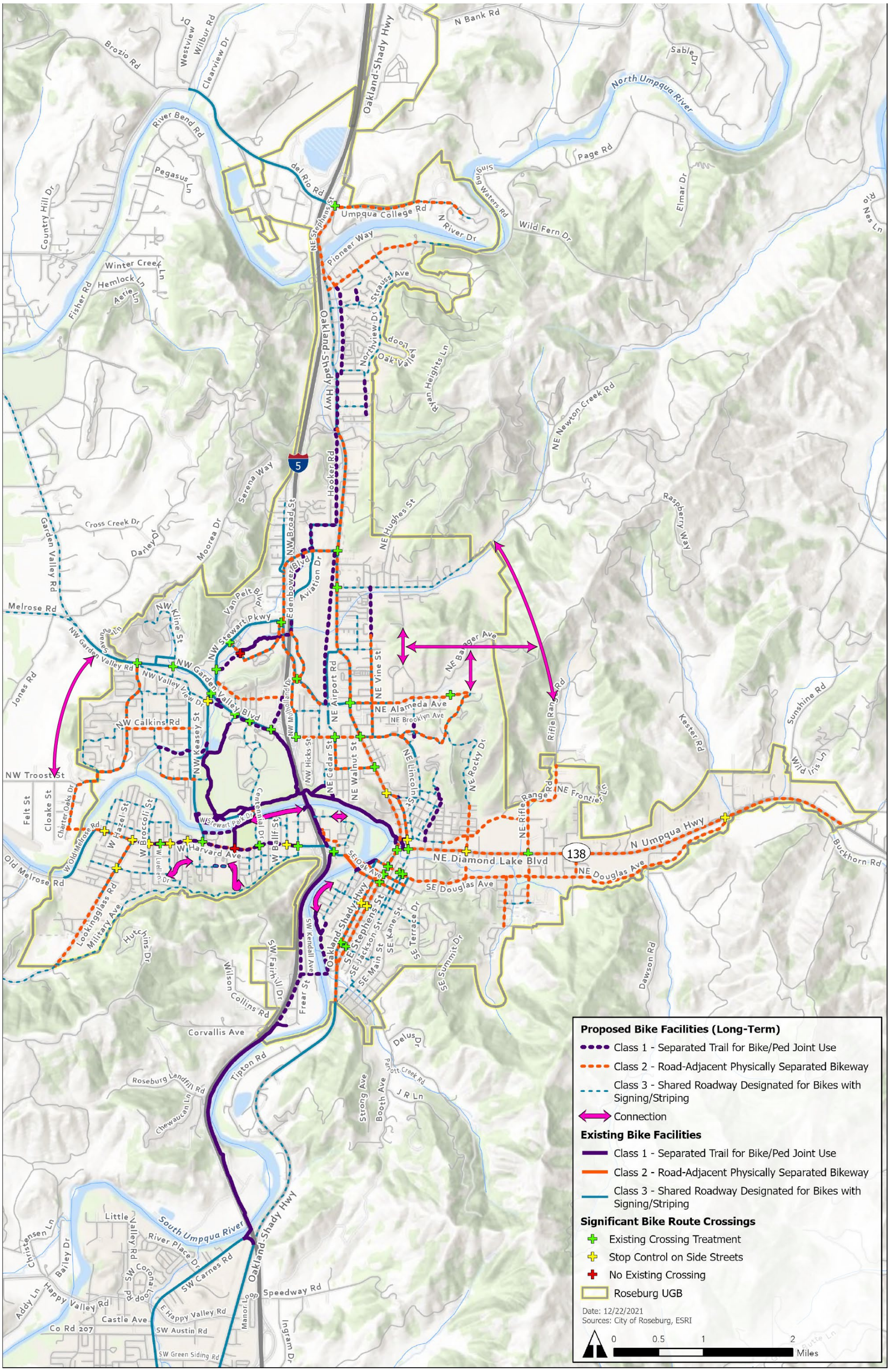


Figure 8. Proposed Long Term Bike Network

Intersection Treatments

Locations where the bike network intersects major roads will require crossing treatments appropriate for the bikeway classification, type of roadway, and broader context. More difficult crossings (where the bike network crosses a major road) are identified on the proposed bike network maps, Figure 7, Figure 8, and in the Companion Map.[4] Each crossing is symbolized based on its existing intersection treatment, whether it is a signalized crossing, a marked crossing, or lacks a crossing treatment.

Intersections can be improved for biking with treatments such as intersection design, signalization, and crossing markings. To improve crossings for biking specifically, improvements should increase visibility and provide a clear right-of-way.[5] Some of the traffic calming strategies described in the following section can also be applied as intersection treatments, such as median refuge islands (Photograph 2).

Photograph 2. Pedestrian and Bicycle Median Refuge Island – Dan Burden (NACTO Urban Bikeway Design Guide)

[4] "Significant Bike Route Crossings" layer in the Companion Map.

[5] https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/

Intersection Design

Turning Radii

A larger turning radius at an intersection allows motor vehicles to maintain high speeds as they make the turn. This can be dangerous when right turning vehicles cross a bike lane. Reducing the turning radius encourages drivers to slow down, which allows more time to look and reduces the potential for serious injury in a collision. However, reduced turn radii may impact truck movement and so may not be appropriate along freight routes. Turning radii can be reduced with curb extensions (bulb outs) or with mountable curbs to reduce impacts to freight mobility.

Photograph 3. Redesigned Curb with Reduced Turning Radius – Maricopa Association of Governments (azmag.gov)

Protected Intersections

Protected intersections, illustrated in Figure 9, keep people biking physically separated from motor vehicles until reaching the intersection. This improves biking comfort and safety by enhancing visibility and reducing potential conflict points. Bikes and motor vehicles do not mix, and a corner island protects people biking from turning drivers. The crossing distance for biking is shortened because of island and curb extensions.

Protected intersections are typically implemented on streets with Class 2 bike lanes.

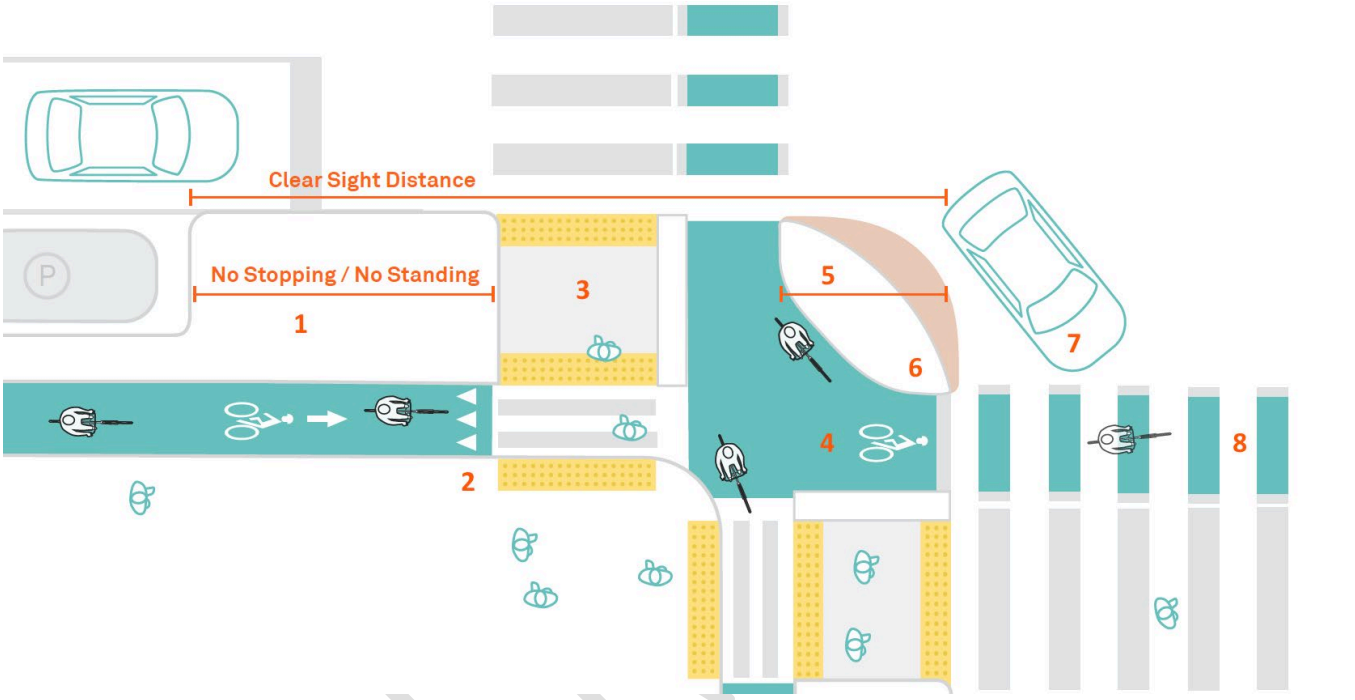


Figure 9. Protected Intersection Design - NACTO

Signalized Intersections

Bike Boxes

Bike boxes provide a highly visible, designated space for people biking to wait at intersections. This helps reduce potential conflicts between people biking and people driving. The most common issue is when motor vehicles turn right across the bike lane, often called a "right hook." Bike boxes allow people biking to move in front of the queue of automobiles so they are more visible and the boxes serve as a visual reminder for people driving to look out for people on bikes. Bike boxes are implemented in combination with a restriction on right turns during a red light ("No Turn on Red"). A 2011 study found that a majority of both cyclists and drivers felt intersections were safer after bike boxes had been installed.[6]

Photograph 4. Bike Box – NACTO Urban Bikeway Design Guide

Bike Signal Phases

Signal phases can be designed to reduce potential conflicts between people driving and people biking, especially for right hooks. Multiple strategies may be implemented, with varying levels of protection for people biking and impacts to movement of automobile traffic.

- Leading Bike Interval: gives people biking a head start in front of turning vehicles. This can accompany a leading pedestrian interval, which gives pedestrians a head start for crossing the road.
- Protected Bike Signal: has a dedicated phase for biking through while right turning vehicles are stopped. This is appropriate for locations with high turn volumes or high speeds (30 miles per hour or higher).

Signal treatments can be relatively expensive and are therefore appropriate for locations with high volumes of cycling traffic or a high safety need. Establishing a linear bike route network is generally a higher priority than signal treatments.

[6] Jennifer Dill, Christopher Monsere, and Nathan McNeil. Evaluation of Bike Boxes at Signalized Intersections. OTREC-RR-11-06. Portland, OR: Transportation Research and Education Center (TREC), 2011. https://ppms.trec.pdx.edu/media/project_files/OTREC-RR-11-06_Final.pdf

Crossing Markings

Pavement markings at intersections indicate to drivers where people are likely to be biking. Markings visually continue the bike lane across the crossed street and create a clear indication of where people should bike through an intersection. Crossing markings are especially important for right turning vehicles that may not otherwise remember to look for people biking.

Photograph 5. Intersection Crossing Markings – NACTO Urban Bikeway Design Guide

Crossbikes

Crossbikes are green striped lanes, similar to crosswalks, that reinforce priority for people bicycling through intersections (Photograph 6). Crossbikes raise awareness in areas of conflict (such as intersections), increase visibility for people biking, and clearly delineate the continued bike path.

Photograph 6. Crossbikes in Portland - J. Maus (BikePortland)

Traffic Calming

Traffic calming improvements lessen the stress of vehicular traffic by creating visual cues that encourage drivers to slow down. These improvements can be applied in the near term through a variety of inexpensive measures and can be adapted over time with the development of other roadway improvements. Traffic calming measures are particularly useful on bike routes with high motor vehicle speeds or traffic volumes.

This traffic management improvements summarized below are based on the Traffic Calming Toolkit developed for the Douglas County Transportation System Plan. The Toolkit includes strategies for addressing traffic concerns and describes how they can be implemented based on the needs of specific roadways.

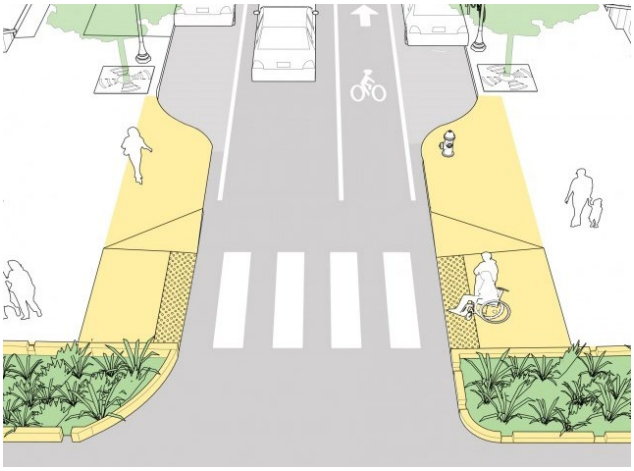
Traffic calming improvements are listed here by roadway needs:

- Wide Cross Section
- Speeding
- Cut-Through Traffic in Neighborhoods
- Rural to Urban Transition

Wide Cross Section

- Curb extensions shorten the crossing distance and narrow the roadway, which encourages slower driving. Their design must consider the bike facility to avoid creating conflicts.
- Median refuge islands provide a place for people walking or biking to wait when crossing multiple lanes of traffic.
- Rectangular Rapid Flashing Beacons (RRFBs) and other crossing beacons alert drivers to people wanting to cross busy roadways.
- Raised crosswalks increase driver awareness of people walking or biking across the street, slow traffic speeds, and indicate a priority for people walking and biking.
- On-street parking visually narrows the road and introduces visual friction to encourage slower driving.

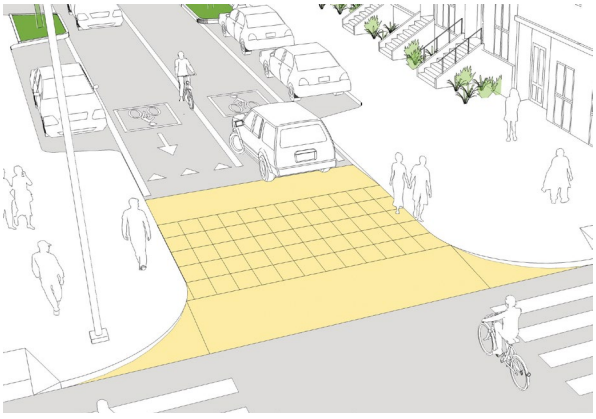
Wide Cross Section



Curb Extensions – NACTO

Median Refuge Island – Global Designing Cities Initiative

Rectangular Rapid Flashing Beacon – Pedsafe (pedbikesafe.org)

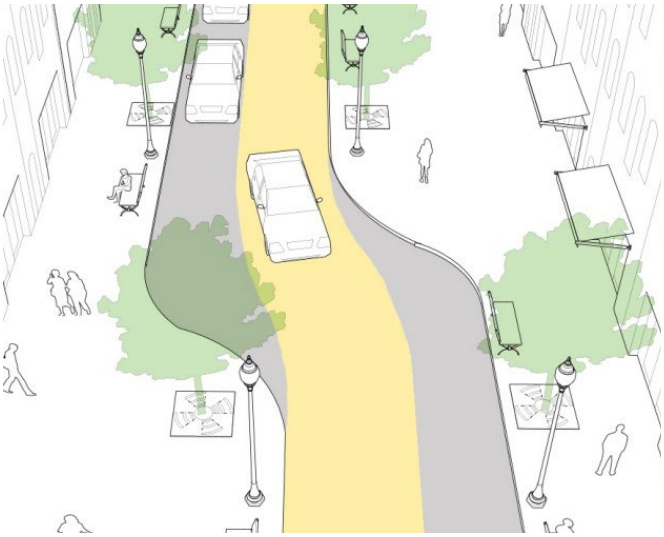


Raised Crosswalks – Global Designing Cities Initiative

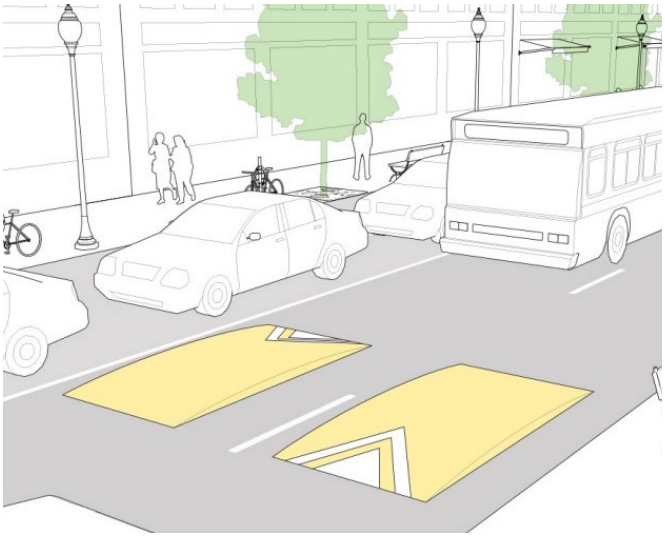
Speeding Improvements

- Chicanes and medians narrow the roadway and introduce turns to an otherwise straight roadway, which encourages slower driving.
- Speed humps (or "bumps") are intended to slow speeds to approximately 15 to 20 miles per hour. Speed cushions are similar, but provide cut outs in the hump to allow large emergency vehicles to pass without impediment.
- Mini roundabouts (or "traffic circles") lower traffic speeds by requiring drivers to navigate around them. They can include landscaping to help beautify the street. These work well on shared lanes in neighborhoods.
- Lane reconfiguration (sometimes called "road diets") decreases the number of lanes on a roadway, typically by converting a through-lane into a left-turn lane. This leaves space for additional facilities such as bike lanes, median refuge islands, bus lanes, parking, or landscaping.
- Radar speed signs alert drivers of their speed to encourage them to slow below the speed limit.

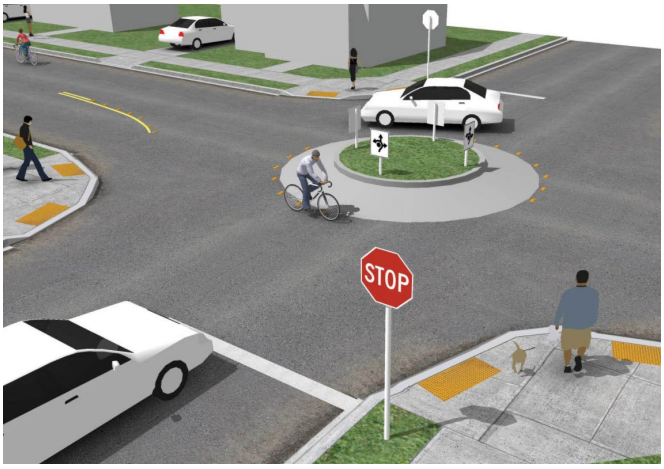
Speeding Improvements



Chicanes – NACTO



Speed Cushion – NACTO



Mini Roundabout – NACTO

Medians - NACTO

Cut-Through Traffic in Neighborhoods

- Diverters and intersection median barriers restrict access for motor vehicles at neighborhood streets in order to reduce cut-through.
- Frequent stop signs force drivers to reduce speed and remain alert.

Cut-Through Traffic in Neighborhoods

Diverters – NACTO

Intersection Median Barriers - NACTO

Rural to Urban Transition

- **Gateway Treatments** use signs, art, and landscaping to indicate to drivers that they are entering a community and should reduce speeds.
- **Pavement texturing and coloring** in a downtown or neighborhood area can be altered to visually indicate a change in urban context.

Rural to Urban Transition

Gateway Treatments – Google Earth

Pavement Texturing and Coloring - NACTO

Non-Roadway Facilities

End-of-trip Bike Facilities: Convenient and secure bike parking is a necessity for people to feel comfortable biking. People need to trust that there will be a safe place to park at their destination to be willing to bike. A range of bike parking options can be implemented based on the type of destination (Figure 10). Bike repair stations along popular routes can also reassure potential users that they will be able to fix a mechanical problem that comes up while riding. Lockers, water, restrooms, and changing facilities also make biking more comfortable and a more convenient transportation option.

Figure 10. Bike Parking (Clockwise, from top left: Secure Bike Parking, Covered Bike Parking, Bike Corral, Bike Rack) – NACTO Transit Street Design Guide

Bike Share Programs: Bike share programs enable residents and visitors to easily travel without their own bicycle. These programs offer short-term rentals within a defined area and usually include per-hour usage fees and station-based parking. Bike share systems are operating in Portland and Eugene (see Photograph 7).

Photograph 7. PeaceHealth Bike Share in Eugene - PeaceHealth

WAYFINDING AND MAPPING

Wayfinding and mapping are primarily used to indicate safe and comfortable routes for people to use when biking. This is particularly helpful for less confident riders or those unfamiliar with the area, as wayfinding and mapping can take the guesswork out of route-finding and provide a clear path to popular destinations. Wayfinding and mapping also create the foundation for a comprehensive and identifiable bicycle network. Maps, signs, and pavement markings indicate to everyone that a bike route is present, alert drivers to the presence of cyclists, and can encourage more people to bike. The following section presents alternatives for mapping and wayfinding that will address the goals and policies identified in Memo #2.

Bike Route Pavement Markings

Pavement markings are effective at indicating bike routes. Pavement markings are often more visible than signs because people biking and driving are already looking at the surface of the road.

Sharrows

In addition to indicating shared lanes, sharrows can also assure people biking that they are still on the bike route and can help with wayfinding navigation. Their large size can be seen from a distance, so people can tell they are heading in the right direction. The arrows can be oriented toward the direction of the bike route, helping at intersections and turns. Sharrows can include playful designs to add interest to the biking experience and excite kids. For example, the City of Portland and Multnomah County Library hold an annual contest for school students to design bike artwork and the winners are installed on neighborhood greenways.

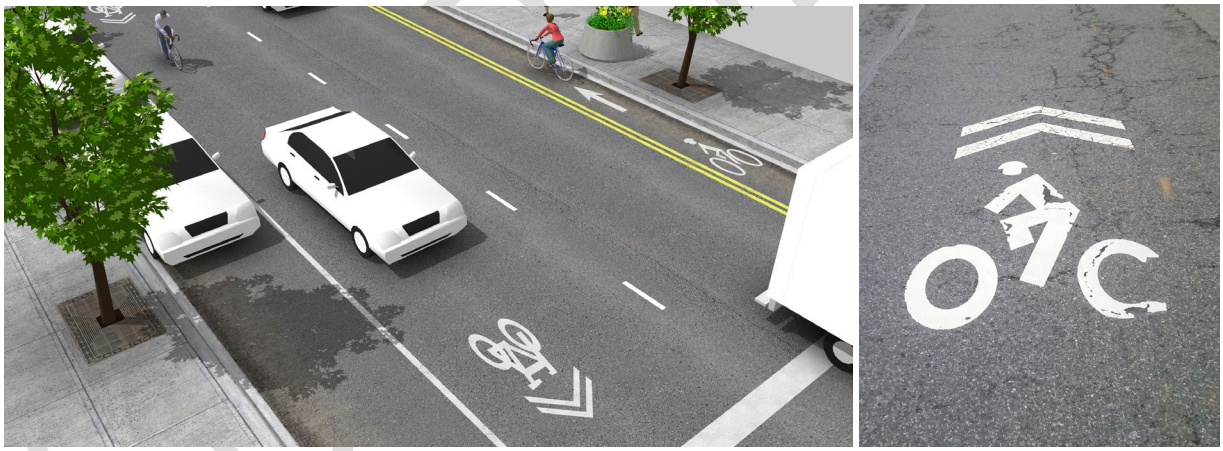


Figure 11. Sharrow Pavement Markings - NACTO Urban Bikeway Design Guide

Figure 12. Wayfinding Using Sharrows - NACTO Urban Bikeway Design Guide

Wayfinding Pavement Markers

Wayfinding pavement markings can also be used to designate a specified bike route. These markings usually are implemented to provide a more defined route and to raise awareness of a trail or path. Individual routes can have unique colors or designs to help with wayfinding and navigation. The City of Roseburg developed custom bike path markers for the Umpqua River Trail, as seen in Figure 13. The design and size of these markings will need to be considered to ensure they are easily seen.

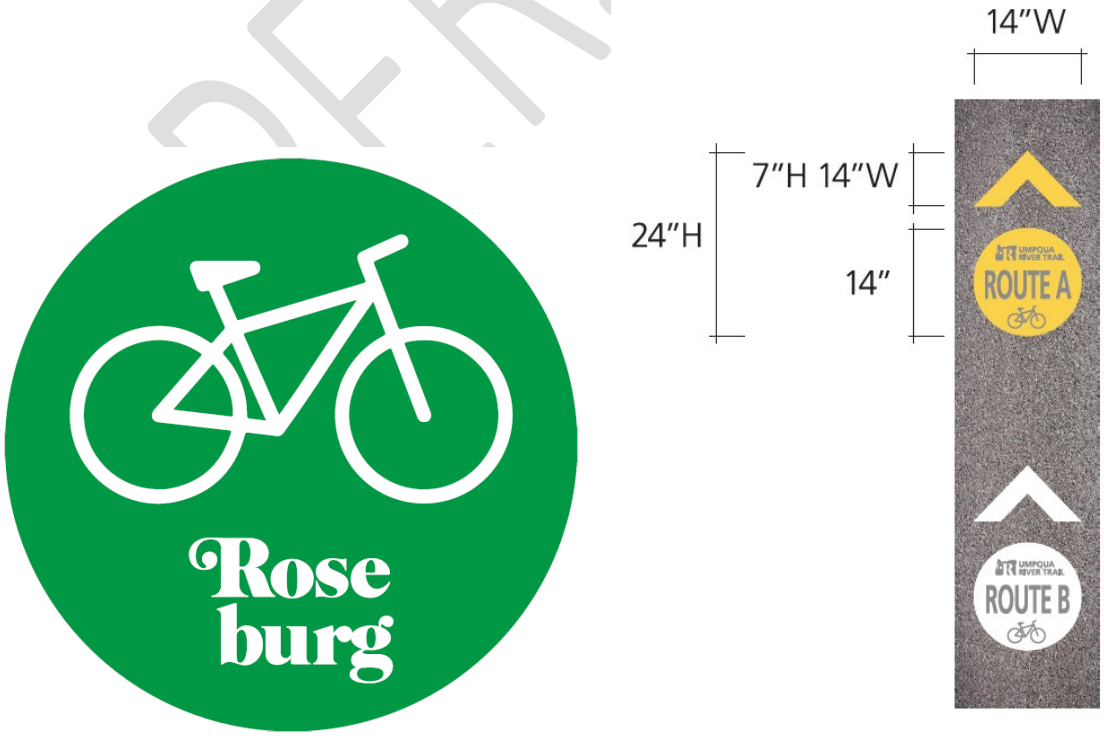


Figure 13. Custom Pavement Markers for the Umpqua River Trail

Colored Bike Facilities/Markings

Pavement segments along a bike route that differ in color from the roadway increases visibility and can provide a safer, more comfortable experience for biking. Green colored concrete, paint, or thermoplastics can be used to indicate bike facilities. Green coloring can be used where cars and bikes are likely to interact, e.g. intersections and areas where drivers cross the bike lane. Green coloring can also be used to generally identify a bike route by coloring the length of the route. It is important to note that painted pavement will require regular maintenance to keep facilities visible and effective.

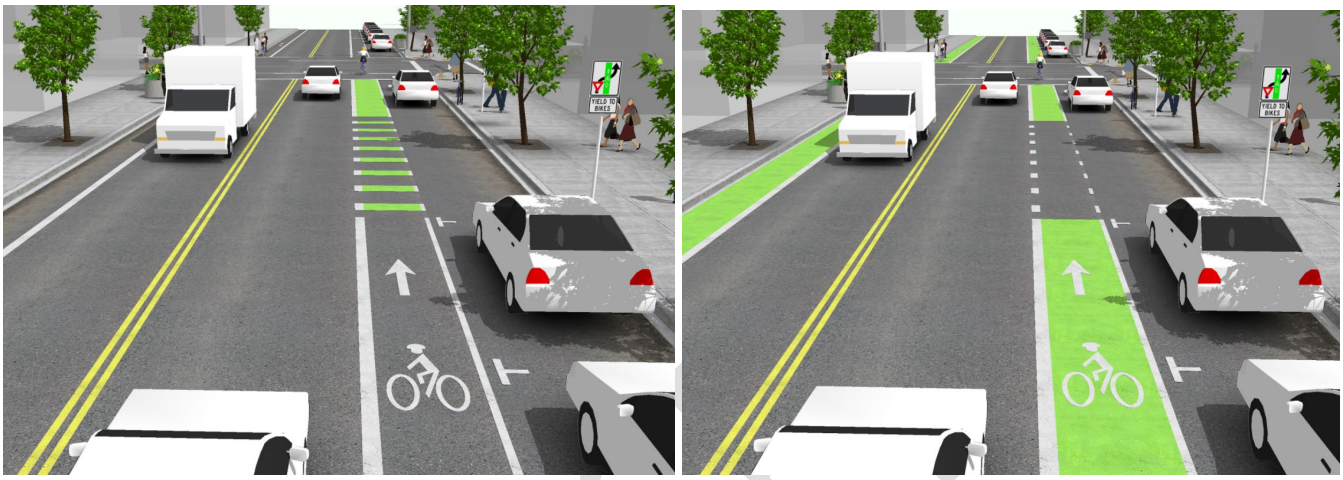


Figure 14. Dashed Color in Conflict Areas and Color Along Bikeway Corridor - NACTO Urban Bikeway Design Guide

Wayfinding Signs

Wayfinding signs along designated bike routes orient people to the preferred route, contextualize popular destinations, and can increase biking comfort. Signs indicate to drivers that people may be biking on the roadway, which increases awareness and use of caution.[7] By visually indicating available bike facilities, signs also remind people that biking is a transportation option and can encourage more biking. Wayfinding signs are useful on all classes of bike facilities, but are especially important on Class 3 bikeways where paths are not as clearly delineated. Roseburg has designs for wayfinding signs on their park trails, as seen in Figure 15.

Signs can also provide travel distances to popular destinations as well as estimates of travel time. Informational kiosks, such as the design in Figure 16, include maps and other relevant information. They can also be installed at popular locations to provide an overview of the bike network and proximity to services and other destinations.

[7] https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/shared-lane-markings/

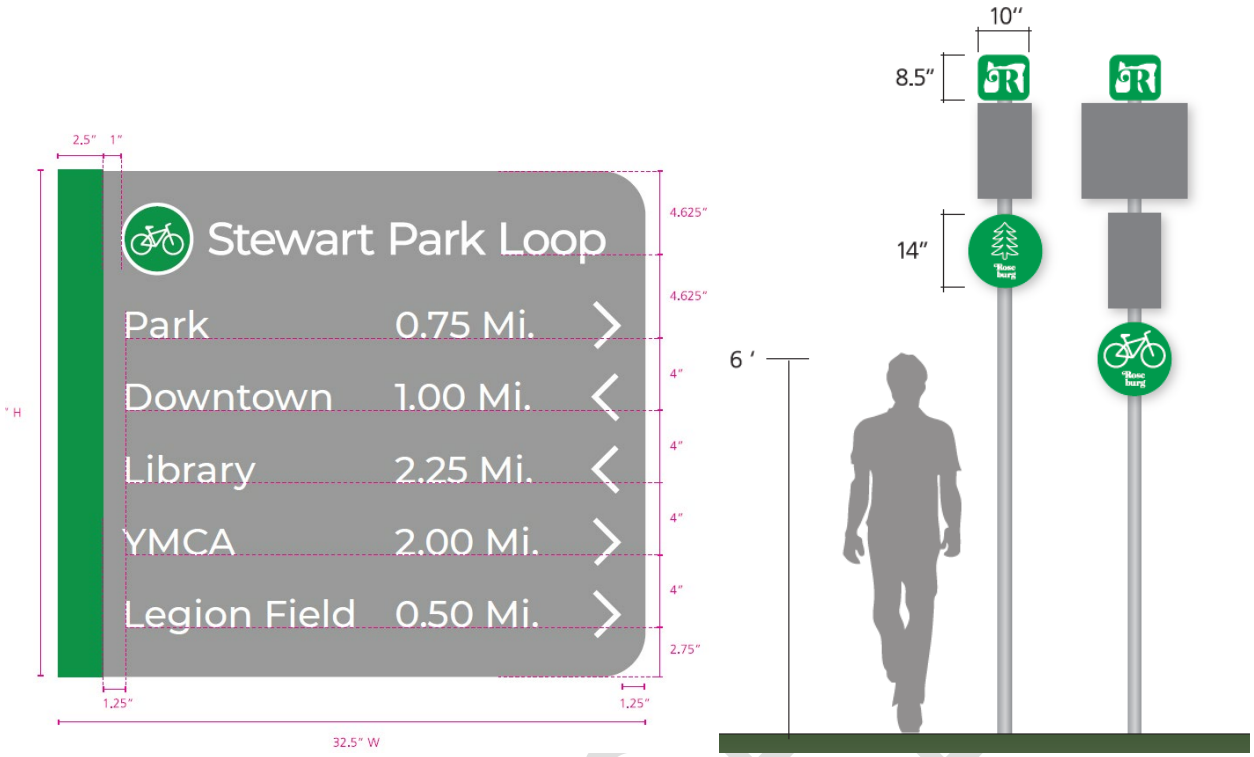


Figure 15. Wayfinding Signs Designed for Roseburg's Park Trails

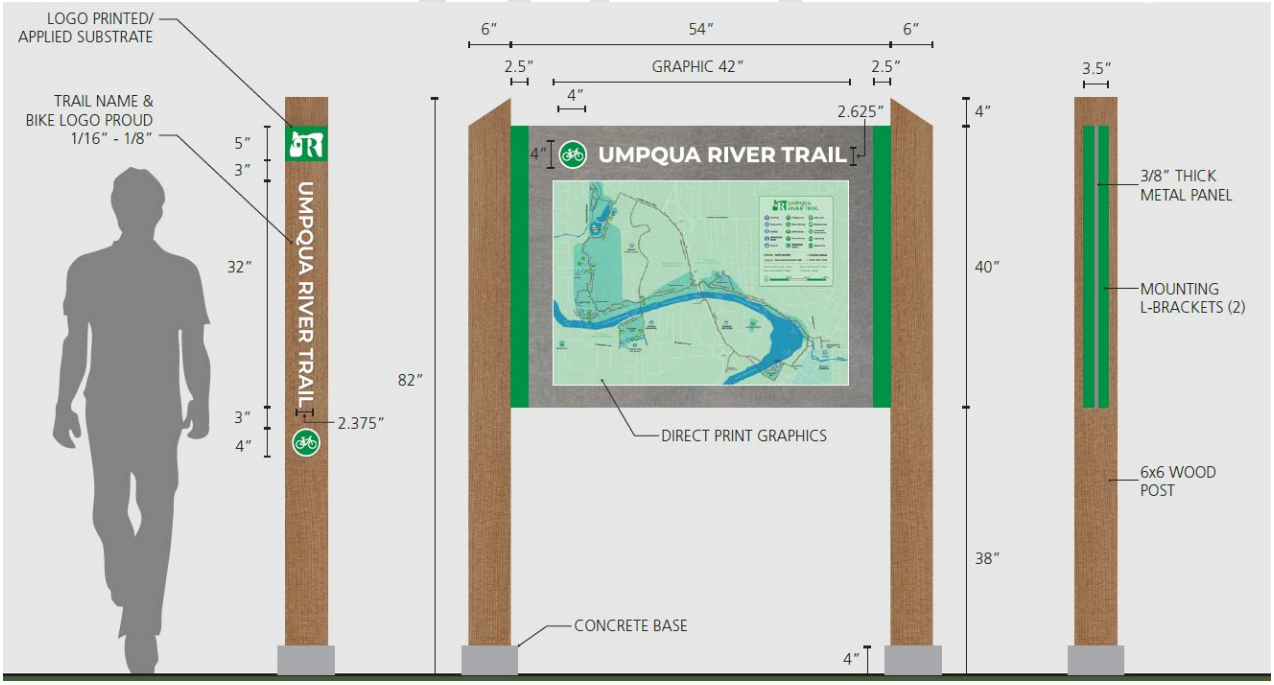


Figure 16. Trail Kiosk and Path Mile Markers Designed for Roseburg

Mapping

Physical Maps

Maps can be provided in a variety of formats, such as on signs/kiosks or in a printed format and distributed by mail or at community destinations. Printed maps should be concise and easy to read, and should clearly delineate bike routes and popular community destinations. A map of Roseburg's bike routes could be made in a similar style as the Umpqua River Trail map (Figure 17) to maintain consistency. It could be made in a print format similar to Corvallis's Bicycle Guide (Figure 18).

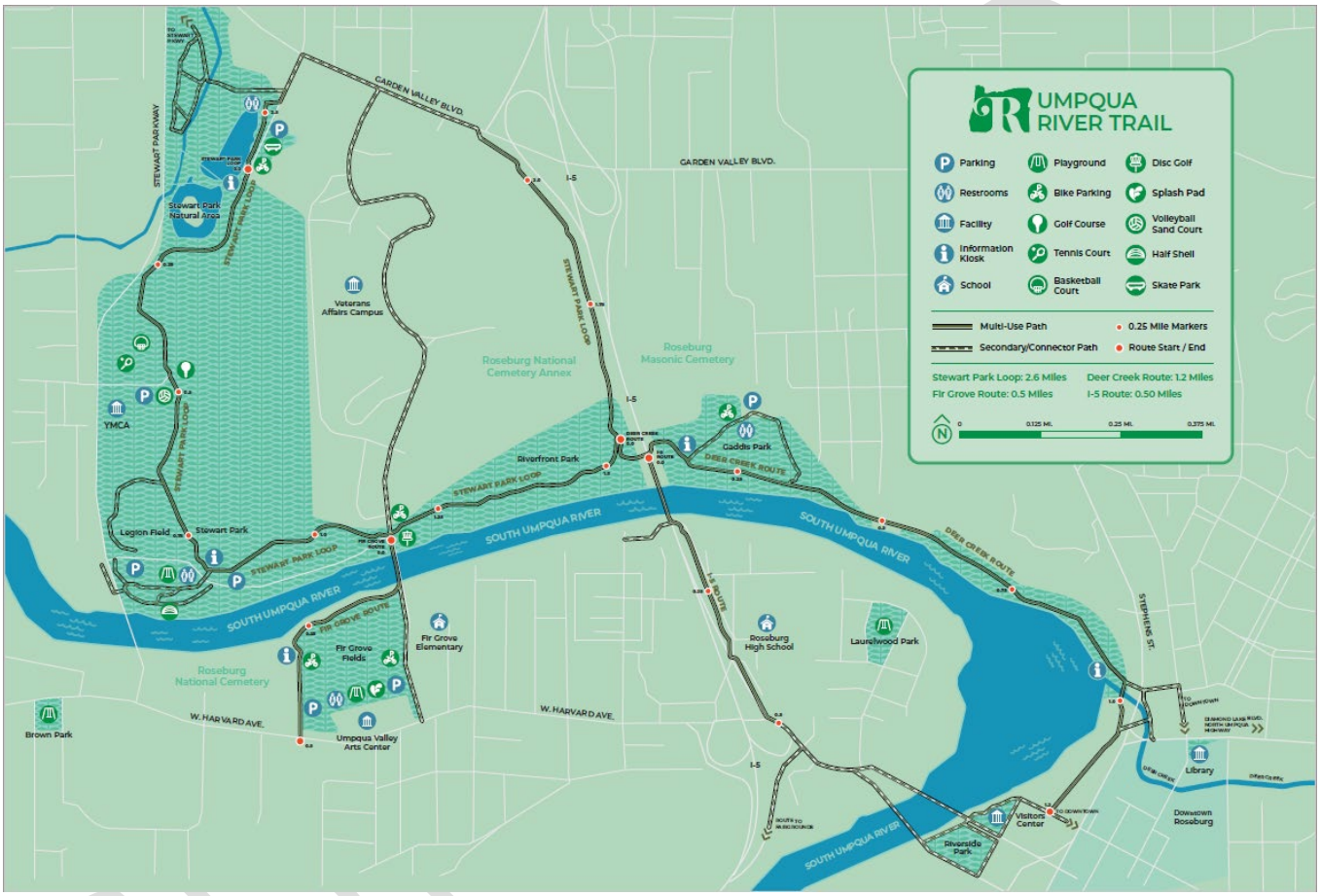


Figure 17. Umpqua River Trail Map

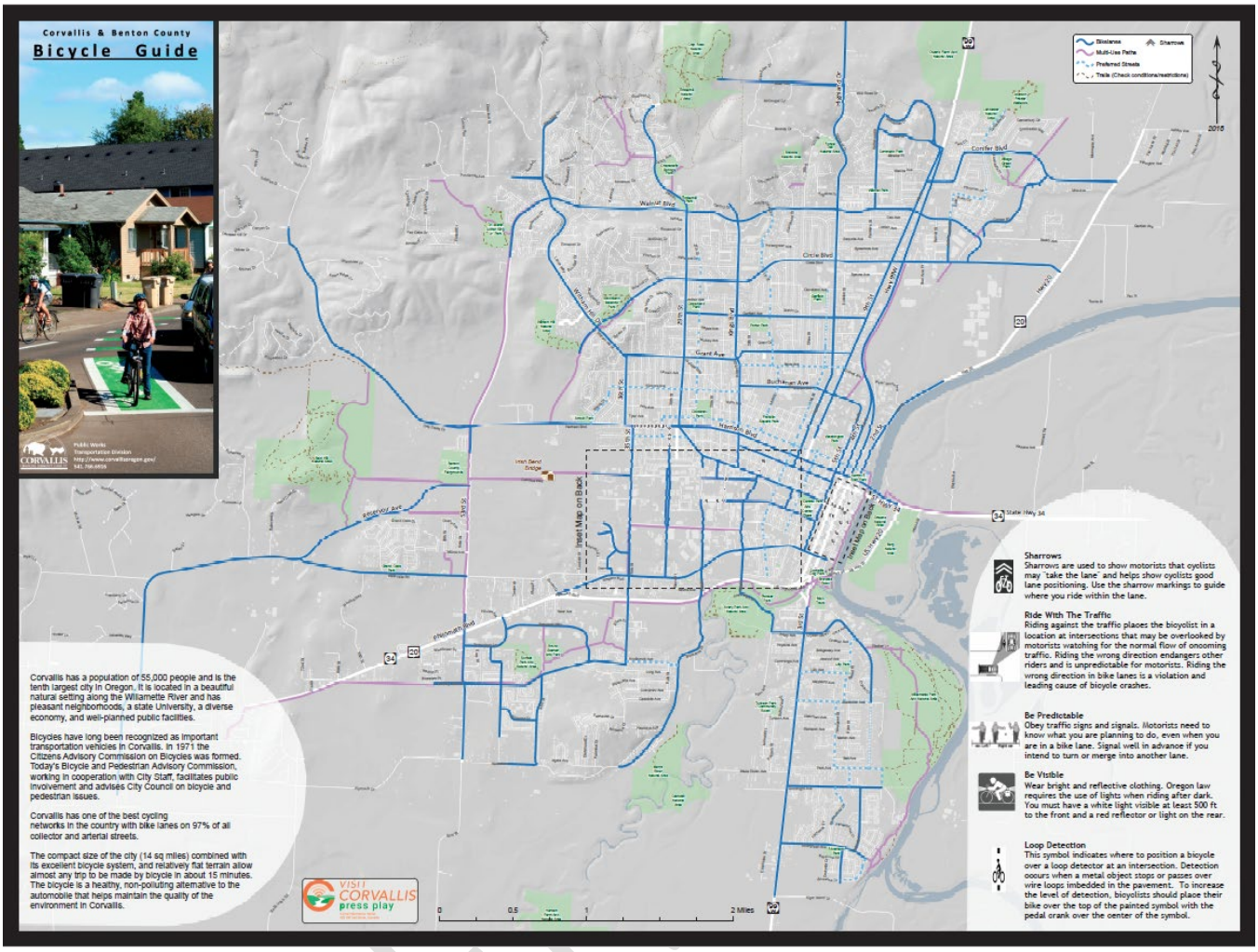


Figure 18. Corvallis & Benton County Bicycle Guide

Electronic Maps

Electronic maps can provide additional bike route information for residents and visitors. Interactive, online web maps can be hosted on the City's website and would allow users to find detailed information and virtually explore the bicycle network (Figure 19). Downloadable KML maps can be downloaded and imported into Google Maps or other navigation apps for ease of use on mobile devices.

