



CITY OF MAUPIN **STREET DESIGN STANDARDS PLAN**

DRAFT

SEPTEMBER 2024

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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01. OVERVIEW

In 2023, the City of Maupin, in partnership with the Oregon Department of Transportation (ODOT), initiated an update to the city's Street Design Standards Plan (SDSP), which was originally adopted in 1999. The SDSP will serve as a guide for the City to align and prioritize transportation projects with a long-term strategy that meets the needs expected from future growth and tourism. It reflects the latest best practices for street design guidance and context-sensitive pedestrian and bicycle facilities and will promote ongoing improvement of the Maupin transportation system.

The SDSP incorporates findings and recommendations from the Donkey Trail Plan (DTP), which was developed in conjunction with the SDSP update.

BACKGROUND

In the more than twenty years since the City of Maupin's SDSP was adopted, Maupin has experienced considerable development within City limits, necessitating a long-term strategic vision for transportation planning. Design standards and best practices have progressed and evolved over this time as well. This update aims to align the SDSP with the current transportation needs of Maupin, provide guidance on current best practice for transportation infrastructure design standards, and support ongoing growth and development.

Over the past two decades, Maupin has transitioned from an agricultural hub to a popular recreational destination for activities like fly fishing, whitewater rafting, and bicycling. The influx of tourists during the summer months introduces additional pedestrian and bicycling traffic on a roadway network that has historically focused on serving motor vehicles. For this reason, there has been a demonstrated

need for strategic planning for active transportation¹ facilities that address the needs of residents and support tourism during the peak summer months. At the same time, Maupin continues to support the agricultural economy in southern Wasco County and is a hub for rural services, so the SDSP update will aim to provide design standards and policies that integrate the range of activities and fit the rural character of the city.

The 1999 SDSP primarily addressed transportation needs related to accommodating motor vehicle traffic in City limits and included a comprehensive analysis of the street network and design standards for the City. This update will support the long-term planning of a multi-modal system that includes pedestrian, bicycling, transit facilities, and motor vehicles, with the core focus of improving the safety, mobility, connectivity, and comfort for all modes.

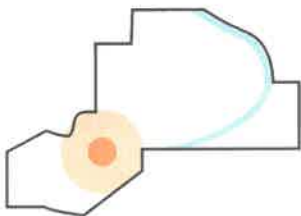
¹ Active transportation refers to any human-powered form of transportation: walking, biking, rolling, or other non-motorized modes.

PLAN VICINITY

The SDSP update focuses on the area located within Maupin’s urban growth boundary (UGB), shown in Figure 1. The regional vicinity of Maupin is shown in Figure 2.

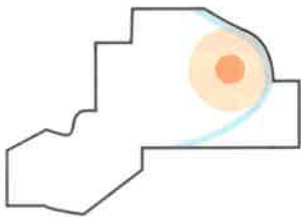
Maupin is in central Wasco County on the Deschutes River. The City limits include a total area of 1.45 square miles, with the core area of Maupin concentrated on the northwestern side of the Deschutes River. The east side of the river provides recreational access to the Deschutes River and hosts several tourism and recreational amenities, including lodging, food services, and the Maupin City Park. The Dalles California Highway (Highway 197) is the primary route through Maupin, providing direct access to many of the services within the city. Highway 197 connects Maupin to Interstate 84 and Highway 197 to the north and Highway 97 and Madras, to the south.

The natural topography of Maupin divides the city into three distinct regions: Upper Maupin (RiverCrest), the Core Area, and East Maupin (east of the Deschutes River).



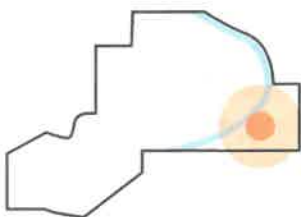
Upper Maupin

Upper Maupin is located at the top of the northern Deschutes River canyon rim and includes residential areas, including the ongoing housing development RiverCrest, Canyon Rim Senior Living, Deschutes Rim Health Clinic, recreational services, and the Maupin Skate Park. Highway 197 is the only access between Upper Maupin and the other tiers. The Donkey Trail is an unpaved trail that provides a parallel connection to Highway 197 between the Upper and Core tiers.



Core Area

The Core Area refers to the area between the two Highway 197 “hairpins”, where most of Maupin’s commercial and retail services are concentrated, including Maupin’s “main street” segment of Highway 197. The Core Area includes a network of local streets concentrated on the north and south sides of Highway 197. This area includes a range of uses, including residential areas, both Maupin schools, grocery and food services, tourist services, and community services such as the Southern Wasco County Library/Maupin Civic Center.



East Maupin

East Maupin is the area southeast of the Deschutes River. Recreational destinations, including campgrounds, Maupin City Park, an electric vehicle (EV) charging station, food services, lodging, and other tourist services are in East Maupin where the Deschutes River is accessible to river users. The Highway 197 bridge connects Maupin’s Core Area and the East Maupin area.

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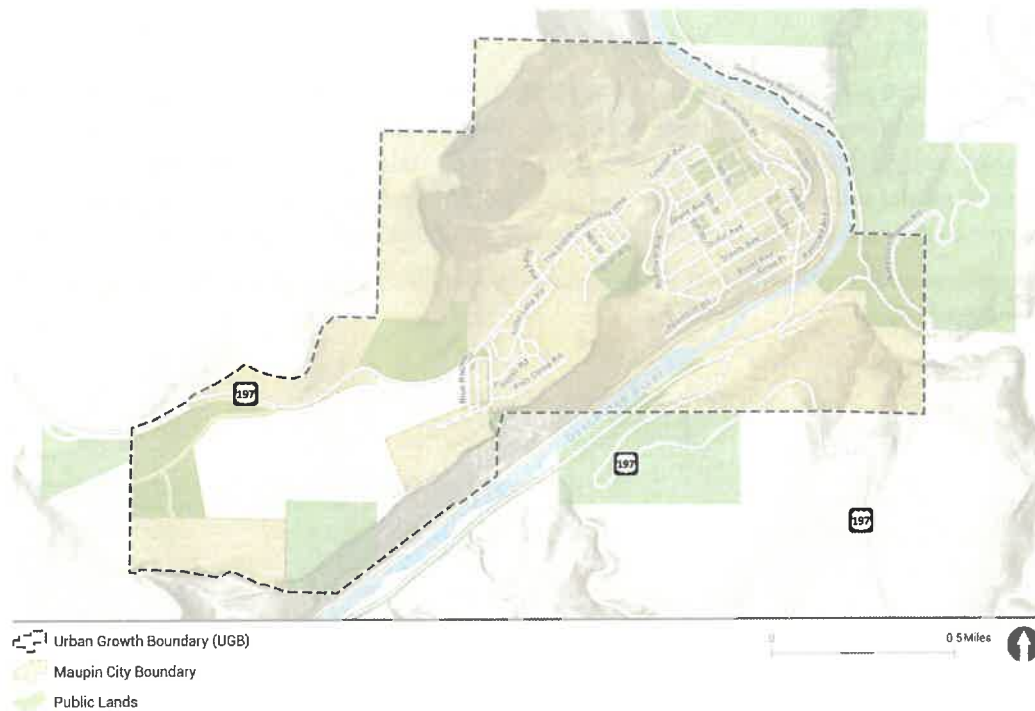


Figure 1: Maupin Urban Growth Boundary (UGB)

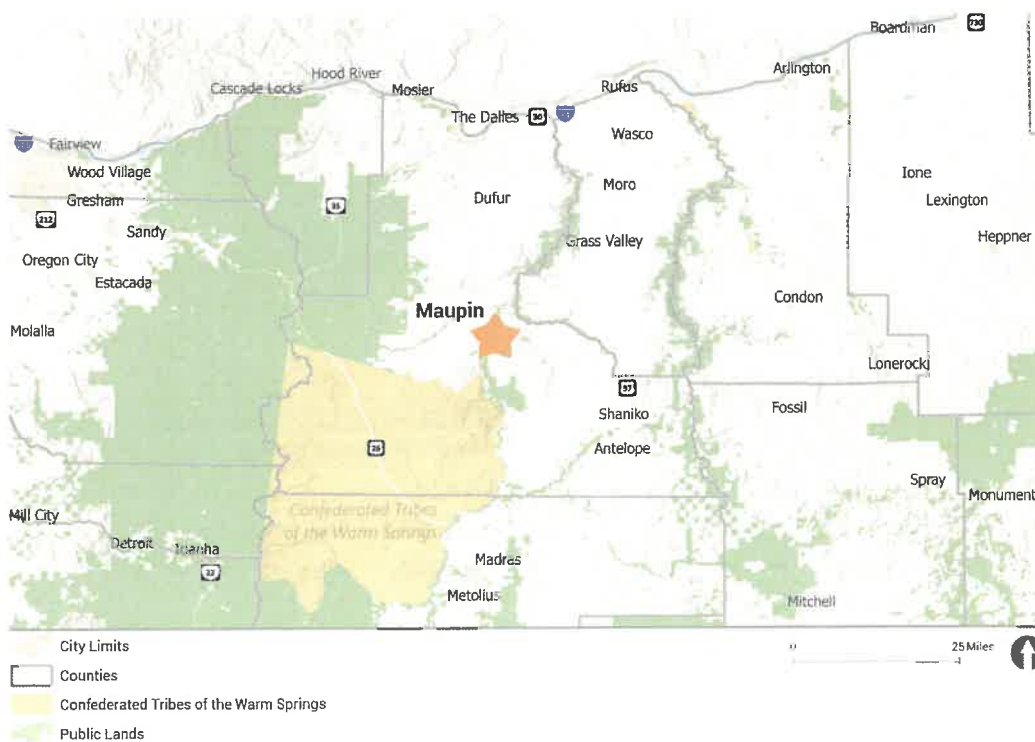


Figure 2: Regional Map

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ACTIVITY CENTERS

Key activity centers in Maupin are primarily located along Highway 197 in the Core Area of Maupin between Burnham Avenue and 2nd Street. These include the Maupin Grade School, South Wasco County Junior/Senior High School, the Deschutes River Athletic Complex, the post office, Southern Wasco County Library/Maupin Civic Center, and the Maupin Market, among other food and general services. Canyon Rim Senior Living and Deschutes Rim Health Clinic are located on Blue Rock Road near the northwestern UGB boundary. Figure 3 illustrates the key attractions and activity centers in Maupin.

Maupin Bridge, a two-lane bridge with 4-foot-wide sidewalks on both sides, is the only connection between the area north of Deschutes River and East Maupin.

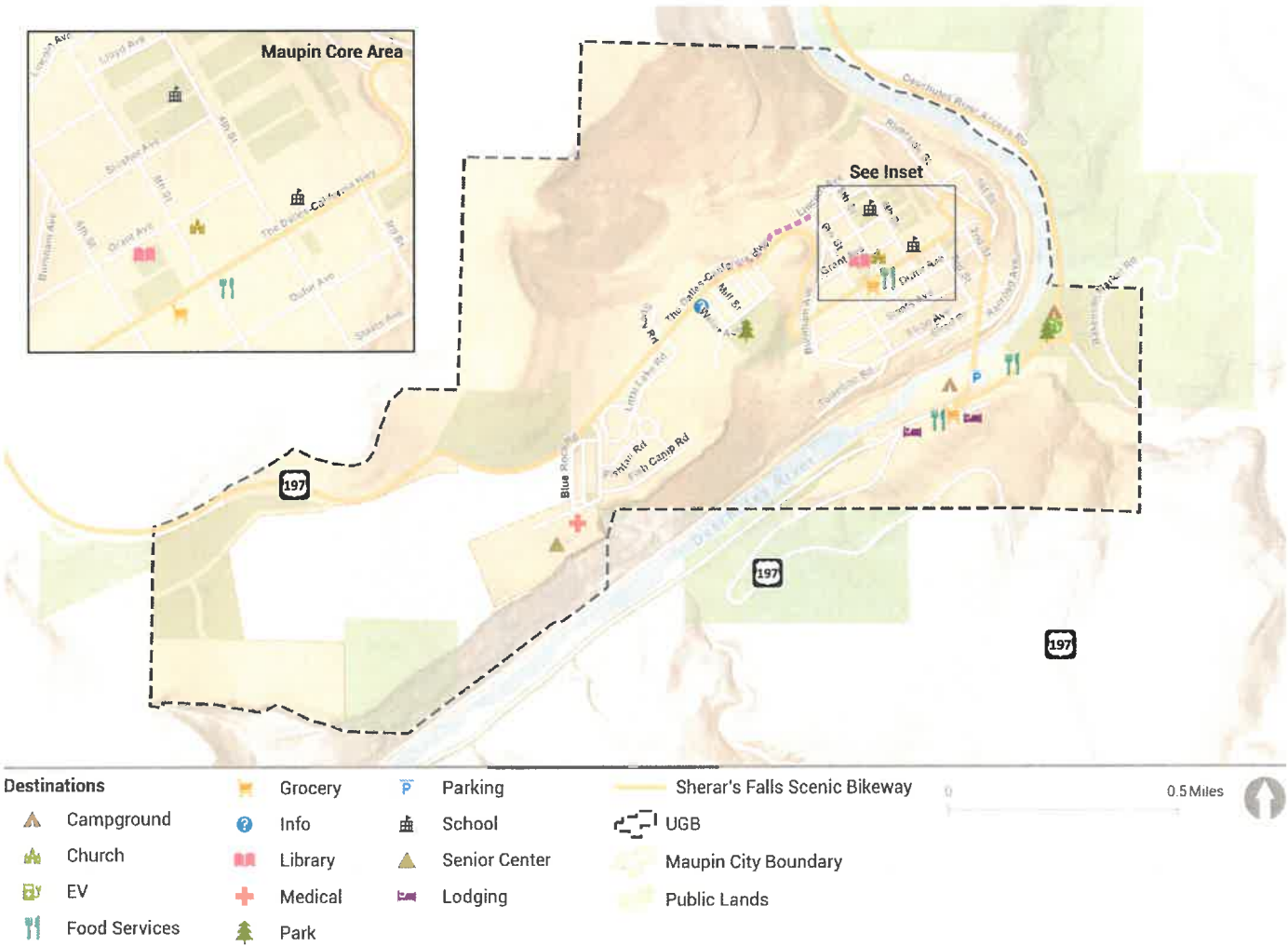


Figure 3: Maupin Urban Area and Activity Centers

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LAND USE

The Comprehensive Plan was adopted in 2006. The Comprehensive Plan/Zoning Map establishes spatial designation of residential and commercial lands as well as areas designated as parks and natural open space. The most recent Comprehensive Plan/ Zoning Map, adopted in 2021, is shown in Figure 4.