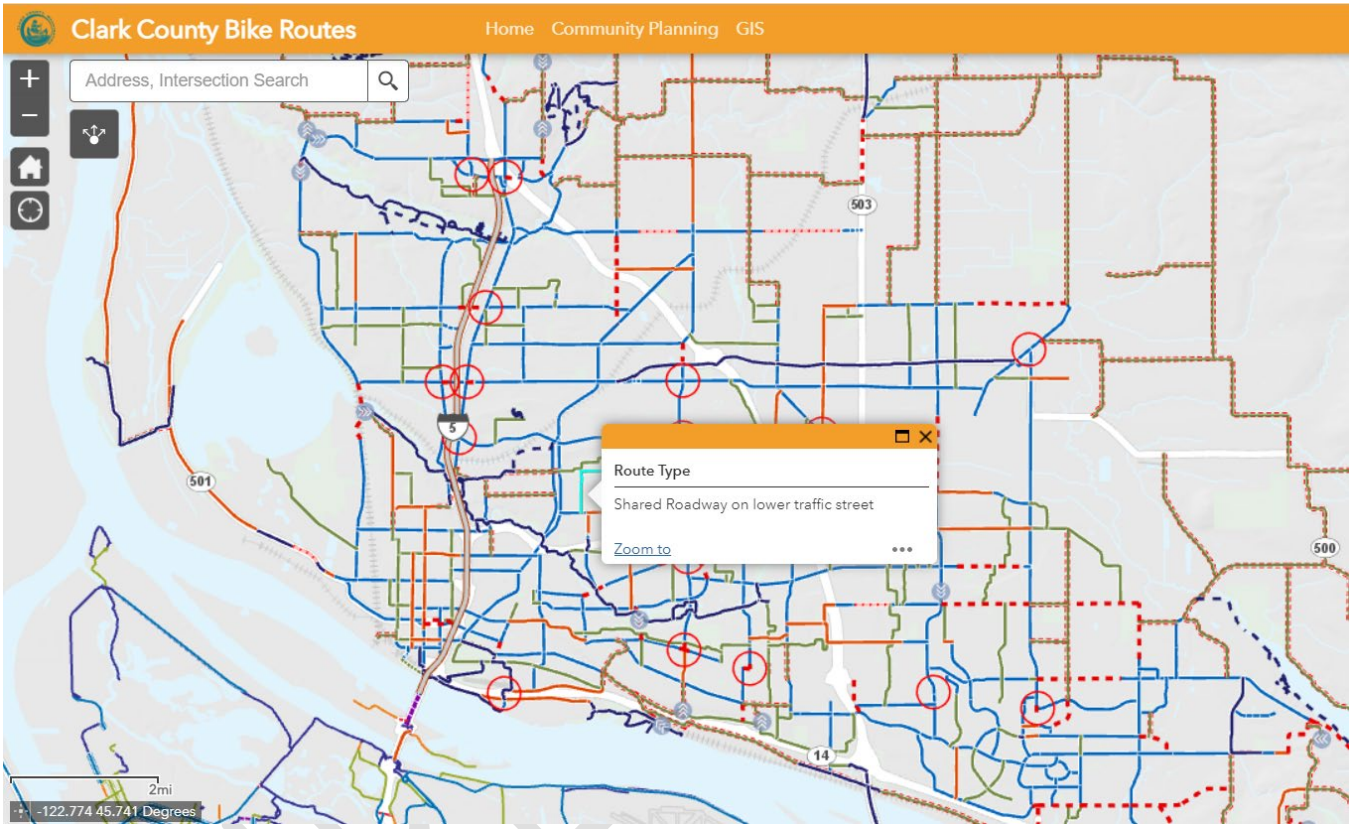


Figure 19. Interactive Online Bike Map – Clark County

BICYCLING EDUCATION AND PROMOTION

Educational and promotional programs can be paired with infrastructure improvements to encourage biking and build confidence for people of all ages and abilities. Educational programs help teach how to get around safely and comfortably by bike and teach people how to drive more safely around people biking. Events such as "Bike to School Days" and "Car-Free Street Days" develop community awareness and help build comfort for biking on the road. Programs can help educate people about the existence of bike routes, increase traffic safety knowledge, and promote the use of bicycle infrastructure by all members of the community.[8]

Educational Opportunities and Training Workshops

Classes: Local cycling groups and non-profits can assist with road safety lessons and bike maintenance. Classes may be held in community spaces or schools. They can reach a broader audience if offered for free or sliding scale payment. For example, Umpqua Velo Cycling Club is a recreational cycling club in Roseburg that offers bike repair learning opportunities, skill sharing, bike shop discounts, group rides, and a social community for people of all abilities.[9] Umpqua Valley Bicycle Outreach was temporarily closed at the time of writing this memo. However, when it was open, it served the local community by offering discounted bike repairs, hosting community events, and running an "earn-a-bike" program for youth.[10]

Campaigns: Bicycle safety campaigns raise awareness of bike routes and provide information about laws and safe biking (and driving) behavior. Safe cycling campaigns are most applicable where the idea of cycling as a mode of transportation (rather than recreational use) is not widely understood. Blue Zones Project launched the #RoseburgSafeStreets campaign in 2019 to facilitate public education about street safety, sharing the road, and the need for increased safety measures.[11] From 2019 to 2021, the campaign provided a bike fleet and bike safety curriculum to elementary school students, coordinated Walking School Buses and Bike to School Days, hosted bike rodeos, and hosted workshops such as the Friendly Driver Program. The program also increased awareness through the distribution of "Safe Streets" yard signs and a radio program to promote safe streets.

Safe Routes to School

Safe Routes to School (SRTS) programs use education, encouragement, engineering, and enforcement to promote walking and biking to school as a safe means of transportation and health benefits.[12] ODOT awards grants for infrastructure projects and non-infrastructure programs and has increased funding opportunities substantially in recent years. ODOT also offers technical assistance. Construction projects within a one-mile radius of a school, within a local roadway, and in a jurisdictional plan may qualify for funding. Since a number of the projects outlined in this memo are likely to have a direct impact on cycling and walking to school, obtaining funding from SRTS programs should be pursued. A "Traffic Safety Playground" was installed in Stewart Park through a collaborative effort between Roseburg Parks and Recreation, Douglas County SRTS, and Blue Zones Project to teach children bike and traffic safety. Douglas County SRTS also hosts a program to bring fleets of bikes to the County's

[8] https://www.c40knowledgehub.org/s/article/How-to-achieve-a-walking-and-cycling-transformation-in-your-city

[9] http://www.umpquavelo.org/

[10] https://www.uvbicycleoutreach.com/

[11] https://douglasesd.k12.or.us/blue-zones-srts/

[12] https://www.oregon.gov/ODOT/Programs/Pages/SRTS.aspx

schools.[13]A Safe Routes to School Action Plan is required for any school that is affected by a proposed SRTS project. The Action Plan initiates evaluation and community involvement activities that prepare the school to seek SRTS project funds or to implement SRTS projects and activities with other funding sources.

Photograph 8. Bike Rodeo – Utah Bicycle Lawyers

Promotional Community Events

School Streets Initiatives: These programs temporarily close roads to motor vehicles before and after school hours to make streets safer for children on school-adjacent roads. By creating direct, safe routes to schools, School Streets initiatives both increase driver awareness, and encourage parents and children to travel to schools by walking and biking. They are inexpensive to implement and can be adjusted based on community feedback.

Bike to Work/School Days: Annual or monthly "bike to school" days build community awareness and excitement about biking. They create community support for biking, where coworkers or classmates encourage each other to bike. Increasing the number of people biking on the roads may also result in a "safety in numbers" effect, causing drivers to be more cautious while sharing the roadway. When paired with educational opportunities like bike maintenance classes and lively events with food and activities, these events can build biking habits and lower the barrier of entry for first-time commuters.

Car-Free Street Days: Car-free days provide an opportunity for residents to experience what streets feel like without cars and can shift the focus of what modes of travel are prioritized. These events are popular in cities around the world and are often paired with street fair-like festivities which can foster community pride in downtown areas.

[13] https://douglasesd.k12.or.us/safe-routes-to-school/

Bike Trains: a bike train is an organized group of students biking to school together (Photograph 9). They could have adult supervision, depending on their ages. Bike trains can be organized by the school, non-profit groups, or by parents.

Photograph 9. Bike Train – biketrainpdx.org

Employer-Sponsored Bicycle Commuter Benefits

Financial Incentives and Workplace Promotions: Workplaces can incentivize employees to bike to work using rewards for trips taken by bike or by organizing bike-related events for employees. Financial incentives can take a variety of forms, including offering discounts, cash prizes, or stipends for bicycle purchase or maintenance. Promotions may include organizing "Bike to Work" Challenges, creating a workplace bike club, or sponsoring employees who participate in bike events. Employers may also consider providing amenities such as convenient and secure bike parking, showers, and lockers to employees to facilitate bike use.

The State of Oregon uses the Get There Challenge as an incentive program to encourage non-automobile transportation.[14] Local jurisdictions and employers can customize the Get There Challenge to create their own incentive programs. These types of promotions can also be coordinated with local governmental agencies or Metropolitan Planning Organizations (MPOs) as part of behavior-based Transportation Demand Management (TDM). TDM incentivizes residents, employees, and visitors to walk, bicycle, ride transit, and carpool while discouraging drive-alone trips.[15] There may be opportunity to implement these types of programs under new Transportation Planning Rule (TPR) revisions. The City may need to adopt City Code language if they would want to require and monitor employer-based TDM measures.

[14] https://getthereoregon.org/

[15] https://www.portlandoregon.gov/transportation/75489

NEXT STEPS

This Memo #3 defines criteria to evaluate and prioritize alternatives. It also outlines solution concepts as a starting point to developing specific project alternatives. The memo will be reviewed by the City, the Advisory Committee, other stakeholders, and the public. The proposed criteria, network, and solution concepts will be refined based on their feedback before the memo is finalized.

After completing Memo #3, these concepts will be developed further in future memos:

- Improvement alternatives will be proposed for specific locations in Memo #4. Alternatives will be evaluated based on the criteria proposed in this memo.
- The final project alternatives will be described and prioritized in Memo #5.
- Mapping and wayfinding alternatives will be developed in Memo #6.
- Alternatives for bicycling promotion activities will be developed for Memo #7.

The final versions of Memos #5, #6, and #7 will be the foundation for the Roseburg Bike Routes Plan.

Appendix D

Memo 4 – Project Alternatives

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	June 9, 2022
TO:	John Lazur and Stu Cowie, City of Roseburg Ian Horlacher, ODOT Region 3
FROM:	Jason Nolin, Emily Mannisto, Ryan Farncomb (Parametrix)
SUBJECT:	Memo #4: Project Alternatives (Final)
CC:	Advisory Committee
PROJECT NAME:	City of Roseburg Bike Routes Plan

Contents

INTRODUCTION

This memo refines the bicycle system improvements proposed in *Memo #3: Evaluation Criteria and Alternatives Development* (Memo #3) for the Roseburg Bike Routes Plan. First, this memo packages the improvements into route alternatives. Route alternatives are linear routes intended to connect to important destinations, such as schools, parks, neighborhoods, and commercial areas. Routes were designed to take advantage of existing bike infrastructure, especially the path network. Alternatives are named and numbered.

Second, this memo adds more detail to each route improvement. The facility type of each segment is indicated, and the proposed implementation phase is also indicated. In some instances, multiple alternatives can make the same route connection. These are indicated in the alternative number and description.

Third, this memo evaluates route alternatives based on the project objectives and criteria. It also includes conceptual cost estimates to aid in comparing alternatives. When this memo is finalized, after review by the advisory committee and stakeholder advisory committee, alternatives will include recommendations for advancement to the Roseburg Bike Routes Plan.

Finally, this memo includes "toolkits" of options for traffic calming treatments, intersection and crossing improvements, and bike amenities. Each option describes recommendations for appropriate implementation locations.

Note: This memorandum has been superseded by Memo 5: Refined Project Alternatives and may contain outdated or inaccurate information.

Interactive Companion Map

All maps in this memo are displayed in more detail and with additional information in the interactive Companion Map at:
https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=b512b24d3c914ec4b4e92c0c1194d863

ALTERNATIVES OVERVIEW

The process of developing bike route alternatives began with establishing a network of bike improvements, as described in Memo #3. This network of bike improvements created a "web" of bike facilities that reached a broad area of the city and considered factors such as safety, comfort, directness, transit access, and destinations along the route. But that initial network lacked coherent routes to go from one point to another.

For this memo, that network of bike facilities was packaged into discrete route alternatives. Alternatives were shaped with the project objectives defined in *Memo #2: Goals and Objectives* in mind. Alternatives are evaluated based on criteria from these objectives in the Alternative Analysis below.

Facility Types

Each bike route alternative is composed of bike facility treatments. Each class of facility was described in Memo #3. Here the facility is defined more clearly.

Path

A path, sometimes called a "multi-use path" or "shared-use path," is a paved facility used for walking, biking, mobility devices, and other small devices (such as skateboards, scooters, and roller skates). Paths are considered Class 1 bike facilities and are comfortable to bike along for people of all ages and abilities.

Similar to the design shown in Figure 1, paths can often be found in parks, like the existing Umpqua River Trail that travels through Stewart Park, Riverfront Park, and Gaddis Park. Paths are also commonly within the right of way adjacent to highways, like the existing I-5 path. Paths are generally designed for two-way travel and require roadway crossings to access destinations on both sides of the street. Paths can be useful when there is limited right-of-way because they are not located on the roadway and can be narrower than the combined width of walking facilities and two bike lanes (one for each direction). Paths can also substantially mitigate levels of traffic stress when implemented along high-volume, high-speed roadway corridors. Paths located in busy areas, such as in Stewart Park, see high volumes of pedestrian traffic, making it difficult at times to navigate on a bicycle. These popular paths may benefit from widening to allow for foot and bicycle traffic.

Roseburg's existing path network is a great asset for the biking in the city and is intended to be the backbone of the future network.

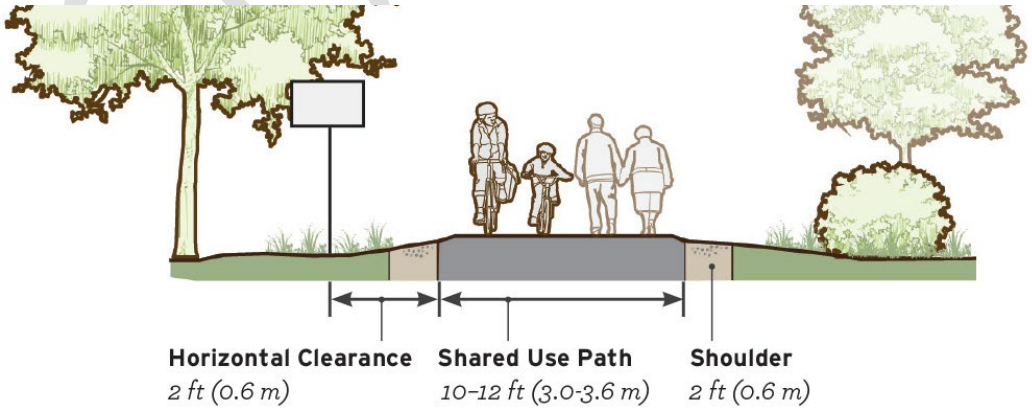


Figure 1. Path Design - FHWA Rural Design Guide

Separated Bike Lane

Separated bike lanes include protected bike lanes (i.e., bike lanes separated by a barrier, such as a median, flexible delineators, or on-street parking) and buffered bike lanes (separated by a painted buffer of 2 feet or more). Protected and buffered bike lanes are grouped together here because they require a similar amount of space to implement, and because a buffered bike lane can have physical barriers added at any time to create a protected bike lane. Separated bike lanes are considered Class 2 bike facilities.

Protected bike lanes feel more comfortable and safer to use than buffered bike lanes. Therefore, protected bike lanes should be implemented when possible. Because protected bike lanes are separated by a physical barrier, maintenance requires equipment that will fit inside the protected width of the bike lane. Roseburg does not have an appropriate street sweeper at the time of writing. Buffered bike lanes may be installed as an interim improvement until the City has the capacity to maintain them.

Separated bike lanes generally feel more comfortable and safer than traditional bike lanes. Separated bike lanes can be designed for two-way travel (as shown in Figure 2) or one-way travel on each side of the street, with bikes moving in the same direction as motor vehicles (as shown in Figure 3).

Figure 2. Two-Way Separated Bike Lane with Flexible Delineators in Seattle

Figure 3. One-Way Separated Bike Lanes: Protected Bike Lane (left) - NACTO Urban Bikeway Design Guide Buffered Bike Lane (right) – City of Corvallis, Oregon

Standard Bike Lane

Standard bike lanes are visually separated from automobile traffic by striping or pavement markers, as shown in Figure 4. They are intended to be used exclusively for biking without interference from motor vehicles. They are not physically separated from motorized traffic and run adjacent to traffic lanes, typically in the same direction as motorized traffic. Standard bike lanes are considered Class 3 facilities.

Roseburg has existing standard bike lanes along many of its roads, including NE Garden Valley Boulevard, NE Stephens, NW Edenbower Boulevard, NW Stewart Parkway, and others.

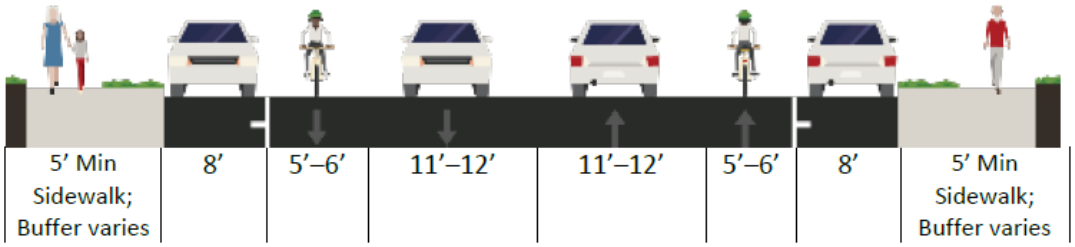


Figure 4. Standard Bike Lanes Cross Section – Roseburg TSP

Bicycle Boulevard

A "bicycle boulevard," sometimes called a "greenway," is a shared lane facility where bike traffic and motorized traffic use the same lane without separation, as shown in Figure 5. Bicycle boulevards are considered Class 3 facilities.

When implemented on quiet streets, bicycle boulevards can be pleasant to bike along and comfortable for people of all ages and abilities. They should be implemented only on roadways where traffic volumes under 1,500 vehicles per day and speeds are 25 mph or less, such as local streets. They use shared lane markings, or "sharrows," for wayfinding and to remind drivers that people may be biking on the roadway. Bicycle boulevards include directional signs and pavement markings to create a continuous route that is easy to navigate. Traffic calming measures help improve comfort and safety.

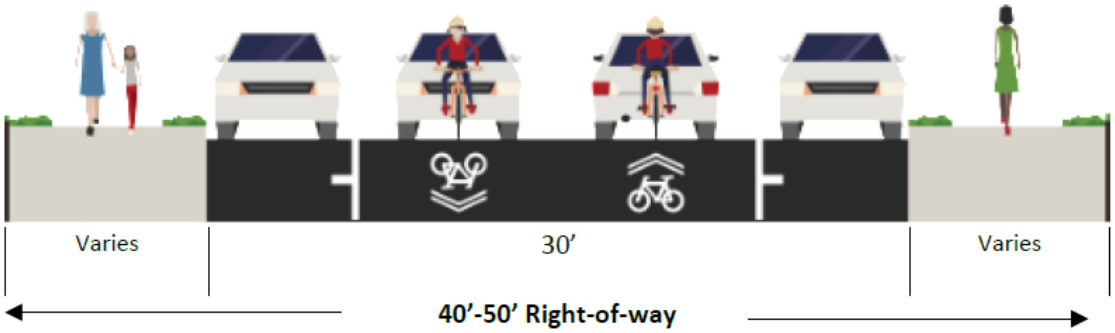


Figure 5. Bicycle Boulevard Cross Section – Roseburg TSP

Bikes on Sidewalk

Because of the established land use and transportation network, some bike routes must use a busy road that lacks dedicated bike facilities. An example of this is Harvard Avenue, which lacks a dedicated bike facility and also lacks a parallel alternative route. In situations like this, some alternatives propose directing people to bike on the sidewalk until a dedicated bicycle facility can be implemented. Signs would direct people biking to yield to pedestrians, similar to the shared sidewalk shown in Figure 6. Biking on the sidewalk would be more comfortable than biking in traffic for younger or less experienced riders. This can already be seen today as people choose to bike on the sidewalks instead of in the road. People would still be able to bike in traffic if they choose to.

This is not intended to be a Long Term solution. Sidewalks along these roads tend to be relatively narrow (six feet or narrower), and so are not ideal for mixing walking and biking. The presence of obstacles, including utility poles, signs, and trees, narrow sidewalks even further. The Long Term solution would be a dedicated facility for biking or a facility that is sized appropriately for shared use. On Harvard Avenue, for example, the Long Term solution is to widen the north sidewalk so it can be used as a path for walking and biking. Sidewalk widening could require extending the sidewalk into the road and removing a motor vehicle lane in locations with constrained right of way. In the meantime, bikes on sidewalk will give people a place to bike if they are uncomfortable biking in traffic.

Figure 6. Bikes on Sidewalk Treatment in Portland

Phasing

Alternatives in this memo are organized by three proposed implementation phases:

- Short Term: implement within 5 years.
- Medium Term: implement within 10 years.
- Long Term: implement in 10 to 20 years.

Projects that would be beneficial but are not likely to be implemented within 15 years are considered "Aspirational."

Phasing was determined from various factors, including:

- The need for the improvement.
- How well the alternative addresses the evaluation criteria.
- The estimated cost and potential of available funding.
- The amount of coordination needed to implement.
- The likely level of community support.
- Alignment with existing policies and plans, including the Transportation System Plan and Comprehensive Plan.

The following sections of the memo describe the alternatives by proposed phase, starting with Short Term, then Medium Term, and finally Long Term.

ID Numbers

Each route alternative is assigned an ID number to simplify identification. The first two characters in the ID derive from the geographic quadrant of the city the route is located in. The quadrants and numbering are defined as:

- NW: north of the South Umpqua River, west of I-5.
  Numbering reserved for this quadrant is: NW-10 to NW-29.
- NE: north of the South Umpqua River or Deer Creek, east of I-5.
  Numbering reserved for this quadrant is: NE-30 to NE-49.
- SE: south of the South Umpqua River or Deer Creek, east of the South Umpqua River.
  Numbering reserved for this quadrant is: SE-50 to SE-69.
- SW: south and west of the South Umpqua River.
  Numbering reserved for this quadrant is: SW-70 to SW-89.

Additional identifiers are appended to the number when subsequent phases of improvement are proposed for a route alternative, or when an alternative alignment is possible for the same route. These mostly appear in Long Term alternatives when:

- An extension of a route is proposed (Ext).
- A long term improvement is proposed (LT)
- An alternative alignment is proposed (Alt).

SHORT TERM ALTERNATIVES

Short Term alternatives implement relatively straight-forward treatments, like sharrows and signs in bicycle boulevards, to quickly establish continuous, connected routes. These are the "low-hanging fruit" of the route alternatives, chosen to make early progress in priority locations and build momentum for more complex bike routes in the future.

Alternatives in the Short Term network build upon the bike facilities already on the ground in Roseburg, such as existing paths and bike lanes. Many of the Short Term routes are along roads with existing bike facilities. A few routes already have bike facilities for their full length and would only require signage. Existing facilities within each route are indicated in Table 1 and displayed in Figure 7.

Short Term routes serve important destinations, such as schools, or make important connections to the existing path network. Short Term routes were chosen so that improvements would be geographically distributed through the city. Short Term routes are intended to be the first phase of implementation, built within 5 years.

Proposed Short Term route alternatives are listed in Table 1 and displayed in Figure 8. Alternatives are also displayed in the interactive Companion Map.

Table 1. Short Term Route Alternatives

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-10	Existing	Garden Valley West	Existing bike lanes on NW Garden Valley Blvd west of I-5 connect with existing path at the I-5 interchange.	Existing bike lanes • NW Garden Valley Blvd
NW-12	Existing	Newton Creek-Edenbower	Route follows existing Newton Creek path and bike lanes on NW Edenbower Blvd. Will connect with Valley View-Winchester route (NW-17) in the long term network.	Existing bike lanes • NW Renann St • NW Edenbower Blvd Existing path • Newton Creek trail
NW-13	Existing	Troost	Existing bike lanes on NW Troost St from NW Garden Valley Blvd to Katie Dr.	Existing bike lanes • NW Troost St
NW-14	Existing	Keasey	Route follows existing bike lanes on NW Keasey St.	Existing bike lanes • NW Keasey St
NW-15	Short Term	Hucrest	North-south route connects to Hucrest Elementary on neighborhood streets.	**Bicycle boulevard** (0.92 mi) • NW Kline St • NW Calkins Ave • NW Jefferson St **Bike lanes** (0.78 mi) • NW Kline St • NW Harvey St
NW-18	Existing	Broad	Existing bike lanes continue north of Edenbower to the community on the west side of I-5.	Existing bike lanes • NW Valley View Dr

ID	Phase	Name	Description and Notes	Facility Type(s)
NE-30	Short Term	Aviation-Highland	Existing bike lanes on General Ave, Aviation Dr, and NW Mulholland Dr cross NW Garden Valley Blvd with bikes on the south sidewalk and continue south on NW Highland St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Mulholland Dr • Aviation Dr • General Ave **Bicycle boulevard** (0.28 mi) • NW Highland St **Bikes on sidewalk** (0.17 mi) • NW Garden Valley
NE-30 LT	Short Term	Aviation-Highland Alternative	A potential new pedestrian crossing of NW Garden Valley Blvd near Fairmount St would create an opportunity for a more comfortable north-south route with less travel along NW Garden Valley Blvd. Requires crossing improvement.	**Bicycle boulevard** (0.48 mi) • NW Cecil Ave • NW Fairmount St
NE-31	Short Term	Stephens to UCC	Existing bike lanes on NE Stephens (OR 99) connect Garden Valley Blvd with Winchester and Umpqua Community College to the north. Sharrows and signage at the gap in the bike lanes on the bridge crossing the North Umpqua River. The bridge deck is 24 feet curb-to-curb.	Existing bike lanes • NE Stephens St • Umpqua College Rd **Sharrows and signs** (0.20 mi) • North Umpqua River Bridge
NE-32	Short Term	Lincoln	Connects the existing bike lanes on NE Garden Valley Blvd with a bike route that continues east and south along NE Lincoln St, NE Malheur Ave, and NE Jackson St. Because of grade on NE Lincoln St, the proposed facility is a bike lane in the uphill direction (northbound) and a bicycle boulevard treatment in the downhill direction (southbound).	Existing bike lanes • NE Garden Valley Blvd **Bike lane/Bicycle boulevard** (0.35 mi) • NE Lincoln St **Bicycle boulevard** (0.44 mi) • NE Malheur Ave • NE Jackson St
NE-34	Short Term	Vine	North-south route parallel to NE Stephens St through neighborhood and to Joseph Lane Middle School. Bicycle boulevard treatment connects existing bike lanes on NE Vine St to NE Stephens St.	Existing bike lanes • NE Vine St **Bicycle boulevard** (0.45 mi) • NE Meadow Ave • NE Kerr St • NE Hewitt Ave
NE-35	Existing	Newton East	Existing bike lanes on NE Newton Creek Rd connects to neighborhood east of airport.	Existing bike lanes • NE Newtown Creek Rd
NE-36	Short Term	Odell	East-west route through neighborhood parallel to NE Diamond Lake Blvd. Connects to path in Deer Creek Park. Would continue east to Rifle Range Rd in the long term network.	**Bicycle boulevard** (0.35 mi) • NE Odell Ave • NE Rowe St
NE-41	Existing	Rocky Ridge	Route from NE Garden Valley Blvd into residential areas on existing bike lanes.	Existing bike lanes • NE Rocky Ridge Rd

ID	Phase	Name	Description and Notes	Facility Type(s)
SE-51	Short Term	Downtown East	North-south route through neighborhood east of downtown. Parallels SE Stephens St (OR 99). Route jogs on to SE Hamilton St because it is lower traffic and has less elevation.	Existing bike lanes • NE Winchester St **Bicycle boulevard** (1.90 mi) • NE/SE Jackson St • SE Douglas Ave • SE Main St • SE Orcutt Ave • SE Hamilton St • SE Booth Ave
SE-52	Short Term	Eastwood	Connects to Eastwood Elementary School from NE Douglas Ave.	**Bicycle boulevard** (0.45 mi) • SE Ramp Rd • SE Waldon Ave
SE-53	Short Term	Mill-Roberts	Route connects the area between OR 99 and the railroad south of downtown.	**Bicycle boulevard** (0.64 mi) • SE Mill St • SE Burke St • SE Stephens St • SE Roberts Ave
SE-54	Short Term	Micelli	Bikeway between the railroad and the South Umpqua River connects Micelli Park and Deer Creek Park.	Existing path • Riverside Park and SE Pine St **Bicycle boulevard** (0.60 mi) • SE Flint St • SE Mosher Ave • SE Fullerton St • SE Micelli St
SE-56	Short Term	Mosher	East-west route across railroad and OR 99 south of downtown. Proposed as bike lanes, but could be a bicycle boulevard treatment.	**Bike lanes** (0.35 mi) • SE Mosher Ave
SW-71	Short Term	Harvard Neighborhoods (bicycle boulevards)	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Uses neighborhood streets as much as possible to avoid traffic on W Harvard Ave.	Existing bike lanes • W Harvard Ave (west of Lookingglass Rd and east of W Umpqua St) • SW/SE Washington Ave • SW/SE Oak Ave **Bicycle boulevard** (1.87 mi) • W Shasta Ave • W Jay Ave • W Kenwood St • W Francis St • W Bertha Ave • W Stanton Ave • W Fairhaven St • W Brown Ave • Military Ave • W Umpqua St
SW-72	Existing	Lookingglass	Route along existing bike lanes on Lookingglass Rd.	Existing bike lanes • Lookingglass Rd

ID	Phase	Name	Description and Notes	Facility Type(s)
SW-73	Short Term	Fullerton	Route through neighborhood connects with Fullerton Elementary School. Bikes on sidewalk treatment along both sides of W Harvard Ave connect to marked crossing between W Shenandoah St and W Fair St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bicycle boulevard** (0.67 mi) • W Sharp Ave • W Broccoli St **Bikes on sidewalk** (0.35 mi) • W Harvard Ave, south sidewalk, W Shenandoah St to W Fair St • W Harvard Ave, north sidewalk, W Shenandoah St to W Fair St
SW-74	Short Term	Umpqua Street	A comfortable neighborhood connection between W Harvard Ave and River Front Park using the I-5 bridge over the South Umpqua River.	**Bicycle boulevard** (0.32 mi) • W Umpqua St
SW-77	Existing	Old Melrose	Existing bike lanes on Old Melrose Rd continue south from the west end of Harvard Ave.	Existing bike lanes • Old Melrose Rd

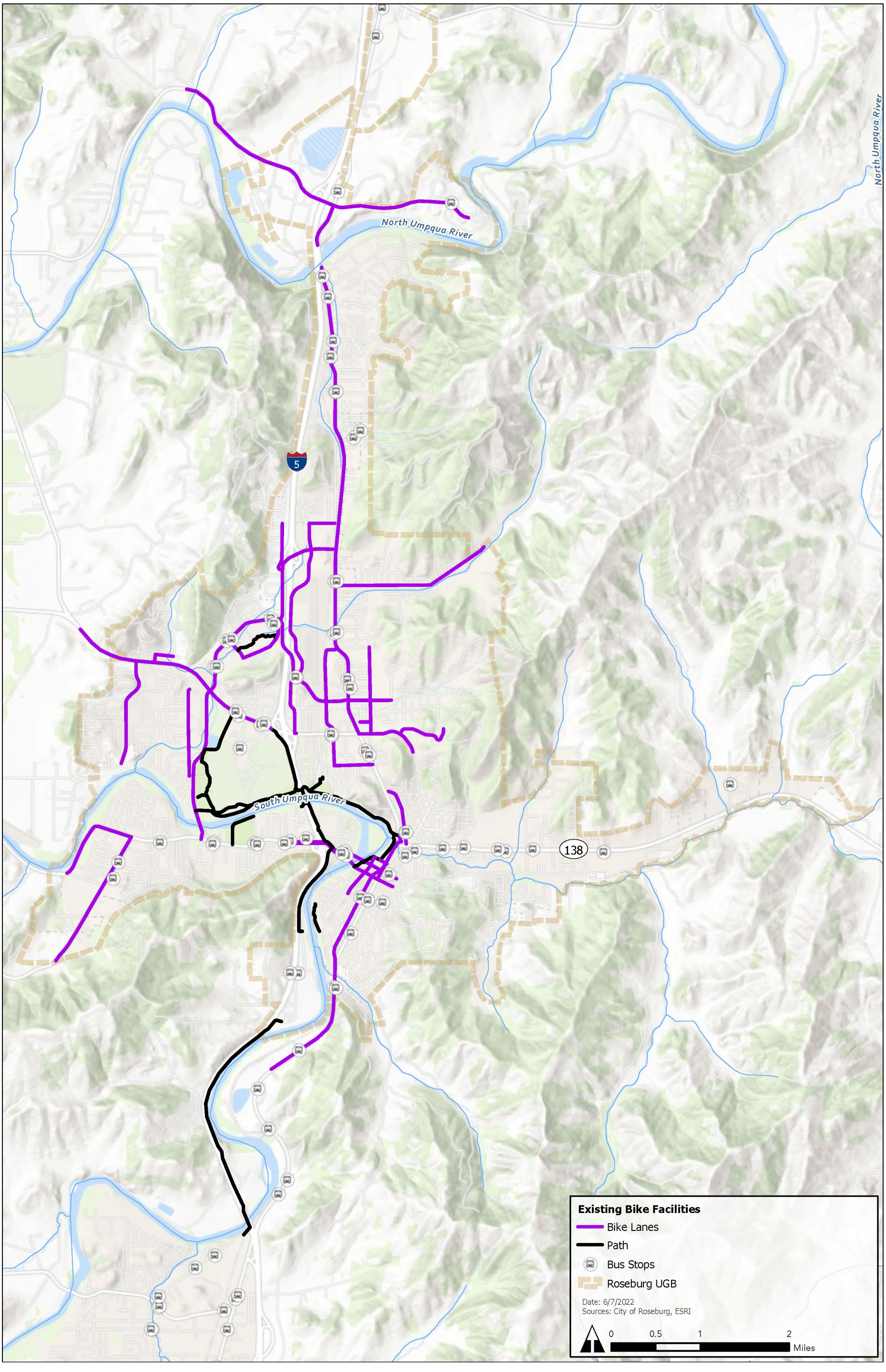


Figure 7. Proposed Routes on Existing Bike Facilities

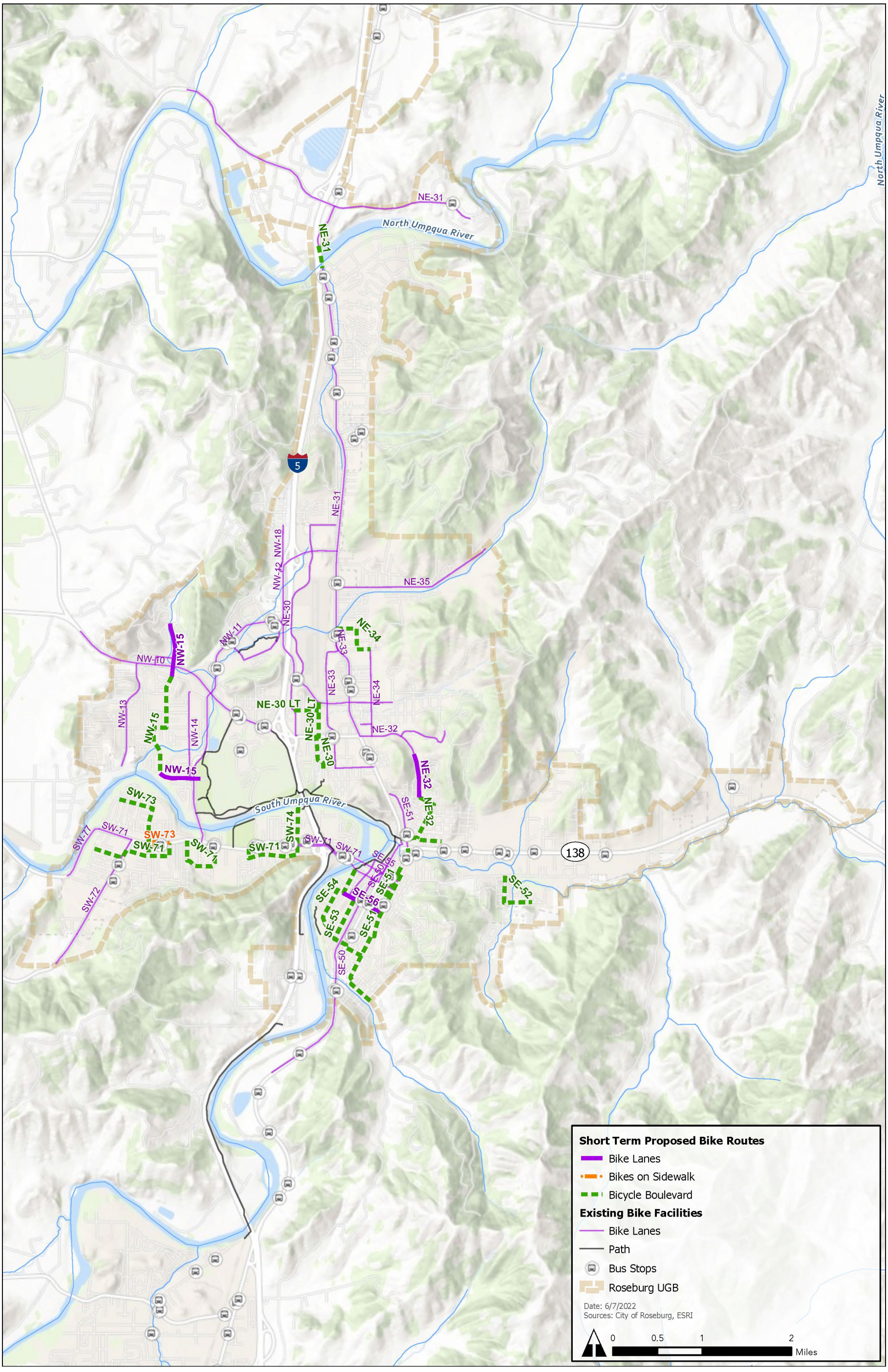


Figure 8. Short Term Route Alternatives

MEDIUM TERM ALTERNATIVES

Medium Term route alternatives are intended to be implemented within 10 years. These alternatives include treatments that may require more resources or coordination to implement than Short Term alternatives. These alternatives also include improvements that are not as high priority as those in the Short Term network, but are still important for the bike system. Examples include bikes on sidewalk treatments and extensions of Short Term Bicycle Boulevard routes.

Medium Term routes may be implemented simultaneously with Short Term routes when a favorable opportunity arises. For example, if a Medium Term route is scheduled for maintenance or if a Medium Term route is proximate to a Short Term route that is being implemented.

Proposed Medium Term route alternatives are listed in Table 2 and displayed in Figure 9. Alternatives are also displayed in the interactive Companion Map.

Table 2. Medium Term Route Alternatives

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-11	Medium Term	Stewart-Alameda	Route primarily on existing bike lanes of NW Stewart Pkwy and NE Alameda Ave. Short bicycle boulevard treatment extends the route further into the neighborhood on the east. A sidewalk treatment on the south side of W Harvard Ave connects the route to the proposed Harvard route (SW-71). Bike lanes on the Stewart Pkwy bridge over the South Umpqua River would be improved to be wider and protected, either as part of a new bridge or from reconfiguring lanes on the existing bridge. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Stewart Pkwy • NE Alameda Ave **Bicycle boulevard** (0.39 mi) • NE Alameda Ave **Bikes on sidewalk** (0.23 mi) • W Harvard Ave, south sidewalk, Francis St to Stanton St **Separated bike lanes** (0.18 mi) • NW Stewart Pkwy bridge
NW-13 Ext	Medium Term	Troost Extension	Route improves existing bike lanes by repurposing one or both lanes of underutilized on-street parking to create separated bike lanes between NW Garden Valley Blvd and Katie Dr. Extends route further west into neighborhood with a bicycle boulevard treatment on NW Troost St. Extends route further north to NW Hughwood Dr with a bike lane in the uphill direction and sharrows in the downhill direction. Continues east on NW Hughwood Dr to connect with existing bike lanes.	**Separated bike lanes** (0.71 mil) • NW Troost St **Bicycle boulevard** (0.91 mi) • NW Troost St **Bike lane/Sharrows** (0.23 mi) • NW Troost St • NW Hughwood Dr
NW-15 Ext	Medium Term	Hucrest Extension	Extends the Hucrest route around the back side of Hucrest Elementary School. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.61 mi) • NW Moore Ave • NW Lynwood St • NW Calkins Ave
NW-16	Medium Term	Calkins	East-west route through neighborhood.	**Bicycle boulevard** (0.68 mi) • NW Calkins Ave • NW Grove Ln

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-17	Medium Term	Valley View-Winchester	East-west route parallel to Garden Valley Pkwy. Crosses NW Stewart Pkwy at the signal at Garden Valley Pkwy. Would connect with Newton Creek-Edenbower (NW-12) in the long term network to create a comfortable north-south route to Winchester.	**Bike lanes** (0.66 mi) • NW Valley View Dr **Bikes on sidewalk** (0.10 mi) • NW Stewart Pkwy
NE-33	Medium Term	Joseph Lane-Gaddis Park	Connects Joseph Lane Middle School with Gaddis Park. Crosses Stephens St at existing enhanced crosswalk north of Clover Ave.	Existing bike lanes • NE Airport Rd • NE Cedar St • NE Stephens St **Bicycle boulevard** (0.26 mi) • NE Clover St • NE Chestnut Ave • NW Highland St
NE-37	Medium Term	Page	East-west route through Winchester. Connects to Winchester Elementary School.	**Bike lanes** (1.2 mi) • Page Rd
NE-38	Medium Term	North View	Route along the east side of Winchester.	**Bicycle boulevard** (1.42 mil) • Thora Cir • Josephine St • Strauss Ave • N View Dr • Taft Dr • Club Ave
SE-50	Medium Term	99-Downtown	Bike lanes on OR 99 through downtown. A new bike lane on SE Stephens St (northbound) closes the gap in the existing route. The right of way is constrained and a bike lane would require space from a driving or parking lane.	Existing bike lanes • SE Pine St (southbound) • SE Stephens St, north of SE Oak Ave **Bike lanes** (0.80 mi) • SE Stephens St (northbound), between SE Oak Ave and SE Pine St
SE-55	Medium Term	Douglas	Bikeway along NE Douglas Ave provides an east-west route parallel to NE Diamond Lake Blvd.	Existing bike lanes • NE Douglas Ave **Bike lanes** (3.00 mi) • NE Douglas Ave
SW-70	Medium Term	High School to County Fair	Connects the high school to the south side of town past the fairgrounds. New bicycle boulevard treatments on Kendall St and Frear St close the gap in the I-5 path near the county fairgrounds.	Existing path • I-5 multi-use path **Bicycle boulevard** (0.87 mi) • Kendall St • SW Portland Ave • Frear St
SW-71	Medium Term	Harvard Neighborhoods (Bikes on Sidewalk)	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Connects neighborhood segments with bikes on the south sidewalk of W Harvard Ave. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bikes on sidewalk** (0.43 mi) • W Harvard Ave, south sidewalk, Kenwood St to Francis St • W Harvard Ave, south sidewalk, Stanton St to Fairhaven St

ID	Phase	Name	Description and Notes	Facility Type(s)
SW-73 Ext	Medium Term	Fullerton Extension	Extends Fullerton route further east to W Agee St and to connect with entrance to Fullerton Elementary School.	**Bicycle boulevard** (0.34 mi) • W Bradford Ct • W Agee St
SW-75	Medium Term	Myrtle-VA	Connects neighborhood south of W Harvard Ave with River Front Park and Stewart Park along Stewart Park Drive. Potential for long term path through Fir Grove Park.	**Bicycle boulevard** (0.53 mi) • Stewart Park Dr • W Wharton St
SW-76	Medium Term	Military Avenue	Route along Military Ave from Lookingglass Rd to Harrison St. Hilly. Pavement is in poor condition and should be improved before implementing the bike facility.	**Bicycle boulevard** (2.31 mi) • Military Ave

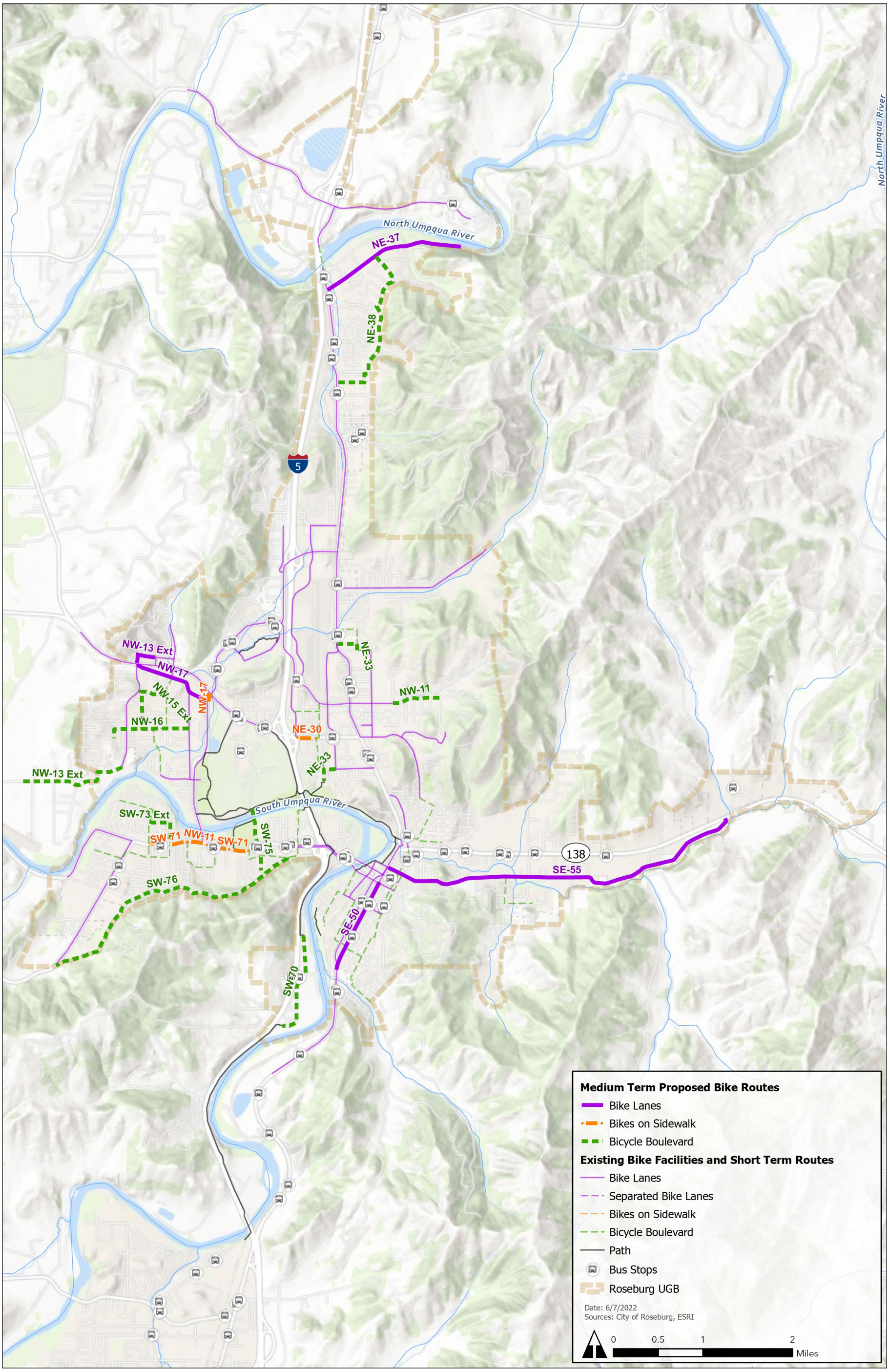


Figure 9. Medium Term Route Alternatives

LONG TERM ALTERNATIVES

The list of Long Term alternatives includes projects that aim to ultimately create a low-stress network of connected bikeways that are comfortable for people of all ages and abilities. Long Term alternatives tend to be projects that require more coordination or resources to implement, and may be phased as funding becomes available or other opportunities arise. For example, routes on school property would require coordinating access with Roseburg Public Schools. Some Long Term projects are included with larger planned roadway projects and will be implemented with them.

Long Term route alternatives are listed in Table 3 and displayed in Figure 10. Alternatives are also displayed in the interactive Companion Map.

Alternatives for the Roseburg Bike Routes Plan are intended to implementable within the next 20 years. Alternatives that would involve higher amounts of investment, private property impacts, or potential political contention are excluded. Instead, these projects are listed in the Aspirational section below.

Table 3. Long Term Route Alternatives

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-10 LT	Long Term	Garden Valley West – Path	Path on south side of NW Garden Valley Blvd between Duck Pond St and I-5 path. TSP planned project: Tier 2, BP-22a.	**Path** (0.31 mi) • NW Garden Valley Blvd
NW-17 LT	Long Term	Valley View-Winchester	Family-friendly route from Valley View to Winchester avoids busy roads using the existing tunnel and a path or widened sidewalk along Garden Valley Blvd and Stewart Pkwy. Would have an additional option to cross Stewart Pkwy with a new crosswalk to the south. Bikes on sidewalk and bike lanes would connect to the crossing. Tunnel under Garden Valley Blvd has been closed for security issues, which would need to be addressed before considering opening again. Path adjacent to Newton Creek could be new trail as in the TSP (Tier 2 BP-21b) or coordinated with Walmart. Path along east side of I-5. New bridge over I-5 connects with the Newton Creek MUP. Path continues north to Winchester. Planned TSP Tier 2, BP-21d. Would connect with Newton Creek-Edenbower (NW-12).	**Path** (4.1 mi) • Along Newton Creek (near Walmart) • North of Newton Creek to Winchester **Bikes on sidewalk** (0.12 mi) • NW Stewart Pkwy
NW-17 Alt	Long Term	Valley View-Winchester Alternative	Path on west side of I-5 in ODOT ROW. Crosses I-5 on existing Edenbower bridge as opposed to the new bridge required for NW-17.	**Path** (0.59 mi) • West of I-5 in ODOT ROW between I-5 and Edenbower.
NW-19	Long Term	Hill	Include separated bike lanes with new arterial planned in TSP Tier 2, R-16. Includes a bridge over I-5. Would provide a parallel alternative to Garden Valley Blvd and a more direct east-west route than Stewart Pkwy.	**Separated bike lanes** (0.66 mi) • NW Hill Ave

ID	Phase	Name	Description and Notes	Facility Type(s)
NE-31 Ext	Long Term	Stephens to UCC Extension	Extend the bike facility south on Stephens to connect with exiting bike lanes south of Diamond Lake Blvd. Widen sidewalk(s) to be wide enough to accommodate biking and walking along this direct and relatively flat route. Would require narrowing or reconfiguring driving lanes to fit within ROW.	**Separated bike lanes** (1.0 mi) • NE Stephens St
NE-32 LT	Long Term	Lincoln Extension	Planned sidewalk improvements would create enough space to bike and walk on Garden Valley Pkwy between NW Mulholland Dr and NE Stephens. This extends the Lincoln route further west. TSP project Tier 2, BP-3.	**Separated bike lanes** (0.52 mi) • Garden Valley Blvd
NE-34 Ext	Long Term	Vine Extension	Establishes a path from the north end of Vine St to Newton Creek Rd along existing undeveloped trail. Existing bridge over Newton Creek would likely need improvements or replacement. TSP project Tier 2, BP21c.	**Path** (0.44 mi) • Vine St path.
NE-36 Ext	Long Term	Odell Extension	Path at the north edge of the old lumber mill property from the end of Odell St to Rifle Range Rd. Could be implemented with new development.	**Path** (0.80 mi) • Odell extension
NE-39	Long Term	Rifle Range	Route along Rifle Range St. Could be implemented with new development or planned road maintenance. Separated bike lanes near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Spencer Ct the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction.	**Separated bike lanes** (0.46 mi) • Rifle Range St between Douglas Ave and Spencer Ct **Bike lanes** (0.50 mi) • Rifle Range St between Spencer Ct and Frontier Ln
NE-40	Long Term	Fulton-Rocky	North-south route through residential areas from Diamond Lake Blvd to Rocky Ridge Dr. Separated bike lanes on Fulton St near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Commercial Ave the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction. North of Tahoe Ave the road becomes a private drive. Access would need to be coordinated. Road is in poor condition and would need improvements.	**Separated bike lanes** (0.13 mi) • NE Fulton St **Bike lanes** (1.1 mi) • NE Fulton St • NE Rocky Dr
NE-41 Ext	Long Term	Rocky Ridge Extension	Continues existing Rocky Ridge bike route along NE Rocky Ridge Dr through residential area to NE Alameda Ave. Would connect to planned future extension of Rocky Road (TSP project Tier 2, R16m).	**Bike lanes** (0.40 mi) • NE Rocky Ridge Dr
NE-42	Long Term	Diamond Lake Blvd	Important east-west route on east side of town. Currently in a separate planning process to determine feasibility of adding bike lanes. TSP project Tier 1, BP-20b.	**Separated bike lanes** (3.9 mi) • Diamond Lake Blvd
SE-52 Ext	Long Term	Eastwood Extension	Creates a path on the east side of the school north to Eastwood Park along an existing undeveloped trail. Bridge over Deer Creek may require improvements or replacement. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.34 mi) • Eastwood Extension

ID	Phase	Name	Description and Notes	Facility Type(s)
SE-54 Ext	Long Term	Micelli Extension	Path continues south through Micelli Park, then across the South Umpqua River with a new bridge connecting to Portland Ave near the county fairgrounds. Planned TSP project Tier 2, BP7.	**Path** (0.43 mi) • Micelli Extension
SW-70 LT	Long Term	High School to County Fair Path Connection	Connects the gap in the I-5 path near the county fairgrounds. Path would be adjacent to I-5 on east side in ODOT ROW.	**Path** (0.78 mi) • I-5 path
SW-71 Ext	Long Term	Harvard Neighborhoods Extension	Continues the Harvard Neighborhoods route west across the South Umpqua River on a planned bridge and road extension. The route would then turn north with planned improvements on Charter Oaks Dr. Planned TSP Tier 2 projects R-16p and R-13. Requires new bridge and roadway buildout.	**Separated bike lanes** (0.57 mi) • W Harvard Ave • W Charter Oaks Dr
SW-71 LT	Long Term	Harvard Neighborhoods Fremont Connection	Would use west gate to middle school and travel through school property to southeast corner, where it would loop to the south around houses (staying on school property) and connect with Nebo St. Bicycle boulevard treatments continue to connect with the Short Term SW-71 at W Brown Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.25 mi) • On school grounds **Bicycle boulevard** (0.42 mi) • Fremont Middle School parking lot • W Nebo St • W Catherine Ave • W Fairhaven St
SW-72 LT	Long Term	Lookingglass Separated Bike Lanes	Upgrade existing bike lanes on Lookingglass Rd to be separated, from W Harvard Ave to W Woodside Rd. Can coincide with planned sidewalk improvement, TSP Tier 2 BP23.	**Separated bike lanes** (0.90 mi) • Lookingglass Rd
SW-75 Ext	Long Term	Myrtle-VA Extension	Would continue Myrtle-VA route north from Stewart Park Dr through VA campus, cross Garden Valley Blvd, continue to NW Hill Ave. VA has a closed campus. Would require coordination with VA to allow access through campus.	**Bicycle boulevard** (1.1 mi) • Stewart Park Dr • NW Veterans Wy • NW Estelle St
SW-78	Long Term	Laurelwood	Creates a comfortable route on the north and east side of high school. Would require a connection through what is now private property at the north east corner of the high school. The route would connect with Laurelwood Park. Route is contingent on future property acquisition by school. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.56 mi) • W Finlay Ave • W Bowden St • W Riverside Dr • W Casey St • W Chapman Ave • W Madrone St **Path** (0.10 mi) • Connection between W Finlay Ave and W Bowden St
SW-79	Long Term	Harvard Path	Would widen north sidewalk to make space for walking and biking, establishing a comfortable east-west route through this part of the city. Planned TSP Tier 2 BP-5. Sidewalk widening could require extending the sidewalk into the roadway because of right of way limitations. This could require removing a motor vehicle lane.	**Path** (1.4 mi) • North sidewalk of W Harvard Ave

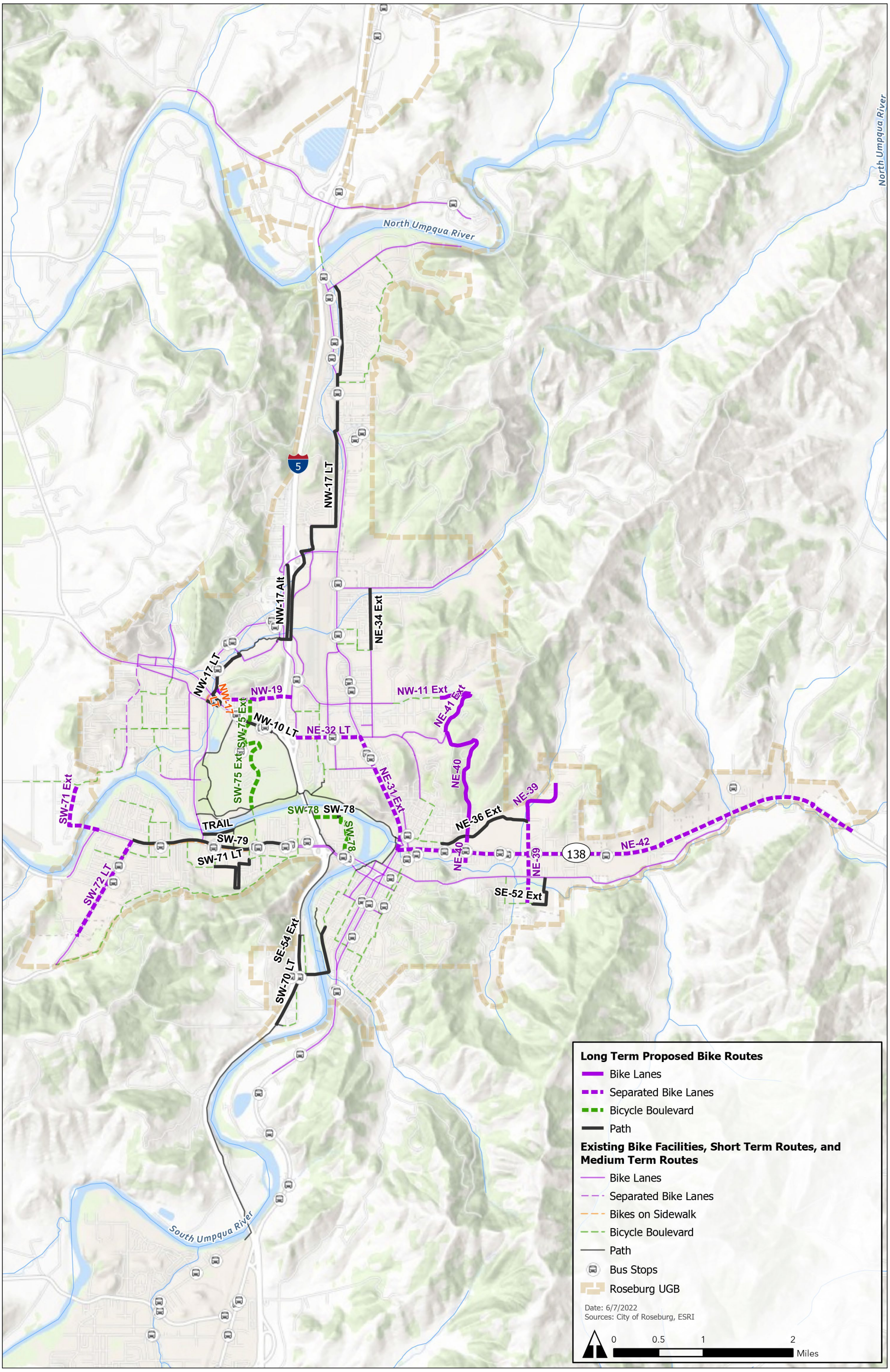


Figure 10. Long Term Route Alternatives

ASPIRATIONAL PROJECTS

Projects that are unlikely to be implemented within the Long Term time frame but would still be beneficial to Roseburg bike network are listed here. These are documented in case prospects for funding, redevelopment, or other opportunities arise. These are not included in the alternatives list, and are therefore not evaluated and do not have costs estimated.

One collection of aspirational projects is to implement separated bike lanes or adjacent paths along all arterials. These would create direct routes through the city that would feel more comfortable and safer than standard bike lanes. These arterials include:

- Stephens St.
- Pine St.
- Garden Valley Blvd.
- Edenbower Blvd.
- South sidewalk of Harvard Ave. to improve access to neighborhoods on south side.

Another collection of aspirational projects is to reconnect the street grid where it has been interrupted by private development. Interruptions in the street grid can funnel everyone to one of a few busy streets to travel through the city. Reconnecting the street grid, either by roads or paths, would allow people to bike through neighborhoods and avoid busy arterials. Notable locations that could use new connections include:

- Residential areas south of Harvard Ave.
- Fir Grove Park to I-5 along the south bank of the South Umpqua River.
- Micelli Park to Mosher Avenue along the east bank of the South Umpqua River.

ALTERNATIVE ANALYSIS

This section evaluates the proposed bike route alternatives based on the project evaluation criteria and estimated costs.

Evaluation Criteria

Criteria for evaluating solution alternatives were based on the goals and objectives established in Memo #2 and listed in Table 4. The evaluation used a three-point scale as follows:

- ● Alternative meets or fully addresses the criterion.
- ◑ Alternative partially meets or addresses the criterion, or is neutral with respect to the criterion.
- ○ Alternative does not meet or negatively impacts the criterion.
- N/A Criterion does not apply to the alternative.

Table 4. Solutions Evaluation Criteria

OBJECTIVE	CRITERIA	MEASURE
1. Develop accessible bike routes for all users. Focus on developing and improving bicycle routes that will increase safety, accessibility, and comfort for all bicycle users, especially children and older adults.	Increases comfort for children, older adults, and less experienced cyclists. Increases access to economic hubs, commercial destinations, education centers, parks, and social/health services.	Increases miles of low stress (BLTS 1 or 2) bikeways. Increases number of destinations accessible by a low stress (BLTS 1 or 2) bikeway.
2. Identify and prioritize short- and long-term improvement possibilities. Develop an incremental improvement plan: priority short-term improvement projects that require minimal funding and are easily implemented, and long-term capital improvement programs that encompass broader goals.	Improvements are phased based on priority and simplicity of implementation, are cost effective, and comply with existing plans and policies	Project has high likelihood of obtaining grant funding. Project is low-cost, can be implemented in phases, and/or can be implemented as part of other planned projects. Qualitative assessment of consistency with existing plans and policies.
3. Engage community members to determine project priorities. Identify the facilities most needed to improve and increase bicycle use.	Community members support the preferred improvements. Needs of more vulnerable roadway users such as children and older adults are considered.	Qualitative assessment of consistency with the TSP and the priorities identified by the TSP's public process.
4. Improve mapping, wayfinding, and educational programs. (Will be evaluated in Memo #6.) Develop an implementation plan for wayfinding signage and cycling encouragement programs to promote bicycle use by all members of the community.	Less confident riders and those unfamiliar with the area are able to navigate bike network with ease. Bicycle network is comprehensive and easily identifiable.	Wayfinding provides clear and easy-to-follow and clear routes to popular destinations. Mapping is readily available and clearly communicates safe and comfortable routes for people to use when biking.
5. Create and improve connections to MUPs and trails. Develop connections from new bicycle routes to existing facilities including the Umpqua River Trail.	Expands multi-use path and trail networks. Connects bike routes to multi-use path and trail networks. Improves existing bikeways and multi-use paths.	Bikeways connect destinations (including surrounding neighborhoods, commercial areas, parks, and schools) to multi-use path or trail network. Increases miles of Class 1 bikeways. Adds a Class 1 bikeway to an area that does not already have a Class 1 bikeway.

OBJECTIVE	CRITERIA	MEASURE
6. Explore traffic calming measures to increase safety for cyclists. Determine whether additional traffic calming measures are appropriate or necessary along portions of the bicycle routes.	Makes biking more comfortable and safer by calming nearby traffic.	Slows traffic and/or provide physical separation between vehicles and people biking. Improves safety at a location with an identified safety concern for biking.

Cost Estimates

High level cost estimates were developed for each trail alternative to provide a relative measure of how costs compare project-to-project. Estimates are based on straight construction costs for the proposed bike facilities. Estimates include both capital costs and owner costs, in current 2021 US dollars. Calculations used estimated unit costs for each improvement type and dimensions from aerial imagery.

Costs are reported using the following range for total cost of each alternative:

$	under $50,000
$$	$50,000 - $150,000
$$$	$150,000 - $500,000
$$$$	over $500,000

Estimates do not include costs associated with:

- Design, construction management, right-of-way acquisition, utilities, and permitting.
- New roadway construction, structural work (such as bridge work or retaining walls), or roadway maintenance.
- Additional traffic calming elements, intersection improvements, or bike amenities.

Several assumptions were made to streamline the estimate process for these initial planning estimates:

- Costs do not include maintenance or new signage to improve existing bike facilities.
- Costs for bike lanes include striping of a buffer.
- Costs for separated bike lanes include striping and flexible delineator posts. Estimates do not include costs for curb separation. Costs for separated bike lanes assume a lane on each side of the road. (A two-way bike lane on one side of the road would generally cost less.)
- Costs for bikes on sidewalk include signs and pavement markings. They do not include striping, sidewalk repair, or ramps.
- Costs for a single bike lane were estimated as a bike lane on both sides.
- Costs for paths assume a 12 foot wide paved surface, though actual widths will depend on future design and constraints specific to each location.

Evaluation Summary

Bike route alternatives are displayed in Figure 11 and evaluated in Table 5. Alternatives are also displayed in the interactive Companion Map.

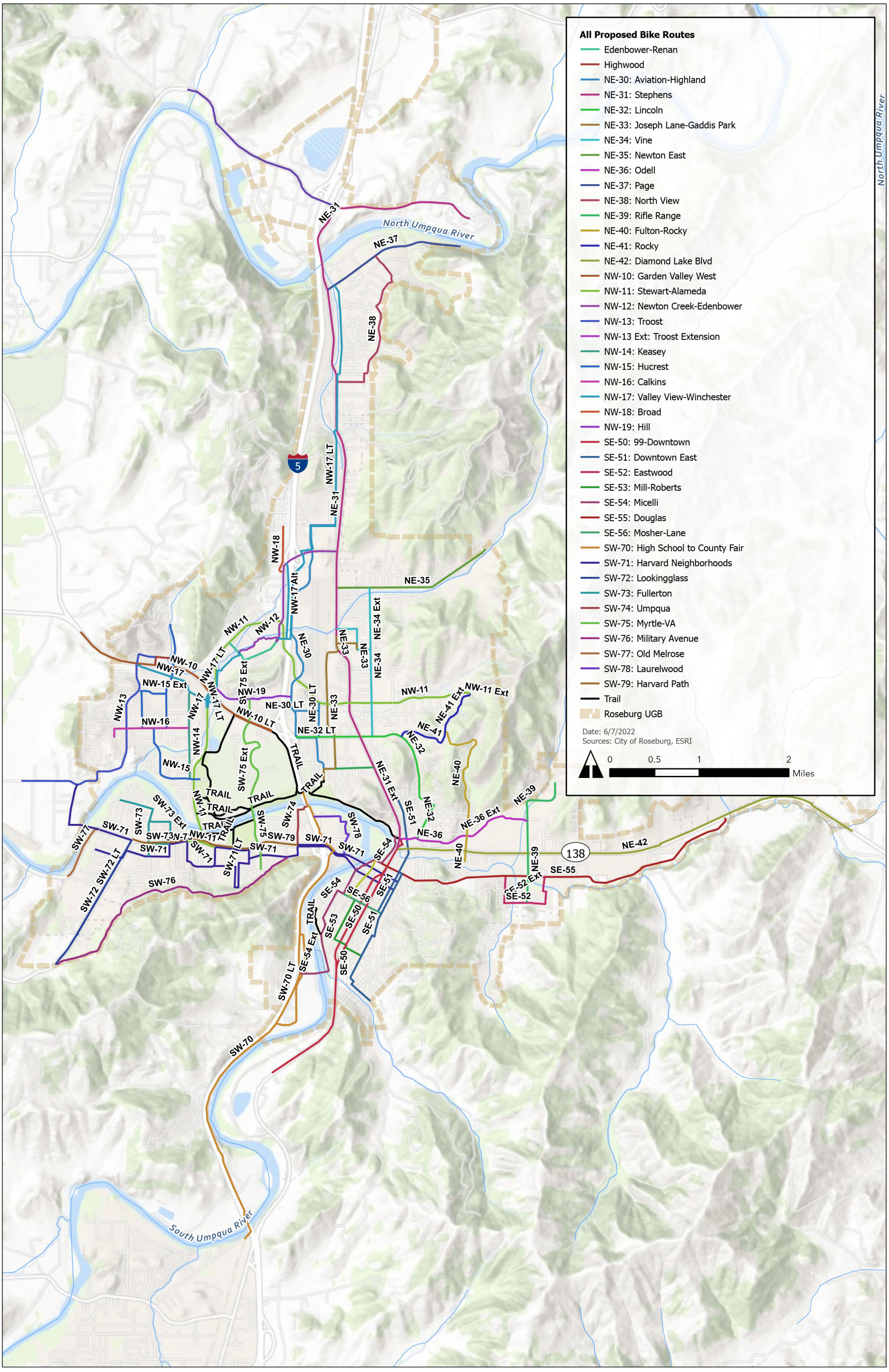


Figure 11. All Route Alternatives

Table 5. Solution Evaluation Summary

ID	Phase	Alternative Name	1. Low stress bikeways.	2. Low cost, likelihood of funding, consistency with existing plans and policies.	3. Consistency with TSP & relevant TSP project ID(s).		5. Create and connect to MUPs and trails.	6. Slows traffic, physical separation for biking, improve safety location.	Cost Estimate	Recommend for Bike Plan
Northwest										
NW-10	Existing	Garden Valley West	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NW-10 LT	Long Term	Garden Valley West – Path	●	●	●	BP21a	●	N/A	$$$$	Yes
NW-11	Medium Term	Stewart-Alameda	◐	◐	◐	R8	●	●	$$$	Yes
NW-12	Existing	Newton Creek-Edenbower	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NW-13	Existing	Troost	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NW-13 Ext	Medium Term	Troost Extension	●	●	●	R13	◐	●	$$$$	Yes
NW-14	Existing	Keasey	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NW-15	Short Term	Hucrest	●	●	◐	N/A	●	●	$$$	Yes
NW-15 Ext	Medium Term	Hucrest Extension	●	●	◐	N/A	◐	●	$	Yes
NW-16	Medium Term	Calkins	●	●	◐	N/A	◐	●	$	Yes
NW-17	Medium Term	Valley View	◐	●	●	CIP3	◐	●	$$$	Yes
NW-17 LT	Long Term	Valley View-Winchester	●	◐	●	BP21d	●	●	$$$$	Yes
NW-17 Alt	Long Term	Valley View-Winchester Alternative	●	●	◐	N/A	●	●	$$$$	Yes
NW-18	Existing	Broad	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NW-19	Long Term	Hill	●	●	●	R16a	◐	●	$$$	Yes
Northeast										

ID	Phase	Alternative Name	1. Low stress bikeways.	2. Low cost, likelihood of funding, consistency with existing plans and policies.	3. Consistency with TSP & relevant TSP project ID(s).		5. Create and connect to MUPs and trails.	6. Slows traffic, physical separation for biking, improve safety location.	Cost Estimate	Recommend for Bike Plan
NE-30	Short Term	Aviation-Highland	◐	●	●	BP19	●	◐	$	Yes
NE-30 LT	Short Term	Aviation-Highland Alternative	●	◐	●	BP19	●	●	$	Yes
NE-31	Short Term	Stephens to UCC	◐	●	◐	N/A	◐	◐	$	Yes
NE-31 Ext	Long Term	Stephens to UCC Extension	◐	◐	◐	N/A	●	●	$$$$	Yes
NE-32	Short Term	Lincoln	◐	●	◐	N/A	◐	●	$$	Yes
NE-32 LT	Long Term	Lincoln Extension	●	◐	●	BP3, BP19, R5	◐	●	$$$$	Yes
NE-33	Medium Term	Joseph Lane-Gaddis Park	●	◐	◐	BP16b	●	●	$	Yes
NE-34	Short Term	Vine	●	●	●	BP21c	◐	●	$	Yes
NE-34 Ext	Long Term	Vine Extension	●	●	●	BP21c	●	◐	$$$$	Yes
NE-35	Existing	Newton East	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NE-36	Short Term	Odell	●	●	●	R16e	●	●	$	Yes
NE-36 Ext	Long Term	Odell Extension	●	●	●	R16e	●	●	$$$$	Yes
NE-37	Medium Term	Page	●	◐	◐	N/A	◐	●	$$$	Yes
NE-38	Medium Term	North View	●	◐	◐	N/A	◐	●	$$	Yes
NE-39	Long Term	Rifle Range	●	●	●	UR1, R16b	◐	●	$$$	Yes
NE-40	Long Term	Fulton-Rocky	◐	◐	●	BP8	◐	●	$$$	Yes
NE-41	Existing	Rocky Ridge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NE-41 Ext	Long Term	Rocky Ridge Extension	◐	◐	◐	N/A	◐	●	$$	Yes

ID	Phase	Alternative Name	1. Low stress bikeways.	2. Low cost, likelihood of funding, consistency with existing plans and policies.	3. Consistency with TSP & relevant TSP project ID(s).		5. Create and connect to MUPs and trails.	6. Slows traffic, physical separation for biking, improve safety location.	Cost Estimate	Recommend for Bike Plan
NE-42	Long Term	Diamond Lake Blvd	●	●	●	BP20b, BP24	◐	●	$$$$	Yes
Southeast										
SE-50	Medium Term	99-Downtown	◐	◐	◐	BP10, BP16c	●	●	$$$	Yes
SE-51	Short Term	Downtown East	●	●	●	BP11, BP14	◐	●	$$	Yes
SE-52	Short Term	Eastwood	◐	●	◐	BP9	◐	●	$	Yes
SE-52 Ext	Long Term	Eastwood Extension	●	◐	◐	N/A	●	◐	$$$$	Yes
SE-53	Short Term	Mill-Roberts	●	●	●	BP13	◐	●	$	Yes
SE-54	Short Term	Micelli	●	●	●	BP6	●	●	$	Yes
SE-54 Ext	Long Term	Micelli Extension	●	●	●	BP7	●	◐	$$$$	Yes
SE-55	Medium Term	Douglas	◐	●	●	BP2a, BP2b	●	◐	$$$$	Yes
SE-56	Short Term	Mosher	●	●	●	BP12	●	●	$$	Yes
Southwest										
SW-70	Medium Term	High School to County Fair	●	◐	◐	N/A	●	●	$$	Yes
SW-70 LT	Long Term	High School to County Fair Path Connection	●	◐	◐	N/A	●	◐	$$$$	Yes
SW-71	Short Term	Harvard to Downtown (Bicycle Boulevard)	●	●	◐	N/A	●	●	$$	Yes
SW-71	Medium Term	Harvard to Downtown (Bikes on Sidewalk)	●	●	◐	N/A	●	◐	$	Yes
SW-71 Ext	Long Term	Harvard Neighborhoods Extension	●	◐	●	R16p	●	◐	$$$	Yes

ID	Phase	Alternative Name	1. Low stress bikeways.	2. Low cost, likelihood of funding, consistency with existing plans and policies.	3. Consistency with TSP & relevant TSP project ID(s).		5. Create and connect to MUPs and trails.	6. Slows traffic, physical separation for biking, improve safety location.	Cost Estimate	Recommend for Bike Plan
SW-71 LT	Long Term	Harvard Neighborhoods Fremont Connection	●	●	◐	N/A	◐	●	$$$	Yes
SW-72	Existing	Lookingglass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SW-72 LT	Long Term	Lookingglass Separated Bike Lanes	◐	●	◐	BP23	◐	●	$$$$	Yes
SW-73	Short Term	Fullerton	●	◐	◐	N/A	◐	●	$$	Yes
SW-73 Ext	Medium Term	Fullerton Extension	●	◐	◐	N/A	◐	●	$	Yes
SW-74	Short Term	Umpqua Street	●	●	◐	N/A	●	●	$	Yes
SW-75	Medium Term	Myrtle-VA	●	◐	◐	R7	●	●	$	Yes
SW-75 Ext	Long Term	Myrtle-VA Extension	◐	◐	◐	N/A	◐	◐	$$	Yes
SW-76	Medium Term	Military Avenue	◐	●	◐	N/A	◐	●	$$	Yes
SW-77	Existing	Old Melrose	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SW-78	Long Term	Laurelwood	●	◐	◐	N/A	●	●	$$$	Yes
SW-79	Long Term	Harvard Path	●	●	●	BP5	●	●	$$$$	Yes

Objective 4 (Wayfinding) will be evaluated in Memo #6.

N/A: not applicable.

RELATED IMPROVEMENTS

Improvements described here enhance bike routes by improving the roadway experience (through traffic calming, intersection treatments, and crossing improvements) or by making biking a more practical and enjoyable experience (through amenities).

Traffic Calming

Traffic calming treatments can be necessary to reduce motor vehicle traffic speeds and volumes to levels that feel comfortable and safe for biking. Potential traffic calming treatments were described in Memo #3. Traffic calming treatments are summarized with considerations and recommended applications in Table 6.

Table 6. Traffic Calming Toolkit

Treatment	Description	Considerations	Where to Apply	Recommended
Speed humps, or "bumps"	Elevates the roadway surface to encourage speeds of 15 to 20 miles per hour. They are designed to be 3 to 4 inches high and are 12 to 14 feet long.	Effective at slowing traffic to speeds of 15 to 20 miles per hour.	Bicycle boulevards or other routes where traffic speeds of 20 miles per hour or less are desired.	Yes
Speed cushions	Like speed bumps, but with cut outs in the bump to allow emergency vehicles to pass more easily.	Speed cushions are less effective than speed bumps at slowing traffic and can cause unpredictable driving as drivers swerve to align their wheels with the cut outs.	Bikeways along emergency routes where traffic speeds of 25 miles per hour or less are desired.	Yes
Lane reconfiguration	Reduces the number of driving lanes to lower speeds and limit reckless driving.	Lane reconfigurations increase available space for biking and walking facilities.	Along routes that have more than one driving lane in each direction. Along routes where additional space is needed for a biking or walking facility.	Yes
Radar speed signs	Sign displays the speed of oncoming traffic along with the speed limit. This feedback is effective at reducing speeding.	A mobile radar speed sign is versatile because it can be moved to locations where speeding is an issue.	Where speeding is a known issue.	Yes
Diverters	Physical barriers in an intersection require people driving to turn in one direction (they can be designed for either left or right turns) while people walking or biking can freely travel through the intersection.	Diverters restrict motor vehicle movements.	In locations where there is a need to reduce motor vehicle traffic on a bike route.	Yes
Intersection median barriers	A barrier in the median of the road at an intersection allows people to cross a street by walking or biking, and restricts motor vehicle left turns and road crossings.	Intersection median barriers restrict motor vehicle movement when necessary because their movement compromises the safety of other modes.	In locations where there is a need to reduce potential turning or cross street conflicts.	Yes

Treatment	Description	Considerations	Where to Apply	Recommended
Mini roundabouts, or "traffic circles"	Medians or planters placed in the center of low speed intersections.	By narrowing the road, a traffic circle creates a pinch point that can create a hazard if a driver tries to overtake a cyclist.	Minor street crossings involving residential streets with low motor vehicle speeds and volumes.	No
Chicanes	Chicanes narrow the roadway and require drivers to navigate around them. They are typically curb extensions or parking bays, and are installed on the sides of the road to create a slight bend in an otherwise straight roadway.	Chicanes in two-way streets are most effective when traffic is balanced in both directions. Otherwise, drivers can pick a straight path through the middle of the road. Where chicanes are implemented with unprotected bike lanes, drivers are likely to encroach on the bike lanes. The City is developing a chicane plan for Pine St to slow traffic west of Douglas Ave.	Along routes where slow speeds are critical and people walking, biking, and driving all use the same street surface.	Occasionally
Medians	Medians narrow the roadway and require drivers to reduce speeds to navigate around them. They are typically aligned with the centerline. (This treatment is considered separately from Intersection Median Barriers and Median Refuge Islands.)	By narrowing the road, medians create a pinch point that can feel uncomfortable for people biking when a driver tries to overtake them.	Mid-block along routes with a striped centerline. Where there is a need to reduce motor vehicle volumes (see Diverters and Intersection Median Barriers).	No

Intersection & Crossing Treatments

Intersection and crossing treatments can be necessary to accommodate biking and allow people to safely cross a busy road on a bike. Potential intersection and crossing treatments are described in Memo #3. Intersection and crossing treatments are summarized with considerations and recommended applications in Table 7.

Table 7. Intersection & Crossing Treatment Toolkit

Treatment	Description	Considerations	Locations	Recommended
Intersection Tools				
Bike boxes	Designated spaces for people biking to wait in front of the motor vehicle stop bar. Increases visibility and reduces the potential for a driver turning right to collide with a person biking.	Can help with left turns if the box extends across to the left turn lane. Helps prevent vehicles from encroaching into the crosswalk. Right turns on red should be prohibited.	At signalized intersections.	Yes

Treatment	Description	Considerations	Locations	Recommended
Bicycle forward stop bar	The bicycle stop bar is placed closer to the intersection than the motor vehicle stop bar to put bikers in a more visible location and reduce their crossing distance.	Position so cyclists do not impede the crosswalk. Colored paint can bring more attention to the space. Similar to a bike box, but does not occupy the lane in front of the motor vehicles.	At stop-controlled intersections.	Yes
Two-stage turn que boxes	Two stage turn que boxes simplify left turns by providing a space on the right, in front of the cross traffic, to wait for oncoming traffic to clear or the signal to change.	This allows a more comfortable option for left turns, but adds delay for people biking. Provides a space for left-turning cyclists to wait for the signal to change.	At intersections where the bike route requires turning left on a road with traffic. Where people biking often turn left.	Yes
Bicycle signal phases	A signal phase that accommodates biking can reduce potential conflicts. Different types of phases can be implemented.	Reduces potential conflicts between drivers and cyclists. Can allow people to bike through the intersection before drivers, making them more visible and reducing their exposure to engine exhaust. Can be relatively expensive to implement.	At signalized intersections with safety concerns or that are important for the bike network.	Yes
Reduced turning radii	Tightens the corner turning radius by extending the curb and sidewalk. Encourages slower right turns for motor vehicles and shortens pedestrian crossing distances.	Can combine with curb extensions. Can integrate sidewalk improvements with the extended curb.	At intersections with large corner radii.	Yes
Protected intersections	Keep people biking separate from motor vehicles until reaching the intersection. Uses a corner island to protect the bike lane.	Perhaps the most comfortable intersection treatment because it provides extra protection and visibility. However, it requires more space than other intersection treatments.	At intersections with physically separated bike lanes.	Yes
Crossbikes	Crossbikes are green striped lanes, similar to crosswalks, that increase visibility of people biking and clearly delineate the continued bike route.	This treatment is effective for encouraging drivers to yield to people wanting to cross on bikes. However, there is no legal requirement for drivers to stop for people at crossbikes, and confusion over yielding right-of-way may occur.	At crossings where the bike route is stop controlled and the cross street is not.	Yes
Crossing Tools				
Curb extensions, or “bulb outs”	Extend the sidewalk curb into the parking lane to improve visibility and reduce crossing distance.	Conflicts with curb-adjacent bike lanes. Expanded sidewalk space can be used for many purposes, including bike parking or by adjacent businesses. Can be designed to minimize impacts to stormwater flow or to integrate bioswales for stormwater management.	Crossing roads with curb-adjacent parking lanes. NOT on roads with curb-adjacent bike lanes.	Yes

Treatment	Description	Considerations	Locations	Recommended
Median refuge islands	An island between multiple lanes of traffic provides a refuge area for people walking across longer crosswalks.	Median refuge islands in a center turn lane will impact left turn movements.	Where a bike route crosses a road with high traffic volumes and has space for a median island.	Yes
Rectangular rapid flashing beacons (RRFBs)	Push button activated flashing lights indicate to approaching drivers that someone wants to cross.	Push button should be located for convenient use by people on bikes.	Crossing roads with high vehicle traffic volumes, high speeds, or that are wide.	Yes
Raised crosswalks	Elevates the crosswalk like a speed hump or speed table to increase driver awareness of people who may be walking or biking across the street, to slow traffic speeds, and to indicate a priority for walking and biking. They are typically raised to 3 inches below the level of the sidewalk.	An entire intersection can be raised. Raised crosswalks encourage slower driving. Appropriate for speeds of 25 to 30 miles per hour.	In areas with high pedestrian activity. On streets with speeds of 30 mile per hour or lower.	Yes

Amenities

Bike amenities can make biking a more attractive or feasible transportation option. While not directly connected to bike routes, amenities — like the availability of secure bike parking — can make the difference of whether biking is or is not a practical option. Other amenities, like water stations and leaning rails, enhance the experience and demonstrate the City's support of biking.