Properties in Upper Maupin are planned to be developed with residential uses, which will expand the city's capacity for population growth.

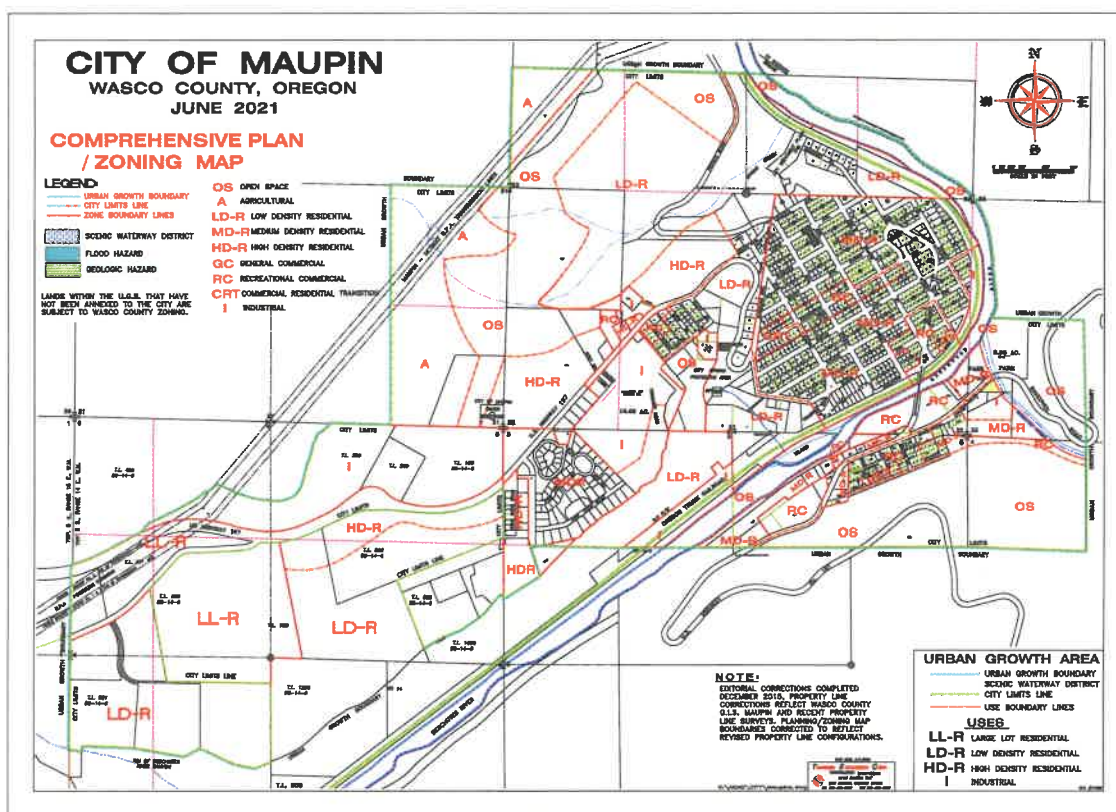


Figure 4. City of Maupin Comprehensive Land Use Map (Updated 2021)

GROWTH

In the past two decades, there has been considerable economic growth in Maupin, largely associated with its popularity as a recreational destination. Maupin's population swells to approximately 1,500 people in the peak summer months, a 256 percent increase in the year-round population of 421. Maupin's recreational activities, fueled by the growing popularity of bicycle tourism with the recent establishment of the Sherar's Falls Scenic Bikeway in 2017 (shown in Figure 5), whitewater rafting, and fly fishing, are a popular draw for tourists. Travel Oregon has documented the economic impact of bicycle-related activities to cities^{2,3,4}.

² Dean Runyan Associates. (2014). *The Economic Significance of Cycling on Oregon Scenic Bikeways*.

³ Dean Runyan Associates (2012). *The Economic Significance of Bicycle-Related Travel in Oregon*.

⁴ Travel Oregon (2021). *Oregon Outdoor Recreation Economic Impact Study*.

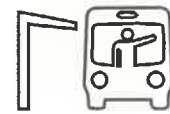
Notable benefits of the more recent economic growth that Maupin has seen include:



The expansion of health services in South Wasco County, including the recently constructed Deschutes Rim Health Clinic in Upper Maupin.



The Maupin Deschutes River Athletic Complex, a world-class track and field facility located adjacent to South Wasco County Senior Junior/Senior High School.



The LINK public transportation service provides twice-weekly shuttles between Maupin and The Dalles, connecting people in Maupin to essential services in the Dalles.

The SDSP provides guidance for balancing the active transportation, motor vehicle, and recreational needs to support the growth of year-round residents and the influx of tourists in the peak summer months.

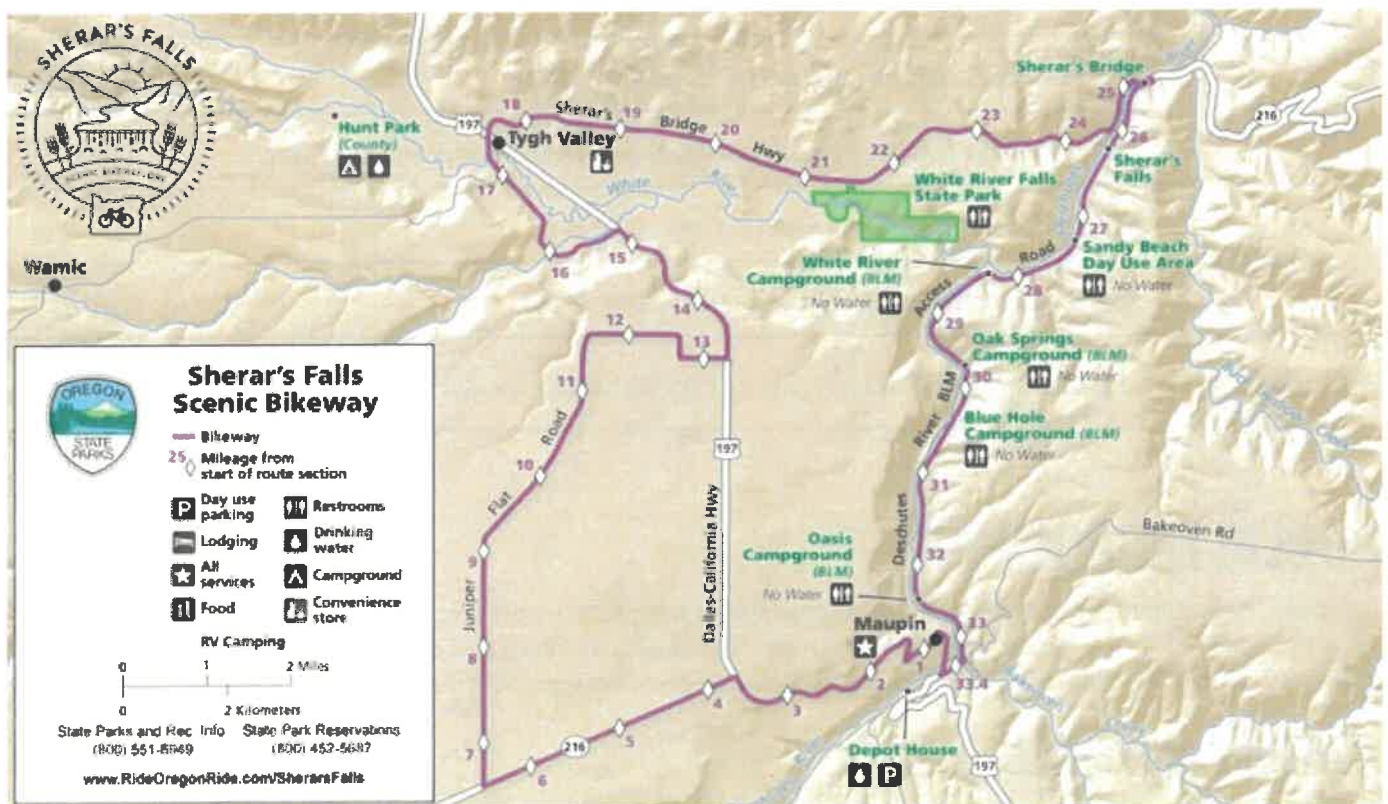


Figure 5. Sherar's Falls Scenic Bikeway

RELEVANT PLANS AND POLICIES

Table 1 lists the plans and policies that were reviewed to inform the development of the SDSP. More information about each plan and policy as well as their individual relevance to the SDSP is provided in Memorandum #1: Plan, Policy, and Existing Conditions (Appendix A).

Table 1. Relevant Plans and Policies

Document	
Local	Street Design Standards Project (1999)
	Comprehensive Land Use Plan (2006)
	Maupin Pedestrian Safety & Schools: Safe Routes to School Recommendations Report (2018)
	City of Maupin Economic Opportunities Analysis (2019)
	City of Maupin Housing Capacity Analysis (HCA) (2021)
	US197: Maupin to Bureau of Land Management (BLM) Access Improvements
Regional	Wasco County Transportation System Plan (2009)
	Wasco County Transit Development Plan (TDP) (2022)
State	Oregon Scenic Bikeway Plan, Sherar's Falls Scenic Bikeway (2017)

PUBLIC ENGAGEMENT

Public engagement for the SDSP update and DTP consisted of a project advisory committee (AC), two public events, and a project website with an interactive map. Public involvement strategies, outreach, and communication approaches to guide the development of the SDSP are documented in the Public Involvement Plan (PIP) (Appendix B).

ADVISORY COMMITTEE

An AC was appointed by the Project Management Team (PMT) and consisted of members from a mix of agency and public representation. The purpose of the AC was provide technical review, community perspectives, and overarching guidance to inform the development of the SDSP. The AC met four times throughout the project at key milestones to ensure that the SDSP update incorporates the needs and considerations from their representative groups.

PUBLIC EVENTS

There were two public engagement events held during the project.



Public Event 1 - Walking Tour

Public Event #1 took place on January 24, 2024, and included a walking tour of Maupin to understand the needs for active transportation and recreational facilities, including the need for a multimodal pathway. Seven community members attended the event. Their feedback informed the multimodal transportation needs, especially at key connection points on Highway 197 and near South Wasco County Junior/Senior High School.



Public Event 2 - Open House

Public Event #2 took place as a public open house on May 28, 2024, from 5:30 pm to 7:00 pm. The purpose of the public open house was to provide information on the SDSP update and DTP and to solicit feedback on street design standards updates and multimodal projects. The public input informed the development of prioritized projects, including identification of multimodal project alignments and features. The community also introduced new ideas for recreational trail opportunities along the river and connections to areas outside of the UGB with views of Mt. Hood.



Public Event 3 - Pop-Up

Public Event #3 took place as an informational pop-up outside the Maupin Market on Thursday, August 8th from 1:00 to 3:00 pm. Community members expressed strong support for new trail connections, and the Donkey Trail and enhanced crossing on Highway 197 are a high priority to provide a safer alternative to Highway 197 for people walking and biking.

More details on the public engagement activities are included in Appendix C.