Bike Parking

Convenient and secure bike parking is necessary for people to feel comfortable biking. To be willing to bike, people need to trust that there will be a safe place to park at their destination. Therefore, bike parking should be easily available at destinations, and enough parking should be available to accommodate potential demand.

The style of bike parking provided can be tailored to the destination. Best practice for bike racks is to use a bike "staple," a simple "C" shape that has two ends fastened to the ground, as shown in Figure 12. The staple is easy to securely lock to and accommodates bikes of all sizes. Variations on the staple design can provide more security or stylize it to fit the surrounding aesthetics. The rack itself can even be a piece of art, like the squid sculpture bike rack in Figure 13.

Covered bike parking protects bikes from rain and sun exposure, and provides a respite from the elements while people transition on and off their bikes. Covered bike parking is beneficial anywhere, and especially in locations with potential for high demand, including schools, parks, grocery stores, libraries, gyms, and community centers.

Figure 12. Standard Covered Bike Racks in Portland
(NACTO, Photo Credit: Theresa Boyle)

Figure 13. Sculptural Bike Parking in Seattle

Bike parking recommended locations:

- All potential destinations.

Enhanced bike parking (more quantity, potentially covered) recommended locations:

- Schools.
- Parks.
- Community centers (such as the YMCA).
- Recreation centers (such as the tennis center).
- Commercial centers (downtown).
- Grocery stores.
- Churches.
- Treatment centers.

Water Stations

Biking requires adequate hydration for comfort and safety. Access to water can be a concern when people are out for extended periods running errands, on long bike rides, or playing with friends. This is especially true on hot, dry summer days. Having access to drinking water can make a trip by bike more comfortable and attractive. If a person knows that there is water available along the route, then they won't need to carry extra water — which is one less obstacle between them and biking. Conversely, if someone is out biking on a hot dry day and does not have enough water, it can be an uncomfortable experience that they will not want to repeat. With increasingly hot and dry weather, access to water is becoming ever more important.

Water stations are simply places where a person can get fresh drinking water. A water station can be modern bottle filling station, standard water fountain, or even just a faucet. They are practical to implement where plumbing already exists, like at public restrooms. It is critical that water sources are indicated on maps and in wayfinding so people know they exist and where to find them. A map of water sources, similar to the one published by Vancouver, British Columbia (Figure 14), could be incorporated into the official bike route maps.

Water stations recommended locations:

- Parks
- Downtown

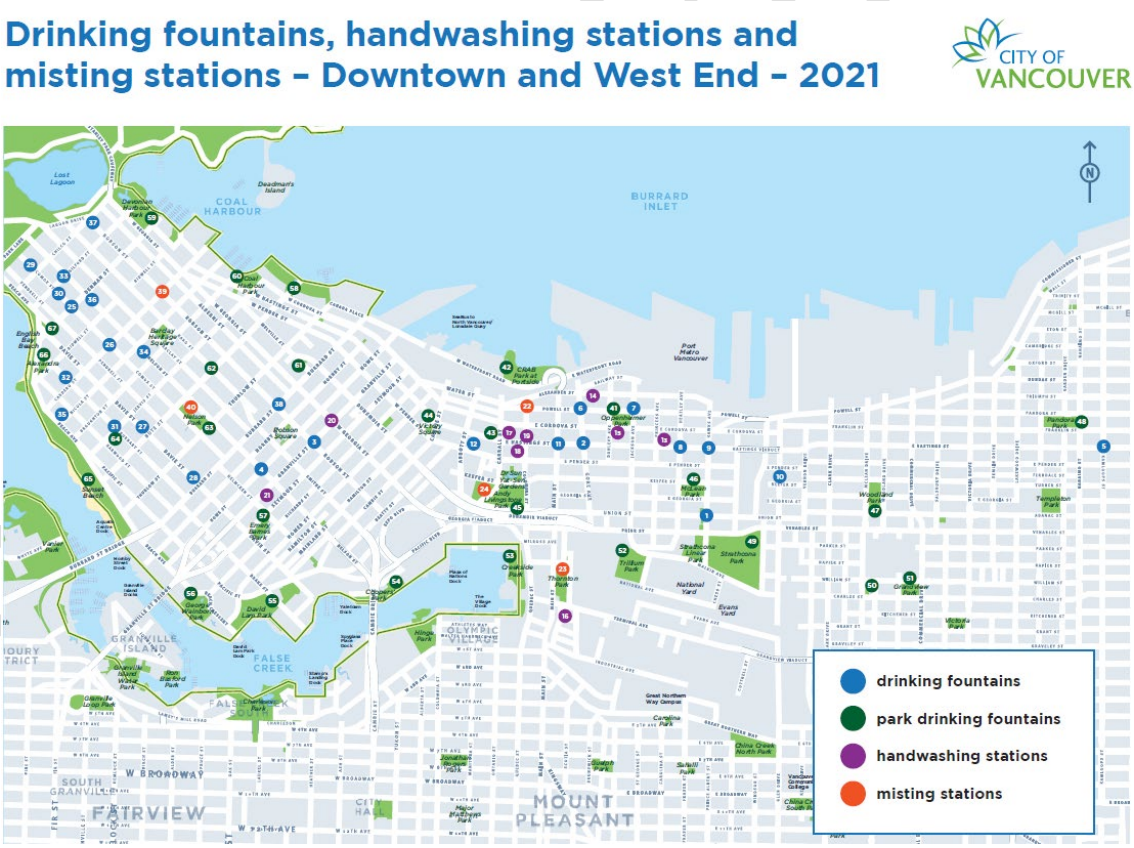


Figure 14. Map of Water Sources – Vancouver, British Columbia

Bike Leaning Rails

Bike leaning rails allow people to easily and more comfortably stop and wait at intersections. People can stay seated on their bikes while propped against the rail for balance, as seen in Figure 15. Leaning rails also make it easier for people to start biking again by giving them something to push off from.

Leaning rails are appropriate at intersections on curb-adjacent bike lanes or on paths. They provide an added benefit on paths and sidewalks shared with pedestrians by encouraging cyclists to wait along the edge of the path, clearing space for other users.

Figure 15. Bike Leaning Rail in Seattle, Washington
Source: https://www.seattlebikeblog.com/2015/04/27/burke-gilman-trail-crossings-get-big-upgrades-near-u-village/

Bike leaning rail recommended locations:

- At signalized intersections where a trail crosses a road.
- At signalized intersections where a bike lane crosses a road.

Ramps and Curb Cuts

Ramps and curb cuts are necessary for providing access to curb-height bike facilities, as well as being best practice for accessibility and required for ADA compliance. Curb ramps provide a transition in grade between the street and the sidewalk, raised bicycle lane, or shared path for people walking or biking. Deciding specific locations must consider visibility for on-coming traffic and safety of where people would be entering the roadway from the sidewalk, path, or raised bike facility.

Ramp or curb cut recommended locations:

- At locations where a bike route intersects a curb, or where there is a need to access the bikeway from the roadway surface.
- As required by ADA or for accessibility best practices.

Illumination

Adequate illumination can help with safety and security. Better lighting can make it easier for drivers to see people biking or walking; and it can make it easier for cyclists to see hazards on the roadway surface. Improved lighting also can make people feel more secure because they can see more of their surroundings.

Illumination recommended locations:

- Locations where drivers and cyclists are likely to interact.
- Along trails and paths.
- Locations with identified safety concerns.

Bike-Friendly Trash Cans

Trash cans designed to be used by people biking, running, or otherwise in motion (, make it easier to deposit waste. They also can serve as a visual reminder of the City's commitment to being bike-friendly.

Bike-friendly trash can recommended locations:

- In parks, angled to receive on the right-hand side of trails and paths.

Figure 16. Bike-Friendly Trash Can in Copenhagen, Denmark
Source: https://stateofgreen.com/en/news/on-international-bike-day-5-inventions-that-make-biking-a-cycle-in-the-park/

Bike Repair Stations

Bike repair stations usually have a repair stand and standard tools for simple mechanical repairs and adjustments. Repair stations can be covered and include maps and wayfinding information.

Repair stations require frequent maintenance to ensure the tools are still in place and have not been vandalized or damaged. Repair stations also provided limited utility: they are useful only to people who have a mechanical problem nearby and already know how to service their bike. Because the tools need to be tethered to avoid theft, they can be difficult to use. Repair stations are not recommended; bike parking, wayfinding kiosks, and water stations provide more benefit.

Bike repair station recommended locations:

- Not recommended.

Figure 17. Bike Repair Station
Source: University of Washington.

Wayfinding and Signage

Wayfinding and maps are critical for successful bike routes. Wayfinding must be easy for people to follow so new users will get to where they are going and have a good experience along the way. Signage should be designed to be human-scaled, so it is appropriate for people walking or biking. This makes it easier for people to understand that the signs are for them (and not for people driving) and the appropriately-sized signs demonstrate that the City recognizes the legitimacy of walking and biking.

Wayfinding and maps will be included with all bike routes and will be developed further in Memo #6.

Additional Amenities

Other features beyond the scope of this project can make biking more comfortable and accessible. These are outside of the scope of this project, but worth acknowledging.

- Integration with transit by accommodating bikes on buses or with secure parking at transit stations.
- Bike friendly workplaces with showers, lockers, and secure parking.
- Public seating to give people a place to rest while on a bike excursion.
- Public lockers in commercial areas to allow people to store their bike gear while visiting businesses.

NEXT STEPS

This memo refines the initial network of bike improvements proposed in Memo #3 by grouping improvements into route alternatives, more clearly defining the facility type for each improvement, proposing implementation phases, and evaluating the proposed routes based on the evaluation criteria. A draft of this memo was reviewed by the project's advisory committee and the project stakeholder committee, and subsequently refined based on their comments. Recommended alternatives will be further refined in *Memo #5: Final Project Alternatives*.

Following Memo #5, the project team will develop two more memos before drafting the Bike Routes Plan. A summary of the remaining deliverables is:

- *Memo #5: Final Project Alternatives:* further refines the final alternatives to a "menu" of projects.
- *Memo #6: Mapping and Wayfinding:* develops alternatives for mapping and wayfinding, including sign and sharrow placement.
- *Memo #7: Bicycle Promotion:* develops alternatives for bicycle promotion activities and events.
    - Advisory committee and stakeholder committee will meet to review draft Memos #5, #6, and #7 before they are finalized.
- *Draft Roseburg Bike Routes Plan:* brings together the progress made through previous tasks.
    - Advisory committee will meet to review draft Bike Routes Plan.
- *Final Roseburg Bike Routes Plan:* finalizes the plan.

APPENDIX A: FULL LIST OF PROPOSED PROJECT ALTERNATIVES

ID	Phase	Name	Description and Notes	Facility Type(s)
Northwest				
NW-10	Existing	Garden Valley West	Existing bike lanes on NW Garden Valley Blvd west of I-5 connect with existing path at the I-5 interchange.	Existing bike lanes • NW Garden Valley Blvd
NW-10 LT	Long Term	Garden Valley West – Path	Path on south side of NW Garden Valley Blvd between Duck Pond St and I-5 path. TSP planned project: Tier 2, BP-22a.	**Path** (0.31 mi) • NW Garden Valley Blvd
NW-11	Medium Term	Stewart-Alameda	Route primarily on existing bike lanes of NW Stewart Pkwy and NE Alameda Ave. Short bicycle boulevard treatment extends the route further into the neighborhood on the east. A sidewalk treatment on the south side of W Harvard Ave connects the route to the proposed Harvard to Downtown route (SW-71). Bike lanes on the Stewart Pkwy bridge over the South Umpqua River would be improved to be wider and protected, either as part of a new bridge or from reconfiguring lanes on the existing bridge. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Stewart Pkwy • NE Alameda Ave **Bicycle boulevard** (0.39 mi) • NE Alameda Ave **Bikes on sidewalk** (0.23 mi) • W Harvard Ave, south sidewalk, Francis St to Stanton St **Separated bike lanes** (0.18 mi) • NW Stewart Pkwy bridge
NW-12	Existing	Newton Creek-Edenbower	Route follows existing Newton Creek path and bike lanes on NW Edenbower Blvd. Will connect with Valley View-Winchester route (NW-17) in the long term network.	Existing bike lanes • NW Renann St • NW Edenbower Blvd Existing path • Newton Creek trail
NW-13	Existing	Troost	Existing bike lanes on NW Troost St from NW Garden Valley Blvd to Katie Dr.	Existing bike lanes • NW Troost St
NW-13 Ext	Medium Term	Troost Extension	Route improves existing bike lanes by repurposing one or both lanes of underutilized on-street parking to create separated bike lanes between NW Garden Valley Blvd and Katie Dr. Extends route further west into neighborhood with a bicycle boulevard treatment on NW Troost St. Extends route further north to NW Hughwood Dr with a bike lane in the uphill direction and sharrows in the downhill direction. Continues east on NW Hughwood Dr to connect with existing bike lanes.	**Separated bike lanes** (0.71 mil) • NW Troost St **Bicycle boulevard** (0.91 mi) • NW Troost St **Bike lane/Sharrows** (0.23 mi) • NW Troost St • NW Hughwood Dr
NW-14	Existing	Keasey	Route follows existing bike lanes on NW Keasey St.	Existing bike lanes • NW Keasey St
NW-15	Short Term	Hucrest	North-south route connects to Hucrest Elementary on neighborhood streets.	**Bicycle boulevard** (0.92 mi) • NW Kline St • NW Calkins Ave • NW Jefferson St **Bike lanes** (0.78 mi) • NW Kline St • NW Harvey St

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-15 Ext	Medium Term	Hucrest Extension	Extends the Hucrest route around the back side of Hucrest Elementary School. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.61 mi) • NW Moore Ave • NW Lynwood St • NW Calkins Ave
NW-16	Medium Term	Calkins	East-west route through neighborhood.	**Bicycle boulevard** (0.68 mi) • NW Calkins Ave • NW Grove Ln
NW-17	Medium Term	Valley View-Winchester	East-west route parallel to Garden Valley Pkwy. Crosses NW Stewart Pkwy at the signal at Garden Valley Pkwy. Would connect with Newton Creek-Edenbower (NW-12) in the long term network to create a comfortable north-south route to Winchester.	**Bike lanes** (0.66 mi) • NW Valley View Dr **Bikes on sidewalk** (0.10 mi) • NW Stewart Pkwy
NW-17 LT	Long Term	Valley View-Winchester	Family-friendly route from Valley View to Winchester avoids busy roads using the existing tunnel and a path or widened sidewalk along Garden Valley and Stewart Parkway. Would have an additional option to cross Stewart Pkwy with a new crosswalk to the south. Bikes on sidewalk and bike lanes would connect to the crossing. Tunnel under Garden Valley Blvd has been closed for security issues which would need to be addressed before considering opening again. Path adjacent to Newton Creek could be new trail as in the TSP (Tier 2 BP-21b) or coordinated with Walmart. Path along east side of I-5. New bridge over I-5 connects with the Newton Creek MUP. Path continues north to Winchester. Planned TSP Tier 2, BP-21d. Would connect with Newton Creek-Edenbower (NW-12).	**Path** (4.1 mi) • Along Newton Creek (near Walmart) • North of Newton Creek to Winchester **Bikes on sidewalk** (0.12 mi) • NW Stewart Pkwy
NW-17 Alt	Long Term	Valley View-Winchester Alternative	Path on west side of I-5 in ODOT ROW. Crosses I-5 on existing Edenbower bridge as opposed to the new bridge required for NW-17.	**Path** (0.59 mi) • West of I-5 in ODOT ROW between I-5 and Edenbower.
NW-18	Existing	Broad	Existing bike lanes continue north of Edenbower to the community on the west side of I-5.	Existing bike lanes • NW Valley View Dr
NW-19	Long Term	Hill	Include separated bike lanes with new arterial planned in TSP Tier 2, R-16. Includes a bridge over I-5. Would provide a parallel alternative to Garden Valley Blvd and a more direct east-west route than Stewart Pkwy.	**Separated bike lanes** (0.66 mi) • NW Hill Ave
Northeast				

ID	Phase	Name	Description and Notes	Facility Type(s)
NE-30	Short Term	Aviation-Highland	Existing bike lanes on General Ave, Aviation Dr, and NW Mulholland Dr cross NW Garden Valley Blvd with bikes on the south sidewalk and continue south on NW Highland St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Mulholland Dr • Aviation Dr • General Ave **Bicycle boulevard** (0.28 mi) • NW Highland St **Bikes on sidewalk** (0.17 mi) • NW Garden Valley
NE-30 LT	Short Term	Aviation-Highland Alternative	A potential new pedestrian crossing of NW Garden Valley Blvd near Fairmount St would create an opportunity for a more comfortable north-south route with less distance on NW Garden Valley Blvd than route NE-30. Requires crossing improvement.	**Bicycle boulevard** (0.48 mi) • NW Cecil Ave • NW Fairmount St
NE-31	Short Term	Stephens to UCC	Existing bike lanes on NE Stephens (OR 99) connect Garden Valley Blvd with Winchester and Umpqua Community College to the north. Sharrows and signage at the gap in the bike lanes on the bridge crossing the North Umpqua River. The bridge deck is 24 feet curb-to-curb.	Existing bike lanes • NE Stephens St • Umpqua College Rd **Sharrows and signs** (0.20 mi) • North Umpqua River Bridge
NE-31 Ext	Long Term	Stephens to UCC Extension	Extend the bike facility south on Stephens to connect with exiting bike lanes south of Diamond Lake Blvd. Widen sidewalk(s) to be wide enough to accommodate biking and walking along this direct and relatively flat route. Would require narrowing or reconfiguring driving lanes to fit within ROW.	**Separated bike lanes** (1.0 mi) • NE Stephens St
NE-32	Short Term	Lincoln	Connects the existing bike lanes on NE Garden Valley Blvd with a bike route that continues east and south along NE Lincoln St, NE Malheur Ave, and NE Jackson St. Because of grade on NE Lincoln St, the proposed facility is a bike lane in the uphill direction (northbound) and a bicycle boulevard treatment in the downhill direction (southbound).	Existing bike lanes • NE Garden Valley Blvd **Bike lane/Bicycle boulevard** (0.35 mi) • NE Lincoln St **Bicycle boulevard** (0.44 mi) • NE Malheur Ave • NE Jackson St
NE-32 LT	Long Term	Lincoln Extension	Planned sidewalk improvements would create enough space to bike and walk on Garden Valley Pkwy between NW Mulholland Dr and NE Stephens. This extends the Lincoln route further west. TSP project Tier 2, BP-3.	**Separated bike lanes** (0.52 mi) • Garden Valley Blvd
NE-33	Medium Term	Joseph Lane-Gaddis Park	Connects Joseph Lane Middle School with Gaddis Park. Crosses Stephens St at existing enhanced crosswalk north of Clover Ave.	Existing bike lanes • NE Airport Rd • NE Cedar St • NE Stephens St **Bicycle boulevard** (0.26 mi) • NE Clover St • NE Chestnut Ave • NW Highland St

ID	Phase	Name	Description and Notes	Facility Type(s)
NE-34	Short Term	Vine	North-south route parallel to NE Stephens St through neighborhood and to Joseph Lane Middle School. A bicycle boulevard treatment connects existing bike lanes on NE Vine St to NE Stephens St.	Existing bike lanes • NE Vine St **Bicycle boulevard** (0.45 mi) • NE Meadow Ave • NE Kerr St • NE Hewitt Ave
NE-34 Ext	Long Term	Vine Extension	Establishes a path from the north end of Vine St to Newton Creek Rd along existing undeveloped trail. Existing bridge over Newton Creek would likely need improvements or replacement. TSP project Tier 2, BP21c.	**Path** (0.44 mi) • Vine St path.
NE-35	Existing	Newton East	Existing bike lanes on NE Newton Creek Rd connects to neighborhood east of airport.	Existing bike lanes • NE Newtown Creek Rd
NE-36	Short Term	Odell	East-west route through neighborhood parallel to NE Diamond Lake Blvd. Connects to path in Deer Creek Park. Would continue east to Rifle Range Rd in the long term network.	**Bicycle boulevard** (0.35 mi) • NE Odell Ave • NE Rowe St
NE-36 Ext	Long Term	Odell Extension	Path at the north edge of the old lumber mill property from the end of Odell St to Rifle Range Rd. Could be implemented with new development.	**Path** (0.80 mi) • Odell extension
NE-37	Medium Term	Page	East-west route through Winchester. Connects to Winchester Elementary School.	**Bike lanes** (1.2 mi) • Page Rd
NE-38	Medium Term	North View	Route along the east side of Winchester.	**Bicycle boulevard** (1.42 mil) • Thora Cir • Josephine St • Strauss Ave • N View Dr • Taft Dr • Club Ave
NE-39	Long Term	Rifle Range	Route along Rifle Range St. Could be implemented with new development or planned road maintenance. Separated bike lanes near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Spencer Ct the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction.	**Separated bike lanes** (0.46 mi) • Rifle Range St between Douglas Ave and Spencer Ct **Bike lanes** (0.50 mi) • Rifle Range St between Spencer Ct and Frontier Ln
NE-40	Long Term	Fulton-Rocky	North-south route through residential areas from Diamond Lake Blvd to Rocky Ridge Dr. Separated bike lanes on Fulton St near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Commercial Ave the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction. North of Tahoe Ave the road becomes a private drive. Access would need to be coordinated. Road is in rough shape and would need improvements.	**Separated bike lanes** (0.13 mi) • NE Fulton St **Bike lanes** (1.1 mi) • NE Fulton St • NE Rocky Dr

ID	Phase	Name	Description and Notes	Facility Type(s)
NE-41	Existing	Rocky Ridge	Route from NE Garden Valley Blvd into residential areas on existing bike lanes.	Existing bike lanes • NE Rocky Ridge Rd
NE-41	Long Term	Rocky Ridge Extension	Continues existing Rocky Ridge bike route along NE Rocky Ridge Dr through residential area to NE Alameda Ave.	**Bike lanes** (0.40 mi) • NE Rocky Ridge Dr
NE-42	Long Term	Diamond Lake Blvd	Important east-west route on east side of town. Currently in a separate planning process to determine feasibility of adding bike lanes. TSP project Tier 1, BP-20b.	**Separated bike lanes** (3.9 mi) • Diamond Lake Blvd
Southeast				
SE-50	Medium Term	99-Downtown	Bike lanes on OR 99 through downtown. A new bike lane on SE Stephens St (northbound) closes the gap in the existing route. The right of way is constrained and a bike lane would require space from a driving or parking lane.	Existing bike lanes • SE Pine St (southbound) • SE Stephens St, north of SE Oak Ave **Bike lanes** (0.80 mi) • SE Stephens St (northbound), between SE Oak Ave and SE Pine St
SE-51	Short Term	Downtown East	North-south route through neighborhood east of downtown. Parallels SE Stephens St (OR 99). Route jogs on to SE Hamilton St because it is lower traffic and has less elevation.	Existing bike lanes • NE Winchester St **Bicycle boulevard** (1.90 mi) • NE/SE Jackson St • SE Douglas Ave • SE Main St • SE Orcutt Ave • SE Hamilton St • SE Booth Ave
SE-52	Short Term	Eastwood	Connects to Eastwood Elementary School from NE Douglas Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.45 mi) • SE Ramp Rd • SE Waldon Ave
SE-52 Ext	Long Term	Eastwood Extension	Creates a path on the east side of the school north to Eastwood Park along an existing undeveloped trail. Bridge over Deer Creek may require improvements or replacement. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.34 mi) • Eastwood Extension
SE-53	Short Term	Mill-Roberts	Route connects the area between OR 99 and the railroad south of downtown.	**Bicycle boulevard** (0.64 mi) • SE Mill St • SE Burke St • SE Stephens St • SE Roberts Ave
SE-54	Short Term	Micelli	Bikeway between the railroad and the South Umpqua River connects Micelli Park and Deer Creek Park.	Existing path • Riverside Park and SE Pine St **Bicycle boulevard** (0.60 mi) • SE Flint St • SE Mosher Ave • SE Fullerton St • SE Micelli St

ID	Phase	Name	Description and Notes	Facility Type(s)
SE-54 Ext	Long Term	Micelli Extension	Path continues south through Micelli Park, then across the South Umpqua River with a new bridge connecting to Portland Ave near the county fairgrounds. Planned TSP project Tier 2, BP7.	**Path** (0.43 mi) • Micelli Extension
SE-55	Medium Term	Douglas	Bikeway along NE Douglas Ave provides an east-west route parallel to NE Diamond Lake Blvd.	Existing bike lanes • NE Douglas Ave **Bike lanes** (3.00 mi) • NE Douglas Ave
SE-56	Short Term	Mosher	East-west route across railroad and OR 99 south of downtown. Proposed as bike lanes, but could be a bicycle boulevard treatment.	**Bike lanes** (0.35 mi) • SE Mosher Ave
Southwest				
SW-70	Medium Term	High School to County Fair	Connects the high school to the south side of town past the fairgrounds. New bicycle boulevard treatments on Kendall St and Frear St close the gap in the I-5 path near the county fairgrounds.	Existing path • I-5 multi-use path **Bicycle boulevard** (0.87 mi) • Kendall St • SW Portland Ave • Frear St
SW-70 LT	Long Term	High School to County Fair Path Connection	Connects the gap in the I-5 path near the county fairgrounds. Path would be adjacent to I-5 on east side in ODOT ROW.	**Path** (0.78 mi) • I-5 path
SW-71	Short Term	Harvard Neighborhoods (Bicycle Boulevards)	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Uses neighborhood streets as much as possible to avoid traffic on W Harvard Ave.	Existing bike lanes • W Harvard Ave (west of Lookingglass Rd and east of W Umpqua St) • SW/SE Washington Ave • SW/SE Oak Ave **Bicycle boulevard** (1.87 mi) • W Shasta Ave • W Jay Ave • W Kenwood St • W Francis St • W Bertha Ave • W Stanton Ave • W Fairhaven St • W Brown Ave • Military Ave • W Umpqua St
SW-71	Medium Term	Harvard Neighborhoods (Bikes on Sidewalk)	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Connects neighborhood segments with bikes on the south sidewalk of W Harvard Ave. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bikes on sidewalk** (0.43 mi) • W Harvard Ave, south sidewalk, Kenwood St to Francis St • W Harvard Ave, south sidewalk, Stanton St to Fairhaven St

ID	Phase	Name	Description and Notes	Facility Type(s)
SW-71 Ext	Long Term	Harvard Neighborhoods Extension	Continues the Harvard Neighborhoods route west across the South Umpqua River on a planned bridge and road extension. The route would then turn north with planned improvements on Charter Oaks Dr. Planned TSP Tier 2 projects R-16p and R-13. Requires new bridge and roadway buildout.	**Separated bike lanes** (0.57 mi) • W Harvard Ave • W Charter Oaks Dr
SW-71 LT	Long Term	Harvard Neighborhoods Fremont Connection	Would use west gate to middle school and travel through school property to southeast corner, where it would loop to the south around houses (staying on school property) and connect with Nebo St. Bicycle boulevard treatments continue to connect with the Medium Term SW-71 at W Brown Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.25 mi) • On school grounds **Bicycle boulevard** (0.42 mi) • Fremont Middle School parking lot • W Nebo St • W Catherine Ave • W Fairhaven St
SW-72	Existing	Lookingglass	Route along existing bike lanes on Lookingglass Rd.	Existing bike lanes • Lookingglass Rd
SW-72 LT	Long Term	Lookingglass Separated Bike Lanes	Upgrade existing bike lanes on Lookingglass Rd to be separated, from W Harvard Ave to W Woodside Rd. Can coincide with planned sidewalk improvement, TSP Tier 2 BP23.	**Separated bike lanes** (0.9 mi) • Lookingglass Rd
SW-73	Short Term	Fullerton	Route through neighborhood connects with Fullerton Elementary School. Bikes on sidewalk treatment along both sides of W Harvard Ave connect to marked crossing between W Shenandoah St and W Fair St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bicycle boulevard** (0.67 mi) • W Sharp Ave • W Broccoli St **Bikes on sidewalk** (0.35 mi) • W Harvard Ave, south sidewalk, W Shenandoah St to W Fair St • W Harvard Ave, north sidewalk, W Shenandoah St to W Fair St
SW-73 Ext	Medium Term	Fullerton Extension	Extends Fullerton route further east to W Agee St and to connect with entrance to Fullerton Elementary School.	**Bicycle boulevard** (0.34 mi) • W Bradford Ct • W Agee St
SW-74	Short Term	Umpqua Street	A comfortable neighborhood connection between W Harvard Ave and River Front Park using the I-5 bridge over the South Umpqua River.	**Bicycle boulevard** (0.32 mi) • W Umpqua St
SW-75	Medium Term	Myrtle-VA	Connects neighborhood south of W Harvard Ave with River Front Park and Stewart Park along Stewart Park Drive. Potential for long term path through Fir Grove Park.	**Bicycle boulevard** (0.53 mi) • Stewart Park Dr • W Wharton St
SW-75 Ext	Long Term	Myrtle-VA Extension	Would continue Myrtle-VA route north from Stewart Park Dr through VA campus, cross Garden Valley Blvd, continue to NW Hill Ave. Would require coordination with VA to allow access through campus.	**Bicycle boulevard** (1.1 mi) • Stewart Park Dr • NW Veterans Wy • NW Estelle St
SW-76	Medium Term	Military Avenue	Route along Military Ave from Lookingglass Rd to Harrison St. Hilly. Pavement is in poor condition and should be improved before implementing the bike facility.	**Bicycle boulevard** (2.31 mi) • Military Ave
SW-77	Existing	Old Melrose	Existing bike lanes on Old Melrose Rd continue south from the west end of Harvard Ave.	Existing bike lanes • Old Melrose Rd

ID	Phase	Name	Description and Notes	Facility Type(s)
SW-78	Long Term	Laurelwood	Creates a comfortable route on the north and east side of high school. Would require a connection through what is now private property at the north east corner of the high school. The route would connect with Laurelwood Park. Route is contingent on future property acquisition by school. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.56 mi) • W Finlay Ave • W Bowden St • W Riverside Dr • W Casey St • W Chapman Ave • W Madrone St **Path** (0.10 mi) • Connection between W Finlay Ave and W Bowden St
SW-79	Long Term	Harvard Path	Would widen north sidewalk to make space for walking and biking, establishing a comfortable east-west route through this part of the city. Planned TSP Tier 2 BP-5. Sidewalk widening may require extending the sidewalk into the road, potentially removing a lane of traffic.	**Path** (1.4 mi) North sidewalk of W Harvard Ave

Appendix E

Memo 5 – Final Project Alternatives

Parametrix
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TECHNICAL MEMORANDUM

DATE:	November 3, 2022
TO:	Stu Cowie, City of Roseburg Ian Horlacher, ODOT Region 3
FROM:	Jason Nolin, Emily Mannisto, Ryan Farncomb (Parametrix)
SUBJECT:	Memo #5: Final Project Alternatives
CC:	Advisory Committee
PROJECT NAME:	City of Roseburg Bike Routes Plan

Contents

INTRODUCTION

This memorandum describes the preferred bike route alternatives that will be the basis for the Roseburg Bike Routes Plan. Alternatives were developed through multiple steps and previous memos, with input from the City of Roseburg, ODOT, the project advisory committee (AC), and stakeholders. This memorandum was also reviewed by these groups and finalized based on their feedback.

The preferred alternatives described in this memo were originally developed and evaluated in *Memo #4: Project Alternatives* (Memo #4). Since then, alternatives have been refined further. The following elements were updated for this Memo #5:

- Proposed bike routes using existing facilities are now in described in their own section. The bike facilities for these routes already exist and the routes would only need updated signage.
- Alternatives now include planning-level cost estimates.
- Potential locations for traffic calming have been identified.
- An inventory of intersections and crossings on the proposed bike network and tools for enhancing them for biking.
- Planning-level cost estimates are included for project alternatives, traffic calming treatments, and intersection/crossing tools.
- Considerations for updating bike parking standards.

Interactive Companion Map

Maps in this memo are displayed in more detail and with additional information in the interactive Companion Map at:
https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=b512b24d3c914ec4b4e92c0c1194d863

PREFERRED ALTERNATIVES

Bicycle Facility Types

Each bike route alternative is composed of bike facility treatments. This section describes common existing and proposed bike facilities for Roseburg bike routes.

Path

A path, sometimes called a "multi-use path" or "shared-use path," is a paved facility used for walking, biking, mobility devices, and other small devices (such as skateboards, scooters, and roller skates). Paths are considered Class 1 bike facilities and are comfortable to bike along for people of all ages and abilities. Similar to the design shown in Figure 1, paths can often be found in parks, like the existing Umpqua River Trail that travels through Stewart Park, Riverfront Park, and Gaddis Park. Roseburg's existing path network is a great asset for the biking in the city and is intended to be the backbone of the future network.

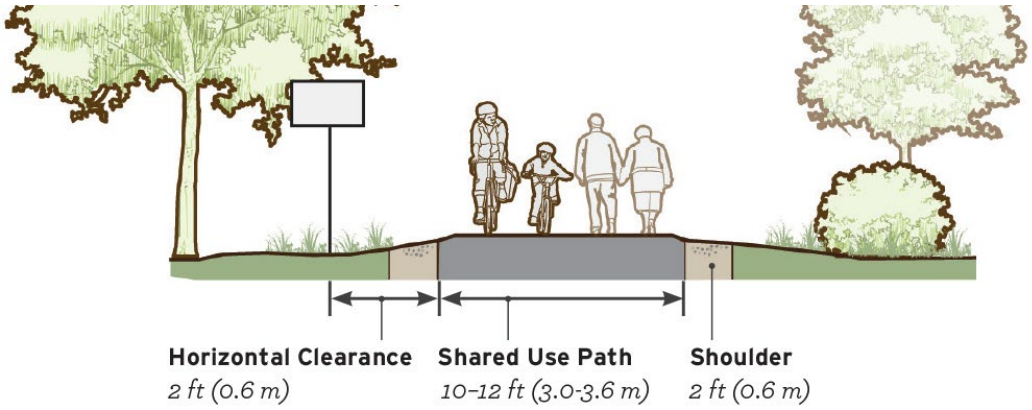


Figure 1. Path Design - FHWA Rural Design Guide

Separated Bike Lane

Separated bike lanes include protected bike lanes (i.e., bike lanes separated by a barrier, such as a median, flexible delineators, or on-street parking) and buffered bike lanes (separated by a painted buffer of 2 feet or more). Protected and buffered bike lanes are grouped together here because they require a similar amount of space to implement, and because a buffered bike lane can have physical barriers added at any time to create a protected bike lane. Separated bike lanes are considered Class 2 bike facilities.

Figure 2. Two-Way Separated Bike Lane with Flexible Delineators in Seattle

Protected bike lanes, like shown in Figure 2, feel more comfortable and safer to use than buffered bike lanes. Therefore, protected bike lanes should be implemented when possible. Because protected bike lanes are separated by a physical barrier, maintenance requires equipment that will fit inside the protected width of the bike lane, such as the sweeper shown in Figure 3. Roseburg does not have an appropriate street sweeper at the time of writing. Buffered bike lanes may be installed as an interim improvement until the City has the capacity to maintain them.

Figure 3. Bike Lane Sweeper — San Francisco Municipal Transportation Agency

Separated bike lanes generally feel more comfortable and safer than traditional bike lanes. Separated bike lanes can be designed for two-way travel (as shown in Figure 2) or one-way travel on each side of the street, with bikes moving in the same direction as motor vehicles (as shown in Figure 4).

Figure 4. One-Way Separated Bike Lanes: Protected Bike Lane (left) - NACTO Urban Bikeway Design Guide
Buffered Bike Lane (right) – City of Corvallis, Oregon

Standard Bike Lane

Standard bike lanes are visually separated from automobile traffic by striping or pavement markers, as shown in Figure 5. They are intended to be used exclusively for biking without interference from motor vehicles. They are not physically separated from motorized traffic and run adjacent to traffic lanes, typically in the same direction as motorized traffic. Standard bike lanes are considered Class 3 facilities.

Roseburg has existing standard bike lanes along many of its roads, including NE Garden Valley Boulevard, NE Stephens, NW Edenbower Boulevard, NW Stewart Parkway, and others.

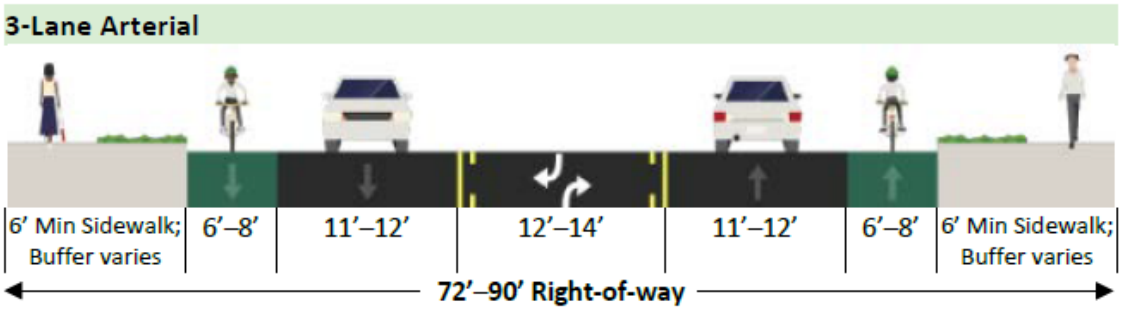


Figure 5. Standard Bike Lanes in a 3-Lane Arterial Standard Configuration – Roseburg TSP

Bicycle Boulevard

A "bicycle boulevard," sometimes called a "greenway," is a shared lane facility where bike traffic and motorized traffic use the same lane without separation, as shown in Figure 6. Bicycle boulevards are considered Class 3 facilities.

When implemented on quiet streets, bicycle boulevards can be pleasant to bike along and comfortable for people of all ages and abilities. They should be implemented only on roadways where traffic volumes are under 1,500 vehicles per day and speeds are 25 miles per hour or less, such as on local streets. Bicycle boulevards are marked with shared lane markings, or "sharrows," for wayfinding and to remind drivers that people may be biking on the roadway. Bicycle boulevards include directional signs and pavement markings to create a continuous route that is easy to navigate. Traffic calming measures help improve comfort and safety.

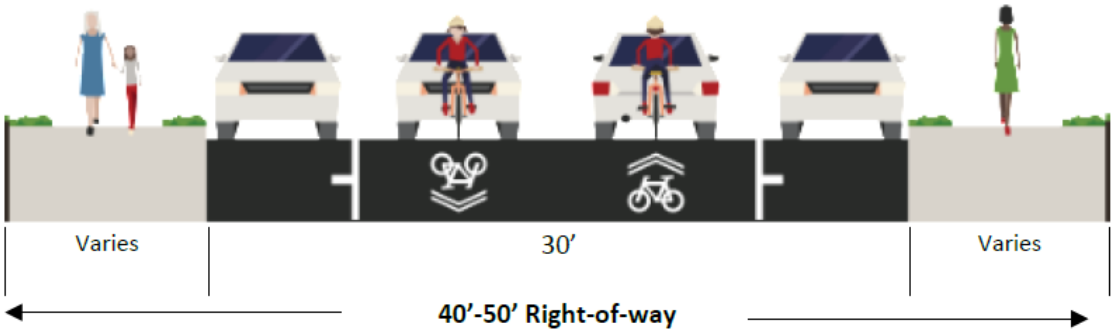


Figure 6. Bicycle Boulevard Cross Section – Roseburg TSP

Bikes on Sidewalk

Because of the established land use and transportation network, some bike routes must use a busy road that lacks dedicated bike facilities. An example of this is Harvard Avenue, which lacks a dedicated bike facility and also lacks a parallel alternative route. In situations like this, some bike route alternatives propose directing people to bike on the sidewalk until a dedicated bicycle facility can be implemented. Signs would direct people biking to yield to pedestrians, similar to the shared sidewalk shown in Figure 7. Biking on the sidewalk would be more comfortable than biking in traffic for younger or less experienced riders. This can already be seen today as people choose to bike on sidewalk instead of in the road. People would still be able to bike in traffic if they choose to.

Improvements to sidewalks may require upgrades to meet ADA compliance. ADA assessment is outside the scope of this plan and ADA upgrades are not included in the cost estimates for bikes on sidewalk projects. These projects would need to be assessed for ADA needs in later phases as they advance beyond this plan

Bikes on sidewalk treatments are not intended to be long term solutions. Sidewalks along these roads tend to be relatively narrow (six feet or narrower), and so are not ideal for mixing walking and biking. The presence of obstacles, including utility poles, signs, and trees, reduce the width of a sidewalk even further. The Long Term solution would be a dedicated facility for biking or a facility that is sized appropriately for shared use. On Harvard Avenue, for example, the Long Term solution is to widen the north sidewalk so it can be used as a path for walking and biking. Sidewalk widening could require extending the sidewalk into the road and removing a motor vehicle lane in locations with constrained right of way. In the meantime, bikes on sidewalk will give people a place to bike if they are uncomfortable biking in traffic.

Figure 7. Bikes on Sidewalk Treatment in Portland

Bicycle Network Preferred Alternatives

Bike route alternatives were developed to create a coherent network of bike routes that reached a broad area of the city and considered factors such as safety, comfort, directness, transit access, and destinations. Alternatives were shaped with the project objectives defined in *Memo #2: Goals and Objectives* and evaluated in Memo #4 based on criteria from these objectives.

Bike route alternatives are organized here by implementation phase — existing, short term, medium term, and long term — and by location within the city — northwest, northeast, southwest, and southeast. Planning level cost estimates are also reported for each alternative.

Phasing

Alternatives are organized by four proposed implementation phases:

- Existing: routes on facilities that have already been implemented (but route signs would still be needed).
- Short Term: implement within 5 years.
- Medium Term: implement within 10 years.
- Long Term: implement in 10 to 20 years.

Projects that would be beneficial but are not likely to be implemented within 20 years are considered "Aspirational."

Phasing was determined from various factors, including:

- The need for the improvement.
- How well the alternative addresses the evaluation criteria.
- The estimated cost and potential of available funding.
- The amount of coordination needed to implement.
- The likely level of community support.
- Alignment with existing policies and plans, including the Transportation System Plan and Comprehensive Plan.

The following sections of the memo summarize the overall network of bike route alternatives, then step through the alternatives by phase, starting with routes that using existing facilities, then Short Term implementations, Medium Term, and finally Long Term.

Bicycle "Connectors" Versus "Routes"

Proposed bike routes are intended to be comfortable, safe, and easy for people to travel by bike through Roseburg. Important aspects to their design are:

- Routes would bring people to or near destinations.
- Routes would join with existing trails and paths where possible.
- Routes would be long enough to be identifiable and collectively form a network through Roseburg.
- Routes would be named to simplify wayfinding.

However, a handful of short segments in the city have existing bike facilities or are opportune locations to add new bike facilities, but are generally too short to be considered standalone "routes." Instead of carrying people through the city, these segments provide bike connections between designated bike routes or to destinations that are near but off of the designated bike routes. These "connectors" would have bike facilities and wayfinding just as routes would, but would not be named.

Proposed connectors are displayed in the full bike network map (Figure 8).

Cost Estimates

Planning-level cost estimates were developed to provide an estimate for implementation costs. Estimates are based on construction costs for the proposed bike facilities. Calculations used estimated unit costs for each improvement type and dimensions from aerial imagery. These are high level estimates and should be refined as projects progress beyond this plan.

Estimates are in 2021 US dollars. At the time of writing this memo (July 2022), the annual rate of inflation for construction costs is estimated to be near 15 percent, or higher. To help account for present inflation, these cost estimates include a 40 percent contingency. If construction costs continue to escalate, cost estimates may need to be revised upwards when seeking project funding.

Generally, this type of cost estimate is a Class 5 estimate, ranging -30 percent to +50 percent. Estimates are for both capital costs and owner costs and include materials, labor rates, and equipment.

Estimates do not include costs associated with:

- New roadway construction, structural work (such as bridge work or retaining walls), or roadway maintenance.
- Project finance costs.
- Escalation to year of expenditure.
- Unforeseen sub-surface or existing conditions.
- Construction contingency (change order contingency)
- Owner's contingency.
- Right of way acquisition.
- Utilities.

Estimates for project alternatives do not include roadway traffic calming treatments, intersection enhancements, or crossing improvements. Those can be added as needed from the menu of options.

Several assumptions were made to streamline the estimate process for these initial planning estimates:

- Costs do not include maintenance or new signage to improve existing bike facilities.
- Costs for bike lanes include striping of a buffer.
- Costs for separated bike lanes include striping and flexible delineator posts. Estimates do not include costs for curb separation. Costs for separated bike lanes assume a lane on each side of the road. (A two-way bike lane on one side of the road would generally cost less.)
- Costs for bikes on sidewalk include signs and pavement markings. They do not include striping, sidewalk repair, or ramps.
- Costs for a single bike lane were estimated as a bike lane on both sides.
- Costs for paths assume a 12 foot wide paved surface, though actual widths will depend on future design and constraints specific to each location.

Full Network

The vision for the full bike network, with all route alternatives implemented, is shown in Figure 8, as well as in the interactive Companion Map. This includes Existing, Short Term, Medium Term, and Long Term alternatives. A "master list" of all alternatives is in Appendix A.

ID Numbers

Each route alternative is assigned an ID number to simplify identification. The first two characters in the ID derive from the geographic quadrant of the city the route is located in. The quadrants and numbering are defined as:

- NW: north of the South Umpqua River, west of I-5.
  Numbering reserved for this quadrant is: NW-10 to NW-29.
- NE: north of the South Umpqua River or Deer Creek, east of I-5.
  Numbering reserved for this quadrant is: NE-30 to NE-49.
- SE: south of the South Umpqua River or Deer Creek, east of the South Umpqua River.
  Numbering reserved for this quadrant is: SE-50 to SE-69.
- SW: south and west of the South Umpqua River.
  Numbering reserved for this quadrant is: SW-70 to SW-89.

Additional identifiers are appended to the number when subsequent phases of improvement are proposed for a route alternative, or when an alternative alignment is possible for the same route. These mostly appear in Long Term alternatives when:

- An extension of a route is proposed (Ext).
- A long term improvement is proposed (LT)
- An alternative alignment is proposed (Alt).

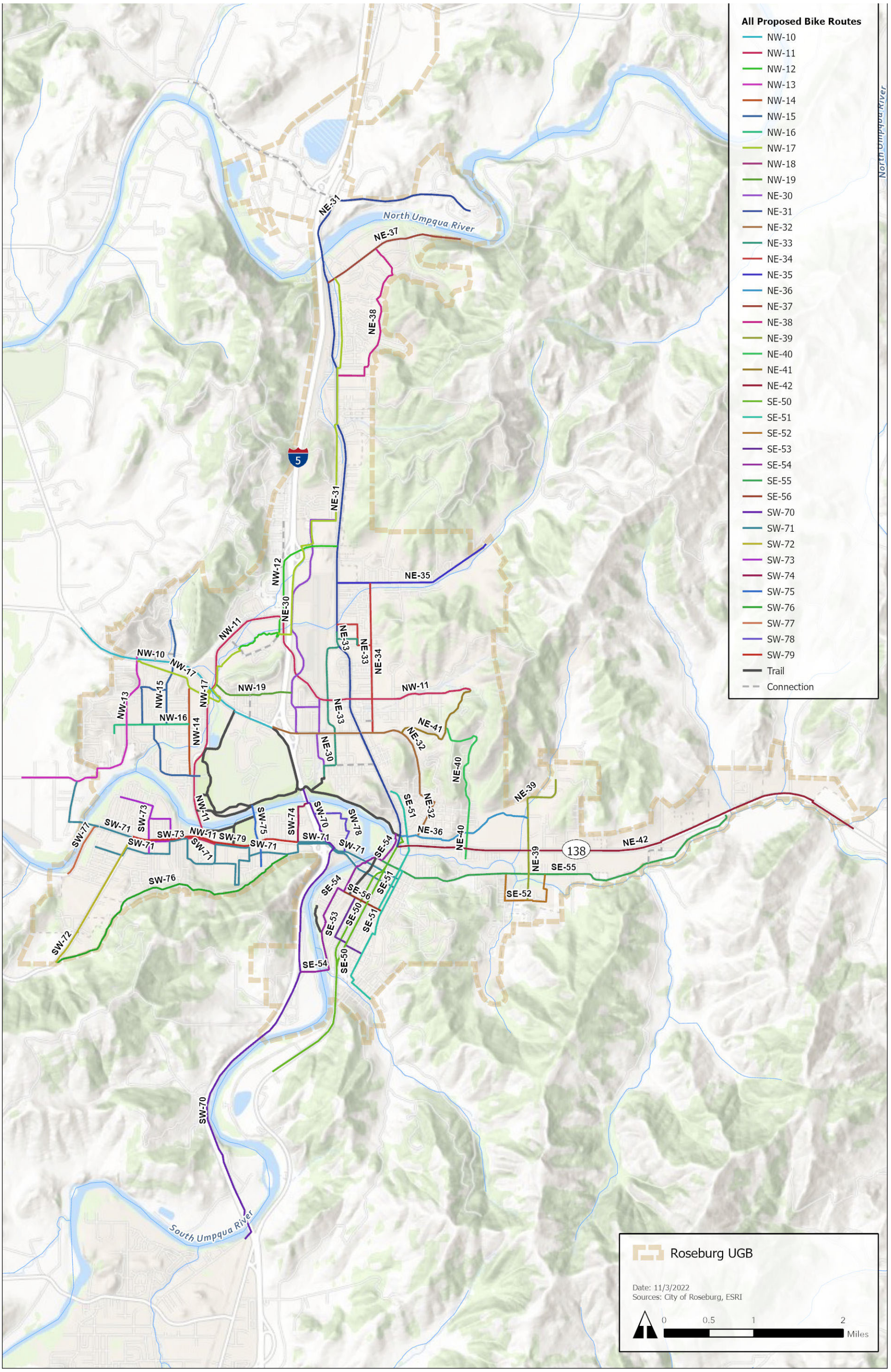


Figure 8. Full Build Out of Proposed Network of Bike Routes

Existing Facilities

The bike route network would start with facilities already on the ground in Roseburg, such as existing paths and bike lanes. The route alternatives listed here already have adequate facilities and could be implemented with only additional signage (recommendations to be developed in *Memo #6: Wayfinding and Mapping*). Cost estimates for bike routes on existing facilities were not calculated because they do not require construction of additional facilities. Some Short Term and Medium Term route alternatives also include existing facilities, but they would require additional improvements beyond the existing facilities.

Proposed route alternatives from existing facilities are listed in Table 1 and displayed in Figure 9. Alternatives are also displayed in the interactive Companion Map.

Table 1. Existing Facility Route Alternatives

ID	Phase	Name	Description and Notes	Facility Type(s)
NW-10	Existing	Garden Valley West	Existing bike lanes on NW Garden Valley Blvd west of I-5 connect with existing path at the I-5 interchange.	Existing bike lanes • NW Garden Valley Blvd
NW-12	Existing	Newton Creek-Edenbower	Route follows existing Newton Creek path and bike lanes on NW Edenbower Blvd. Will connect with Valley View-Winchester route (NW-17) in the long term network.	Existing bike lanes • NW Renann St • NW Edenbower Blvd Existing path • Newton Creek trail in Charles Gardiner Park
NW-13	Existing	Troost	Existing bike lanes on NW Troost St from NW Garden Valley Blvd to Katie Dr.	Existing bike lanes • NW Troost St
NW-14	Existing	Keasey	Route follows existing bike lanes on NW Keasey St.	Existing bike lanes • NW Keasey St
NW-18	Existing	Broad	Existing bike lanes continue north of Edenbower to the community on the west side of I-5.	Existing bike lanes • NW Valley View Dr
NE-35	Existing	Newton East	Existing bike lanes on NE Newton Creek Rd connects to neighborhood east of airport.	Existing bike lanes • NE Newtown Creek Rd
NE-41	Existing	Rocky Ridge	Route from NE Garden Valley Blvd into residential areas on existing bike lanes.	Existing bike lanes • NE Rocky Ridge Rd
SW-72	Existing	Lookingglass	Route along existing bike lanes on Lookingglass Rd.	Existing bike lanes • Lookingglass Rd
SW-77	Existing	Old Melrose	Existing bike lanes on Old Melrose Rd continue south from the west end of Harvard Ave.	Existing bike lanes • Old Melrose Rd

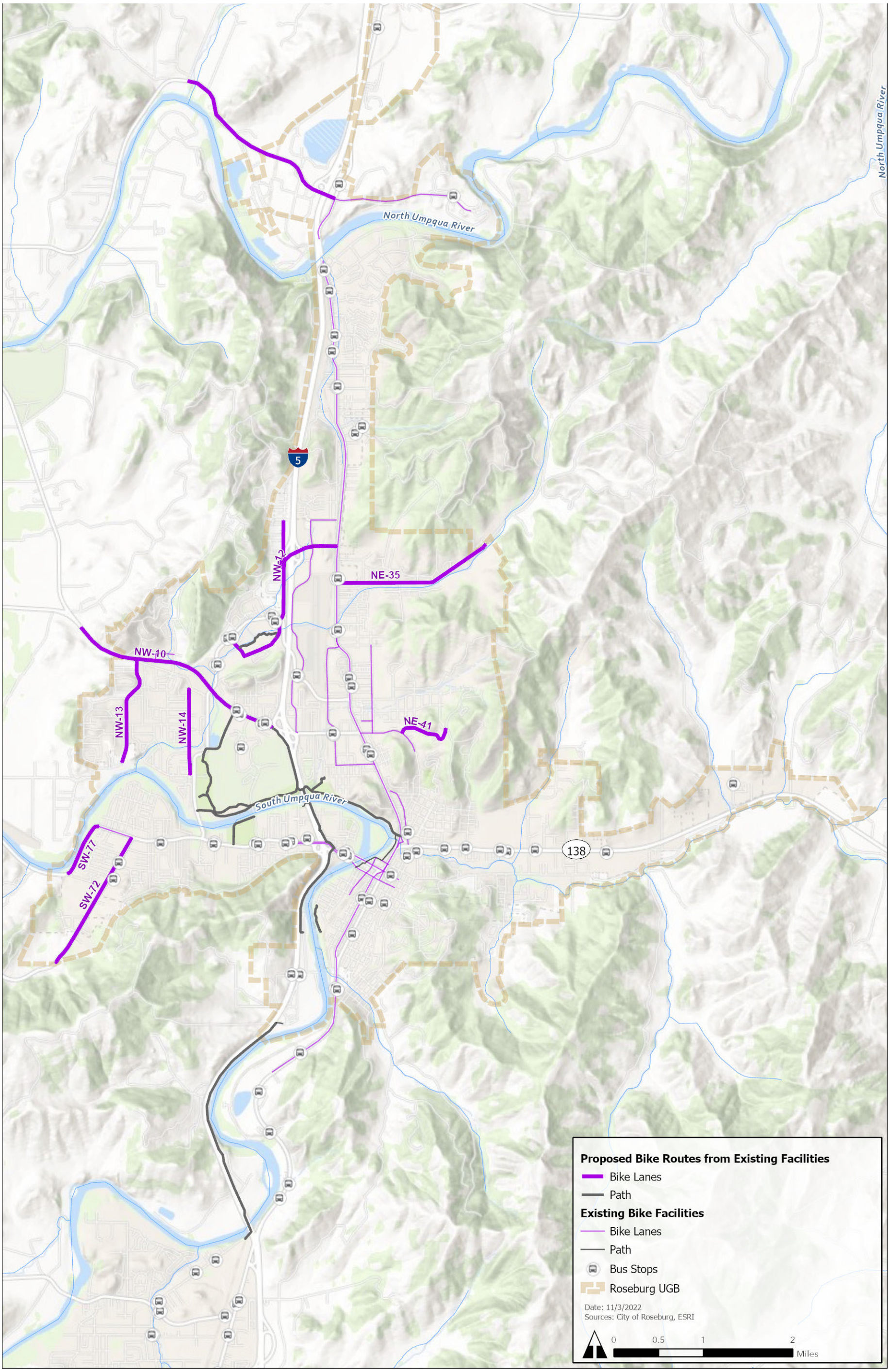


Figure 9. Proposed Bike Routes from Existing Facilities

Short Term

Short Term alternatives implement relatively straight-forward treatments, like sharrows and signs in bicycle boulevards, to quickly establish continuous, connected routes. These are the "low-hanging fruit" of the route alternatives, chosen to make early progress in priority locations and build momentum for more complex bike routes in the future.

Short Term routes serve important destinations, such as schools, or make important connections to the existing path network. Short Term routes were chosen so that improvements would be geographically distributed through the city. Short Term routes are intended to be the first phase of implementation, built within 5 years.

Some Short Term routes incorporate existing facilities, including bike lanes and paths. These are grouped in with the Short Term routes instead of with routes from existing facilities because they would require new facilities to create a continuous route.

Proposed Short Term route alternatives are listed in Table 2 and displayed in Figure 10. Alternatives are also displayed in the interactive Companion Map.

Table 2. Short Term Route Alternatives

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
NW-15	Short Term	Hucrest	$270,000	North-south route connects to Hucrest Elementary on neighborhood streets.	**Bicycle boulevard** (0.92 mi) • NW Kline St • NW Calkins Ave • NW Jefferson St **Bike lanes** (0.78 mi) • NW Kline St • NW Harvey St
NE-30	Short Term	Aviation-Highland	$27,000	Existing bike lanes on General Ave, Aviation Dr, and NW Mulholland Dr cross NW Garden Valley Blvd with bikes on the south sidewalk and continue south on NW Highland St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Mulholland Dr • Aviation Dr • General Ave **Bicycle boulevard** (0.28 mi) • NW Highland St **Bikes on sidewalk** (0.17 mi) • NW Garden Valley
NE-30 Alt	Short Term	Aviation-Highland Alternative	$29,000	A potential new pedestrian crossing of NW Garden Valley Blvd near Fairmount St would create an opportunity for a more comfortable north-south route with less travel along NW Garden Valley Blvd. Requires crossing improvement.	**Bicycle boulevard** (0.48 mi) • NW Cecil Ave • NW Fairmount St

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
NE-31	Short Term	Stephens to UCC	$12,000	Existing bike lanes on NE Stephens (OR 99) connect Garden Valley Blvd with Winchester and Umpqua Community College to the north. Sharrows and signage at the gap in the bike lanes on the bridge crossing the North Umpqua River. The bridge deck is 24 feet curb-to-curb.	Existing bike lanes • NE Stephens St • Umpqua College Rd **Sharrows and signs** (0.20 mi) • North Umpqua River Bridge
NE-32	Short Term	Lincoln	$130,000	Connects the existing bike lanes on NE Garden Valley Blvd with a bike route that continues east and south along NE Lincoln St, NE Malheur Ave, and NE Jackson St. Because of grade on NE Lincoln St, the proposed facility is a bike lane in the uphill direction (northbound) and a bicycle boulevard treatment in the downhill direction (southbound).	Existing bike lanes • NE Garden Valley Blvd **Bike lane/Bicycle boulevard** (0.35 mi) • NE Lincoln St **Bicycle boulevard** (0.44 mi) • NE Malheur Ave • NE Jackson St
NE-34	Short Term	Vine	$27,000	North-south route parallel to NE Stephens St through neighborhood and to Joseph Lane Middle School. Bicycle boulevard treatment connects existing bike lanes on NE Vine St to NE Stephens St.	Existing bike lanes • NE Vine St **Bicycle boulevard** (0.45 mi) • NE Meadow Ave • NE Kerr St • NE Hewitt Ave
NE-36	Short Term	Odell	$21,000	East-west route through neighborhood parallel to NE Diamond Lake Blvd. Connects to path in Deer Creek Park. Would continue east to Rifle Range Rd in the long term network.	**Bicycle boulevard** (0.35 mi) • NE Odell Ave • NE Rowe St
SE-51	Short Term	Downtown East	$120,000	North-south route through neighborhood east of downtown. Parallels SE Stephens St (OR 99). Route jogs on to SE Hamilton St because it is lower traffic and has less elevation.	Existing bike lanes • NE Winchester St **Bicycle boulevard** (1.90 mi) • NE/SE Jackson St • SE Douglas Ave • SE Main St • SE Orcutt Ave • SE Hamilton St • SE Booth Ave
SE-52	Short Term	Eastwood	$27,000	Connects to Eastwood Elementary School from NE Douglas Ave.	**Bicycle boulevard** (0.45 mi) • SE Ramp Rd • SE Waldon Ave
SE-53	Short Term	Mill-Roberts	$39,000	Route connects the area between OR 99 and the railroad south of downtown.	**Bicycle boulevard** (0.64 mi) • SE Mill St • SE Burke St • SE Stephens St • SE Roberts Ave

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
SE-54	Short Term	Micelli	$36,000	Bikeway between the railroad and the South Umpqua River connects Micelli Park and Deer Creek Park.	Existing path • Riverside Park and SE Pine St **Bicycle boulevard** (0.60 mi) • SE Flint St • SE Mosher Ave • SE Fullerton St • SE Micelli St
SE-56	Short Term	Mosher	$94,000	East-west route across railroad and OR 99 south of downtown. Proposed as bike lanes, but could be a bicycle boulevard treatment.	**Bike lanes** (0.35 mi) • SE Mosher Ave
SW-71	Short Term	Harvard Neighborhoods (bicycle boulevards)	$120,000	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Uses neighborhood streets as much as possible to avoid traffic on W Harvard Ave.	Existing bike lanes • W Harvard Ave (west of Lookingglass Rd and east of W Umpqua St) • SW/SE Washington Ave • SW/SE Oak Ave **Bicycle boulevard** (1.87 mi) • W Shasta Ave • W Jay Ave • W Kenwood St • W Francis St • W Bertha Ave • W Stanton Ave • W Fairhaven St • W Brown Ave • Military Ave • W Umpqua St
SW-73	Short Term	Fullerton	$62,000	Route through neighborhood connects with Fullerton Elementary School. Bikes on sidewalk treatment along both sides of W Harvard Ave connect to marked crossing between W Shenandoah St and W Fair St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bicycle boulevard** (0.67 mi) • W Sharp Ave • W Broccoli St **Bikes on sidewalk** (0.35 mi) • W Harvard Ave, south sidewalk, W Shenandoah St to W Fair St • W Harvard Ave, north sidewalk, W Shenandoah St to W Fair St
SW-74	Short Term	Umpqua Street	$20,000	A comfortable neighborhood connection between W Harvard Ave and River Front Park using the I-5 bridge over the South Umpqua River.	**Bicycle boulevard** (0.32 mi) • W Umpqua St

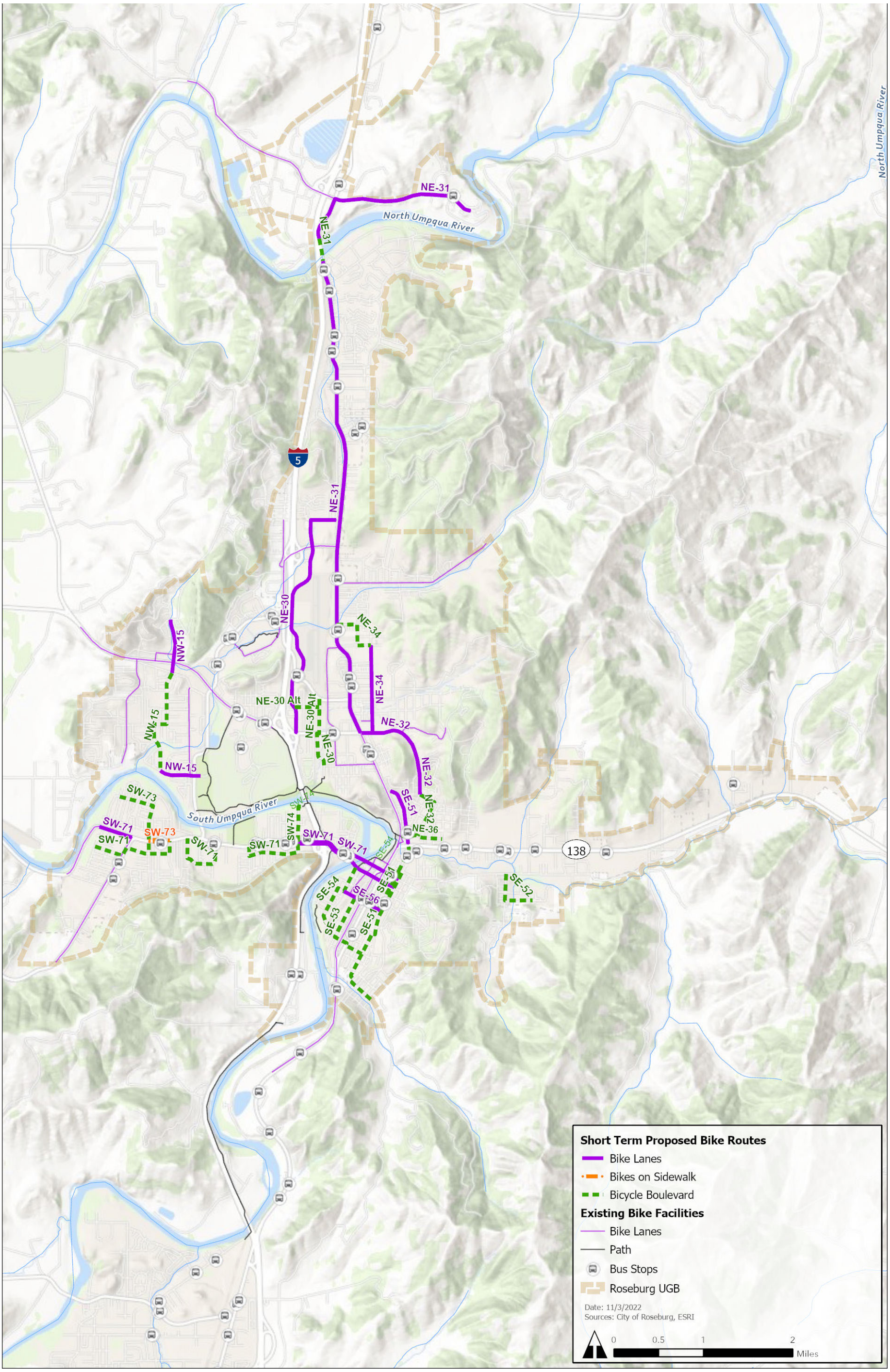


Figure 10. Short Term Proposed Bike Routes

Medium Term

Medium Term route alternatives are intended to be implemented within 10 years. These alternatives include treatments that may require more resources or coordination to implement than Short Term alternatives. These alternatives also include improvements that are not as high priority as those in the Short Term network, but are still important for the bike system. Examples include bikes on sidewalk treatments and extensions of Short Term Bicycle Boulevard routes.

Medium Term routes may be implemented simultaneously with Short Term routes when favorable opportunities arise. For example, if a Medium Term route is scheduled for maintenance or if a Medium Term route is proximate to a Short Term route that is being implemented.

Proposed Medium Term route alternatives are listed in Table 3 and displayed in Figure 11. Alternatives are also displayed in the interactive Companion Map.

Table 3. Medium Term Route Alternatives

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
NW-11	Medium Term	Stewart-Alameda	$180,000	Route primarily on existing bike lanes of NW Stewart Pkwy and NE Alameda Ave. Short bicycle boulevard treatment extends the route further into the neighborhood on the east. A sidewalk treatment on the south side of W Harvard Ave connects the route to the proposed Harvard route (SW-71). Bike lanes on the Stewart Pkwy bridge over the South Umpqua River would be improved to be wider and protected, either as part of a new bridge or from reconfiguring lanes on the existing bridge. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Stewart Pkwy • NE Alameda Ave **Bicycle boulevard** (0.39 mi) • NE Alameda Ave **Bikes on sidewalk** (0.23 mi) • W Harvard Ave, south sidewalk, Francis St to Stanton St **Separated bike lanes** (0.18 mi) • NW Stewart Pkwy bridge
NW-13 Ext	Medium Term	Troost Extension	$540,000	Route improves existing bike lanes by repurposing one or both lanes of underutilized on-street parking to create separated bike lanes between NW Garden Valley Blvd and Katie Dr. Extends route further west into neighborhood with a bicycle boulevard treatment on NW Troost St. Extends route further north to NW Hughwood Dr with a bike lane in the uphill direction and sharrows in the downhill direction. Continues east on NW Hughwood Dr to connect with existing bike lanes.	**Separated bike lanes** (0.71 mil) • NW Troost St **Bicycle boulevard** (0.91 mi) • NW Troost St **Bike lane/Sharrows** (0.23 mi) • NW Troost St • NW Hughwood Dr

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
NW-15 Ext	Medium Term	Hucrest Extension	$37,000	Extends the Hucrest route around the back side of Hucrest Elementary School. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.61 mi) • NW Moore Ave • NW Lynwood St • NW Calkins Ave
NW-16	Medium Term	Calkins	$41,000	East-west route through neighborhood.	**Bicycle boulevard** (0.68 mi) • NW Calkins Ave • NW Grove Ln
NW-17	Medium Term	Valley View-Winchester	$190,000	East-west route parallel to Garden Valley Pkwy. Crosses NW Stewart Pkwy at the signal at Garden Valley Pkwy. Would connect with Newton Creek-Edenbower (NW-12) in the long term network to create a comfortable north-south route to Winchester.	**Bike lanes** (0.66 mi) • NW Valley View Dr **Bikes on sidewalk** (0.10 mi) • NW Stewart Pkwy
NE-33	Medium Term	Joseph Lane-Gaddis Park	$16,000	Connects Joseph Lane Middle School with Gaddis Park. Crosses Stephens St at existing enhanced crosswalk north of Clover Ave.	Existing bike lanes • NE Airport Rd • NE Cedar St • NE Stephens St **Bicycle boulevard** (0.26 mi) • NE Clover St • NE Chestnut Ave • NW Highland St
NE-37	Medium Term	Page	$330,000	East-west route through Winchester. Connects to Winchester Elementary School.	**Bike lanes** (1.2 mi) • Page Rd
NE-38	Medium Term	North View	$86,000	Route along the east side of Winchester.	**Bicycle boulevard** (1.42 mil) • Thora Cir • Josephine St • Strauss Ave • N View Dr • Taft Dr • Club Ave
SE-50	Medium Term	99-Downtown	$220,000	Bike lanes on OR 99 through downtown. A new bike lane on SE Stephens St (northbound) closes the gap in the existing route. The right of way is constrained and a bike lane would require space from a driving or parking lane.	Existing bike lanes • SE Pine St (southbound) • SE Stephens St, north of SE Oak Ave **Bike lanes** (0.80 mi) • SE Stephens St (northbound), between SE Oak Ave and SE Pine St
SE-55	Medium Term	Douglas	$810,000	Bikeway along NE Douglas Ave provides an east-west route parallel to NE Diamond Lake Blvd. Bike lanes are included in plans for the separate Douglas Avenue Improvements project. Estimate includes striping and signage. Does not include widening.	Existing bike lanes • NE Douglas Ave **Bike lanes** (3.00 mi) • NE Douglas Ave

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
SW-70	Medium Term	High School to County Fairgrounds	$53,000	Connects the high school to the south side of town past the fairgrounds. New bicycle boulevard treatments on Kendall St and Frear St close the gap in the I-5 path near the county fairgrounds.	Existing path • I-5 multi-use path **Bicycle boulevard** (0.87 mi) • Kendall St • SW Portland Ave • Frear St
SW-71	Medium Term	Harvard Neighborhoods (Bikes on Sidewalk)	$26,000	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Connects neighborhood segments with bikes on the south sidewalk of W Harvard Ave. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bikes on sidewalk** (0.43 mi) • W Harvard Ave, south sidewalk, Kenwood St to Francis St • W Harvard Ave, south sidewalk, Stanton St to Fairhaven St
SW-73 Ext	Medium Term	Fullerton Extension	$21,000	Extends Fullerton route further east to W Agee St and to connect with entrance to Fullerton Elementary School.	**Bicycle boulevard** (0.34 mi) • W Bradford Ct • W Agee St
SW-75	Medium Term	Myrtle-VA	$14,000	Connects neighborhood south of W Harvard Ave with River Front Park and Stewart Park along Stewart Park Drive. Potential for long term path through Fir Grove Park.	**Bicycle boulevard** (0.22 mi) • Stewart Park Dr • W Wharton St
SW-76	Medium Term	Military Avenue	$140,000	Route along Military Ave from Lookingglass Rd to Harrison St. Hilly. Pavement is in poor condition and should be improved before implementing the bike facility.	**Bicycle boulevard** (2.31 mi) • Military Ave

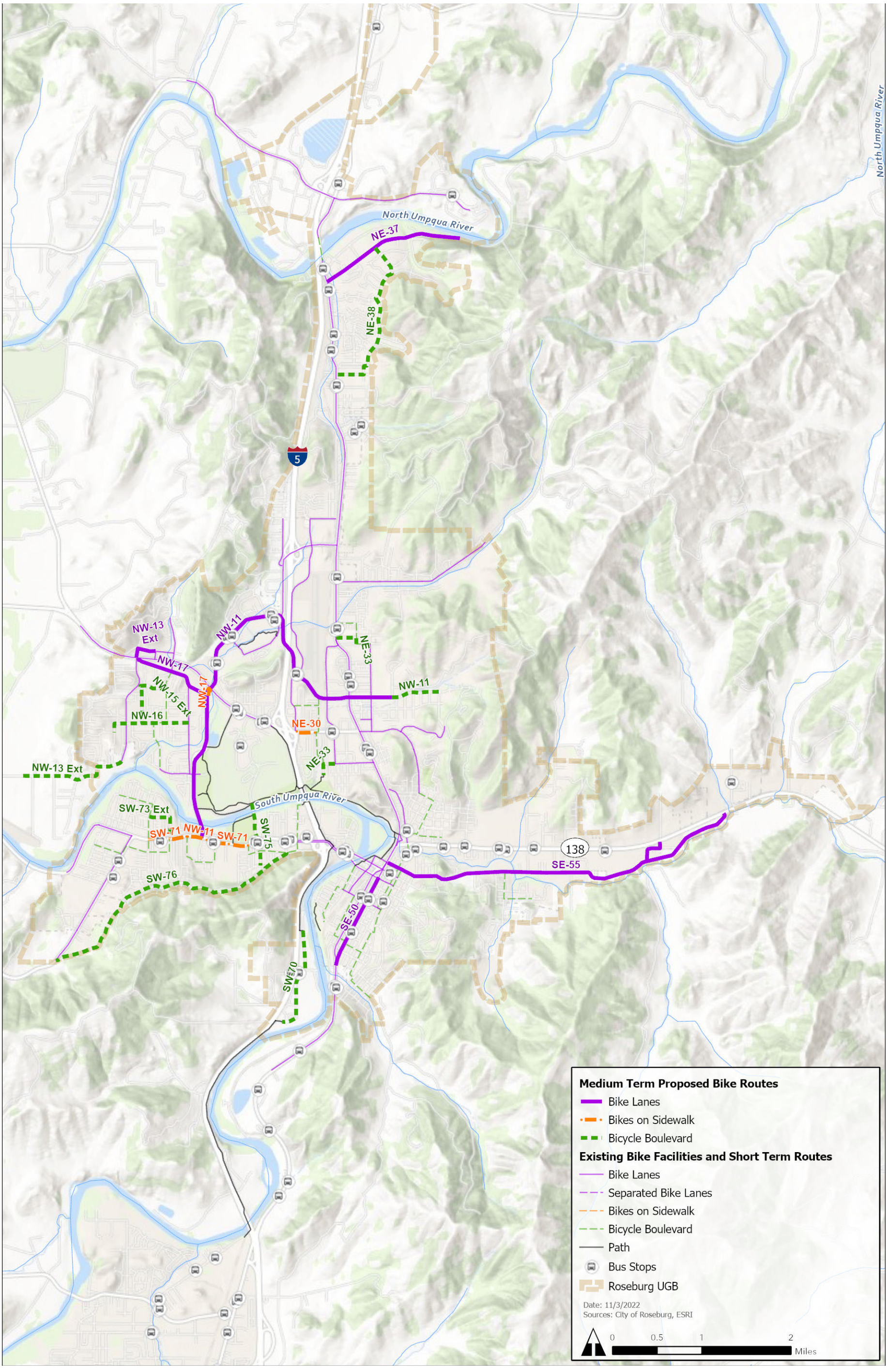


Figure 11. Medium Term Proposed Bike Routes

Long Term

The list of Long Term alternatives includes projects that aim to ultimately create a low-stress network of connected bikeways that are comfortable for people of all ages and abilities. Long Term alternatives tend to be projects that require more coordination or resources to implement, and may be phased as funding becomes available or other opportunities arise. For example, routes on school property would require coordinating access with Roseburg Public Schools. Some Long Term projects are included with larger planned roadway projects and will be implemented with them.

Long Term route alternatives are listed in Table 4 and displayed in Figure 12. Alternatives are also displayed in the interactive Companion Map.

Alternatives for the Roseburg Bike Routes Plan are intended to be implementable within the next 20 years. Alternatives that would involve higher amounts of investment, private property impacts, or potential political contention are excluded. Instead, these projects are listed in the Aspirational section below.

Table 4. Long Term Route Alternatives

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
NW-10 LT	Long Term	Garden Valley West – Path	$490,000	Path on south side of NW Garden Valley Blvd between Duck Pond St and I-5 path. TSP planned project: Tier 2, BP-22a.	**Path** (0.31 mi) • NW Garden Valley Blvd
NW-17 LT	Long Term	Valley View-Winchester	$6,400,000	Family-friendly route from Valley View to Winchester avoids busy roads using the existing tunnel and a path or widened sidewalk along Garden Valley Blvd and Stewart Pkwy. Would have an additional option to cross Stewart Pkwy with a new crosswalk to the south. Bikes on sidewalk and bike lanes would connect to the crossing. Tunnel under Garden Valley Blvd has been closed for security issues, which would need to be addressed before considering opening again. Path adjacent to Newton Creek could be new trail as in the TSP (Tier 2 BP-21b) or coordinated with Walmart. Path along east side of I-5. New bridge over I-5 connects with the Newton Creek MUP. Path continues north to Winchester. Planned TSP Tier 2, BP-21d. Would connect with Newton Creek-Edenbower (NW-12).	**Path** (4.1 mi) • Along Newton Creek (near Walmart) • North of Newton Creek to Winchester **Bikes on sidewalk** (0.12 mi) • NW Stewart Pkwy
NW-17 Alt	Long Term	Valley View-Winchester Alternative	$920,000	Path on west side of I-5 in ODOT ROW. Crosses I-5 on existing Edenbower bridge as opposed to the new bridge required for NW-17.	**Path** (0.59 mi) • West of I-5 in ODOT ROW between I-5 and Edenbower.

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
NW-19	Long Term	Hill	$500,000	Include separated bike lanes with new arterial planned in TSP Tier 2, R-16. Includes a bridge over I-5. Would provide a parallel alternative to Garden Valley Blvd and a more direct east-west route than Stewart Pkwy.	**Separated bike lanes** (0.66 mi) • NW Hill Ave
NE-31 Ext	Long Term	Stephens to UCC Extension	$750,000	Extend the bike facility south on Stephens to connect with existing bike lanes south of Diamond Lake Blvd. Widen sidewalk(s) to be wide enough to accommodate biking and walking along this direct and relatively flat route. Would require narrowing or reconfiguring driving lanes to fit within ROW.	**Separated bike lanes** (1.0 mi) • NE Stephens St
NE-32 LT	Long Term	Lincoln Extension	$1,200,000	Planned sidewalk improvements would create enough space to bike and walk on Garden Valley Pkwy between NW Mulholland Dr and NE Stephens. This extends the Lincoln route further west. TSP project Tier 2, BP-3. Includes bike facilities on I-5 overpass in the event that the overpass is reconstructed in the next 20 years.	**Separated bike lanes** (0.75 mi) • Garden Valley Blvd • Garden Valley Blvd I-5 overpass
NE-34 Ext	Long Term	Vine Extension	$690,000	Establishes a path from the north end of Vine St to Newton Creek Rd along existing undeveloped trail. Existing bridge over Newton Creek would likely need improvements or replacement. TSP project Tier 2, BP21c.	**Path** (0.44 mi) • Vine St path.
NE-36 Ext	Long Term	Odell Extension	$1,300,000	Path at the north edge of the old lumber mill property from the end of Odell St to Rifle Range Rd. Could be implemented with new development.	**Path** (0.80 mi) • Odell extension
NE-39	Long Term	Rifle Range	$480,000	Route along Rifle Range St. Could be implemented with new development or planned road maintenance. Separated bike lanes near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Spencer Ct the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction.	**Separated bike lanes** (0.46 mi) • Rifle Range St between Douglas Ave and Spencer Ct **Bike lanes** (0.50 mi) • Rifle Range St between Spencer Ct and Frontier Ln
NE-40	Long Term	Fulton-Rocky	$400,000	North-south route through residential areas from Diamond Lake Blvd to Rocky Ridge Dr. Separated bike lanes on Fulton St near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Commercial Ave the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction. North of Tahoe Ave the road becomes a private drive. Access would need to be coordinated. Road is in poor condition and would need improvements.	**Separated bike lanes** (0.13 mi) • NE Fulton St **Bike lanes** (1.1 mi) • NE Fulton St • NE Rocky Dr

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
NE-41 Ext	Long Term	Rocky Ridge Extension	$110,000	Continues existing Rocky Ridge bike route along NE Rocky Ridge Dr through residential area to NE Alameda Ave. Would connect to planned future extension of Rocky Road (TSP project Tier 2, R16m).	**Bike lanes** (0.40 mi) • NE Rocky Ridge Dr
NE-42	Long Term	Diamond Lake Blvd	$3,000,000	Important east-west route on east side of town. Currently in a separate planning process to determine feasibility of adding bike lanes. TSP project Tier 1, BP-20b.	**Separated bike lanes** (3.9 mi) • Diamond Lake Blvd
SE-52 Ext	Long Term	Eastwood Extension	$530,000	Creates a path on the east side of the school north to Eastwood Park along an existing undeveloped trail. Bridge over Deer Creek may require improvements or replacement. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.34 mi) • Eastwood Extension
SE-54 Ext	Long Term	Micelli Extension	$670,000	Path continues south through Micelli Park, then across the South Umpqua River with a new bridge connecting to Portland Ave near the county fairgrounds. Planned TSP project Tier 2, BP7.	**Path** (0.43 mi) • Micelli Extension
SW-70 LT	Long Term	High School to County Fair Path Connection	$1,300,000	Connects the gap in the I-5 path near the county fairgrounds. Path would be adjacent to I-5 on east side in ODOT ROW.	**Path** (0.78 mi) • I-5 path
SW-71 Ext	Long Term	Harvard Neighborhoods Extension	$430,000	Continues the Harvard Neighborhoods route west across the South Umpqua River on a planned bridge and road extension. The route would then turn north with planned improvements on Charter Oaks Dr. Planned TSP Tier 2 projects R-16p and R-13. Requires new bridge and roadway buildout.	**Separated bike lanes** (0.57 mi) • W Harvard Ave • W Charter Oaks Dr
SW-71 LT	Long Term	Harvard Neighborhoods Fremont Connection	$420,000	Would use west gate to middle school and travel through school property to southeast corner, where it would loop to the south around houses (staying on school property) and connect with Nebo St. Bicycle boulevard treatments continue to connect with the Short Term SW-71 at W Brown Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.25 mi) • On school grounds **Bicycle boulevard** (0.42 mi) • Fremont Middle School parking lot • W Nebo St • W Catherine Ave • W Fairhaven St
SW-72 LT	Long Term	Lookingglass Separated Bike Lanes	$680,000	Upgrade existing bike lanes on Lookingglass Rd to be separated, from W Harvard Ave to W Woodside Rd. Can coincide with planned sidewalk improvement, TSP Tier 2 BP23.	**Separated bike lanes** (0.90 mi) • Lookingglass Rd

ID	Phase	Name	Cost Estimates	Description and Notes	Facility Type(s)
SW-78	Long Term	Laurelwood	$190,000	Creates a comfortable route on the north and east side of high school. Would require a connection through what is now private property at the north east corner of the high school. The route would connect with Laurelwood Park. Route is contingent on future property acquisition by school. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.56 mi) • W Finlay Ave • W Bowden St • W Riverside Dr • W Casey St • W Chapman Ave • W Madrone St **Path** (0.10 mi) • Connection between W Finlay Ave and W Bowden St
SW-79	Long Term	Harvard Path	$2,200,000	Would widen north sidewalk to make space for walking and biking, establishing a comfortable east-west route through this part of the city. Planned TSP Tier 2 BP-5. Sidewalk widening could require extending the sidewalk into the roadway because of right of way limitations. This could require removing a motor vehicle lane.	**Path** (1.4 mi) • North sidewalk of W Harvard Ave

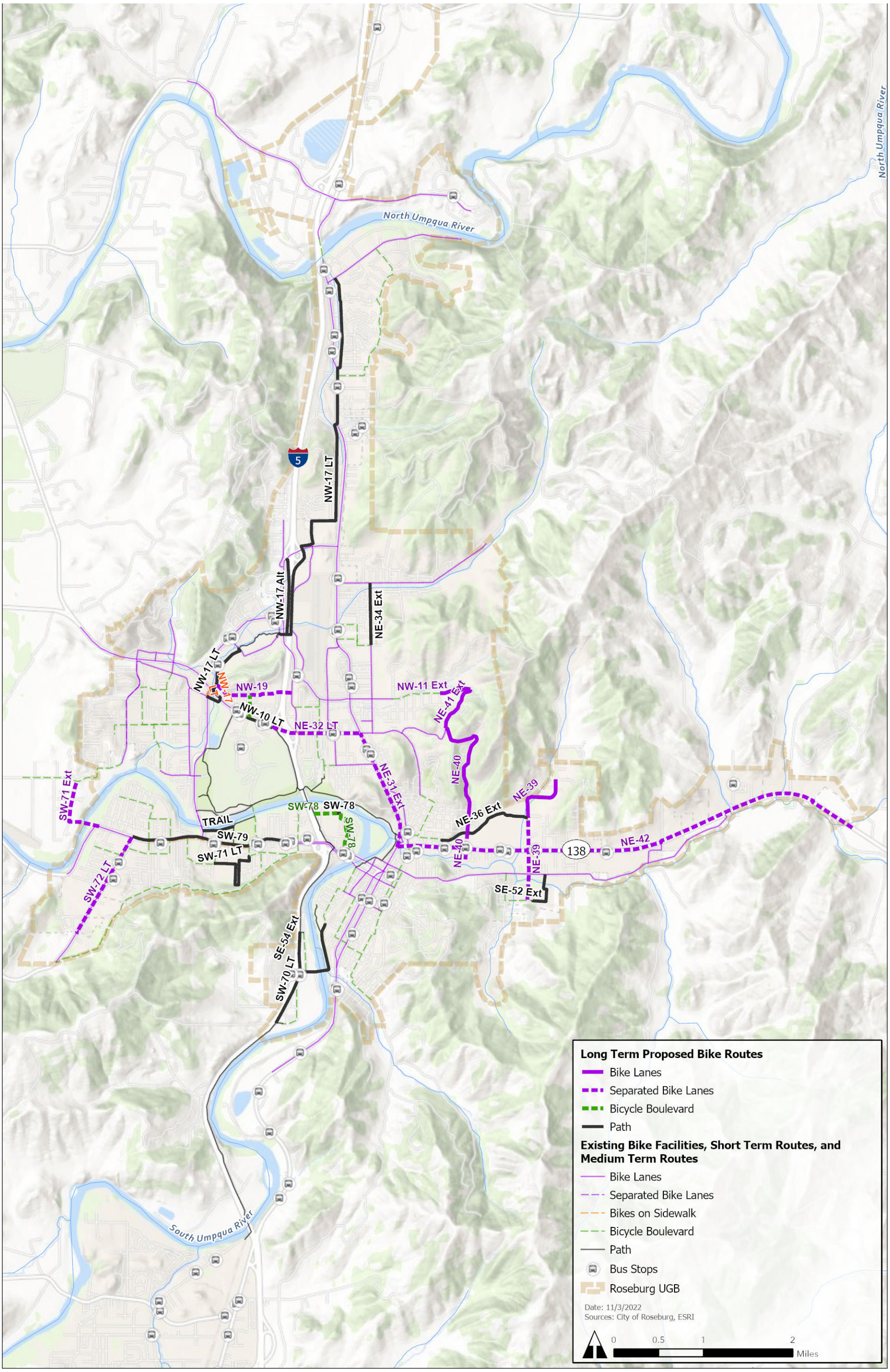


Figure 12. Long Term Proposed Bike Routes

Aspirational Projects

Projects that are unlikely to be implemented within the Long Term time frame but would still be beneficial to Roseburg bike network are listed here. These are documented in case prospects for funding, redevelopment, or other opportunities arise. These are not included in the alternatives list, and are therefore not evaluated and do not have costs estimated.