PROJECT WEB PAGE

The project's web page was launched in January 2024 and was available throughout the duration of the project. The web page featured project background information and an interactive map that allowed members of the public to identify potential pathways and active transportation concerns. Comments for the interactive map closed on June 28, 2024. There were 14 total comments on the interactive map, summarized in Appendix C. The web page had over 700 views.

[Link to project website](#)



ADOPT A HIGHWAY PROGRAM

← MADRAS BEND 47
MAUPIN 89
THE DALLES 41 →

ADOPT A HIGHWAY PROGRAM

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02. MODAL PLANS

This section describes existing inventory, identified needs, proposed facilities, and design guidance for transportation infrastructure in Maupin by mode:



**People walking
(pedestrians)**



**People biking
(bicycle)**



**People accessing
transit (transit)**



**People driving, including
freight (roadway)**

These sections outline the demonstrated needs for each transportation mode based on available inventory data, findings from an analysis of system gaps and deficiencies⁵, discussions with City and ODOT leaders, and feedback from the community during the public engagement process. The identified needs support project identification and prioritization of transportation improvements in Maupin over the next 20 years.

⁵ System gaps refer to missing links in the network, such as a missing sidewalk or bicycle facility. A deficiency refers to a facility that does not meet the standard or is insufficient to meet users' needs. For more information about system gaps and deficiencies analysis, refer to Memorandum #1: Plan, Policy, and Existing Conditions (Appendix A).

EXISTING FACILITIES

Figure 6. Pedestrian Facilities in Maupin

Sidewalks

Existing pedestrian facilities in Maupin primarily include sidewalks and some marked crossings on Highway 197 and streets within its immediate vicinity. On Highway 197 between Burnham Avenue and 2nd Street, sidewalks are five feet wide and separated from the roadway with a 3-foot buffer that provides space for trees, trash cans, and utilities. Curb bulb-outs with perpendicular curb ramps are located on each corner at the intersection of Highway 197 with 6th Street, 5th Street, and 4th Street. The intersection at 3rd Street has bulb-outs on the western leg of Highway 197.

The pedestrian network outside of Highway 197 includes intermittent curb-tight sidewalks with widths ranging from four to five feet on local streets within the immediate vicinity of Highway 197, including segments of 6th Street, 5th Street, 4th Street, 3rd Street, Slusher Avenue, Grant Avenue, and Dufur Avenue. There is also a 4-foot curb-tight sidewalk on both sides of the bridge. Most local streets in Maupin do not have sidewalks.

Crossings

There are 10 marked crosswalks in Maupin, including one crossing with continental striping on the northeast leg of the intersection of Highway 197 and 4th Street at the southwest corner of the Maupin Grade School. The other two crossings are marked with two transverse parallel lines and located on the northwest and southwest legs of the intersection of Slusher Avenue and 4th Street connecting the southeast corner of South Wasco County Junior/Senior High School with the Deschutes River Athletic Complex.

Trails

Maupin has a few highly used trails, but they are not formally established and generally have rugged, unpaved surfaces. The most well-known of these unofficial trails in Maupin is the Donkey Trail, which provides a fully separated parallel connection to Highway 197 for people walking and bicycling between Mill Street and View Street to 6th Street at Lincoln Avenue. The route provides a non-vehicular option for residents of Maupin to connect to major activity centers and has also been used as a detour route for motor vehicle traffic when accidents occur on Highway 197.

The City and community have a desire to formalize the Donkey Trail. The City of Maupin DTP was developed in conjunction with the SDSP update, and provides more information about the proposed trail alignment, enhanced crossings, and implementation strategies.



IDENTIFIED NEEDS

Based on findings from the existing conditions inventory, system gaps, and system deficiency analyses, the following needs are identified:

- Alternative routes with designated pedestrian facilities off Highway 197 within the three distinct areas previously described:
 - **Upper** – Add pedestrian facilities to connect residential properties on Highway 197 to the Donkey Trail and Mountain Fir Park.
 - **Core** – Prioritize and fill in gaps in the sidewalk network beyond the Highway 197 corridor to provide a more comfortable walking environment for people accessing major activity centers.
 - **East** – Add pedestrian facilities on Bakeoven Road to connect Maupin City Park to major activity centers.
- Designated pedestrian facilities or lower stress alternatives between the three distinct areas; evaluate retrofit improvements to providing pedestrian facilities on the Maupin Bridge.
- Recreational walking trails or routes to promote health, vitality, and livability.

Loop Trail Concept

During public engagement activities for the SDSP update, community members expressed a strong desire for establishing a recreational walking and biking loop in Maupin. The loop would include segments of trails through natural land and segments of on-roadway facilities to connect major activity centers such as Mountain Fir Park, businesses on Highway 197, and the two schools. The goal would be promoting the health, livability, and attractiveness of Maupin. More information about the Loop Trail concept is provided in the DTP.

PROPOSED LOW-STRESS PEDESTRIAN ROUTES

Proposed low-stress routes for pedestrians are listed below and shown in Figure 7. These routes include segments where new pedestrian facilities, improvements to existing facilities, or trails could be implemented based on the identified system gaps to provide low-stress connections for people walking. The goal of the proposed low-stress routes is to support the development of a well-connected, safe, and efficient network for major pedestrian generators in Maupin. The specific treatment or facility type can be selected depending on the location, roadway volume and speeds, and intended use of the facility within the broader pedestrian network.

The proposed low-stress pedestrian routes include:

- Highway 197 between Blue Rock Road and Bluff Street
- Highway 197 between Burnham Avenue and 4th Street
- Lincoln Avenue between 6th Street and 4th Street
- 4th Street between Staats Avenue and Lincoln Avenue
- 6th Street between Lincoln Avenue and Highway 197 (Deschutes Ave)
- Staats Avenue between Burnham Avenue and 4th Street
- Highway 197 between Elrod Avenue and the Bureau of Land Management (BLM) Access Road
- Bakeoven Road between Highway 197 and Deschutes River Access Road
- Proposed Donkey Trail from Highway 197 at Water Avenue to 6th Street/ Lincoln Avenue
- Proposed Canyon Rim Trail from Water Avenue to Staats Avenue (trail alignment dependent on development)
- Proposed Timber Road Trail to the Donkey Trail Loop (trail alignment dependent on development) Design

GUIDANCE FOR PEDESTRIAN FACILITIES

Appendix D provides design guidance for pedestrian facilities that are appropriate for Maupin, including sidewalks, shared use paths, sidepaths, pedestrian lanes, paved shoulders, trail facilities, and crossing treatments. The design guidance incorporates best practices for street design guidance and pedestrian facilities for communities within a more rural context like Maupin and is intended for local streets maintained and operated by the City. Design guidance for Highway 197, classified by ODOT as a state highway, is regulated by ODOT through the Highway Design Manual (HDM).

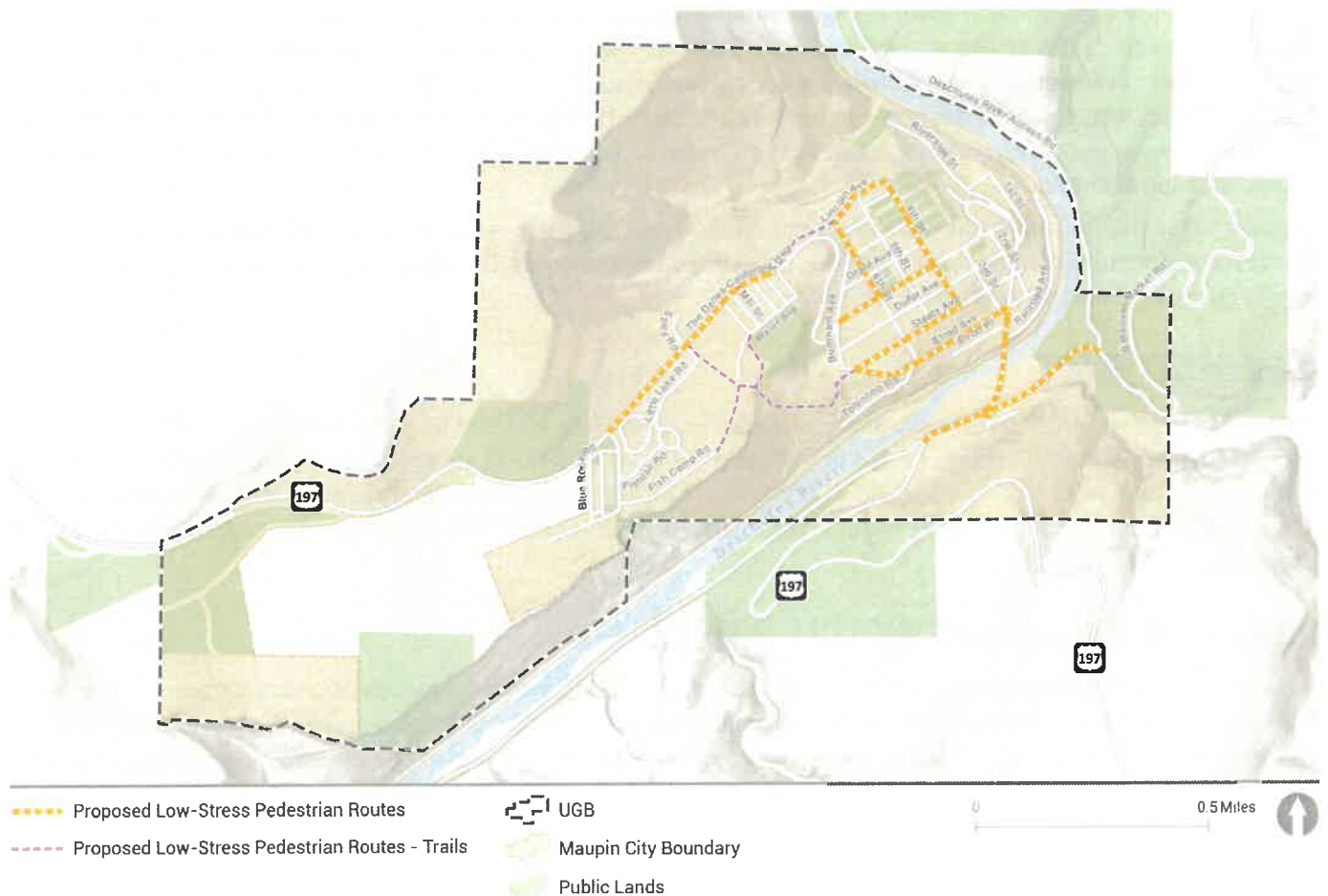


Figure 7. Proposed Low-stress Pedestrian Routes



BICYCLE

Bicycle facilities refer to dedicated infrastructure for cycling or areas designed for shared use. This includes designated paths and spaces like bicycle lanes and paved shoulders, as well as shared facilities like bicycle boulevards where both bicyclists and motor vehicles navigate the roadway together.

EXISTING FACILITIES

People biking in Maupin primarily share the roadway with motor vehicles, except for some segments of Highway 197 where the shoulders are wide enough for bicycle use. Shoulder widths on Highway 197 within the UGB range from 0-1 feet up to 8 feet. In locations where shoulders are not provided, such as on the segment of Highway 197 within the Core Area, people bicycling share the roadway with vehicles. Highway 197 has areas of drastic grade change approaching and leaving the Maupin Core Area, including some tight switchback curves that introduce speed and visibility challenges for people bicycling or driving.

Highway 197 is also part of the Sherar's Falls Scenic Bikeway route, which is one of 17 routes identified as part of the Oregon Scenic Bikeways program and a popular cyclist route during warmer months. The route features the unique beauty of the high desert environment along the Deschutes River.

IDENTIFIED NEEDS

Highway 197 is the only roadway facility that connects the Upper, Core, and East tiers. It's identified as a high-stress bicycle route (Level of Traffic Stress (LTS) 3 or 4) throughout most of the UGB, except for the segment in the Core Area that has a posted speed of 25 miles per hour (mph). Therefore, there is a demonstrated need for alternative bicycle routes or low-stress treatments that enhance the bicyclist environment on Highway 197, especially with its draw as a designated Scenic Bikeway Route.

PROPOSED LOW-STRESS BICYCLE ROUTES

Proposed low-stress bicycle routes are listed below and mapped in Figure 8. These include segments where new bicycle facilities or traffic calming treatments could be implemented based on the identified system gaps to provide low-stress connections for people biking. The goal of the proposed low-stress network is to provide bicycle route options for all skill and confidence levels. The appropriate treatment or facility type should be selected based on context-specific considerations, such as land use, roadway volumes, roadway speeds, and intended use of the facility.