One collection of aspirational projects is to implement separated bike lanes or adjacent paths along all arterials. These would create direct routes through the city that would feel more comfortable and safer than standard bike lanes. These arterials include:

- Stephens St.
- Pine St.
- Garden Valley Blvd.
- Edenbower Blvd.
- South sidewalk of Harvard Ave. to improve access to neighborhoods on south side.

Another collection of aspirational projects is to reconnect the street grid where it has been interrupted by private development. Interruptions in the street grid have the result of funneling everyone to one of a few busy streets to travel through the city. Reconnecting the street grid, either by roads or paths, would allow people to bike through neighborhoods and avoid busy arterials. Notable locations that could use new connections include:

- Residential areas south of Harvard Ave.
- Fir Grove Park to I-5 along the south bank of the South Umpqua River.
- Micelli Park to Mosher Avenue along the east bank of the South Umpqua River.

Traffic Calming

Traffic calming treatments help reduce motor vehicle traffic speeds, which improves drivers' time to see other road users and allows them more time to react. Most often, traffic calming treatments involve physical changes to the roadway that encourage slower and more careful driving. Bringing driving speeds closer to biking speeds feels more comfortable for cyclists and lowers the risk of injury in a collision. Traffic calming also helps reduce the likelihood that drivers will try to overtake people biking in shared lane facility.

A menu of traffic calming treatment options was curated through the development of Memo #4 and is summarized in Table 5.

Table 5. Traffic Calming Toolkit

Treatment	Description	Considerations	Recommended Locations	Cost Estimate
Speed humps, or "bumps"	Elevates the roadway surface to encourage speeds of 15 to 20 miles per hour. They are designed to be 3 to 4 inches high and are 12 to 14 feet long.	Effective at slowing traffic to speeds of 15 to 20 miles per hour.	Bicycle boulevards or other routes where traffic speeds of 20 miles per hour or less are desired.	$5,000 - $20,000
Speed cushions	Like speed bumps, but with cut outs in the bump to allow emergency vehicles to pass more easily.	Speed cushions are less effective than speed bumps at slowing traffic and can cause unpredictable driving as drivers swerve to align their wheels with the cut outs.	Bikeways along emergency routes where traffic speeds of 25 miles per hour or less are desired.	$5,000 - $20,000
Lane reconfiguration (also known as a road diet or lane conversion)	Reduces the number of driving lanes to lower speeds. Redistributes space and creates a safer, balanced multimodal street by expanding sidewalks, and adding protected bike lanes.	Lane conversions reduce motor vehicle speeds and crashes, and increase space for biking and walking facilities. Lane conversions reduce motor vehicle capacity.	Along routes that have more than one driving lane in each direction. Along routes where additional space is needed for a biking or walking facility.	$745,000 per mile *Assumes a four-lane initial configuration. Includes adding buffered bike lanes with plastic delineator posts. Does not include pavement overlay.*
Radar speed signs	Sign displays the speed of oncoming traffic along with the speed limit. This feedback is effective at reducing speeding.	A mobile radar speed sign is versatile because it can be moved to locations where speeding is an issue.	Where speeding is a known issue.	$10,000 - $50,000
Diverters	A feature placed on a street to prohibit traffic from entering or exiting, or both, the street (they can be designed for either left or right turns) while people walking or biking can freely travel through the intersection.	Diverters restrict motor vehicle movements. Diverters are effective at reducing the number of vehicles on local streets and should be coordinated with affected residents.	In locations where there is a need to reduce motor vehicle traffic.	$185,000 *Includes median, crossbikes striping, and four ADA ramps.*
Intersection median barriers	A barrier in the median of the road at an intersection allows people to cross a street by walking or biking, and restricts motor vehicle left turns and road crossings.	Intersection median barriers restrict motor vehicle movement when necessary because their movement compromises the safety of other modes.	In locations where there is a need to reduce potential turning or cross street conflicts.	$185,000 *Includes median, crossbikes striping, and four ADA ramps.*
Street trees and landscaping	Street trees narrow the field of vision for people driving, which encourages them to drive slower and more carefully.	Consider sight lines, particularly at intersections and crosswalks. Vegetation must be regularly maintained. Street trees can provide shade, making routes more comfortable for biking in the summer.	Street trees and landscaping would benefit most bike routes, provided they do not impede visibility of other road users.	Varies

Treatment	Description	Considerations	Recommended Locations	Cost Estimate
Chicanes	Chicanes are offset curb extensions or parking bays designed to slow traffic speeds. They are typically on residential or low volume streets. Chicanes can increase the amount of public space and can be activated using benches, bicycle parking, and other amenities.	Chicanes in two-way streets are most effective when traffic is balanced in both directions. Otherwise, drivers can pick a straight path through the middle of the road. Where chicanes are implemented with unprotected bike lanes, drivers are likely to encroach on the bike lanes. The City is developing a chicane plan for Pine St to slow traffic west of Douglas Ave.	Along routes where slow speeds are critical and people walking, biking, and driving all use the same street surface.	$94,000 for hardscape curb extension. *Includes curb work, ADA ramp reconstruction, crosswalk striping.* $18,000 for paint and flexible posts. *Does not include curb work or ramp reconstruction.*

Traffic calming treatments should be applied on bike routes where motor vehicle traffic feels unsafe or uncomfortable for cyclists. This is especially important on shared-lane facilities, such as bicycle boulevards, where people biking mix in with motor vehicle traffic. For bike boulevards, NACTO recommends motor vehicle speeds[1] to be 25 miles per hour or less, and 20 miles per hour or less is preferred. Traffic calming treatments can help bring vehicle speeds below these levels.

Traffic calming should be considered to enhance arterials, as well. Arterials are integral to transportation in Roseburg. Because of the disconnected street grid, people must often use an arterial to get to where they want to go. However, arterials also have heavy, fast-moving motor vehicle traffic. Traffic calming on Stewart Parkway, for example, can be applied strategically to slow traffic at crosswalks or bike route crossings. Another example, Harvard Boulevard, is vital for east-west movement through the city. Its current five-lane configuration allows for high volumes of motor vehicle traffic to drive fast through the city. However, it is not pleasant for cyclists, and the five driving lanes leave little space for sidewalks and no space for bike lanes. A lane reconfiguration on Harvard from five to three driving lanes would reduce traffic speeds and make space available for bike facilities and sidewalks. Traffic calming on arterials would require further study to determine the appropriate treatment and assess impacts.

A list of potential locations for traffic calming was developed for the City to consider as a starting point. Locations are listed in Table 6 and mapped in Figure 13 as well as the interactive Companion Map. Traffic calming locations were chosen for Short and Medium Term routes based on several criteria:

- Proximity to a school.
- Grade/steepness of the road. (Uphill segments increase the difference in speed between biking and driving).
- Reports of fast motor vehicle traffic.

[1] Specifically, the 85th percentile speed.

Each location on this list would require closer study, which is outside the scope of this Roseburg Bike Routes Plan. This list of potential traffic calming locations is not exhaustive. The City should consider traffic volumes, speeds, and public feedback as bike routes are implemented, and apply traffic calming treatments accordingly.

Locations focus on Short Term and Medium Term bike routes because these are higher priority. Long Term bike routes will also benefit from traffic calming. It is expected that by the time the Long Term routes are implemented, the City will have a better idea of what types of treatments to apply and where.

Table 6. Potential Traffic Calming Locations

Location ID	Associated Bike Route ID	Notes
TC-11 E	NW-11	Along Alameda Avenue where there is a moderate hill and fast driving.
TC-11 W	NW-11	On Stewart Parkway, which has heavy, fast-moving traffic.
TC-13	NW-13	At Roseburg Christian Academy.
TC-15	NW-15	At Hucrest Elementary.
TC-15 Ext	NW-15 Ext	At downhill approach to Hucrest Elementary.
TC-16	NW-16	On Calkins, a long straight road that serves Roseburg Christian Academy and Hucrest Elementary.
TC-32	NE-32	Along the hill where Lincoln Street and Garden Valley Boulevard meet.
TC-34	NE-34	At Joseph Lane Middle School.
TC-37	NE-37	At Winchester Elementary.
TC-51	SE-51	On Main Street south of Lane Avenue, where Main Street is two-way and the grade becomes steeper.
TC-52	SE-52	At Eastwood Elementary.
TC-55	SE-55	Along Douglas Avenue, which is a long, windy, somewhat hilly road with few stop controls for cars.
TC-71	SW-71	At crossing of Lookingglass Road between Jay Avenue and Shasta Avenue.
TC-72	SW-72	At south end of Lookingglass Road just inside speed zone.
TC-73 Ext	SW-73 Ext	At Fullerton Elementary.
TC-75	SW-75	On Stewart Park Drive, which is narrow and can have heavy traffic.
TC-79	SW-79	Along Harvard Boulevard.

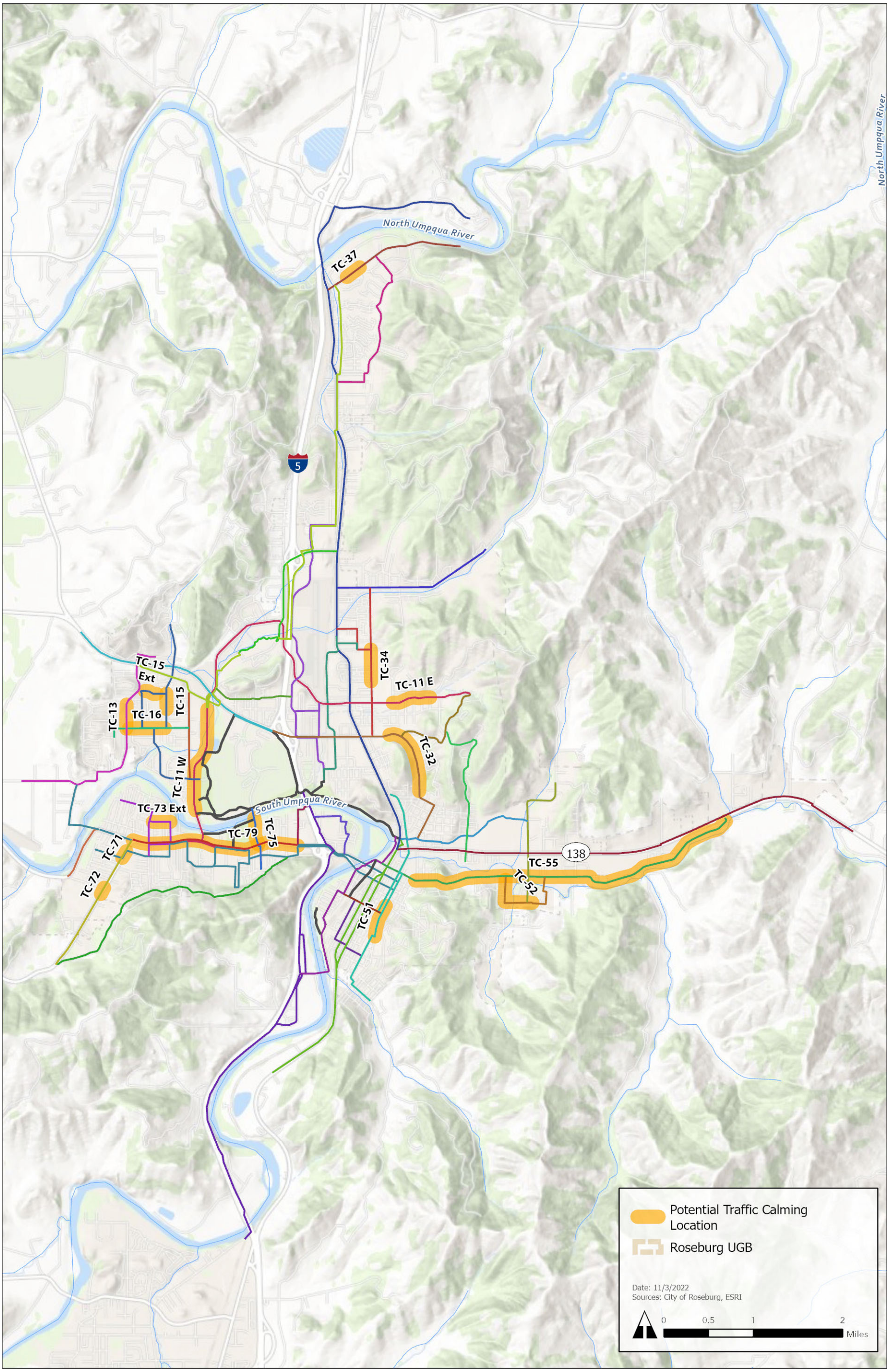


Figure 13. Potential Traffic Calming Locations

Intersection and Crossing Treatments

Intersection and crossing treatments help people to safely cross a busy road on a bike, in addition to helping people to cross a busy road by walking or using a mobility device. Potential intersection and crossing treatments were developed for *Memo #3: Evaluation Criteria and Alternatives Developmen*t and refined in Memo #4. Intersection and crossing treatments are summarized with considerations and recommended locations in Table 7. Important intersections and crossings on the proposed bike route network are mapped in Figure 15.

Table 7. Intersection & Crossing Treatment Toolkit

Treatment	Description	Considerations	Recommended Locations	Cost Estimate
Intersection Tools				
Bike boxes	Designated spaces for people biking to wait in front of the motor vehicle stop bar. Increases visibility and reduces the potential for a driver turning right to collide with a person biking.	Can help with left turns if the box extends across to the left turn lane. Helps prevent vehicles from encroaching into the crosswalk. Right turns on red should be prohibited.	At signalized intersections.	$20,000 each
Bicycle forward stop bar	The bicycle stop bar is placed closer to the intersection than the motor vehicle stop bar to put bikers in a more visible location and reduce their crossing distance.	Position so cyclists do not impede the crosswalk. Colored paint can bring more attention to the space. Similar to a bike box, but does not occupy the lane in front of the motor vehicles.	At stop-controlled intersections.	$6,000 each
Two-stage turn queue boxes	Two stage turn queue boxes simplify left turns by providing a space on the right, in front of the cross traffic, to wait for oncoming traffic to clear or the signal to change.	This allows a more comfortable option for left turns, but adds delay for people biking. Provides a space for left-turning cyclists to wait for the signal to change.	At intersections where the bike route requires turning left on a road with traffic. Where people biking often turn left.	$3,000 each
No right turns on red	Drivers have a tendency to roll through red lights when making right turns, and fail to look for people walking and biking. This creates dangerous conditions for vulnerable road users. Disallowing right turns on red will help encourage drivers to pay attention for other road users.	Drivers often ignore “No Right on Red” signs, so enforcement will be important. This can affect right turn queuing at intersections.	At signalized intersections, especially where there are safety concerns.	Varies.

Treatment	Description	Considerations	Recommended Locations	Cost Estimate
Bicycle signal phases	A signal phase that accommodates biking can reduce potential conflicts. Different types of phases can be implemented.	Reduces potential conflicts between drivers and cyclists. Can allow people to bike through the intersection before drivers, making them more visible and reducing their exposure to engine exhaust. Can be relatively expensive to implement.	At signalized intersections with safety concerns or that are important for the bike network.	$1,250,000 *Includes installation of a new signal, update of ADA sidewalk ramps, and striping at a three-lane intersection.*
Reduced turning radii	Tightens the corner turning radius by extending the curb and sidewalk. Encourages slower right turns for motor vehicles and shortens pedestrian crossing distances.	Can combine with curb extensions. Can integrate sidewalk improvements with the extended curb.	At intersections with large corner radii.	$94,000 for hardscape curb extension. *Includes curb work, ADA ramp reconstruction, crosswalk striping.* $18,000 for paint and flexible posts. *Does not include curb work or ramp reconstruction.*
Protected intersections	Keeps people biking separate from motor vehicles until reaching the intersection. Uses a corner island to protect the bike lane.	Perhaps the most comfortable intersection treatment because it provides extra protection and visibility. However, it requires more space than other intersection treatments.	At intersections with physically separated bike lanes.	$1,443,000 *Includes installation of a new signal, curb improvements, ADA ramps, and striping at a three-lane intersection.*
Crossbikes	Crossbikes are green striped lanes, similar to crosswalks, that increase visibility of people biking and clearly delineate the continued bike route.	This treatment is effective for encouraging drivers to yield to people wanting to cross on bikes. However, there is no legal requirement for drivers to stop for people at crossbikes, and confusion over yielding right-of-way may occur.	At crossings where the bike route is stop controlled and the cross street is not.	$72,000 *Includes installation of crosswalk and crossbike striping across a three-lane road.*
Crossing Tools				
Curb extensions, or “bulb outs”	Extend the sidewalk curb into the parking lane to improve visibility and reduce crossing distance.	Conflicts with curb-adjacent bike lanes. Expanded sidewalk space can be used for many purposes, including bike parking or by adjacent businesses. Can be designed to minimize impacts to stormwater flow or to integrate bioswales for stormwater management.	Crossing roads with curb-adjacent parking lanes. NOT on roads with curb-adjacent bike lanes.	$94,000 for hardscape curb extension. *Includes curb work, ADA ramp reconstruction, crosswalk striping.* $18,000 for paint and flexible posts. *Does not include curb work or ramp reconstruction.*

Treatment	Description	Considerations	Recommended Locations	Cost Estimate
Median refuge islands	A raised barrier placed at a crosswalk between lanes of traffic (excluding turn lanes). Islands provide a refuge area for people walking across the street.	Good for multilane roadways. Should be at least 4 ft. wide, preferably 8 ft. for more comfort. Median refuge islands in a center turn lane will impact left turn movements.	Where a bike route crosses a road with high traffic volumes and has space for a median island. Example locations may include mid-block crossings, bike route crossings, near transit stops or other pedestrian focused sites.	$185,000 *Includes median, crossbikes striping, and four ADA ramps.*
Rectangular rapid flashing beacons (RRFBs)	Push button activated flashing lights indicate to approaching drivers that someone wants to cross.	Push button should be located for convenient use by people on bikes. Light bars should be placed on both sides of a crossing.	Crossing roads with high vehicle traffic volumes, high speeds, or that are wide. Most beneficial for multilane crossings with speeds of 40 mph or lower.	$240,000 *Includes RRFB, crosswalk and crossbike striping, and four ADA ramps.*
Raised crosswalks	Elevates the crosswalk or an entire intersection like a speed hump or speed table to increase pedestrian visibility and encourage motorists to slow down and yield to pedestrians, to slow traffic speeds, and to indicate a priority for walking and biking. They are typically raised to 3 inches below the level of the sidewalk.	Raised crosswalks encourage slower driving. Appropriate for speeds of 25 to 30 miles per hour. Can be designed to minimize impact to transit or emergency vehicles.	In areas with high pedestrian activity. On streets with speeds of 30 mile per hour or lower. Example locations may include school zones, parks, trail crossings, and transitional zones into residential areas.	$15,000 - $20,000

Signalized Intersections

Signalized intersections can be safe and comfortable when they are designed to accommodate biking. When they are not, they can feel uncomfortable, confusing, and may not work. Existing signalized intersections are listed in Table B-1 in Appendix B. Considerations for accommodating biking at signalized intersections include:

- Provide space for biking. Indicate with paint, posts, or hardscape where people should wait or move through when biking. Use bike boxes and two-stage turn queue boxes.
- Make people biking visible to drivers. Use bike boxes, two-stage turn queue boxes, and bicycle signal phases to get cyclists in front of drivers so they are easily seen. Bike markings and signage helps indicate to drivers that cyclists may be present.
- Make sure the signal is responsive to bikes. Signal loop detectors must be sensitive to bikes, and people biking need to know where to position their bikes to activate the signal. The City of Portland marks the sensor for cyclists and has installed blue feedback lights so people can see that they have activated the sensor.
- Protect against right hooks. "Right hook" collisions (when a right-turning driver strikes someone biking in the right-side bike lane) is a common type of crash. A few enhancements help reduce the risk of right

hooks, including bike boxes, protected intersections, disallowing right turns on red, and reconfiguring the intersection to move the point where the driver crosses the bike lane away from the intersection.

Example Intersection: NW Harvey Avenue and NW Stewart Parkway

Intersection design is outside of the scope of this plan. However, it is worth considering potential treatments that could be applied to improve an example intersection for biking. The signalized intersection of NW Harvey Avenue and NW Stewart Parkway has been identified by the project Advisory Committee (AC) as a priority for bicycle enhancements. This is an important intersection for accessing the YMCA and Stewart Park, and for north-south travel through the city (see Figure 14). The AC noted a number of issues, including:

- Drivers have been seen traveling at high speeds to pass other cars before the road merges from two southbound lanes to one.
- Limited visibility from foliage and other obstructions.
- Drivers not looking out for people walking or biking.

A leading pedestrian interval was recently installed, which provides people walking across the street in the crosswalk a few seconds head start before drivers get a green light. Additional potential enhancements at this intersection include:

- Installing bike boxes on all four approaches to the intersection. This will create space for people on bikes to wait and will remind drivers to watch for people on bikes.
- Reconfigure lanes and consider disallowing right turns on red (would have traffic queueing impacts).
- Place radar speed signs on Stewart Parkway approaching the intersection.
- Use traffic cameras for enforcement of speeding and signal compliance.
- Restripe Harvey Avenue with bike lanes to provide space for people biking.
- Continue bike lane striping through the intersection.
- Create dedicated bicycle signal phases to allow people biking to move through the intersection without danger of being struck by a driver. This could be combined with the leading pedestrian interval.

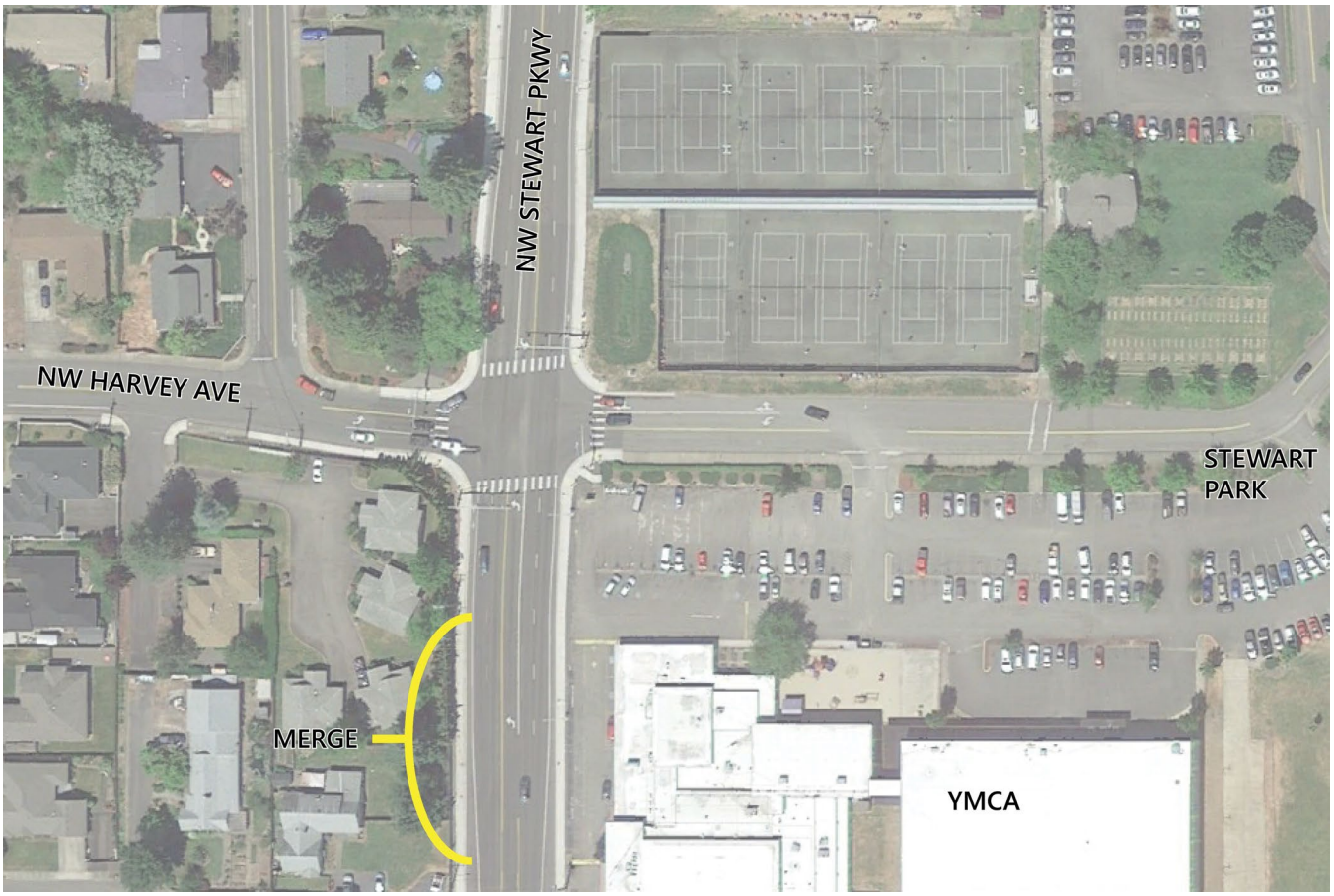


Figure 14. Intersection of NW Harvey Ave and Stewart Pkwy

Locations that Lack a Marked Crossing

There are a number of locations where a proposed bike route must cross a busy road and lacks a marked crossing. These locations include where a path or a side street intersects a busier road, and are listed in Tables B-2 and B-3 in Appendix B. They are also mapped in Figure 15 as “Stop Control on Side Streets“ and “No Existing Crossing.“ These locations would benefit from a marked or signalized crossing treatment from Table 7, as appropriate for the context.

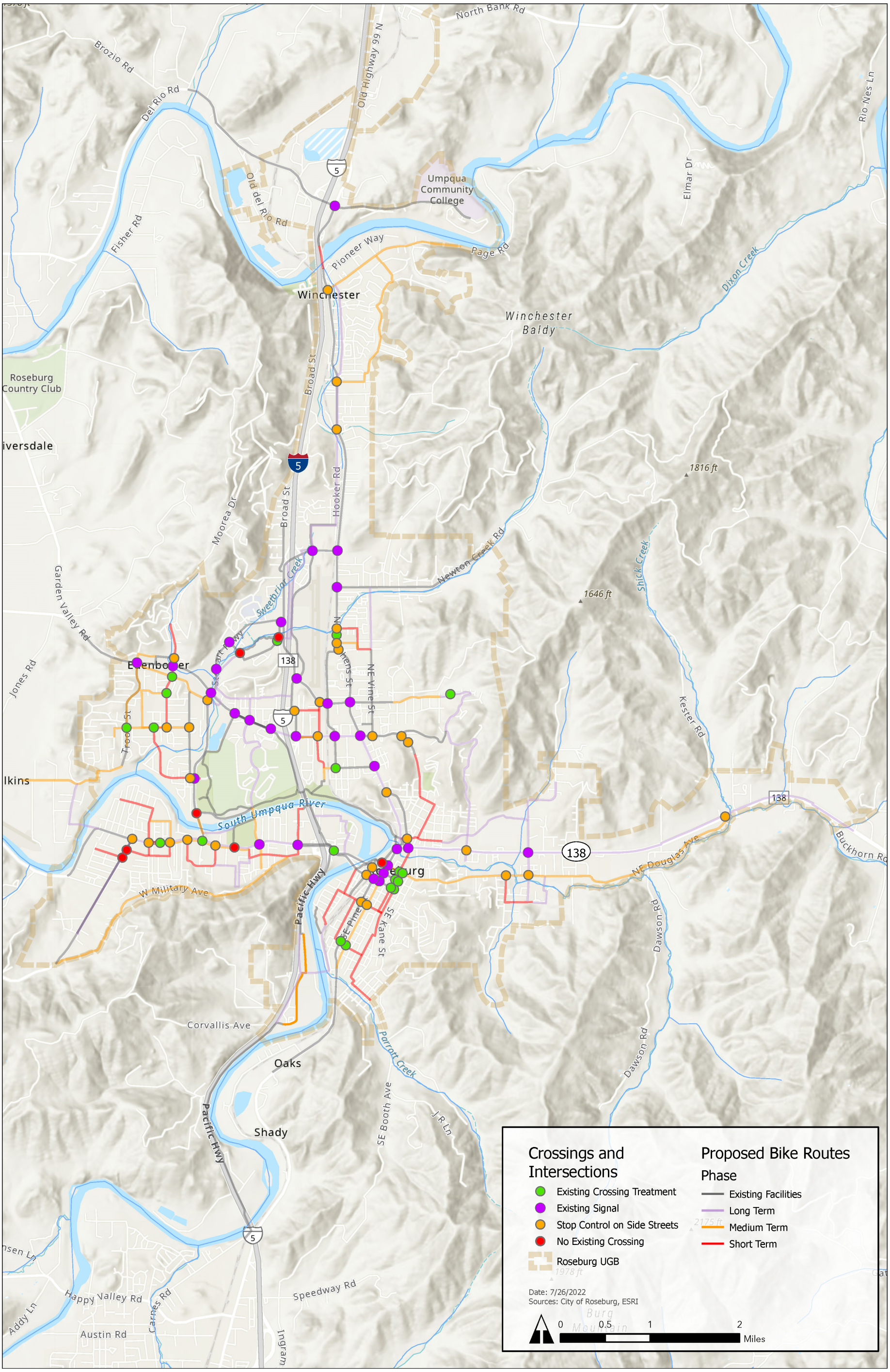


Figure 15. Crossing and Intersection Locations on the Proposed Bike Route Network

BICYCLE PARKING

Secure, convenient, and available bike parking is integral to make biking a practical transportation option. City policy is a powerful tool to ensure that people will be able to find a place to park their bike when they arrive at a destination. The City of Roseburg could consider updating its current bike parking requirements in the Code of Ordinances[2] to improve bike parking provision through the city.

A review of bike parking policy of Eugene, Oregon[3] and Davis, California,[4] two cities with dependable bike parking, reveals some opportunities for Roseburg to consider.

Separate bike parking requirements from car parking requirements. Current Roseburg policy bases many bike parking requirements on the number of car parking stalls needed. For example, bike parking required for a library is "1 per 10 required auto spaces." Bike parking should be installed independent of the car parking provided, especially if car parking policy is reconsidered in the future and minimum car parking requirements are reduced or eliminated.

Craft the policy so bike parking is required by default. Roseburg's current code only requires bike parking where specified. Both Eugene and Davis have blanket bike parking standards that apply unless the land use falls into a specified exception. Davis, for example, requires a minimum of two parking spaces per site for all nonresidential uses. And Eugene requires a minimum of four bicycle parking spaces for most land uses.

Include long term and short term bike parking guidelines. Some destinations, like residences and workplaces, benefit from having long term bike parking with extra security measures. Both Eugene and Davis specify long term and short term bike parking requirements based on land use. Davis's guidelines for short term and long term parking reads as:

- Short Term Bicycle Parking: Bicycle parking spaces intended to be used for periods of time that are two hours or less and are targeted to visitors, customers and other short term users. Short term bicycle parking racks shall provide two points of contact for a bicycle, allow for locking of the frame to the rack, and be securely anchored to the ground or wall. Short term bicycle parking shall be in a visible location, as near as possible to entrances.
- Long Term Bicycle Parking: Bicycle parking spaces intended to be used for periods of time that are longer than two hours and are targeted to residents, employees and other long term users. Long term bicycle parking typically offers increased levels of security in lit, covered, and permanently anchored locations, which are proximate to employee or resident locations/entrances. Long term bicycle parking may be accompanied or used in conjunction with storage lockers, locked rooms or enclosures, and parking areas internal to the building.

[2] Roseburg Municipal Code 12.06.030 – Site Improvement Requirements
https://library.municode.com/or/roseburg/codes/code_of_ordinances?nodeId=TIT12LAUSDERE_CH12.06SIDE_12.06.030SIIMRE

[3] https://www.eugene-or.gov/DocumentCenter/View/18974/EC-Bike-Parking-Code

[4] City of Davis, California Municipal Code 20.25A.040 – Bicycle Parking Standards
https://library.qcode.us/lib/davis_ca/pub/municipal_code/item/chapter_40-article_40_25a-40_25a_040

Include a requirement for a number of covered bike parking spaces. Covered bike parking makes biking more comfortable, dignified, and inviting in the rain and in the hot sun. Eugene requires a certain percentage of bike parking spaces be covered based on the number of short term bike parking spaces required, as listed in Table 8.

Table 8. Sheltered Short Term Bike Parking Requirements in Eugene, Oregon

Short Term Bicycle Parking Requirement	Percentage of Sheltered Spaces
5 or fewer	No shelter required
6 to 10	100% of spaces sheltered
11 to 29	50% of spaces sheltered
30 or more	25% of spaces sheltered

https://eugene.municipal.codes/EC/9.6105(4)(c)

Incentivize additional bike parking provision. To encourage additional bike parking or better bike amenities (such as lockers or showers), Davis can provide certain incentives including offsetting the required number of car parking spaces or other design requirements.

Additional Bike Parking Considerations

Electric charging. Growing use of electric bike and other micro-mobility devices is increasing the need for charging stations. These could be incorporated into new bike parking standards.

Bike parking at bus stops. Secure bike parking at bus stops could make trips using a combination of bike and bus more practical for people. Where feasible, consider adding long or short term bike parking at bus stops.

Example Bike Parking Standards

Davis's bike parking standards are good inspiration for the City of Roseburg to consider when updating their bike parking policy. The standards are relatively simple, independent from car parking requirements, and include short term and long term guidelines. Davis's bike parking standards are listed in Table 9.

Table 9. City of Davis Bicycle Parking Standards

Land Uses	Examples	Standard (sf = gross sq. ft.)	Short Term Parking	Long Term Parking
Residential - group living	Fraternity, sorority, co-op housing	1 per bed	25%	75%
Residential - multifamily	Apartments, condominiums	1 per bedroom	25%	75%
Lodging	Hotel, motel	1 per 10 guest rooms	50%	50%
Restaurant – quick serve	Deli, coffee shop, bar	1 per 150 sf	75%	25%
Restaurant – sit down	Restaurant	1 per 500 sf	75%	25%
Retail, general commercial	Grocery store, hardware, furniture	1 per 1000 sf	75%	25%
Commercial services	Garden supply, appliance stores, auto repair, auto dealership (office/showroom)	1 per 1000 sf	75%	25%
Office	Professional, medical, dental, government, clinic, bank	1 per 1,500 sf	75%	25%
Shopping center	Mix of personal services, retail, restaurants, offices	1 per 1,750 sf	75%	25%
Institutional	Schools, day care	1 per 2,500 sf	75%	25%
Light industrial	R&D, business park	1 per 2,000 sf	25%	75%
Industrial	Warehouse, manufacturing, hospital	1 per 7,500 sf	25%	75%
Civic, cultural, religious centers	Library or museum (occupancy), places of worship (seats)	10% of maximum occupancy or seats	75%	25%
Commercial recreation	Theater (seats), health club (occupancy)	10% of maximum occupancy or seats	75%	25%
Open space, parks, recreational uses	Ball field, driving range, playground, parks	As determined by the community development and sustainability director		
*Downtown (core area)	Includes all nonresidential land use types in downtown	Apply same standards for land use above when feasible. City provides an on-going bicycle rack program for the downtown core area.		

https://library.qcode.us/lib/davis_ca/pub/municipal_code/item/chapter_40-article_40_25a-40_25a_040

***Downtown core area—All nonresidential uses**. The city employs an on-going bicycle parking program within the public right-of-way for the downtown core area. Businesses and developments within the downtown core area are not required to provide bicycle parking if adequate on-site space is not available, as determined by the community development and sustainability director. Downtown multifamily developments shall comply with the requirements of this article.

Minimum requirements. All nonresidential uses shall provide a minimum of two bicycle parking spaces per site. In the case of multi-tenant buildings minimum required bicycle parking shall be two spaces per tenant. Alternative compliance may supersede this requirement.

Alternative compliance, as established in Section 40.25A.070, may be applied to all land use classifications.

Short-term and long-term percentages listed in the table are intended as guidelines subject to a final determination by the community development and sustainability director. (Ord. 2421 § 2, 2013)

Appendix A: Full List of Proposed Project Alternatives

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
Northwest					
NW-10	Existing	Garden Valley West	N/A	Existing bike lanes on NW Garden Valley Blvd west of I-5 connect with existing path at the I-5 interchange.	Existing bike lanes • NW Garden Valley Blvd
NW-10 LT	Long Term	Garden Valley West – Path	$490,000	Path on south side of NW Garden Valley Blvd between Duck Pond St and I-5 path. TSP planned project: Tier 2, BP-22a.	**Path** (0.31 mi) • NW Garden Valley Blvd
NW-11	Medium Term	Stewart-Alameda	$180,000	Route primarily on existing bike lanes of NW Stewart Pkwy and NE Alameda Ave. Short bicycle boulevard treatment extends the route further into the neighborhood on the east. A sidewalk treatment on the south side of W Harvard Ave connects the route to the proposed Harvard to Downtown route (SW-71). Bike lanes on the Stewart Pkwy bridge over the South Umpqua River would be improved to be wider and protected, either as part of a new bridge or from reconfiguring lanes on the existing bridge. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Stewart Pkwy • NE Alameda Ave **Bicycle boulevard** (0.39 mi) • NE Alameda Ave **Bikes on sidewalk** (0.23 mi) • W Harvard Ave, south sidewalk, Francis St to Stanton St **Separated bike lanes** (0.18 mi) • NW Stewart Pkwy bridge
NW-12	Existing	Newton Creek-Edenbower	N/A	Route follows existing Newton Creek path and bike lanes on NW Edenbower Blvd. Will connect with Valley View-Winchester route (NW-17) in the long term network.	Existing bike lanes • NW Renann St • NW Edenbower Blvd Existing path • Newton Creek trail
NW-13	Existing	Troost	N/A	Existing bike lanes on NW Troost St from NW Garden Valley Blvd to Katie Dr.	Existing bike lanes • NW Troost St
NW-13 Ext	Medium Term	Troost Extension	$540,000	Route improves existing bike lanes by repurposing one or both lanes of underutilized on-street parking to create separated bike lanes between NW Garden Valley Blvd and Katie Dr. Extends route further west into neighborhood with a bicycle boulevard treatment on NW Troost St. Extends route further north to NW Hughwood Dr with a bike lane in the uphill direction and sharrows in the downhill direction. Continues east on NW Hughwood Dr to connect with existing bike lanes.	**Separated bike lanes** (0.71 mil) • NW Troost St **Bicycle boulevard** (0.91 mi) • NW Troost St **Bike lane/Sharrows** (0.23 mi) • NW Troost St • NW Hughwood Dr
NW-14	Existing	Keasey	N/A	Route follows existing bike lanes on NW Keasey St.	Existing bike lanes • NW Keasey St
NW-15	Short Term	Hucrest	$270,000	North-south route connects to Hucrest Elementary on neighborhood streets.	**Bicycle boulevard** (0.92 mi) • NW Kline St • NW Calkins Ave • NW Jefferson St **Bike lanes** (0.78 mi) • NW Kline St • NW Harvey St
NW-15 Ext	Medium Term	Hucrest Extension	$37,000	Extends the Hucrest route around the back side of Hucrest Elementary School. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.61 mi) • NW Moore Ave • NW Lynwood St • NW Calkins Ave
NW-16	Medium Term	Calkins	$41,000	East-west route through neighborhood.	**Bicycle boulevard** (0.68 mi) • NW Calkins Ave • NW Grove Ln
NW-17	Medium Term	Valley View-Winchester	$190,000	East-west route parallel to Garden Valley Pkwy. Crosses NW Stewart Pkwy at the signal at Garden Valley Pkwy. Would connect with Newton Creek-Edenbower (NW-12) in the long term network to create a comfortable north-south route to Winchester.	**Bike lanes** (0.66 mi) • NW Valley View Dr **Bikes on sidewalk** (0.10 mi) • NW Stewart Pkwy
NW-17 LT	Long Term	Valley View-Winchester	$6,400,000	Family-friendly route from Valley View to Winchester avoids busy roads using the existing tunnel and a path or widened sidewalk along Garden Valley and Stewart Parkway. Would have an additional option to cross Stewart Pkwy with a new crosswalk to the south. Bikes on sidewalk and bike lanes would connect to the crossing. Tunnel under Garden Valley Blvd has been closed for security issues which would need to be addressed before considering opening again. Path adjacent to Newton Creek could be new trail as in the TSP (Tier 2 BP-21b) or coordinated with Walmart. Path along east side of I-5. New bridge over I-5 connects with the Newton Creek MUP. Path continues north to Winchester. Planned TSP Tier 2, BP-21d. Would connect with Newton Creek-Edenbower (NW-12).	**Path** (4.1 mi) • Along Newton Creek (near Walmart) • North of Newton Creek to Winchester **Bikes on sidewalk** (0.12 mi) • NW Stewart Pkwy
NW-17 Alt	Long Term	Valley View-Winchester Alternative	$920,000	Path on west side of I-5 in ODOT ROW. Crosses I-5 on existing Edenbower bridge as opposed to the new bridge required for NW-17.	**Path** (0.59 mi) • West of I-5 in ODOT ROW between I-5 and Edenbower.
NW-18	Existing	Broad	N/A	Existing bike lanes continue north of Edenbower to the community on the west side of I-5.	Existing bike lanes • NW Valley View Dr
NW-19	Long Term	Hill	$500,000	Include separated bike lanes with new arterial planned in TSP Tier 2, R-16. Includes a bridge over I-5. Would provide a parallel alternative to Garden Valley Blvd and a more direct east-west route than Stewart Pkwy.	**Separated bike lanes** (0.66 mi) • NW Hill Ave

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
Northeast					
NE-30	Short Term	Aviation-Highland	$27,000	Existing bike lanes on General Ave, Aviation Dr, and NW Mulholland Dr cross NW Garden Valley Blvd with bikes on the south sidewalk and continue south on NW Highland St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	Existing bike lanes • NW Mulholland Dr • Aviation Dr • General Ave **Bicycle boulevard** (0.28 mi) • NW Highland St **Bikes on sidewalk** (0.17 mi) • NW Garden Valley
NE-30 Alt	Short Term	Aviation-Highland Alternative	$29,000	A potential new pedestrian crossing of NW Garden Valley Blvd near Fairmount St would create an opportunity for a more comfortable north-south route with less distance on NW Garden Valley Blvd than route NE-30. Requires crossing improvement.	**Bicycle boulevard** (0.48 mi) • NW Cecil Ave • NW Fairmount St
NE-31	Short Term	Stephens to UCC	$12,000	Existing bike lanes on NE Stephens (OR 99) connect Garden Valley Blvd with Winchester and Umpqua Community College to the north. Sharrows and signage at the gap in the bike lanes on the bridge crossing the North Umpqua River. The bridge deck is 24 feet curb-to-curb.	Existing bike lanes • NE Stephens St • Umpqua College Rd **Sharrows and signs** (0.20 mi) • North Umpqua River Bridge
NE-31 Ext	Long Term	Stephens to UCC Extension	$750,000	Extend the bike facility south on Stephens to connect with exiting bike lanes south of Diamond Lake Blvd. Widen sidewalk(s) to be wide enough to accommodate biking and walking along this direct and relatively flat route. Would require narrowing or reconfiguring driving lanes to fit within ROW.	**Separated bike lanes** (1.0 mi) • NE Stephens St
NE-32	Short Term	Lincoln	$130,000	Connects the existing bike lanes on NE Garden Valley Blvd with a bike route that continues east and south along NE Lincoln St, NE Malheur Ave, and NE Jackson St. Because of grade on NE Lincoln St, the proposed facility is a bike lane in the uphill direction (northbound) and a bicycle boulevard treatment in the downhill direction (southbound).	Existing bike lanes • NE Garden Valley Blvd **Bike lane/Bicycle boulevard** (0.35 mi) • NE Lincoln St **Bicycle boulevard** (0.44 mi) • NE Malheur Ave • NE Jackson St
NE-32 LT	Long Term	Lincoln Extension	$1,200,000	Planned sidewalk improvements would create enough space to bike and walk on Garden Valley Pkwy between NW Mulholland Dr and NE Stephens. This extends the Lincoln route further west. TSP project Tier 2, BP-3. Includes bike facilities on I-5 overpass in the event that the overpass is reconstructed in the next 20 years.	**Separated bike lanes or path** (0.75 mi) • Garden Valley Blvd • Garden Valley Blvd I-5 overpass
NE-33	Medium Term	Joseph Lane-Gaddis Park	$16,000	Connects Joseph Lane Middle School with Gaddis Park. Crosses Stephens St at existing enhanced crosswalk north of Clover Ave.	Existing bike lanes • NE Airport Rd • NE Cedar St • NE Stephens St **Bicycle boulevard** (0.26 mi) • NE Clover St • NE Chestnut Ave • NW Highland St
NE-34	Short Term	Vine	$27,000	North-south route parallel to NE Stephens St through neighborhood and to Joseph Lane Middle School. A bicycle boulevard treatment connects existing bike lanes on NE Vine St to NE Stephens St.	Existing bike lanes • NE Vine St **Bicycle boulevard** (0.45 mi) • NE Meadow Ave • NE Kerr St • NE Hewitt Ave
NE-34 Ext	Long Term	Vine Extension	$690,000	Establishes a path from the north end of Vine St to Newton Creek Rd along existing undeveloped trail. Existing bridge over Newton Creek would likely need improvements or replacement. TSP project Tier 2, BP21c.	**Path** (0.44 mi) • Vine St path.
NE-35	Existing	Newton East	N/A	Existing bike lanes on NE Newton Creek Rd connects to neighborhood east of airport.	Existing bike lanes • NE Newtown Creek Rd
NE-36	Short Term	Odell	$21,000	East-west route through neighborhood parallel to NE Diamond Lake Blvd. Connects to path in Deer Creek Park. Would continue east to Rifle Range Rd in the long term network.	**Bicycle boulevard** (0.35 mi) • NE Odell Ave • NE Rowe St
NE-36 Ext	Long Term	Odell Extension	$1,300,000	Path at the north edge of the old lumber mill property from the end of Odell St to Rifle Range Rd. Could be implemented with new development.	**Path** (0.80 mi) • Odell extension
NE-37	Medium Term	Page	$330,000	East-west route through Winchester. Connects to Winchester Elementary School.	**Bike lanes** (1.2 mi) • Page Rd
NE-38	Medium Term	North View	$86,000	Route along the east side of Winchester.	**Bicycle boulevard** (1.42 mil) • Thora Cir • Josephine St • Strauss Ave • N View Dr • Taft Dr • Club Ave
NE-39	Long Term	Rifle Range	$480,000	Route along Rifle Range St. Could be implemented with new development or planned road maintenance. Separated bike lanes near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Spencer Ct the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction.	**Separated bike lanes** (0.46 mi) • Rifle Range St between Douglas Ave and Spencer Ct **Bike lanes** (0.50 mi) • Rifle Range St between Spencer Ct and Frontier Ln

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
NE-40	Long Term	Fulton-Rocky	$400,000	North-south route through residential areas from Diamond Lake Blvd to Rocky Ridge Dr. Separated bike lanes on Fulton St near Diamond Lake Blvd where traffic is heaviest and the ROW is the widest. North of approximately Commercial Ave the bike lanes could transition to standard bike lanes or a single bike lane in the uphill direction sharrows in the downhill direction. North of Tahoe Ave the road becomes a private drive. Access would need to be coordinated. Road is in rough shape and would need improvements.	**Separated bike lanes** (0.13 mi) • NE Fulton St **Bike lanes** (1.1 mi) • NE Fulton St • NE Rocky Dr
NE-41	Existing	Rocky Ridge	N/A	Route from NE Garden Valley Blvd into residential areas on existing bike lanes.	Existing bike lanes • NE Rocky Ridge Rd
NE-41 Ext	Long Term	Rocky Ridge Extension	$110,000	Continues existing Rocky Ridge bike route along NE Rocky Ridge Dr through residential area to NE Alameda Ave.	**Bike lanes** (0.40 mi) • NE Rocky Ridge Dr
NE-42	Long Term	Diamond Lake Blvd	$3,000,000	Important east-west route on east side of town. Currently in a separate planning process to determine feasibility of adding bike lanes. TSP project Tier 1, BP-20b.	**Separated bike lanes** (3.9 mi) • Diamond Lake Blvd
Southeast					
SE-50	Medium Term	99-Downtown	$220,000	Bike lanes on OR 99 through downtown. A new bike lane on SE Stephens St (northbound) closes the gap in the existing route. The right of way is constrained and a bike lane would require space from a driving or parking lane.	Existing bike lanes • SE Pine St (southbound) • SE Stephens St, north of SE Oak Ave **Bike lanes** (0.80 mi) • SE Stephens St (northbound), between SE Oak Ave and SE Pine St
SE-51	Short Term	Downtown East	$120,000	North-south route through neighborhood east of downtown. Parallels SE Stephens St (OR 99). Route jogs on to SE Hamilton St because it is lower traffic and has less elevation.	Existing bike lanes • NE Winchester St **Bicycle boulevard** (1.90 mi) • NE/SE Jackson St • SE Douglas Ave • SE Main St • SE Orcutt Ave • SE Hamilton St • SE Booth Ave
SE-52	Short Term	Eastwood	$27,000	Connects to Eastwood Elementary School from NE Douglas Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.45 mi) • SE Ramp Rd • SE Waldon Ave
SE-52 Ext	Long Term	Eastwood Extension	$530,000	Creates a path on the east side of the school north to Eastwood Park along an existing undeveloped trail. Bridge over Deer Creek may require improvements or replacement. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.34 mi) • Eastwood Extension
SE-53	Short Term	Mill-Roberts	$39,000	Route connects the area between OR 99 and the railroad south of downtown.	**Bicycle boulevard** (0.64 mi) • SE Mill St • SE Burke St • SE Stephens St • SE Roberts Ave
SE-54	Short Term	Micelli	$36,000	Bikeway between the railroad and the South Umpqua River connects Micelli Park and Deer Creek Park.	Existing path • Riverside Park and SE Pine St **Bicycle boulevard** (0.60 mi) • SE Flint St • SE Mosher Ave • SE Fullerton St • SE Micelli St
SE-54 Ext	Long Term	Micelli Extension	$670,000	Path continues south through Micelli Park, then across the South Umpqua River with a new bridge connecting to Portland Ave near the county fairgrounds. Planned TSP project Tier 2, BP7.	**Path** (0.43 mi) • Micelli Extension
SE-55	Medium Term	Douglas	$810,000	Bikeway along NE Douglas Ave provides an east-west route parallel to NE Diamond Lake Blvd.	Existing bike lanes • NE Douglas Ave **Bike lanes** (3.00 mi) • NE Douglas Ave
SE-56	Short Term	Mosher	$94,000	East-west route across railroad and OR 99 south of downtown. Proposed as bike lanes, but could be a bicycle boulevard treatment.	**Bike lanes** (0.35 mi) • SE Mosher Ave
Southwest					
SW-70	Medium Term	High School to County Fair	$53,000	Connects the high school to the south side of town past the fairgrounds. New bicycle boulevard treatments on Kendall St and Frear St close the gap in the I-5 path near the county fairgrounds.	Existing path • I-5 multi-use path **Bicycle boulevard** (0.87 mi) • Kendall St • SW Portland Ave • Frear St
SW-70 LT	Long Term	High School to County Fair Path Connection	$1,300,000	Connects the gap in the I-5 path near the county fairgrounds. Path would be adjacent to I-5 on east side in ODOT ROW.	**Path** (0.78 mi) • I-5 path

ID	Phase	Name	Cost Estimate	Description and Notes	Facility Type(s)
SW-71	Short Term	Harvard Neighborhoods (Bicycle Boulevards)	$120,000	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Uses neighborhood streets as much as possible to avoid traffic on W Harvard Ave.	Existing bike lanes • W Harvard Ave (west of Lookingglass Rd and east of W Umpqua St) • SW/SE Washington Ave • SW/SE Oak Ave **Bicycle boulevard** (1.87 mi) • W Shasta Ave • W Jay Ave • W Kenwood St • W Francis St • W Bertha Ave • W Stanton Ave • W Fairhaven St • W Brown Ave • Military Ave • W Umpqua St
SW-71	Medium Term	Harvard Neighborhoods (Bikes on Sidewalk)	$26,000	East-west route south of the South Umpqua River connecting the west side of the city with downtown. Connects neighborhood segments with bikes on the south sidewalk of W Harvard Ave. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bikes on sidewalk** (0.43 mi) • W Harvard Ave, south sidewalk, Kenwood St to Francis St • W Harvard Ave, south sidewalk, Stanton St to Fairhaven St
SW-71 Ext	Long Term	Harvard Neighborhoods Extension	$430,000	Continues the Harvard Neighborhoods route west across the South Umpqua River on a planned bridge and road extension. The route would then turn north with planned improvements on Charter Oaks Dr. Planned TSP Tier 2 projects R-16p and R-13. Requires new bridge and roadway buildout.	**Separated bike lanes** (0.57 mi) • W Harvard Ave • W Charter Oaks Dr
SW-71 LT	Long Term	Harvard Neighborhoods Fremont Connection	$420,000	Would use west gate to middle school and travel through school property to southeast corner, where it would loop to the south around houses (staying on school property) and connect with Nebo St. Bicycle boulevard treatments continue to connect with the Medium Term SW-71 at W Brown Ave. Routes on school property would require coordinating access with Roseburg Public Schools.	**Path** (0.25 mi) • On school grounds **Bicycle boulevard** (0.42 mi) • Fremont Middle School parking lot • W Nebo St • W Catherine Ave • W Fairhaven St
SW-72	Existing	Lookingglass	N/A	Route along existing bike lanes on Lookingglass Rd.	Existing bike lanes • Lookingglass Rd
SW-72 LT	Long Term	Lookingglass Separated Bike Lanes	$680,000	Upgrade existing bike lanes on Lookingglass Rd to be separated, from W Harvard Ave to W Woodside Rd. Can coincide with planned sidewalk improvement, TSP Tier 2 BP23.	**Separated bike lanes** (0.9 mi) • Lookingglass Rd
SW-73	Short Term	Fullerton	$62,000	Route through neighborhood connects with Fullerton Elementary School. Bikes on sidewalk treatment along both sides of W Harvard Ave connect to marked crossing between W Shenandoah St and W Fair St. Bikes on sidewalks may encounter obstacles including utility poles, signs, and trees.	**Bicycle boulevard** (0.67 mi) • W Sharp Ave • W Broccoli St **Bikes on sidewalk** (0.35 mi) • W Harvard Ave, south sidewalk, W Shenandoah St to W Fair St • W Harvard Ave, north sidewalk, W Shenandoah St to W Fair St
SW-73 Ext	Medium Term	Fullerton Extension	$21,000	Extends Fullerton route further east to W Agee St and to connect with entrance to Fullerton Elementary School.	**Bicycle boulevard** (0.34 mi) • W Bradford Ct • W Agee St
SW-74	Short Term	Umpqua Street	$20,000	A comfortable neighborhood connection between W Harvard Ave and River Front Park using the I-5 bridge over the South Umpqua River.	**Bicycle boulevard** (0.32 mi) • W Umpqua St
SW-75	Medium Term	Myrtle-VA	$14,000	Connects neighborhood south of W Harvard Ave with River Front Park and Stewart Park along Stewart Park Drive. Potential for long term path through Fir Grove Park.	**Bicycle boulevard** (0.22 mi) • Stewart Park Dr • W Wharton St
SW-76	Medium Term	Military Avenue	$140,000	Route along Military Ave from Lookingglass Rd to Harrison St. Hilly. Pavement is in poor condition and should be improved before implementing the bike facility.	**Bicycle boulevard** (2.31 mi) • Military Ave
SW-77	Existing	Old Melrose	N/A	Existing bike lanes on Old Melrose Rd continue south from the west end of Harvard Ave.	Existing bike lanes • Old Melrose Rd
SW-78	Long Term	Laurelwood	$190,000	Creates a comfortable route on the north and east side of high school. Would require a connection through what is now private property at the north east corner of the high school. The route would connect with Laurelwood Park. Route is contingent on future property acquisition by school. Routes on school property would require coordinating access with Roseburg Public Schools.	**Bicycle boulevard** (0.56 mi) • W Finlay Ave • W Bowden St • W Riverside Dr • W Casey St • W Chapman Ave • W Madrone St **Path** (0.10 mi) • Connection between W Finlay Ave and W Bowden St
SW-79	Long Term	Harvard Path	$2,200,000	Would widen north sidewalk to make space for walking and biking, establishing a comfortable east-west route through this part of the city. Planned TSP Tier 2 BP-5. Sidewalk widening may require extending the sidewalk into the road, potentially removing a lane of traffic.	**Path** (1.4 mi) North sidewalk of W Harvard Ave

N/A = not applicable.

Appendix B: Bike Route Intersection Inventory

Table B-1. Existing Signalized Intersections on the Proposed Bike Network

Location	Earliest Bike Route Implementation Phase
Intersection of Mulholland/Aviation and Stewart Pkwy	Existing
Intersection of Umpqua College Rd and Stephens St	Existing
Intersection of Edenbower Blvd and Stephens St	Existing
Intersection of Newton Creek Rd and Stephens St	Existing
Intersection of Stewart/Alameda and Stephens St	Existing
Intersection of Garden Valley Blvd and Stephens St	Existing
Intersection of Chestnut Ave and Stephens St	Existing
Intersection of Diamond Lake Blvd and Stephens St	Existing
Intersection of Douglas Ave and Stephens St	Existing
Intersection of Washington Ave and Stephens St	Existing
Intersection of Oak Ave and Stephens St	Existing
Intersection of Troost and Garden Valley Blvd	Existing
Intersection of Stewart Pkwy and Garden Valley Blvd	Existing
Intersection of Goetz and Garden Valley Blvd	Existing
Intersection of I-5 MUP and Garden Valley Blvd	Existing
Intersection of Mulholland and Garden Valley Blvd	Existing
Intersection of Cedar/Airport and Garden Valley Blvd	Existing
Intersection of Winchester/Jackson and Diamond Lake Blvd	Existing
Intersection of Renann St and Stewart Pkwy	Existing
Intersection of Edenbower Blvd and Stewart Pkwy	Existing
Intersection of Oak Ave and Pine St	Existing
Intersection of Edenbower Blvd and Aviation Dr.	Existing
Intersection of Stewart Pkwy and Airport Rd. Includes railroad crossing.	Existing
Crossing of Harvard Ave at Umpqua St	Short Term
Intersection of Kline St and Garden Valley Blvd	Short Term
Intersection of Stewart Pkwy and Harvey Ave.	Short Term
Intersection of Stewart Park/Wharton and Harvard	Medium Term
Intersection of Rifle Range Rd and Diamond Lake Blvd	Long Term
Intersection of Estelle and Garden Valley Blvd	Long Term
Intersection of Walmart/Mall and Stewart Pkwy	Long Term

Table B-2. Locations that Lack a Marked Crossing on the Proposed Bike Network

Location	Earliest Bike Route Implementation Phase
Crossing of Renann Ave at Newton Creek MUP	Existing
Access to Fir Grove Park from Harvard Ave	Existing
Intersection of Douglas Ave and Pine St. Includes railroad crossing.	Existing
Intersection of Stewart Park Dr and Stewart Pkwy.	Existing
Crossing of Edenbower Blvd at Newton Creek MUP	Existing
Intersection of Lookingglass Rd and Shasta Ave	Short Term
Intersection of Lookingglass Rd and Jay Ave	Short Term

Table B-3. Intersections on the Proposed Bike Network with Stop Control on the Side Streets

Location	Earliest Bike Route Implementation Phase
Intersection of Stephen and Winchester	Existing
Intersection of Lookingglass and Harvard	Existing
Intersection of Exchange Dr/Meadow Ave and Stephens St	Existing
Intersection of Vine and Garden Valley Blvd	Existing
Intersection of Rocky Ridge Dr and Garden Valley Blvd	Existing
Intersection of Junker Ave and Garden Valley Blvd/Lincoln St	Existing
Intersection of Washington Ave and Spruce St	Existing
Intersection of Oak Ave and Spruce St	Existing
Intersection of Winchester St and Rowe St/Odell Ave	Short Term
Intersection of Harvard Ave and Agate St/Kenwood St	Short Term
Intersection of Broccoli and Harvard	Short Term
Intersection of Francis and Harvard	Short Term
Intersection of Mosher and Pine	Short Term
Intersection of Mosher and Stephens	Short Term
Intersection of Fairmount/Highland and Garden Valley Blvd	Short Term
Intersection of Fairmount St and Stewart Pkwy	Short Term
Intersection of Harvard Ave and Stanton St	Short Term
Intersection of Calkins Ave and Kline St	Short Term
Intersection of Hewitt Ave and Stephens St.	Short Term
Intersection of Mulholland Dr and Cecil Ave	Short Term
Intersection of Douglas Ave and Ramp Rd.	Short Term
Intersection of Harvey Ave and Keasey St.	Short Term
Intersection of Kline St and Hughwood Dr.	Short Term
Intersection of Stewart Pkwy and Valley View Dr	Medium Term
Intersection of Douglas and Diamond Lake Blvd	Medium Term
Intersection of Page Rd and Stephens St	Medium Term
Intersection of Club Ave and Stephens St	Medium Term

Location	Earliest Bike Route Implementation Phase
Intersection of Keasey St and Calkins Ave	Medium Term
Intersection of Stephens St and Clover Ave.	Medium Term
Intersection of Fulton and Diamond Lake Blvd	Long Term
Intersection of Hooker Rd and Stephens St. Includes railroad crossing.	Long Term
Intersection of Douglas Ave and Rifle Range St.	Long Term

Table B-4. Existing Crossings or All-Way Stop Control Intersections on the Proposed Bike Network

Location	Earliest Bike Route Implementation Phase
Intersection of Stewart and Harvard	Existing
Intersection of Harvard and I-5 MUP	Existing
Intersection of Edenbower Blvd and Boulder Dr	Existing
Mid-block crossing of Stephens St between Hewitt Ave and Clover Ave.	Existing
Intersection of Washington Ave and Jackson St.	Existing
Intersection of Washington Ave and Main St.	Existing
Intersection of Oak Ave and Main St.	Existing
Intersection of Oak Ave and Jackson St.	Existing
Intersection of Cedar St and Chestnut Ave	Existing
Intersection of Roberts and Stephens	Short Term
Intersection of Roberts and Pine	Short Term
Intersection of Douglas and Stephens	Short Term
Intersection of Douglas and Main	Short Term
Mid-block crossing of Harvard Ave near Fair St	Short Term
Intersection of Calkins Ave and Jefferson St	Short Term
Intersection of Washington Ave and Main St	Short Term
Intersection of Troost St and Calkins Ave	Medium Term
Intersection of Kline St and Moore Ave	Medium Term
Intersection of Kline St and Valley View Dr	Medium Term
Alameda roundabout	Long Term

Appendix F

Memo 6 – Mapping and Wayfinding

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	October 31, 2022
TO:	Stu Cowie, City of Roseburg Ian Horlacher, ODOT Region 3
FROM:	Emily Mannisto, Jason Nolin, Ryan Farncomb (Parametrix)
SUBJECT:	Memo #6: Mapping and Wayfinding
CC:	Advisory Committee
PROJECT NAME:	City of Roseburg Bike Routes Plan

INTRODUCTION

This memo refines mapping and wayfinding options introduced in *Memo #3: Evaluation Criteria and Alternatives Development* (Memo #3) for the Roseburg Bike Routes Plan. This memo provides specific and detailed instructions for how and where to design and implement bike route information for the Roseburg Bike Routes Plan.

Mapping and wayfinding are primarily used to indicate safe and comfortable routes for people to use when biking. This is particularly helpful for less confident riders or those unfamiliar with the area, as wayfinding and mapping can take the guesswork out of route-finding and provide a clear path to popular destinations. Wayfinding and mapping also create the foundation for a comprehensive and identifiable bicycle network. Maps, signs, and pavement markings indicate to everyone that a bike route is present, alert drivers to the presence of people biking, and can encourage more people to bike.

The first section of this memo describes the types of maps, both physical and digital, that are important for a successful bike route program in the City. Maps are a critical educational and planning tool for people looking to ride bikes in the City, and can encourage bike riding by newer users who may be interested but concerned about safety and wayfinding.

The second section of this memo provides details for wayfinding options along the City's bike routes. It includes standards from the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, and the Oregon Department of Transportation (ODOT), as well as proposed sign locations specific to Roseburg's context. This section also includes guidance for bike route pavement markers for a variety of bike route types.

Interactive Companion Map

Maps in this memo are displayed in more detail and with additional information in the interactive Companion Map at:
https://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=b512b24d3c914ec4b4e92c0c1194d863

MAPPING OPTIONS

Both physical and electronic maps, as listed in Table 1, are important to support a bike route system. Electronic maps can be updated quickly, shared easily and cost-effectively, and can be hosted on the websites of the City or bike-friendly organizations (see Figure 1). Electronic maps are useful for planning a trip before leaving home and can be accessed on a mobile device for wayfinding while riding.

Physical maps can act as promotional materials to increase visibility of Roseburg's bike routes, can be provided at community destinations, and can encourage bike route use. Physical maps can also be easily read and used by children and people without access to digital devices, which is important for equitable access.

Maps should indicate whether bike routes are designated as comfortable for people of all ages and abilities, potentially with a phrase such as "family friendly," to make clear the preferred routes for young riders or people who are uncomfortable riding on higher stress facilities.

Maps should also indicate other amenities or locations that are important for biking. These include:

- Public bike parking, especially covered bike parking.
- Public water sources and bathrooms.
- Bike shops.
- Parks.
- Schools.

Table 1. Mapping Options

Option	Description	Considerations	Locations
Interactive Online Web Map	Electronic maps provide detailed bike route information for residents and visitors. Would allow users to find detailed information and virtually explore the bicycle network (see Figure 1).	Can be updated regularly to reflect changes. Can be used at home for trip-planning purposes.	Can be hosted on the City's website and be linked to from bike shop websites, school websites, etc.
Outdoor Maps and Trailhead Kiosk Map	Informational kiosks at trailheads or along popular routes can include maps to provide an overview of the bike network and proximity to services and other destinations.	Map could be designed in a similar style as the Umpqua River Trail map to maintain consistency (see Figure 2).	• Umpqua River Trail • Fir Grove Park • Micelli Park • Gaddis Park • Downtown • Umpqua Community College • Major routes and trailheads
Printed Brochure Bike Route Map	Printed folded brochure-style map for individual use (see Figure 3).	Should be concise and easy to read, and clearly delineate bike routes and popular community destinations.	Distributed by mail and at community destinations • Libraries • Schools • Bike shops • City Hall • YMCA
Downloadable KML file with wayfinding and route information	A KML is a file that contains information to put points on Google Maps or other navigation systems.	Can be downloaded and imported into navigation systems for ease of use on mobile devices. May not be intuitive to use for many people.	Can be hosted on the City's website.

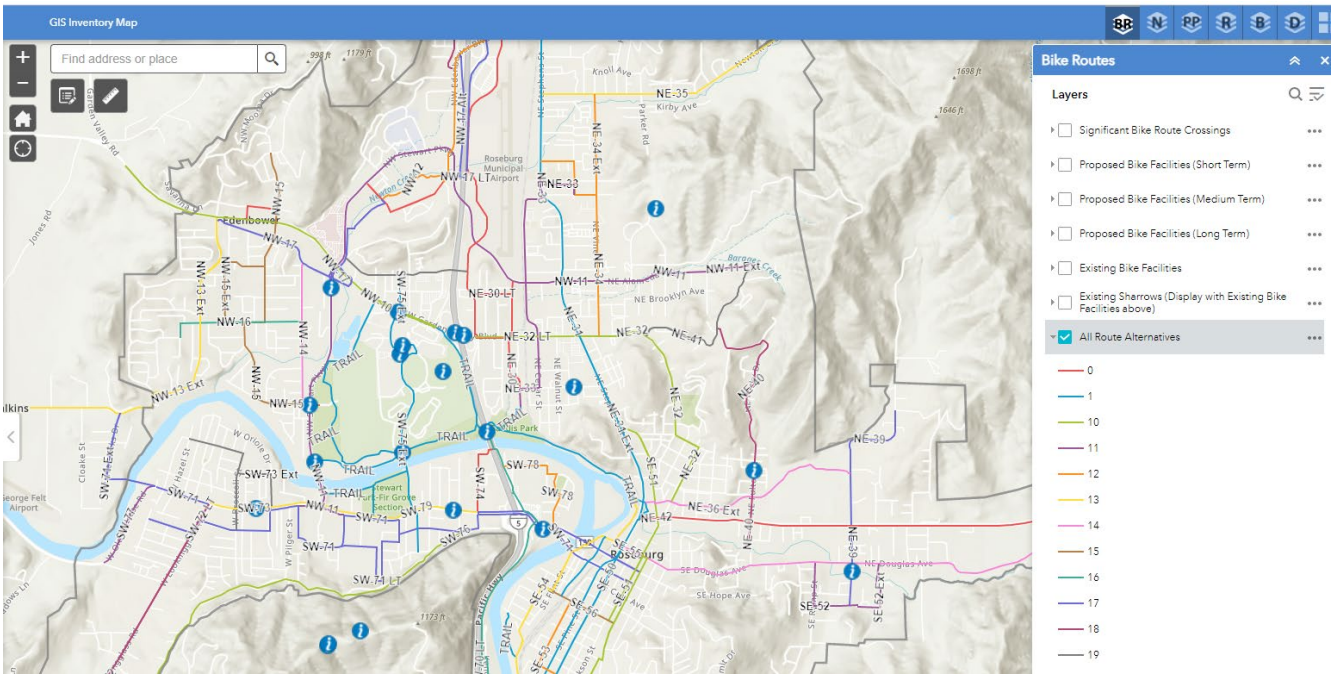


Figure 1. Roseburg Bike Plan – Online Inventory Map

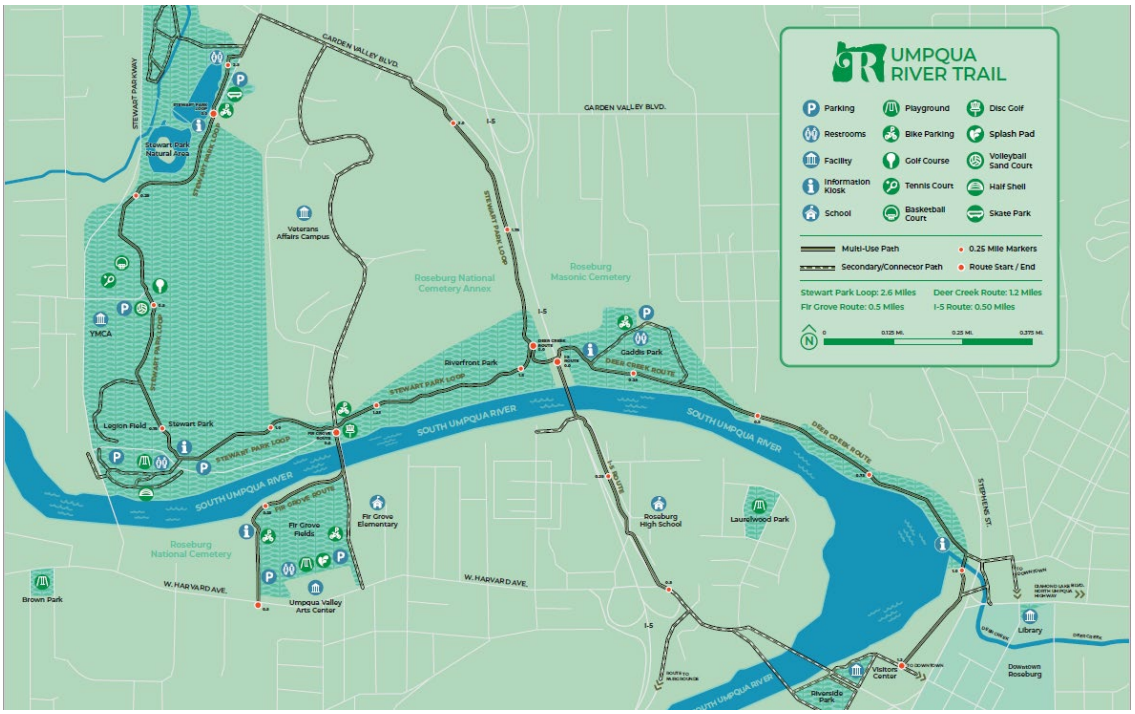


Figure 2. Umpqua River Trail Map

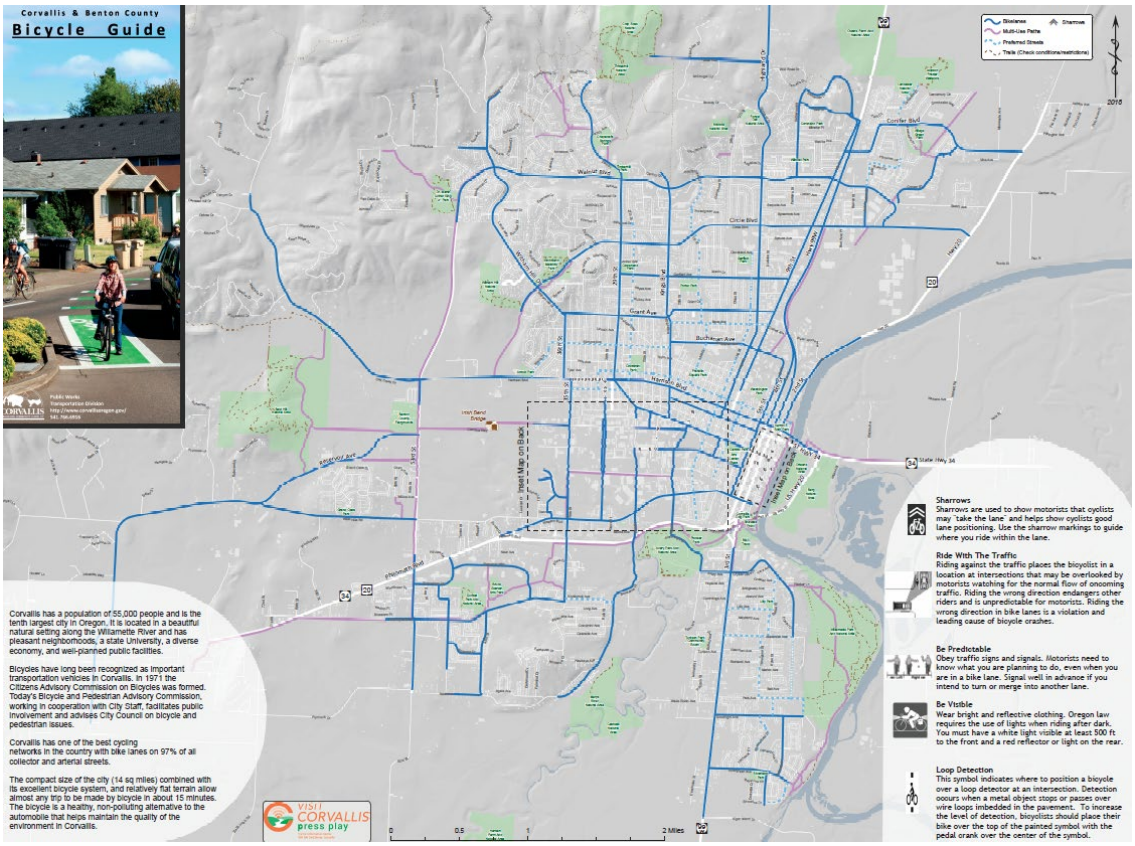


Figure 3. Printed Brochure Map — Corvallis & Benton County Bicycle Guide

WAYFINDING ALTERNATIVES

Wayfinding signs indicate which route people are on as well as the directions and distances to key destinations. Signs are most useful when placed at decision points along bicycle routes, such as at the intersection of bike facilities, when a bike route turns, and at consistently spaced intervals to reassure the user that they are still on the bike route. Bike route signs indicate to drivers that people may be bicycling on the route. It is important to design signs to be human-scaled, so they appropriate for people walking or biking. This makes it easier for people to understand that the signs are for them (and not for people driving) and it demonstrates that the City recognizes the legitimacy of walking and biking. Bicycle wayfinding signs should include unifying elements that help visitors recognize they are using a cohesive system of bike routes.

Bike Route Signs

Roseburg's bike route wayfinding system should include a comprehensive system of signs to guide people riding bikes to their destinations along preferred bicycle routes. Signs can include custom designs for the City of Roseburg (see Figure 10), but should follow ODOT and MUTCD standards for size, height, and placement along the street network. Route signs are especially important for Bicycle Boulevard treatments, as the right-of-way is shared between modes and so it is important to reinforce that biking is encouraged on these streets. Route signs should be installed on all types of bike routes.

Types of Bike Route Signs and Placement Standards

The following examples were sourced from NACTO's Urban Bikeway Design Guide[1] for recommended types of wayfinding signs. Suggested sign placements for the bike routes on existing facilities and in the Short Term and Medium Term networks (as designated in *Memo #5: Final Project Alternatives*) were developed using the standards listed below. Placements are displayed in Figure 7 and in the interactive Companion Map. Sign placements for the Long Term network are not mapped in this memo, but, for consistency, should follow the same standards used for the routes implemented earlier.[2]

Confirmation Signs

Confirmation signs play an important role in wayfinding by indicating the route and reassuring riders that they are still on the bike route. They should include the name of the route and can include destinations and distance/time. These signs do not indicate turns.

[1] https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/

[2] Sign placement for Long Term routes was not developed for this memo because these routes are expected to be implemented more than ten years in the future. By this time, the City should have experience with sign placement by implementing many Short Term and Medium Term routes.

Confirmation signs should be placed:

- So bike route signs, including turn and decision signs (described below), are spaced no more than 2 to 3 blocks or 1/4 mile apart along on-street facilities.
- So bike route signs, including turn and decision signs, are spaced no more than 1/4 to 1/2 mile apart along off-street facilities.
- Shortly (within 200 feet) after turns.
- Shortly after intersections with streets of higher classification (or streets that function like a roadway of higher classification).
- Shortly after intersections at which the roadway is offset and undergoes a name change.
- On the near side of a change in facility type, e.g. where a route transitions from a trail to an on-street bikeway or vice-versa.

Pavement markings (described below), can supplement confirmation signs to indicate a bike route.

Figure 4. Bike Route Confirmation Signs - NACTO

Turn Signs

Turn signs indicate where a bike route turns from one street or facility onto another. These signs include the name of the bike route and an arrow pointing in the direction of the turn. Pavement markings should supplement turn signs to make it very clear where to turn. Turn signs should be placed on the near-side of the intersection.

Figure 5. Bike Route Turn Signs - NACTO

Decision Signs

Decision signs mark the junction of two or more bike routes or indicate nearby popular destinations. They include the names of the bike routes or destinations and arrows pointing in their directions, as shown in the conceptual design for a Roseburg bike route sign in Figure 6.

When indicating intersecting bike routes, decision signs should include the cardinal directions of the intersecting routes or well-known landmarks in each direction to orient people. Decision signs can be used to indicate nearby popular destinations, such as schools, parks, and commercial areas. These should include the name of the destinations, arrows, distances, and travel times.

All decision signs must clearly indicate the route riders are on and the default direction to stay on the current route. One way to do this is to consistently write the current route on the top of the sign, and also use a larger font and arrow as shown in Figure 6. This is important for people to easily follow a route.

Like turn signs, decision signs should be placed in advance of all turns (near side of the intersection) or decision points along the route.

Figure 6. Conceptual Design for a Bike Route Sign

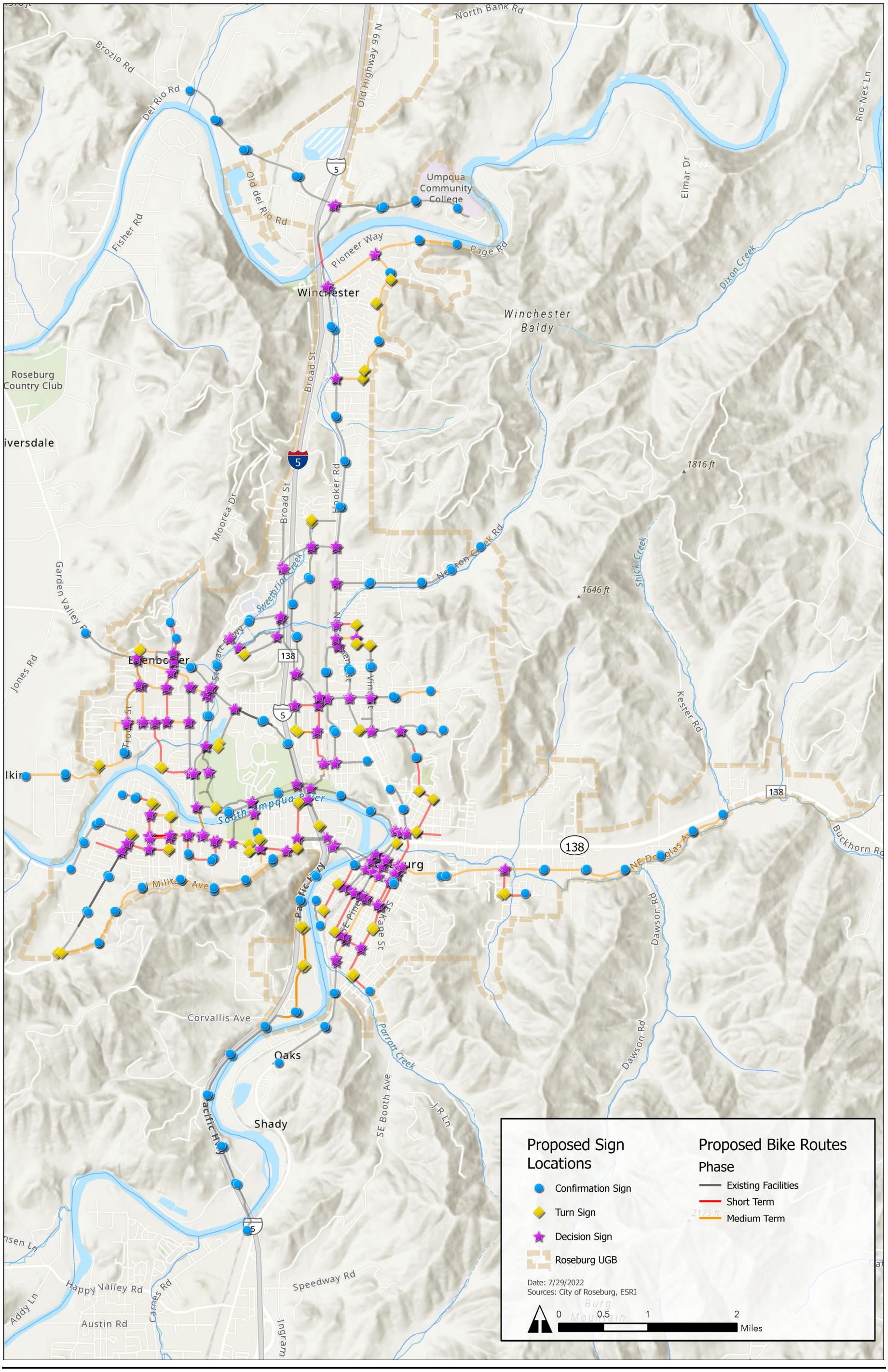


Figure 7. Proposed Wayfinding Sign Locations

MUTCD Mounting Height Standards

The following mounting standards were sourced from the MUTCD: Part 9. Traffic Control for Bicycle Facilities.[3]

- Where signs serve both bicyclists and other road users, vertical mounting height and lateral placement shall be at least 1.5 m (5 ft), measured from the bottom of the sign to the near edge of the pavement. Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 2.1 m (7 ft).
- On shared-use paths, lateral sign clearance shall be a minimum of 0.9 m (3 ft) and a maximum of 1.8 m (6 ft) from the near edge of the sign to the near edge of the path (see Figure 8). Where used on a shared-use path, no portion of a sign or its support shall be placed less than 2 feet laterally from the near edge of the path, or less than 8 feet vertically over the entire width of the shared-use path
- Mounting height for ground-mounted signs on shared-use paths shall be a minimum of 1.2 m (4 ft) and a maximum of 1.5 m (5 ft), measured from the bottom edge of the sign to the near edge of the path surface (see Figure 8).
- Mounting height for post-mounted signs on shared-use paths shall be a minimum of 4 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the path surface.
- When overhead signs are used on shared-use paths, the clearance from the bottom edge of the sign to the path surface directly under the sign shall be a minimum of 2.4 m (8 ft).