The proposed low-stress bicycle routes include:

- Highway 197 from Blue Rock Road to Water Avenue
- Elrod Avenue from Burnham Avenue to Highway 197
- Lincoln Avenue from Water Avenue to 4th Street
- 4th Street from Staats Avenue to Lincoln Avenue
- 6th Street from Lincoln Avenue to Highway 197 (Deschutes Ave)
- Staats Avenue between Burnham Avenue and 4th Street
- Highway 197 between Elrod Avenue and the BLM Access Road
- Bakeoven Road between Highway 197 and Deschutes River Access Road
- Proposed Donkey Trail from Highway 197 at Water Avenue to 6th Street/Lincoln Avenue

DESIGN GUIDANCE FOR BICYCLE FACILITIES

Appendix E provides design guidance for bicycle facilities that are appropriate for Maupin, including shared roadways, bicycle boulevards, advisory shoulders, bicycle lanes, and separated bicycle lanes. Shared facilities like shared use paths, paved shoulders, and trail facilities also accommodate both bicyclists and pedestrians and are described in Appendix D.

The appropriate improvement is selected based on context-specific considerations, such as land use, roadway volumes, roadway speeds, and intended use of the facility. The options provided in Appendix E are intended for local streets maintained and operated by the City. Design guidance for Highway 197, classified by ODOT as a state highway, is regulated by ODOT through the HDM.

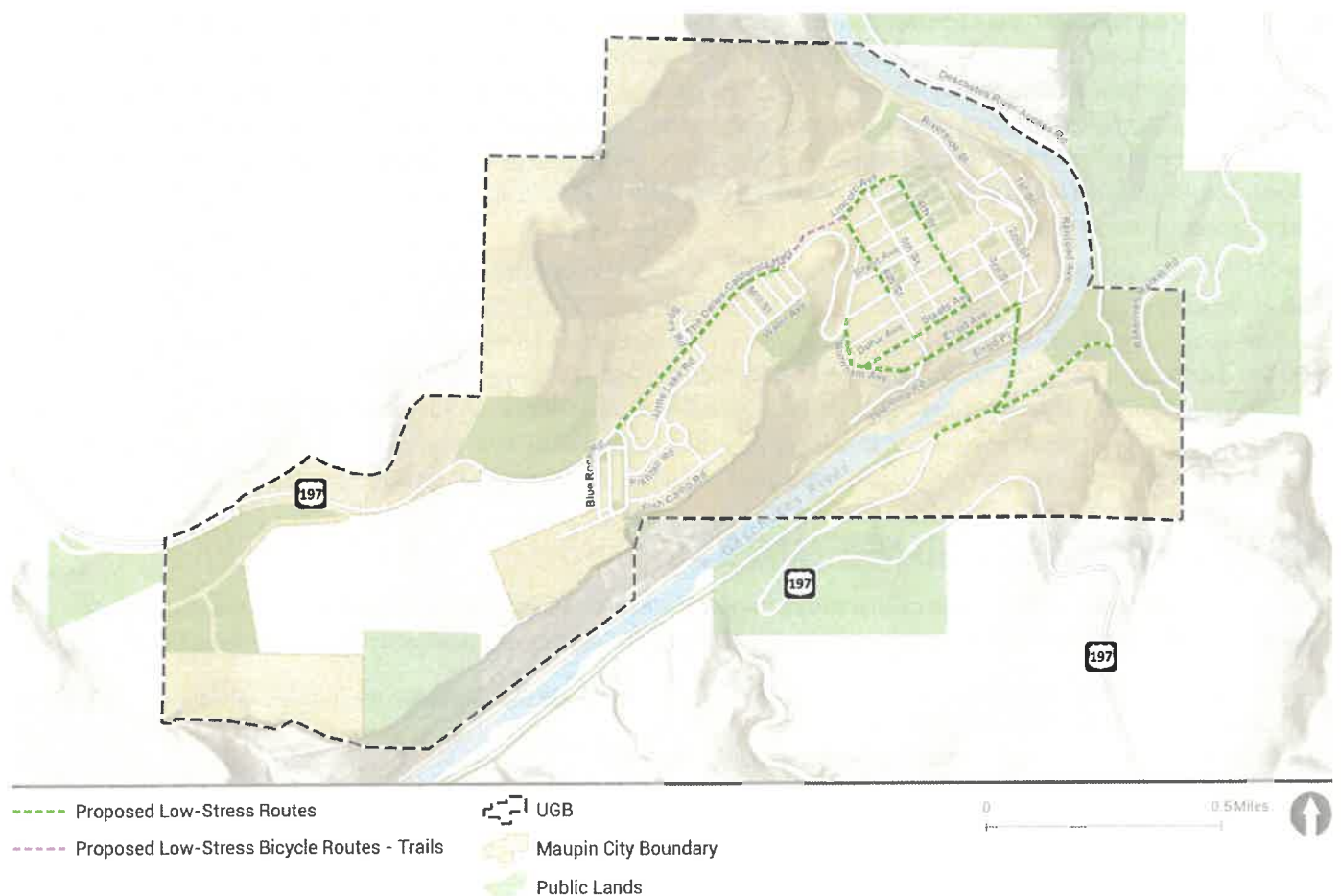


Figure 8. Proposed Low-stress Bicycle Routes



TRANSIT

Wasco County partners with the Mid-Columbia Economic Development District (MCEDD) to operate The LINK public transportation services in The Dalles and surrounding Wasco County. The LINK operates a South County Shuttle, which provides intercommunity door-to-door shuttle service transporting riders in Maupin, Wamie, Pine Hollow, Tygh Valley, and Dufur to The Dalles for a few hours of shopping or appointments. The service is available on Tuesdays and Thursdays with pickups in Maupin at the Maupin Market, Maupin Country Store, Canyon Rim Senior Living, or anywhere within a half-mile of the route if requested in advance. The Link provides The Dalles to Hood River service, connecting to the Columbia River Gorge Express in Hood River⁶.

The 2022 Wasco County Transit Development Plan (TDP) identifies the possibility of replacing the South County Shuttle with an expanded intercity express route with stops in The Dalles, Dufur, Tygh Valley, and Maupin. The route would have fixed timepoints and potential deviation areas or zones and could operate on two consecutive days per week, providing two trips per day to allow riders the opportunity to complete their trip within a single day or to return to their original location the following day. The TDP identifies considerations for potential stop locations on an intercity route at the Canyon Rim Senior Center, Highway 197 at Water Avenue and at 4th Street, and/or Highway 197 near Bakeoven Road. Any forthcoming transit services or transit stops in Maupin will require additional planning with county agencies and the MCEDD.

DESIGN GUIDANCE FOR TRANSIT FACILITIES

Transit is inherently dependent on the connectivity provided by pedestrian and bicycle infrastructure. Transit stops are typically located within the pedestrian zone adjacent to a curb and sidewalk and preferably near a marked crossing to ensure access from both sides of the street. Strategically placing stops in areas with pedestrian and bicycle access to activity centers is essential to the effectiveness of transit service.

The amenities at a transit stop can range from a single sign and post to a covered bus shelter with a bench, providing a comfortable refuge for people waiting for transit services. The ODOT HDM provides minimum standards for bus landing pads and bus shelters based on Americans with Disabilities Act (ADA) standards, shown in Table 2.

Table 2. Design Guidance for Transit Stop Facilities (ODOT HDM)

Facility Type	Minimum Pad Area	
	Length	Width
Bus landing pad	8 ft	5 ft
Bus shelter	10 ft	6 ft

⁶ For the most up-to-date services provided by The Link public transit, visit <https://mcedd.org/link/>. For schedules, timetables, and maps of the Columbia River Gorge Express, visit <https://gorgetransit.com>.



ROADWAY

The roadway system serves a critical function locally in Maupin and regionally in South Wasco County/Central Oregon. Residents will continue to rely on the local roadway network to access essential services and destinations within Maupin, especially between the three distinct tiers, and to access more residential areas farther from the core areas of the city. Motor vehicles are the primary means of transportation for accessing services beyond Maupin and for tourists to travel to Maupin from other regions.

EXISTING CONDITIONS

The roadway network consists of Highway 197 and a surrounding grid of local streets providing access to the residential areas of Maupin.

Jurisdiction

Roadways in Maupin are owned and operated by ODOT, the City of Maupin, and the Bureau of Land Management.

STATE HIGHWAY

ODOT maintains and operates the roadway and bridge facilities on Highway 19. Highway 197 is a two-lane state highway that provides the only connection between the Upper, Core and East tiers of Maupin. The highway features a bridge across the Deschutes River, providing a critical connection between the Core and East tiers of the city. The highway winds through steep terrain at two “hairpin” turns that traverse the canyon rim on the north side of the Deschutes River. Traffic is free-flow on Highway 197 with cross-streets controlled by stop signs.

The character of Highway 197 transitions from a rural highway to an active downtown core between Burnham Avenue and 2nd Street, an area that features on-street parking, curb bulb-outs, and other elements of a main street environment. The Maupin Lower School is located on Highway 197 between 4th Street and 3rd Street.

LOCAL NETWORK

The City maintains and operates the local network of roadways that primarily provide access from residential land to Highway 197. Traffic control on the local street network includes side street stop control or no control at all. There are some locations that have stop bar pavement markings, but no stop signs.

BUREAU OF LAND MANAGEMENT (BLM)

The BLM operates and maintains access roads adjacent to the south-east side of the Deschutes River. These roads provide access to recreational activities on the river, including camping, fishing, and whitewater rafting. The access road is paved within the vicinity of the Maupin UGB.

Functional Classification

Figure 9 presents the functional classification of Maupin’s roadway network. Functional classifications in Maupin are further described below.

MINOR ARTERIAL

Minor arterials serve the roadway network by providing links between cities, urbanized areas, or other major traffic generators. Posted speeds and volumes are higher on arterials compared to collectors and local streets. Highway 197 is classified as a minor arterial and serves as the primary route through Maupin providing access to essential food, grocery, recreational, and other community services.

MAJOR COLLECTOR

Major collectors serve the roadway network by connecting local and residential streets to arterials while also providing access to surrounding land uses. Bakeoven Road and the BLM Access Road on the north side of the Deschutes River are classified as major collectors. These roadways provide access to businesses and tourist destinations, including campsites and river access.

MINOR COLLECTOR

Minor collectors serve the roadway network by connecting local and residential streets arterials. Minor collectors are more integrated in neighborhoods or residential areas than major collectors.

Elrod Avenue and 4th Street from Highway 197 to Slusher Avenue are classified as minor collectors. Elrod Avenue begins at Highway 197/Burnham Avenue and terminates at Highway 197 near the bridge, providing an alternative route for vehicles to bypass the Maupin Core Area. The segment of 4th Street between Highway 197 and Slusher Avenue provides access to South Wasco County Junior/Senior High School and the Deschutes River Athletic Complex.

A minor collector is proposed to extend the existing Water Avenue towards Blue Rock Road/George Jackson Road and connect to Highway 197 near the Maupin UGB boundary. The proposed collector is intended to provide additional roadway facilities for potential housing developments in this currently vacant area.

LOCAL STREETS

The remaining roads are classified as local streets, representing most Maupin roadways and connecting the neighborhood network to Highway 197 and the few collector streets within the UGB. Local streets are instrumental for the livability and vibrance of a community and balance the needs of motor vehicles with those of people walking and biking.

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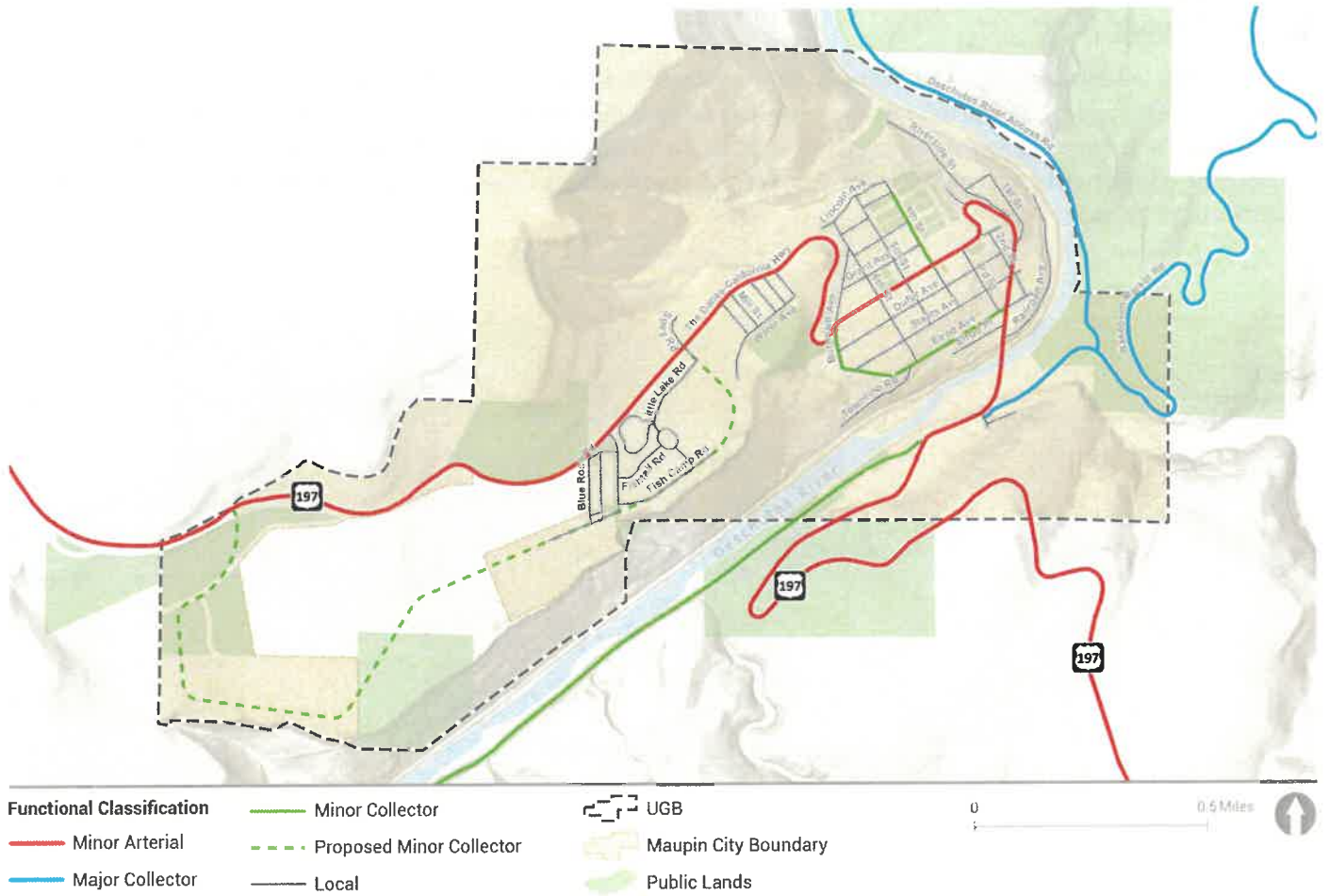


Figure 9. Functional Classifications

Right-of-Way

Streets within the Core Area generally have 60 feet of right-of-way and alleys have 25 feet of right-of-way, per the Original Town of Maupin plat. Some streets in Upper and East Maupin have a narrower right-of-way. Highway 197 has a 60-foot right-of-way throughout the UGB.

Bridges

There are two bridges in Maupin identified in ODOT's bridge inventory – the Highway 197 bridge over Deschutes River (constructed in 1929) and the BNSF railroad and the Bakeoven Creek bridge located adjacent to the Maupin City Park (constructed in 1952). Both bridges are part of the National Bridge Inventory (NBI) database from the Federal Highway Administration (FHWA).

The Highway 197 bridge is operated and maintained by ODOT, with a deck width of 29.5 feet and a curb-to-curb width of 20 feet. ODOT identifies the bridge condition as "Fair", and it is weight restricted to 30 tons for three-axle emergency vehicles. The bridge has 4-foot curb-tight sidewalks and a concrete railing. There are ramps up to the sidewalk on the north side of the bridge, but not the south side. As it is today, the bridge primarily serves motor vehicle traffic, with bicyclists expected to share the roadway with motor vehicles and people walking accommodated by the narrow sidewalks on both sides.

The Bakeoven Creek bridge has a curb-to-curb roadway width of 26 feet and a "Fair" bridge condition. The bridge does not have sidewalks.

Parking

On-street parking is permitted on most non-state facilities and on Highway 197 between Burnham Avenue and 3rd Street. Wayfinding signage is provided to direct drivers to angled public parking on 4th Street along the Deschutes River Athletic Complex frontage. In East Maupin, parking is generally permitted on the shoulders of Highway 197. There are parking restrictions on segments of Bakeoven Road near Maupin City Park to reduce congestion in the popular recreational area. There are two unpaved gravel lots near Maupin City Park that are utilized for parking during busy summer months. There is an EV charging station at the Maupin City Park.

During peak summer months, there is high demand for parking in the Core Area of Maupin and in East Maupin near the river, especially for recreational vehicles. Figure 11 shows potential locations for additional EV charging stations and locations where parking can be improved. These locations aim to enhance traffic circulation while providing motor vehicle parking near major activity centers.

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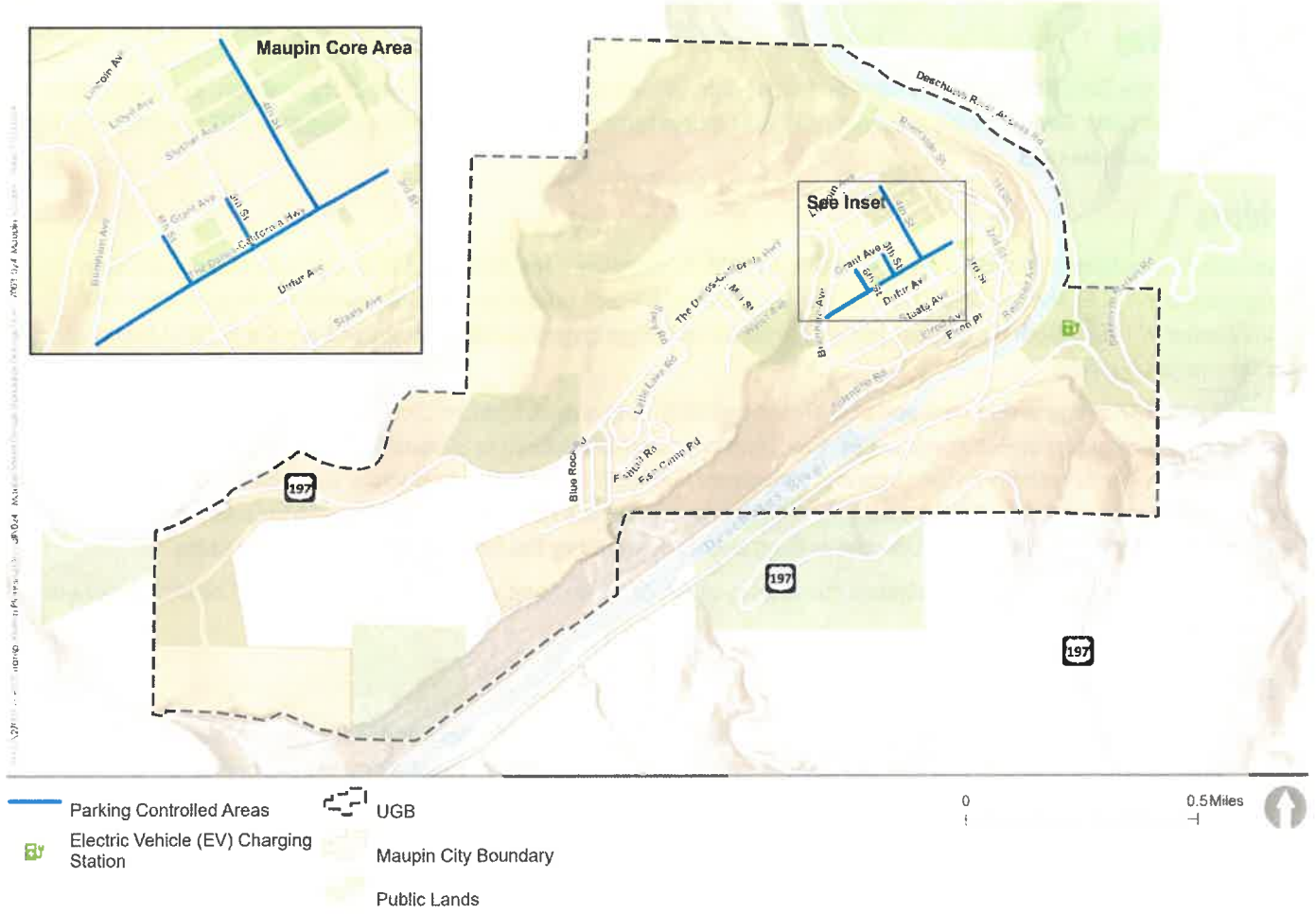
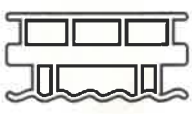


Figure 11. Proposed Parking Improvements in Maupin

STREET DESIGN STANDARDS

Street design standards are guidelines established by transportation agencies to ensure safe, efficient, and consistent roadway infrastructure. Street design standards include cross-sectional elements such as traveled roadway, shoulders, bicycle facilities, pedestrian facilities, and streetscape features. When streets are constructed or reconstructed in Maupin, the roadway cross section will be built to the standards identified in the SDSP and adopted by the City, supporting the designated functionality of a street based on its intended function in the roadway network.

This section outlines the applicable standards from the state and city that will guide roadway development and improvement projects in Maupin. These standards include:

-  Guidance for state highway design from ODOT's HDM
-  Access management standards
-  Selecting the appropriate facility
-  Bridge improvements to promote active transportation projects in Maupin

Highway 197 — The Dalles-California Highway

ODOT'S HIGHWAY DESIGN MANUAL

ODOT's HDM provides a framework for determining the urban context along state highways. The HDM's approach to context sensitive design is considered when planning and designing state highway improvements, as well as modifications to existing highways. The HDM only applies to state highways and does not apply to streets outside of ODOT's jurisdiction.

Identifying the urban context informs the relative need of each roadway user type and the modal integration that is targeted within each urban context. ODOT's HDM identifies six urban contexts for state highways in Oregon. These contexts are summarized in Table 3.

Table 3. Urban Context Matrix

Land Use Context	Setbacks Distance from the building to the property line	Building Orientation Buildings with front doors that can be accessed from the sidewalks along a pedestrian path	Land Use Existing or future mix of land uses	Building Coverage Percent of area adjacent to right-of-way with buildings, as opposed to parking, landscape or other uses	Parking Location of parking in relation to the building along the right-of-way	Block Size Average size of blocks adjacent to the right-of-way
Traditional Downtown/ Central Business District (CBD)	Shallow/None	Yes	Mixed (residential, commercial, park/ recreation)	High	On-street/ garage/ shared in back	Small, consistent block structure
Urban Mix	Shallow	Some	Commercial fronting, residential behind or above	Medium	Mostly off-street/ Single row in front/ In back/ On side	Small to medium blocks
Commercial Corridor	Medium to Large	Sparse	Commercial, institutional, industrial	Low	Off-street/ In front	Large blocks, not well defined
Residential Corridor	Shallow	Some	Residential	Medium	Varies	Small to medium blocks
Suburban Fringe	Varies	Varies	Varied, interspersed development	Low	Varies	Large blocks, not well defined
Rural Community	Shallow/None	Some	Mixed (residential, commercial, institutional, park/ recreation)	Medium	Single row in front/In back/ On side	Small to medium blocks

Highway 197 Land Use Context

Maupin is a rural residential community with varying commercial uses along Highway 197 between Burnham Avenue and 3rd Street; a segment often referred to as “Main Street” in Maupin. Additional commercial uses are located along Highway 197 on the south side of the Deschutes River between Bakeoven Road and the BLM Access Road. The remaining segments of Highway 197 within the city limits are rural in nature and undeveloped, with sparse residential development setback from the highway.

The Main Street segment of Highway 197, between Burnham Avenue and 3rd Street, has more urban characteristics compared to the rest of Highway 197 within the UGB. Building setbacks range from shallow to none, with most buildings and local businesses oriented to Highway 197. On-street parking is provided, whereas outside of this segment, no on-street parking is provided. Building coverage is high with small, consistent block structures adjacent to the highway. Outside of the Main Street segment, little to no block structure is provided.

Land Use Context in Maupin

Based on the existing and future anticipated land uses along Highway 197, two urban contexts have been identified for Highway 197 in Maupin.

- Burnham Avenue to 3rd Street: **Traditional Downtown/CBD**
- Highway 197 outside of Burnham Avenue to 3rd Street within Maupin: **Rural Community**

The recommended urban contexts extents are illustrated in Figure 12.