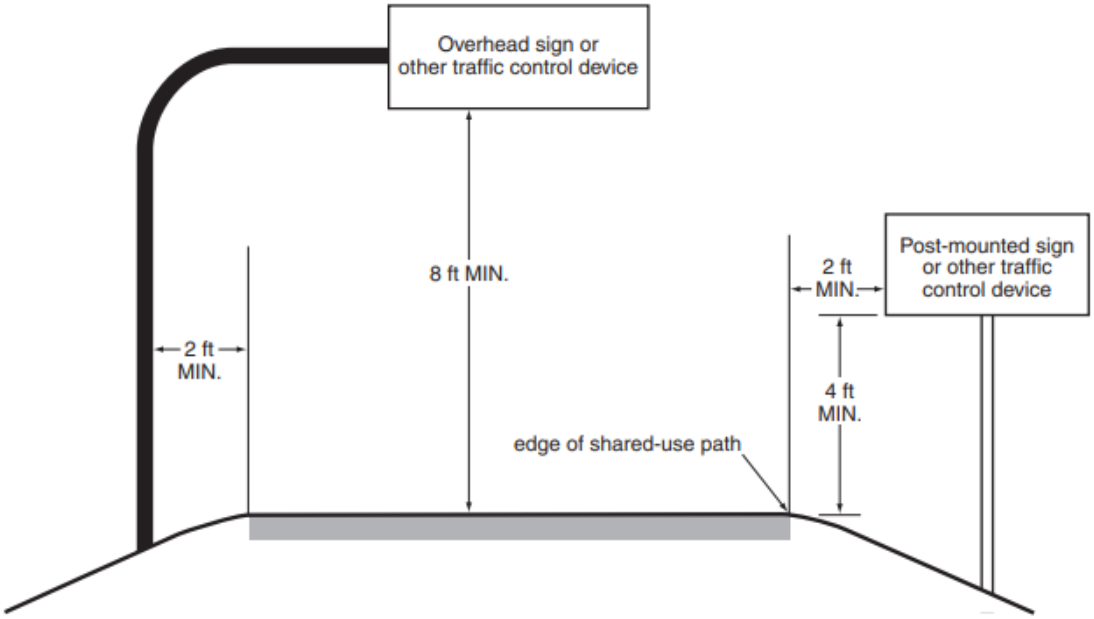


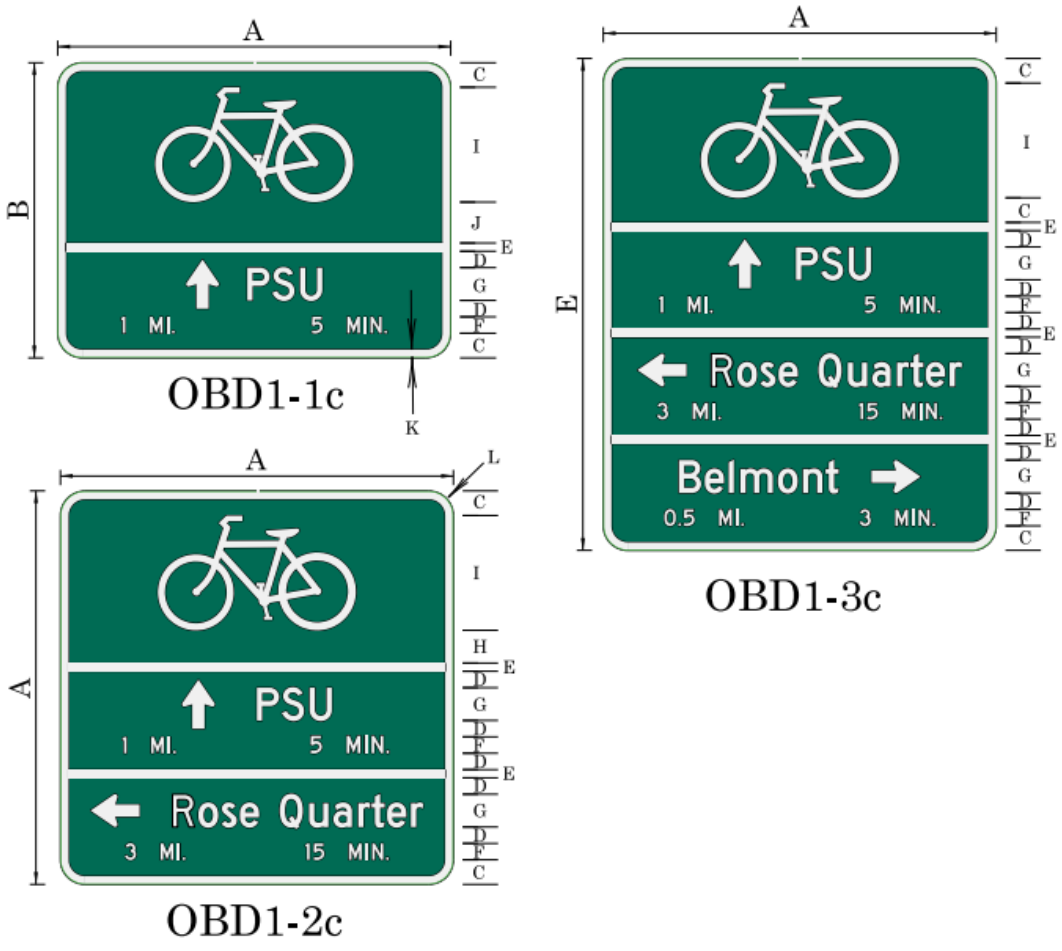
Figure 8. Sign Placement on Shared-Use Paths, MUTCD Standard

[3] https://mutcd.fhwa.dot.gov/pdfs/2009/part9.pdf

ODOT Bike Route Sign Design Standards[4]

ODOT and Portland's Bureau of Transportation worked together to develop the OBD1 series of bicycle route guide signs (Figure 9). These are the preferred sign design in Oregon for on-street bike routes. To be consistent with other communities in Oregon, it is recommended that Roseburg bike route signs follow the standards for the OBD1 series, but be adjusted to include (as shown in Figure 6):

- The Roseburg logo at the top.
- Clear indication of the current bike route and the direction of the current bike route at the top, under the logo and bike graphic.



A	B	C	D	E	F	G	H	I	J	K	L
24	18	1.5	1	0.5	1D	2D	2	7	2.5	0.5	1.5

2″ x 3″ Arrows.

Figure 9. ODOT Sign OBD1-1c, OBD1-2c, & OBD1-3c Detail

[4] https://www.oregon.gov/odot/Engineering/Documents_TrafficStandards/Sign-Policy-2022.pdf

Trail Wayfinding Signs

The City of Roseburg has already developed and implemented wayfinding signs for trails in city parks (Figure 10). It is recommended that these signs be continued and updated to point to nearby bike routes as new bike routes are implemented.

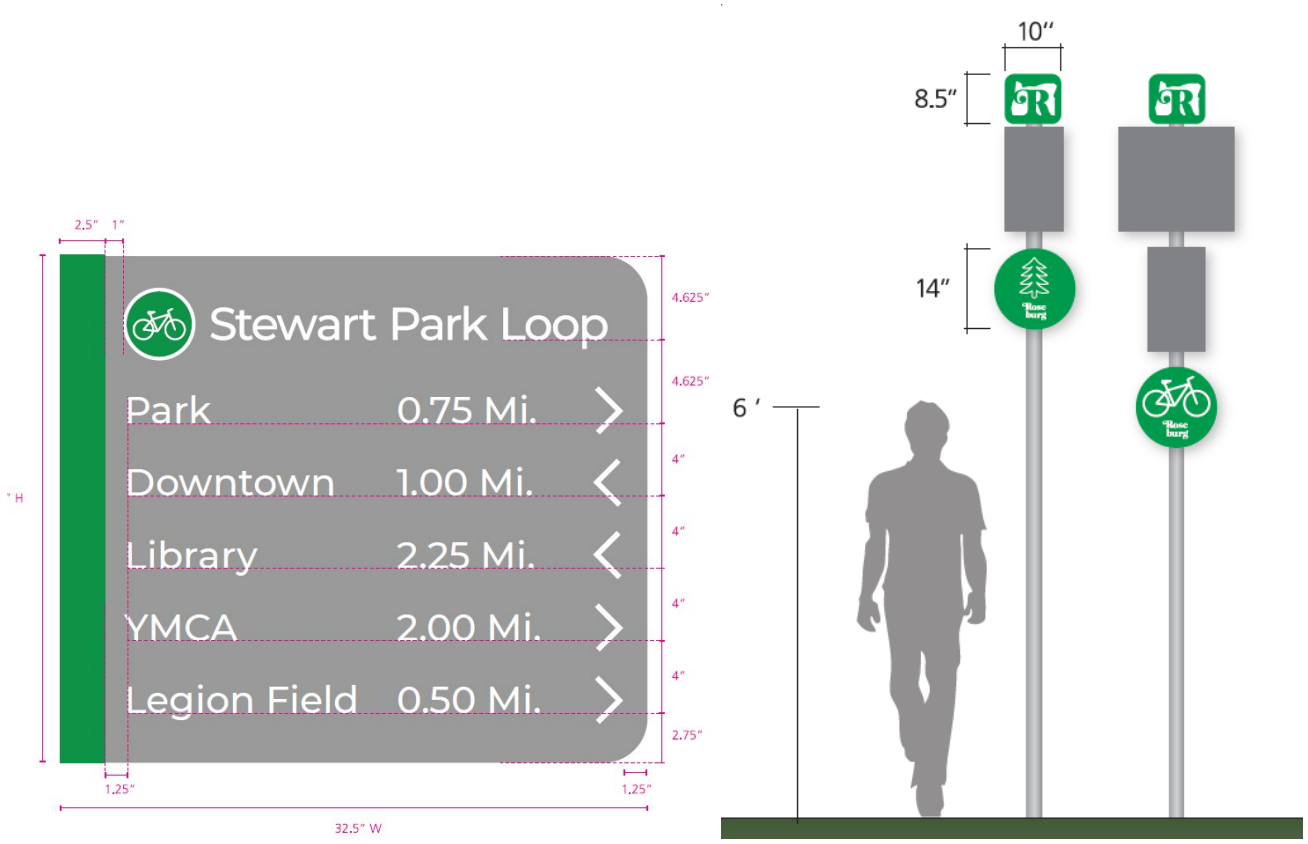


Figure 10. Wayfinding Signs Designed for Roseburg's Park Trails

Informational Kiosks

Informational kiosks, such as the design in Figure 11, can include maps and other relevant information. They are best installed at popular locations or intersections to provide an overview of the bike network and proximity to services and other destinations. Kiosks are helpful at trailheads and park entrances and can also be useful at schools, transit centers, and popular downtown areas. Roseburg has existing informational kiosks for the Umpqua River Trail along the trail and in the downtown area.

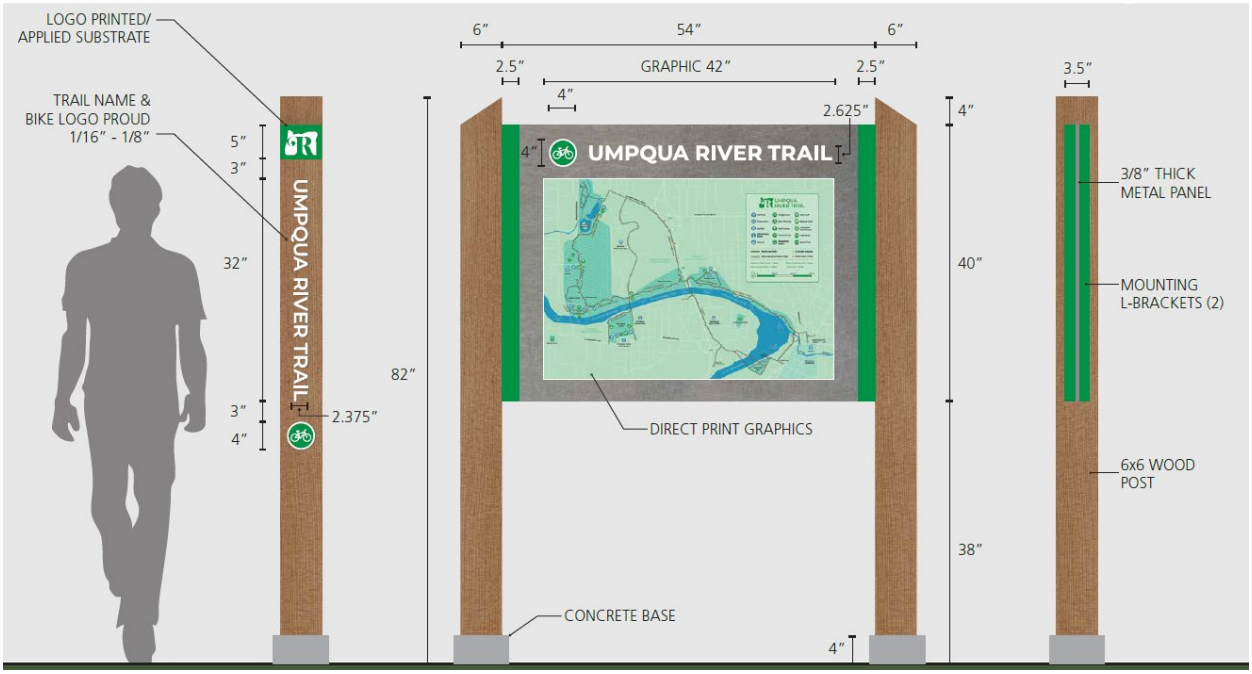


Figure 11. Trail Kiosk Designed for Roseburg

Bike Route Pavement Markings

Pavement markings can be effective at indicating bike routes. Pavement markings are often more visible than signs because people biking and driving are already looking at the surface of the road.

Sharrows

In addition to indicating that the lane is shared with cars and bikes, shared lane markings, or "sharrows," also assure people that they are still on the bike route and can help with wayfinding navigation. Their large size can be seen from a distance, so people can tell they are heading in the right direction. Standard sharrow dimensions from the MUTCD are shown in

Figure 12.

The chevron arrows should be oriented toward the direction of the bike route, helping at intersections and turns (Figure 13).

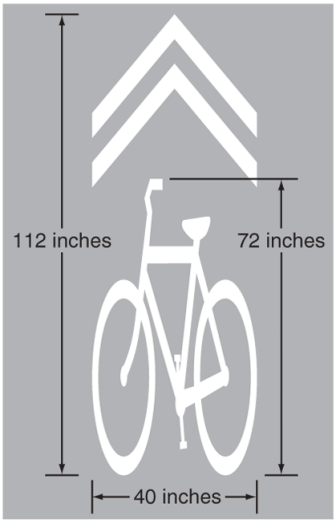


Figure 12. Sharrow Dimensions - MUTCD

Figure 13. Wayfinding Using Sharrows - NACTO Urban Bikeway Design Guide

Sharrow Placement

Sharrows should be placed on all Bicycle Boulevard treatments, as shown in Figure 15. Placement should be frequent and highly visible, and sharrows should be placed in the center of the lane between wheel treads to minimize wear.[5] The MUTCD guidance for sharrow ("Shared Lane Marking") placement is as follows:[6]

- Shared Lane Markings shall not be used on shoulders or in designated bicycle lanes.
- If used in a shared lane with on-street parallel parking, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb.
- If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.
- If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.

Trail Pavement Markings

The City of Roseburg developed custom bike path markers for the Umpqua River Trail, as seen in Figure 14. These markings are relatively small and are not recommended for use on roadways because they can be difficult to see. However, they can be effective on trails because trails are smaller than roads and markings last longer without the wear of heavy vehicular traffic.

[5] https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/shared-lane-markings/
Note: ODOT does not use standards based on NACTO. See the ODOT Design Manual and AASHTO's Guide for the Development of Bicycle Facilities for state owned facilities.

[6] https://www.oregon.gov/odot/engineering/documents_trafficstandards/traffic-line-manual.pdf

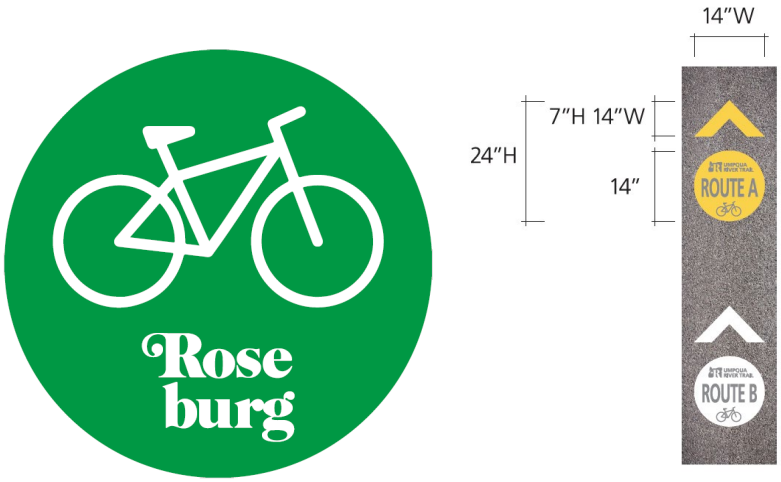


Figure 14. Custom Pavement Markers for the Umpqua River Trail

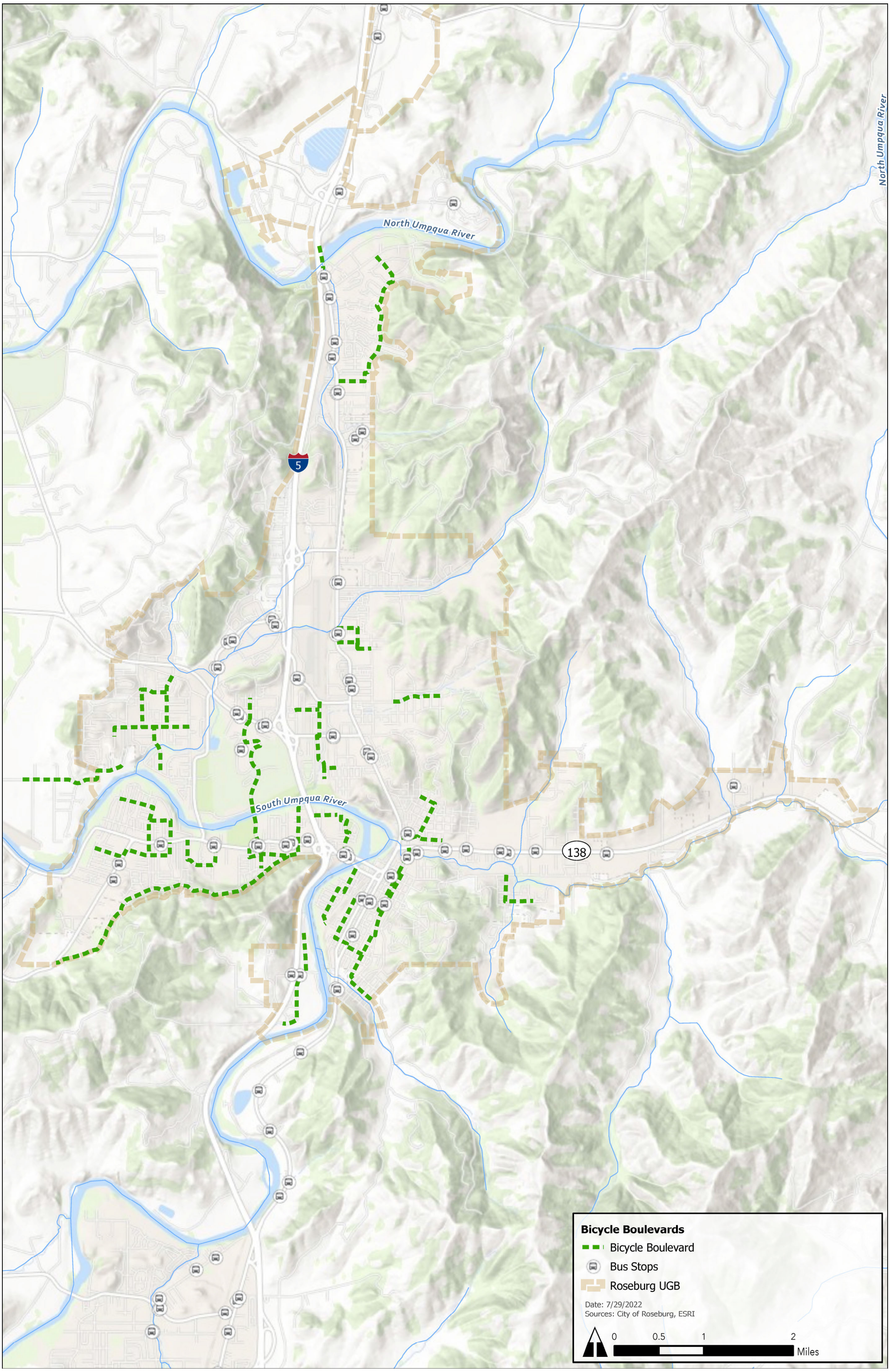


Figure 15. Proposed Bicycle Boulevard Treatments for All Bike Routes

Appendix G

Memo 7 – Bicycling Promotion

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE:	October 31, 2022
TO:	Stu Cowie, City of Roseburg Ian Horlacher, ODOT Region 3
FROM:	Emily Mannisto, Jason Nolin, Ryan Farncomb (Parametrix)
SUBJECT:	Memo #7: Bicycling Promotion
CC:	
PROJECT NAME:	City of Roseburg Bike Routes Plan

INTRODUCTION

This memo, *Memo #7: Bicycling Promotion*, further develops the bicycle promotion events and programs that were introduced in *Memo #3: Evaluation Criteria and Alternatives Development* for the Roseburg Bike Routes Plan. In addition to providing an overview of potential events and programs, this memo lists community organizations that could be involved in implementation and management. The events and programs listed below are intended to be a menu of options for the City to consider for implementation or encouraging other groups to implement. It is up to the City's discretion to decide which events, programs, and promotion are worth pursuing, as well as which organizations to involve in the planning and implementation process.

This memo was reviewed by the City, the Advisory Committee, and other stakeholders, and was refined and finalized based on their feedback. This memo will be integrated into the Roseburg Bike Routes Plan as a means to develop support for, and awareness of, Roseburg's bike routes. This memo, along with *Memo #5: Final Project Alternatives* and *Memo #6: Mapping and Wayfinding* will become the foundation for the Roseburg Bike Routes Plan.

COMMUNITY PROGRAMS AND EVENTS

Educational and promotional programs help encourage biking and build confidence for people of all ages and abilities, especially when paired with infrastructure improvements. Educational programs teach how to get around safely and comfortably by bike and teach people how to drive more safely around people biking.

Events such as "Bike to School Days" and "Car-Free Street Days" develop community awareness and a sense of comfort for biking on the road. Programs can help educate people about the existence of bike routes, increase traffic safety knowledge, and promote the use of bicycle infrastructure by all members of the community. Family and kid-focused events and programs, such as a sharrow design contest (Figure 1) and traffic gardens (Figure 2), can increase familiarity and comfort biking at a young age. Bike riding can help children build a sense of independence, get to know their neighborhood, and feel part of their community.

A menu of options for promotional bike events and programs is outlined in Table 1. These events, classes, and programs have been successful in Roseburg and/or other cities. Several can be funded and hosted by partner organizations and local businesses. Many require relatively little funding.

Figure 1. Bike to Books Sharrow Installation – Portland Bureau of Transportation

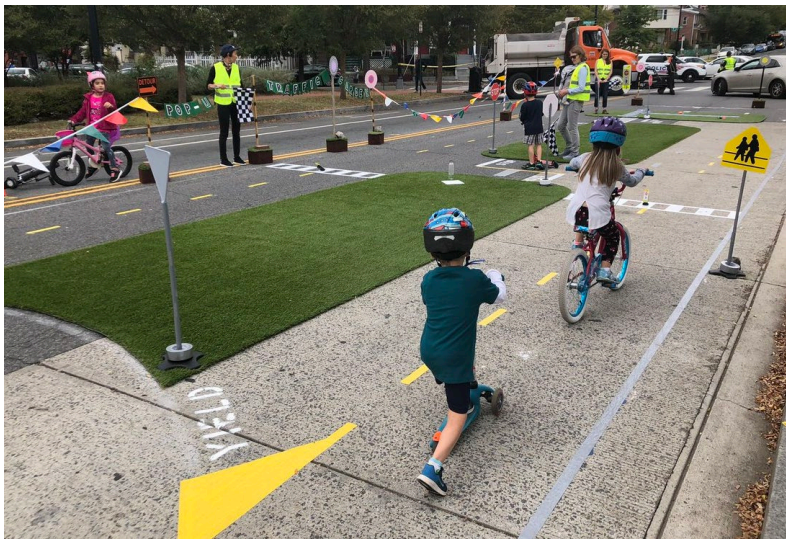


Figure 2. Traffic Garden at Open Streets DC — Discover Traffic Gardens

Table 1. Promotional Community Events and Programs

Event	Description	Potential Organization Hosting	Funding Opportunities
Family/Children's Events and Programs			
Safe Routes to School	Safe Routes to School (SRTS) programs use education, encouragement, and enforcement to promote walking and biking to school as a safe means of transportation and health benefits. *This is an ongoing program in Roseburg.*	Douglas County Education Service District for education and encouragement programs. Thrive Umpqua assists with construction grants.	ODOT awards grants for infrastructure projects and non-infrastructure programs and has increased funding opportunities substantially in recent years. ODOT also offers technical assistance.
School Streets Initiatives	These programs improve safety on school-adjacent roads before and after school hours by temporarily opening roads to walking and biking (and closing the roads to motor vehicles). By creating direct, safe routes to schools, School Streets initiatives increase driver awareness and encourage parents and children to travel to schools by walking and biking. They are relatively inexpensive to implement and can be adjusted based on community feedback.	Roseburg Public Schools, City of Roseburg, Thrive Umpqua	Would require coordination with the City, may be eligible for Safe Routes to School funding.
All Kids Bike	Non-profit organization that aims to teach kids how to ride a bike by placing learn-to-ride programs in kindergarten classes. Each sponsored school is expected to host the program as part of ongoing curriculum for a minimum of 5 years. *Douglas Education Service District has done this with support from the Street Trust.*	Roseburg Public Schools, Douglas County Education Service District	Local businesses or large corporations can sponsor these programs.
Preferred Routes to School	Defining preferred, safe routes to school from different neighborhoods helps students and parents know the best roads or paths to take when walking or biking. At a minimum, routes should be mapped and maps should be distributed to families. Routes can also have yard signs or other markings to indicate that they are safe routes. Markings can also be used as wayfinding, perhaps with color-coding or age-appropriate labels, that point the direction to the school.	Roseburg Public Schools, City of Roseburg, Thrive Umpqua	Relatively low cost.
Bike Trains	Bike trains are informally-organized groups of students biking to school together. As a group, biking feels safer and helps encourage kids to ride. Bike trains could have adult supervision, depending on their ages. These would	Can be organized by Roseburg Public Schools, non-profit groups, or by parents	Relatively low cost.

Event	Description	Potential Organization Hosting	Funding Opportunities
Bike to School Days	Annual or monthly "bike to school" days build community awareness and excitement about biking. They create community support for biking, where coworkers or classmates encourage each other to bike. Increasing the number of people biking on the roads may also result in a "safety in numbers" effect, causing drivers to be more cautious while sharing the roadway. When paired with educational opportunities like bike maintenance classes and lively events with food and activities, these events can build biking habits and lower the barrier of entry for first-time commuters. *This is an ongoing program in Roseburg.*	Roseburg Public Schools, City of Roseburg, Douglas County Education Service District, Thrive Umpqua	Relatively low cost.
Citywide Sticker Hunt	Scavenger hunt-style sticker hunt and self-guided bike rides encourage families to ride their bikes to different locations in the City, such as parks and landmarks. Sidewalk stickers provide fun activities for kids and a "sticker passport" to collect stickers. *Douglas County Education Service District Safe Routes to School has implemented similar scavenger hunts in the past.*	City of Roseburg, Roseburg Parks and Recreation, Douglas County Education Service District, and/or local businesses	Local businesses or large corporations can sponsor these events and receive advertising opportunities
Sharrow Design Contest	Children are encouraged to design bike lane art. Winning designs would be installed on a bike route. These build excitement for biking and create something fun for kids to look for when biking.	City of Roseburg, Roseburg Public Schools, Thrive Umpqua, Roseburg Public Library	Thrive Umpqua could help fund.
Traffic Garden	A child-sized model, built with mats, that reproduces everyday urban traffic. It can be permanent or portable and brought to schools and other institutions interested in showing children how to navigate safely and use sustainable and safe transportation options. Children move through the traffic garden and teachers show them how to safely walk and cycle, how to read traffic signals, and how to interact with other road users. *Douglas County Education Service District Safe Routes to School has implemented traffic gardens in the past.*	Roseburg Public Schools	May qualify for ODOT Safe Routes to School Funding
"Earn-a-Bike" Youth Program	Youth between 12 and 25 years old in need of a bike can participate in the "earn-a-bike" program. UVBO provides bike parts and guidance for participants to build and maintain their bikes. *This is an ongoing program in Roseburg.*	Umpqua Valley Bicycle Outreach – City can help promote this opportunity	Umpqua Valley Bicycle Outreach

Event	Description	Potential Organization Hosting	Funding Opportunities
Bike Fairy	The bike fairy visits schools while students are in class to leave a small surprise on bikes, scooters, and skateboards parked on school campus to reward kids for riding their bikes. The Bike Fairy acts as an encouragement tool for biking to school.	Roseburg Public Schools	Relatively low cost. May be funded through Safe Routes to School, or local businesses can sponsor gifts
Community-Wide Events			
Bike Routes Ribbon Cutting	Can involve bike/ped organizations to distribute maps and promote "ribbon cutting" events when new routes are opened.	City of Roseburg, local businesses, bike clubs and bike shops, Bike Walk Roseburg, Thrive Umpqua	Relatively low cost. Local businesses or large corporations can sponsor these events and receive advertising opportunities.
#RoseburgSafeStreets Campaign	Campaign that began in 2019 to facilitate public education about street safety, sharing the road, and the need for increased safety measures. Provided a bike fleet and bike safety curriculum to elementary school students, coordinated Walking School Buses and Bike to School Days, hosted bike rodeos, and hosted workshops such as the Friendly Driver Program. The program also increased awareness through the distribution of "Safe Streets" yard signs and a radio program to promote safe streets. *This is an ongoing program in Roseburg.*	Thrive Umpqua, Bike Walk Roseburg	Thrive Umpqua
Better Block Project	Demonstration projects that temporarily transform underutilized streets with inexpensive and removable materials. Can be used as a way to "test" street design concepts before committing with more expensive, long term materials. Community engagement is a major element to Better Block projects to introduce new ideas of using the street.	Bike Walk Roseburg, Thrive Umpqua	Local businesses or large corporations can sponsor these events and receive advertising opportunities
Car-Free Street Days	Car-free days provide an opportunity for residents to experience what streets feel like without cars and can shift the focus of what modes of travel are prioritized. These events are popular in cities around the world and are often paired with street fair-like activities and programming, which can foster community pride.	City of Roseburg, Thrive Umpqua, Bike Walk Roseburg	Thrive Umpqua can assist with promotional efforts
Know Your Bike Routes Rides and Educational Events	Know Your Bike Routes is a series of bike rides led by a local expert that combines two or more bike routes to form a loop ride. These kinds of local-led rides can help people riding bikes feel more comfortable on shared use roads, explore how traffic calming measures work, and learn how the bike network ties together.	Local bike club	Relatively low cost

Event	Description	Potential Organization Hosting	Funding Opportunities
Group Rides (Varying Experience Levels)	Umpqua Velo Club leads weekly group rides for a variety of abilities, including "Tuesday Easy Rides," beginner-friendly rides for kids, grandparents, or people who are not as comfortable riding a bike. Bigger annual rides, such as the Vineyard Tour, also build enthusiasm for biking. *Multiple rides are organized in Roseburg on an ongoing basis.*	Umpqua Velo Club	One free ride is allowed, individuals may then join as Umpqua Velo Club members
National Bike Month	May is National Bike Month – a chance to showcase the many benefits of bicycling and encourage more folks to bike. Events can include themed rides, promotional social media campaigns, and bike commuter challenges. The National Bike Month Guide from the League of American Cyclists[1] provides resources and outlines for organizing Bike Month events. *This is an ongoing program coordinated by Thrive Umpqua and Umpqua Velo Club.*	City of Roseburg, Thrive Umpqua, Umpqua Velo Club, Bike Walk Roseburg, local bike clubs and shops	Relatively low cost. Funding for promotional materials can be sponsored by local organizations
Bike Tune-Up Days	Host a tune-up event for those who haven't used their bikes in a while or may not have the skills to tune up their bike.	Local bike club or shop	Volunteer-based or can be sponsored by local businesses or large corporations
Bike Fairs	Bike fairs are community events, often held at a park, that host a variety of bike-related activities, including classes, maintenance, and contests. Bike fairs are good opportunities for local bike businesses and organizations to come together and be seen by people interested in biking. Bike fairs have been hosted in Roseburg and are popular in the community. See Figure 3	Thrive Umpqua, Douglas Education Service District's Safe Routes to School, Oregon Safe Routes to School, other local bike clubs or shops	Safe Routes to School, volunteer-based or can be sponsored by local businesses or large corporations
Community Bike Sale/Swap	Designated location and time to encourage community members to bring their no-longer-needed bike-related items, including bicycles, parts and accessories. Can provide a solution for those curious about riding but unsure or unable to obtain a bike.	Local bike club or shop	Volunteer-based or can be sponsored by local businesses or large corporations
Neighborhood Bike-Ability Audit	Organize a ride where participants locate potential hazards and issues for biking in the neighborhood, and create a list of areas of concern. Inviting elected officials will help highlight them understand the community's needs for better facilities.	Local bike club or shop	Volunteer-based or can be sponsored by local businesses or large corporations

[1] https://bikeleague.org/sites/default/files/LAB_Natl%20Bike%20Month%20Guide.pdf

Event	Description	Potential Organization Hosting	Funding Opportunities
Bicycle Friendly Community Status	The Bicycle Friendly Community program is operated by the League of American Bicyclists as a way of encouraging and recognizing communities that invest in accommodating bicycling. The program considers a broad range of factors that contribute to making a community better for bicycling, including infrastructure, programs, and plans for the future. Businesses can also apply to be recognized as Bicycle Friendly Businesses. *Roseburg is currently a Bronze-level Bicycle Friendly Community.*	City of Roseburg, local businesses	A higher Bicycle Friendly Community ranking would be achieved through a variety of strategies, including constructing bicycle facilities and implementing the programs in this list, and each strategy would have its own potential funding opportunities.
Bike and Shop Restaurant and Business Week or Month	Those who can show they rode their bike to participating businesses receive a discount on their purchase. These can be combined with National Bike Month. *Thrive Umpqua has coordinated these during Bike Month*	Restaurants and local businesses	Relatively low cost
Bike Town Hall	Host a town hall to hear from community members on what would encourage them to ride more. Find out the barriers for bicycling	City of Roseburg	Relatively low cost
Bike More Challenge	The Bike More Challenge is a free month-long program. Participants are encouraged to register teams, recruit members, and get around by bike. Oregon Love to Ride (lovetoride.net/Oregon) provides a platform for people to log their trips. Participants can win prizes by logging trips. Can be combined with National Bike Month or aligned with the broader statewide Bike More Challenge.	Thrive Umpqua, local organizations, can be promoted by employers	Relatively low cost Funding for promotional materials can be sponsored by local organizations. Employers can incentivize employees to bike commute to work with prizes and rewards
Educational Opportunities and Training Workshops			
Oregon Friendly Driver Program	Interactive class sponsored by ODOT to educate people who drive on the best and safest ways to use the road with people walking or biking. The Oregon Friendly Driver class addresses: • The rules of the road for people driving, biking, and walking. • How to avoid common crashes. • How to share the road with other users. • How to use roadway features: sharrows, bike lanes, and rapid flashing beacons. Companies can schedule an Oregon Friendly Driver presentation at their workplace	Commute Options, The Street Trust, Lane Council of Governments, can be hosted by employers	Funded by ODOT.

Event	Description	Potential Organization Hosting	Funding Opportunities
Bicycle Safety Education[2] Classes	Bicycle Safety Education is taught to 4th – 6th grade students during the school day. The curriculum includes 10 hours of in-class instruction and outdoor on-the-bike practice. The class ends with at least one graduation group ride through the neighborhood. *This is an ongoing program in Roseburg schools.*	The Street Trust, Safe Routes to School, Roseburg Public Schools	Would require coordination with Roseburg Public School teachers. May be eligible for Safe Routes to School Funding, may involve volunteer recruitment
Local Club-Led Group Activities and Classes	Bike repair learning opportunities, skill sharing, bike shop discounts, group rides, and a social community for people of all abilities. Classes may be held in community spaces or schools.	Umpqua Velo Cycling Club, Bike Walk Roseburg, YMCA, other local bike clubs or shops.	Volunteer-based or funding for classes can be sponsored by local businesses or large corporations. Classes can reach a broader audience if offered for free or sliding scale payment.
Learn to Load Bikes on the Bus	To familiarize people with the process of loading and unloading bikes on buses, UTrans (or other transportation advocates) can set up demonstration bus bike racks for people to practice. People would be available to describe the process and answer questions. Demonstration bus bike racks can be in permanent locations, such as at the UPTD office, and can be brought to events where people are likely to have their bikes.	UTrans	Relatively low cost
Adult Bicycle Education Classes	Workshops to prepare people for biking safely on the road. May include how to choose a bike, how to ride safely in different contexts, and best practices for commuting. May include practicing biking on the street in small groups and with instructors to gain comfort and familiarity.	Local bike club	Volunteer-based or funding for classes can be sponsored by local businesses or large corporations.

Thrive Umpqua - formerly Blue Zones Project

[2] https://www.portlandoregon.gov/transportation/69808

COMMUNITY ORGANIZATIONS

Local organizations will be integral to the planning and orchestrating of events to raise awareness of Roseburg's bike route system. Local non-profits, schools, and advocacy groups can help promote biking and familiarize community members with new bike facilities. Several organizations have been identified as potential partners that may be interested in helping promote the bike routes project. Many of these organizations have previously hosted events and campaigns centered around bicycle and pedestrian safety.

For example, Thrive Umpqua (formerly known as Blue Zones Project) launched the #RoseburgSafeStreets Campaign in 2019 to remind people to share the road safely when driving, biking, and walking. Umpqua Valley Bicycle Outreach (UVBO) hosts beginner bike rides and provides gear for people new to biking. UVBO also offers discounted bike repairs, runs a youth "earn-a-bike" program, and hosts bike events. Douglas Education Service District's Safe Routes to School program hosted a Bike Fair in May 2022 in cooperation with Thrive Umpqua and other organizations (see Figure 3). The event featured bike maintenance classes, games, helmet fitting, a skills course, safety materials, and free prizes.

Figure 3. Roseburg Bike Fair Poster

A "Traffic Safety Playground," also known as a traffic garden, was installed in Stewart Park through a collaborative effort between Roseburg Parks and Recreation, Douglas County SRTS, and Blue Zones Project to teach children bike and traffic safety. The City should continue to partner with these organizations and engage with other community groups when planning larger events and ongoing campaigns.

Existing Roseburg bike and pedestrian organizations:

- Bike Walk Roseburg
- Douglas County Safe Routes to School
- LUMBR (Land of Umpqua Mountain Bike Riders)
- Thrive Umpqua
- Umpqua Velo Club

Other community organizations that could be willing to support or participate in bike events and programs:

- Canyon Creek Bicycles (bike shop)
- Camp Millennium (summer camp for children with a cancer diagnosis)
- Heart of Roseburg, Downtown Roseburg Association
- Roseburg Area Chamber of Commerce
- Roseburg Public Library
- Roseburg Parks and Recreation Department
- Umpqua Public Transportation District (UTrans)
- Umpqua Valley Arts Association

- Umpqua Valley Farmers Market
- VA Roseburg Health Care System

- Community centers
  - Boys and Girls Club of Umpqua Valley
  - YMCA of Douglas County

- Faith-based organizations
  - Umpqua Valley Bicycle Outreach
  - Family Faith and Relationship Advocates (FARA)
  - Community churches
  - Roseburg Dream Center

- Non-profit social service organizations
  - CASA (Court Appointed Special Advocates for Children) of Douglas County
  - Douglas CARES (Child Abuse Response and Evaluation Services)
  - Family Development Center of Roseburg
  - Greater Douglas United Way
  - NeighborWorks Umpqua
  - RISE (Resilience in Support of Equity) Oregon, Oregon Health Authority
  - SMART Reading
  - United Community Action Network

- Schools and daycares
  - Roseburg Public Schools
    - Eastwood Elementary
    - Fir Grove Elementary
    - Fullerton Elementary
    - Green Elementary
    - Hucrest Elementary
    - Melrose Elementary
    - Sunnyslope Elementary
    - Winchester Elementary
    - Fremont Middle School
    - Joseph Lane Middle School
    - Roseburg High School
    - Phoenix Charter
  - Cobb School
  - Douglas Education Service District
  - Geneva Academy
  - Hummingbird Schoolhouse
  - Play -N- Learn Preschool
  - Roseburg Christian Academy
  - St. Paul Lutheran Church and School
  - Umpqua Community College
- Umpqua Valley Christian