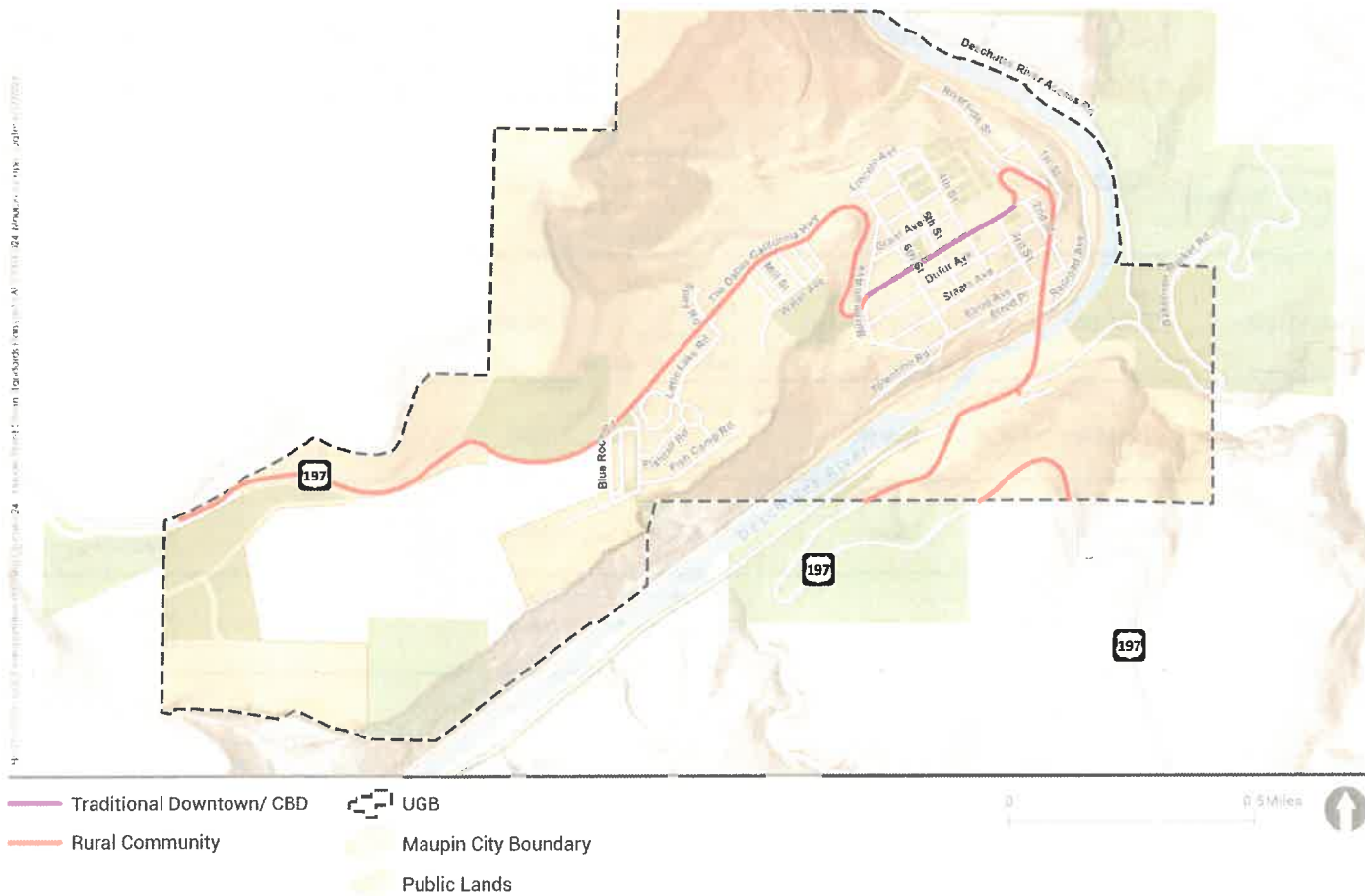


Figure 12. Recommended Urban Context



Modal Considerations

Table 4 identifies the relative importance of the user type with respect to the recommended land use contexts for Maupin. Reviewing the users’ needs will influence the characteristics of future transportation projects as part of the performance-based design decision framework.

Table 4. Urban Context Matrix

Land Use Context	Motorist	Freight	Transit	Bicyclist	Pedestrian ¹
Traditional Downtown/ CBD	Low	Low	High	High	High
Rural Community	Medium	Medium	Varies	High	High

High: Highest level of facility should be considered and prioritized over other modal treatments.
Medium: Design elements should be considered; trade-offs may exist based on desired outcomes and user needs.
Low: Incorporate design elements as space permits.
¹Includes people rolling (people using wheelchairs, mobility devices, skateboarding, and other forms of innovative active transportation)

Designing Based on Context and Classification

The following section describes the guiding principles and design considerations based on the guidance provided in the ODOT HDM.

Urban Context Design Guidance

Traditional Downtown/ CBD

To best serve all road users in these areas where higher congestion is expected, the HDM suggests:

- Vehicle speeds should be a maximum of 25 mph. (vehicles, bicycles, etc.), and other uses.
- Transit stops should be placed at frequent intervals.
- Transit priority treatments can help with transit mobility, even in congested conditions.
- Bicycle and pedestrian facilities should be relatively wide and comfortable to serve all anticipated users.
- Curbside uses may include loading/unloading, parking
- Landscaping and street trees are appropriate as long as it follows ODOT placement and spacing guidelines.

Rural Community

The streets in rural communities are likely to be used by a variety of modes, but the majority of uses are related to either vehicular traffic moving through the town or local community members moving throughout the community via walking, bicycling, or driving.

To best serve this mix of users, the HDM suggests:

- Vehicle speeds should be lowered to a range of 25 to 35 mph entering the town, potentially through use of speed transition zones.
- Design features such as “gateway” intersections, street trees lining the street, or other local icons/art/signs visible from the street can help inform drivers that they are entering a town.
- Pedestrian crossings of the roadway in rural towns should be relatively frequent to reduce the roadway’s impact as a barrier.
- Designs related to sidewalks, bicycle facilities, and curbside uses should reflect the need of the local community.

Table 5. Designing Based on the Recommended Urban Context

Urban Context	Target Speed (MPH)	Median	Bicycle Facility	Sidewalk	Target Pedestrian Crossing Spacing Range (feet) ¹	On-street Parking
Traditional Downtown/ CBD	20-25	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters)	250-550 ft (1-2 blocks)	Include on-street parking if possible
Rural Community	25-35	Optional, use pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks, sized for desired use	250-750 ft	Consider on-street parking if space allows

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Proposed Roadway Design Standards

Street design standards refer to the specifications and guidelines for designing and constructing new streets to ensure the transportation system is consistent across road classes and jurisdictions. Table 6 summarizes the street design standards for streets in Maupin by functional classification.

There are multiple options for each functional classification to support context-sensitive design. Street design standards are most applicable to the design and construction of new streets but can also provide an initial framework for upgrading existing roadways, where appropriate. The design and construction of streets in Maupin should generally follow these street design standards, but in cases where there are unique constraints or considerations, there is flexibility to deviate from the street design standards to best serve multimodal users depending on roadway context, topography, adjacent property owners, or other constraints. Ultimately, any deviations from the street design standards established in this plan must be approved by the City.

For all typical street design improvements standards, the most appropriate option for pedestrian and bicycle facilities on a particular roadway facility is dependent on the intended pedestrian and bicyclist use of the facility, which can be indicated by the preferred low-stress pedestrian and bicycle routes.

The street design standards for each functional classification are described in more detail in the following sections.

Table 6. Street Design Standards

Street Functional Classification	Option	Right-of-Way	Pavement Width	Shoulder Width	Shoulder Type	Sidewalk Width	Bike Lane Width	Landscape Strip/Width
Minor Arterial ⁷	Inside Urban Core	60 ft	40 ft	-	-	6 ft	-	4 ft
	Transition Area	60 ft	34 ft	5 ft	Paved	6 ft	-	5.5 ft
	Outside Urban Core - Rural	60 ft	22.5 ft	5 ft to 5.5 ft	Paved	9 ft (sidepath)	-	5 ft
Collector	Fully Improved	60 ft	36 ft	-	-	6 ft	-	6 ft
Local	Fully Improved	60 ft	36 ft	-	-	6 ft	-	6.5 ft
	Yield Roadway	60 ft	20 ft	8 ft	Gravel/soil	-	-	-
Alley	-	25 ft	16 ft	-	-	-	-	-
Radius for cul-de-sac turnaround		50 ft.	45 ft. Radius	2 ft. to 4 ft.	paved or gravel			

⁷ See State Highway Section.

MINOR ARTERIALS

As discussed, Highway 197 is characterized by two land use contexts: Traditional Downtown/CBD from Burnham Avenue to 3rd Street ("inside urban core") and Rural Community outside of Burnham Avenue to 3rd Street within the City Limits. Outside of the urban Core Area, local access to major activity centers and residential areas gradually decreases as the highway gets closer to the edge of the UGB.

There are three Highway 197 typical street design improvement standards that balance the needs of people walking, biking, and driving on Highway 197 in Maupin. The "inside urban core" cross section is provided for the Traditional/ Downtown CBD context. There are two typical street design improvements for the Rural Community context of Highway 197: (1) the Outside Urban Core – Rural improvement standards as shown in Figure 14 and the (2) Outside Urban Core – Transition improvement standards as shown in Figure 15.

Inside Urban Core – Highway 197

Figure 13 shows the Inside Urban Core improvement standards, consistent with the existing cross section on Highway 197 between Burnham Avenue and 3rd Street today.

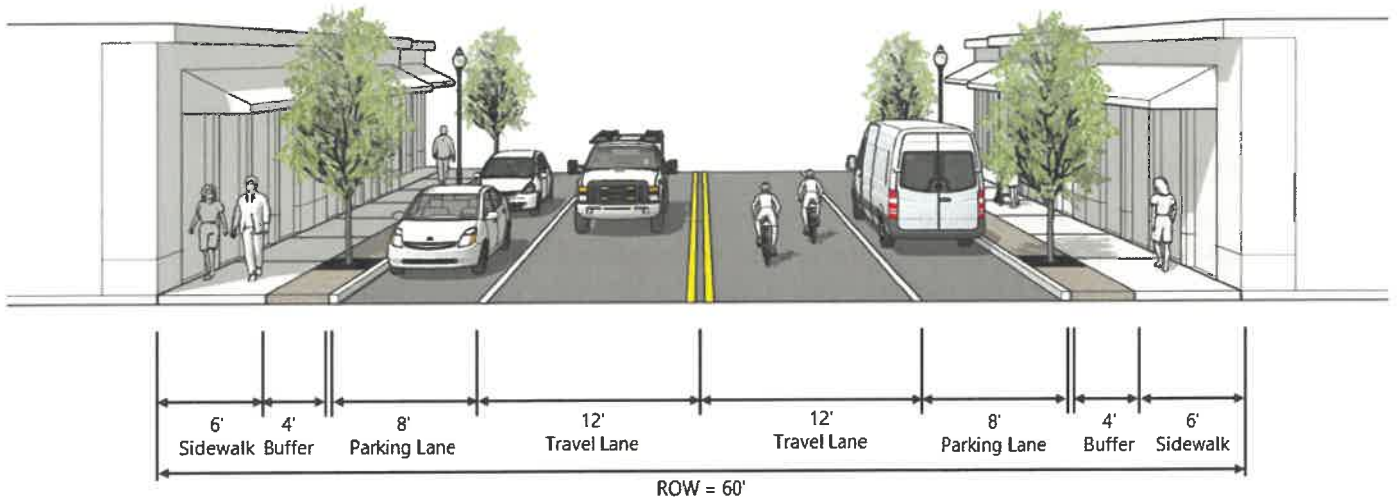


Figure 13. Minor Arterial: Typical Cross Section – Inside Urban Core

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Outside Urban Core – Rural Highway 197

The Outside Urban Core - Rural improvement standards are appropriate for Highway 197 on the outer edges of the UGB where posted speeds are higher and local access is sparse.

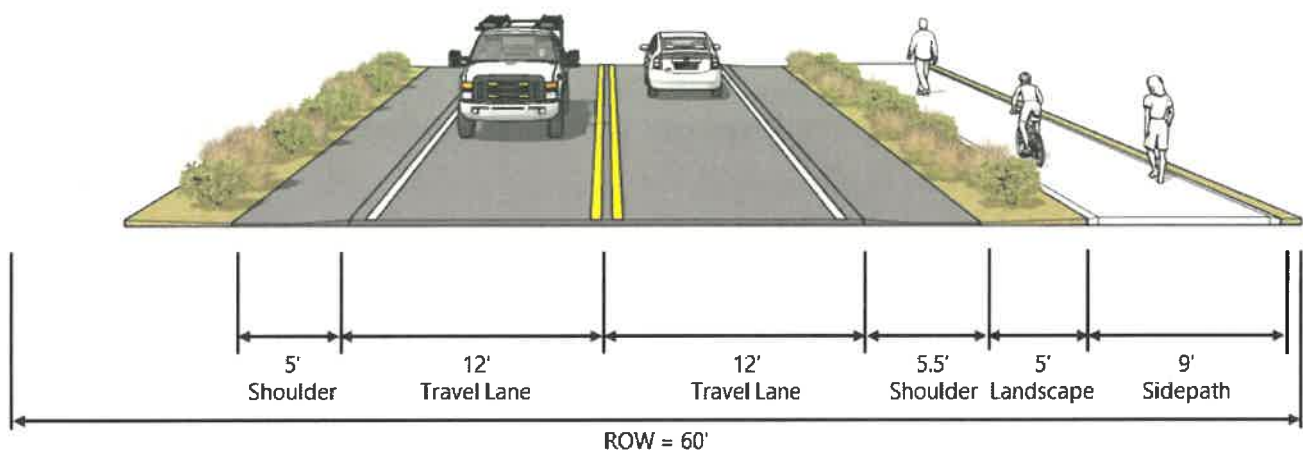


Figure 14. Minor Arterial: Typical Cross Section – Outside Urban Core – Rural

Outside Urban Core - Transition

The Outside Urban Core - Transition improvement standards are most appropriate where there is a higher need for dedicated pedestrian facilities to improve connectivity between major destinations. A landscape buffer between the roadway and sidewalk is the preferred typical cross section, shown in Figure 15. Where there are challenges related to right-of-way, topography, or other factors, a curb-tight sidewalk, like the one shown in Figure 16, may be most appropriate.

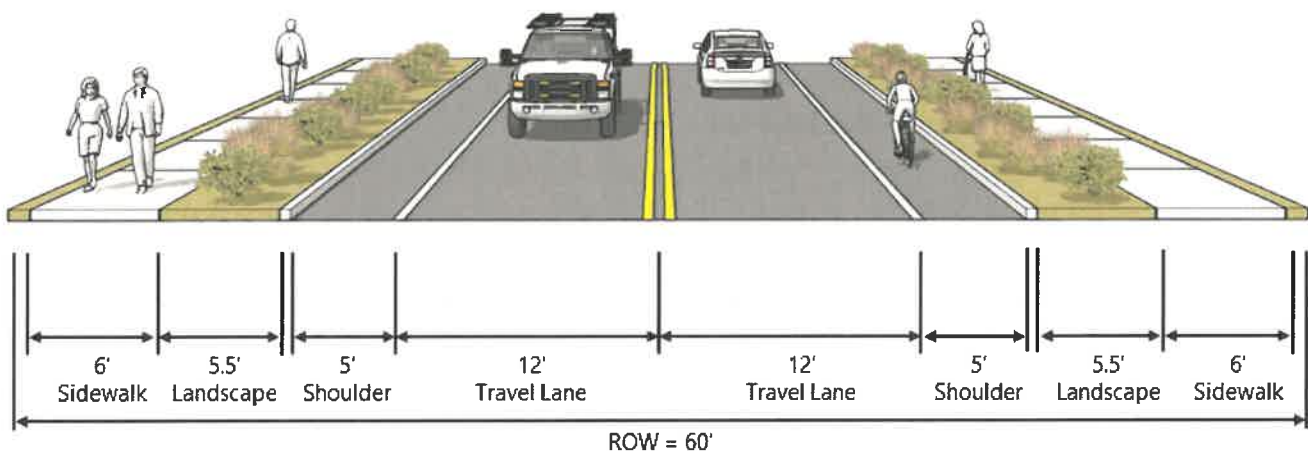


Figure 15. Minor Arterial: Typical Cross Section – Transition Area (Buffered)

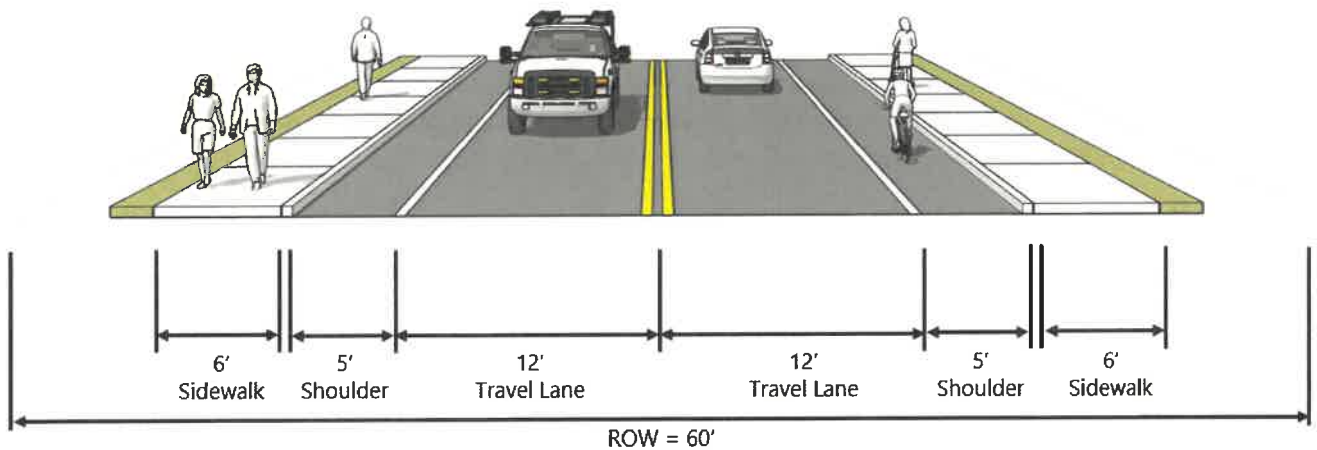


Figure 16. Minor Arterial: Typical Cross Section - Transition Area (Curb-Tight)

COLLECTOR

Collector roadways in Maupin provide connections from residential areas and Highway 197 to activity centers like the South Wasco County Junior/Senior High School, Maupin City Park, and other recreational locations near the river. Elrod Avenue also provides an alternative route to Highway 197 from Burnham Avenue to just north of the bridge. The typical street design improvement standards shown in Figure 17 aims to balance the needs of motor vehicles with those of people walking and biking on collectors in Maupin.

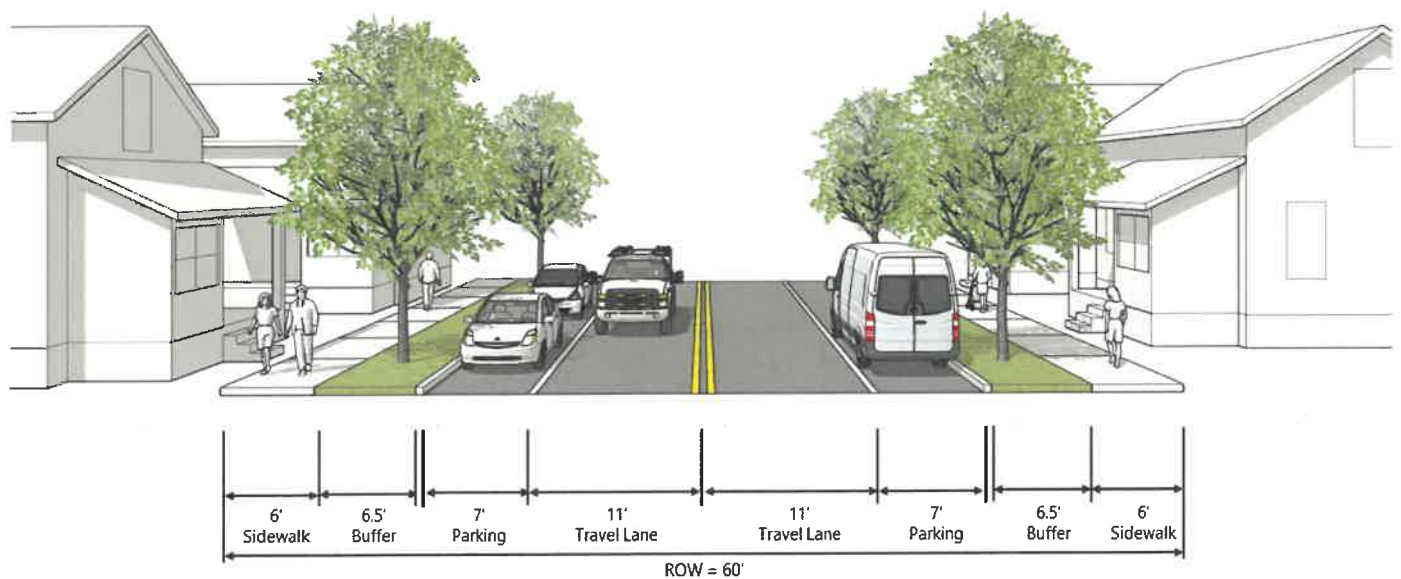


Figure 17. Collector: Typical Cross Section - Fully Improved

LOCAL

The proposed improvement standards options for local streets include a “Fully Improved” cross section and a “Yield Roadway” cross section. The application of Fully Improved or Yield Roadway for a local street depends on a range of factors such as surrounding land use context and roadway grade. The Fully Improved cross section includes curbs that may better facilitate stormwater management on roadways with steeper grades. The Fully Improved typical street design improvement standard is shown in Figure 18 and provides the fully improved standard that can be implemented on high-priority streets as funding becomes available.

Yield Roadways

Yield roadways are facilities designed for pedestrians, bicyclists, and motor vehicles to share the same travel area. Yield roadways enhance the livability, comfort, and vibrance of the neighborhood streetscape, balancing the competing needs between motor vehicles and people walking and biking. They are most appropriate where there is bidirectional motor vehicle traffic, no lane markings in the roadway travel area, low volumes, and low speeds. Parking can be provided on gravel or soil shoulders. The recommended traveled way width is 16 to 18 feet, with a minimum of 12 feet. Anything below 15 feet would operate as a two-way single-lane roadway. Oregon’s Neighborhood Street Design Standards⁸ provide guidance for implementing a facility like yield roadways.

The application of Fully Improved or Yield Roadway for a local street depends on a range of factors such as surrounding land use context and roadway grade. The Fully Improved cross section includes curbs that may better facilitate stormwater management on roadways with steeper grades.

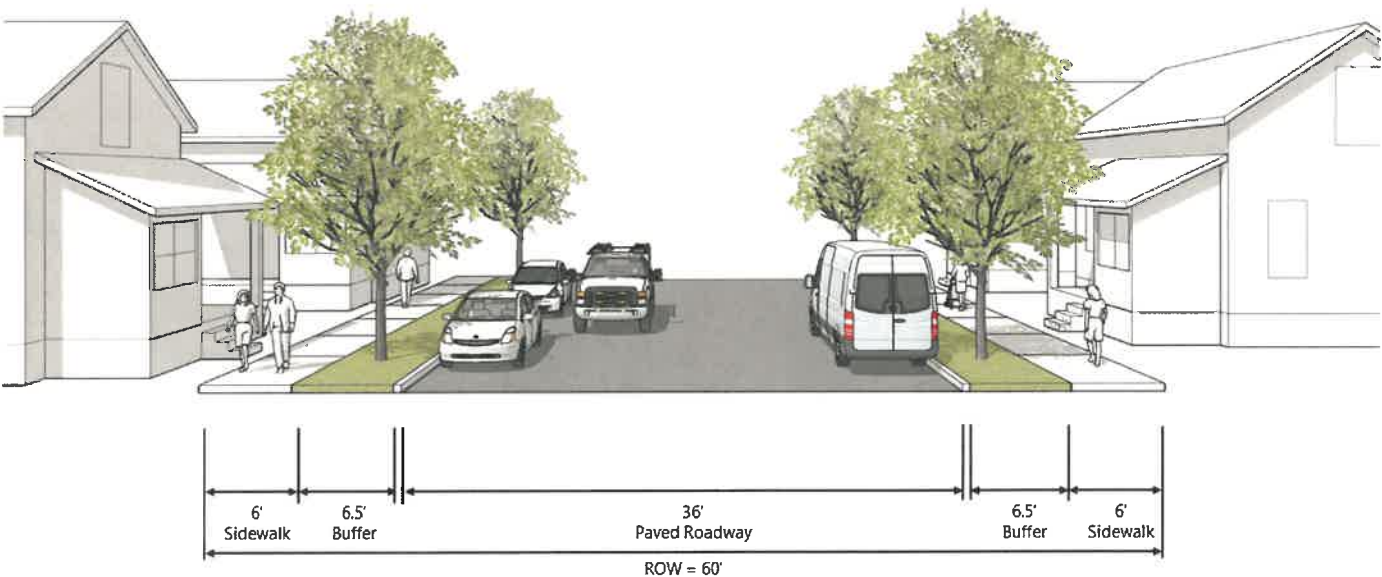


Figure 18. Local: Typical Cross Section – Fully Improved

⁸ Oregon Department of Transportation (2000). *Neighborhood Street Design Guidelines, An Oregon Guide for Reducing Street Widths*. https://www.oregon.gov/lcd/Publications/NeighborhoodStreetDesign_2000.pdf

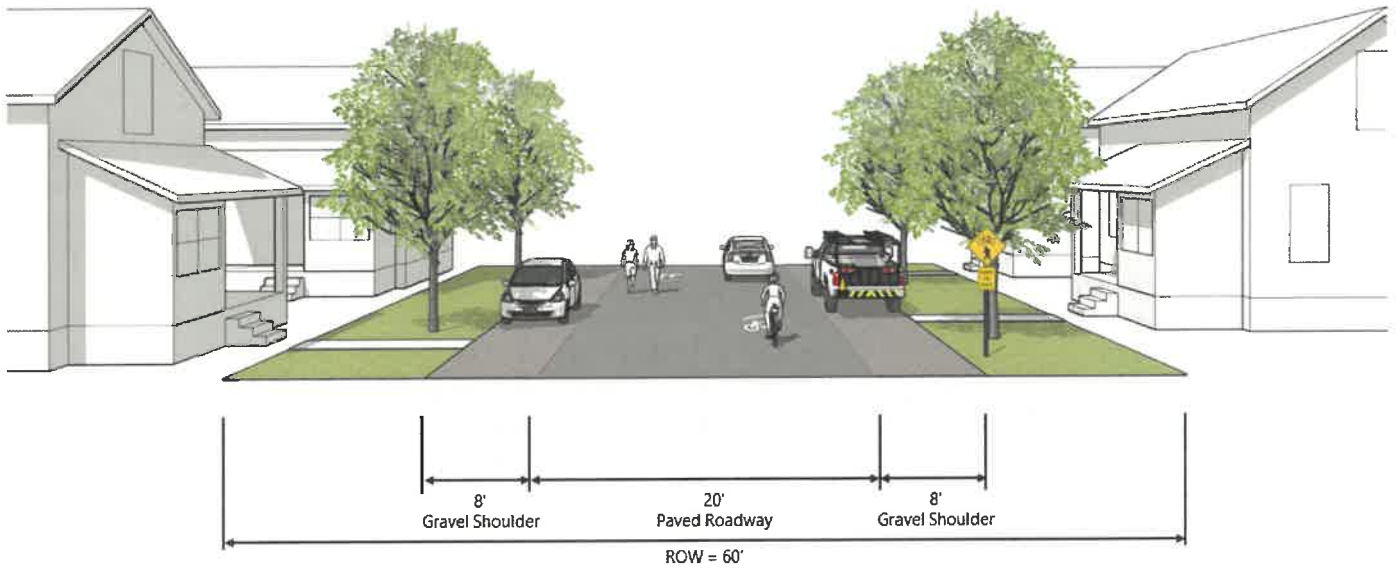


Figure 19. Local: Typical Cross Section – Yield Roadway

Alley

The Core Area of Maupin has a network of alleys that provide local access to residences. Figure 20 shows a typical cross section for alleys with 25 feet of right-of-way.

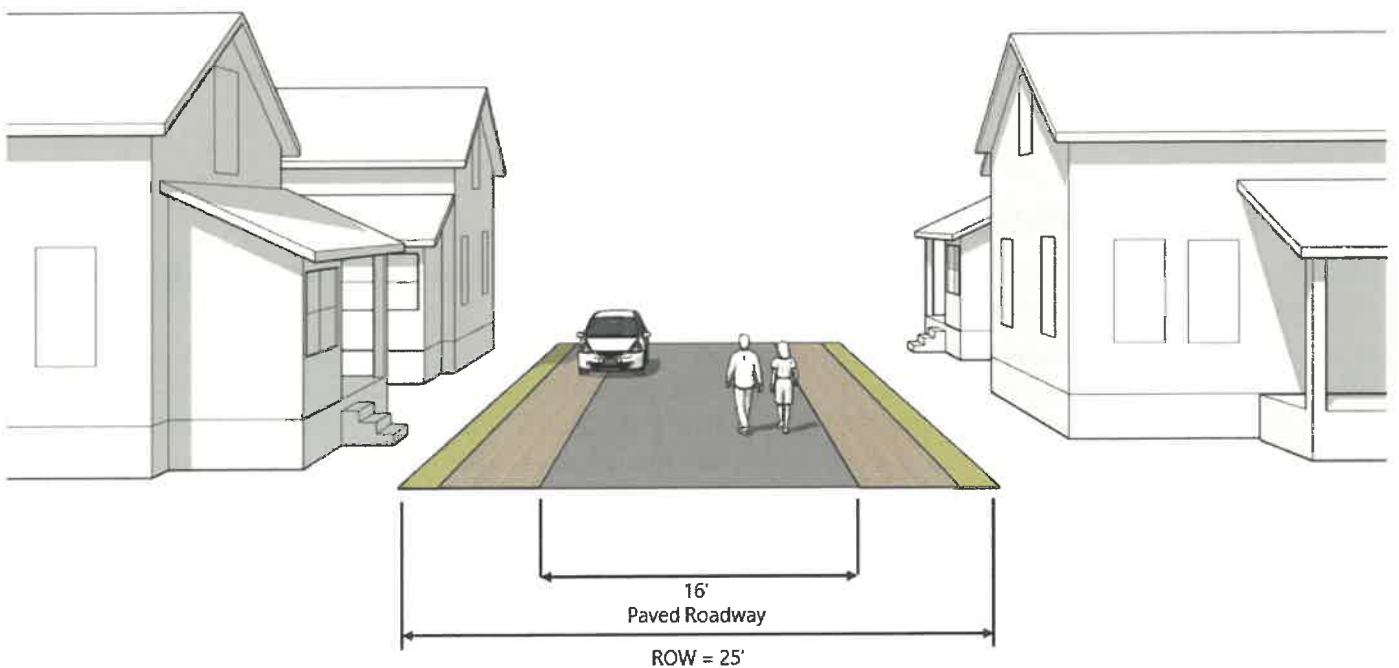


Figure 20. Alley: Typical Cross Section

Access Management Standards

As described previously, Highway 197 is designated as a Regional Highway in the Oregon Highway Plan and has an Average Annual Daily Traffic (AADT) range of approximately 1,001 to 2,500⁹. The posted speed on Highway 197 in Maupin varies from 25 to 55 mph. Posted speed information is illustrated in Figure 10.

OREGON ADMINISTRATIVE RULE (OAR) 734-051-4020

[OAR 734-051-4020](#) sets the standards and criteria for approval of private approaches. Based on the information described above and through coordination with ODOT's Access Manager, Table 3 of OAR 734-051-4020 (8) contains ODOT's access management standards for Highway 197 in Maupin. This is shown in Table 7 below.

Table 7: Access Management Spacing Standards for Highway Segments with Annual Daily Traffic <5,000, OAR 734-051-4020, Table 3

	Regional, District & Unclassified Highways	Statewide Highways	Statewide Highways	Statewide Highways
	Rural and Urban Areas	Rural Areas	Urban Areas	Unincorporated Communities in Rural Areas
Speed	Spacing (ft)			
55 or higher	650	1,320	1,320	1,320
50	425	1,100	1,100	1,100
40 & 45	360	990	360	750
30 & 35	250	770	250	425
25 & lower	150	550	150	350

OREGON ADMINISTRATIVE RULE (OAR) 734-051-5120

[OAR 734-051-5120](#) establishes the guidelines for closing an approach as part of the project delivery process associated with a Statewide Transportation Improvement Program (STIP) project.

As part of this process, an Access Management Strategy shall be developed during project delivery for modernization and highway improvement projects included in the STIP. Access Management Strategy as defined in the OAR means "a project delivery strategy developed by the Department of Transportation, in collaboration with cities, counties and owners of real property abutting a state highway in the affected area, that identifies the location and type of public and private approaches and other necessary improvements that are planned to occur primarily in the highway right of way and that are intended to improve current conditions on the section of highway by moving in the direction of the objective standards described in ORS 374.311, subject to safety and highway operations concerns."

⁹ AADT data provided on [ODOT TransGIS \(state.or.us\)](https://transgis.state.or.us/)

ODOT'S HIGHWAY DESIGN MANUAL

ODOT's HDM Section 500-1 provides guidance on recommended widths of private and public road approaches for state highways. According to the HDM, private approaches connect private property with a state highway across the highway right-of-way. Public approaches are at-grade intersections of public roadway right-of-way with a state highway.

Table 8 summarizes the typical throat width guidance based on land use type, approach peak hour, and approach style for private road approaches.

Table 8. Typical Private Approach Style and Width, Table 500-1, ODOT HDM

Land Type Use	Approach Peak Hour Volume	Approach Style	Typical Throat Width ¹
Single family (SF) residential ²	0 – 10	Dust Pan	16 ft
SF residential ²	11+	Dust Pan	24 ft
Multi-family (MF) residential	0 – 10	Dust Pan	16 ft
MF residential	11 – 150	Dust Pan	24 ft – 28 ft
MF residential	151 – 300	Dust Pan ³	36 ft – 40 ft
MF residential	301 – 399	Radius ⁴	Variable ⁵
MF residential	400+	Radius	Variable ⁵
Commercial	0 – 20	Dust Pan	24 ft
Commercial	21 – 150	Dust Pan	28 ft – 32 ft
Commercial	151 – 300	Dust Pan ³	36 ft – 46 ft
Commercial	301 – 399	Radius ⁴	Variable ⁵
Commercial	400+	Radius	Variable ⁵
Industrial		Dust Pan/radius ⁶	Variable ⁵
Special Uses ⁷		Radius	Variable ⁵

¹ The typical throat widths are only to be used as guides to the designer or permit specialist. The throat width needs to be checked to ensure traffic movements are accommodated acceptably.

² Generally, multiple single-family residences don't share a single approach unless they are on a public road.

³ The dust pan style designs are primarily to be used. However a radius style may be used if the traffic composition at the driveway contains a substantial number of recreational vehicles, buses, and single unit trucks, and the highway posted speed is greater than 35 mph, or access spacing each side is 660 feet or more.

⁴ The radius style design should generally be used. However, a dust pan style may be considered where the highway posted speed is 30 mph or less and access spacing is 165 feet or less.

⁵ The typical width is variable dependent upon approach style, design vehicle, and number of lanes.

⁶ Special care should be used when determining the appropriate style. Some industrial uses operate similar to commercial uses and should use commercial style approaches and dimensions. Heavy industrial/warehouse uses that serve significant truck volumes should use a radius style.

⁷ Special Uses include developments such as truck stops, amusement parks, stadiums, distribution centers, etc.

Bridge Improvements

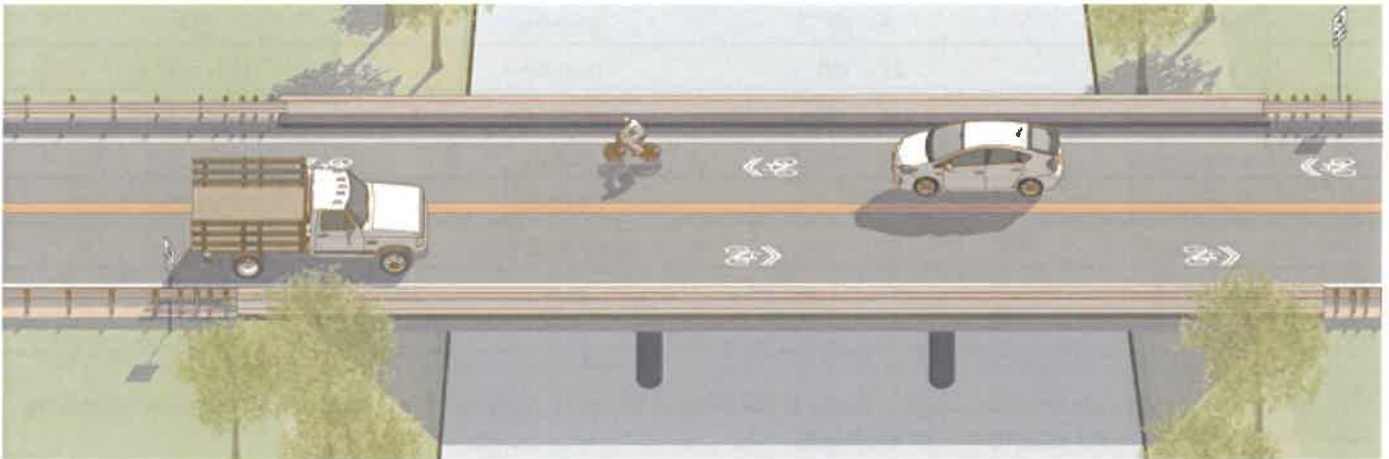
As the sole link between the Core and East areas of Maupin, the Highway 197 bridge must accommodate all modes of transportation. The Highway 197 bridge over the Deschutes River is under ODOT's jurisdiction and any bridge improvements are governed by ODOT's design standards outlined in the HDM, Bridge Design Manual (BDM), and other supporting guidance for state highways.

The existing sidewalk measures four (4) feet wide, necessitating people biking to share the roadway with motor vehicles. The HDM states that the minimum recommended sidewalk width on bridges is seven (7) feet to account for the shy distance from traffic and from the bridge rail, where people may feel uncomfortable walking so close because of the vertical drop. A minimum width of seven (7) feet also provides enough space for bicyclists to share the sidewalk with pedestrians (5-foot minimum) if they do not feel comfortable sharing the roadway with motor vehicles.

A complete reconstruction of the bridge to accommodate pedestrians and bicycle facilities is impractical in the near term. State and federal agencies have provided guidance for treatments to existing bridge structures that can be implemented to better serve non-motorized transportation. These treatments are described in the following sections.

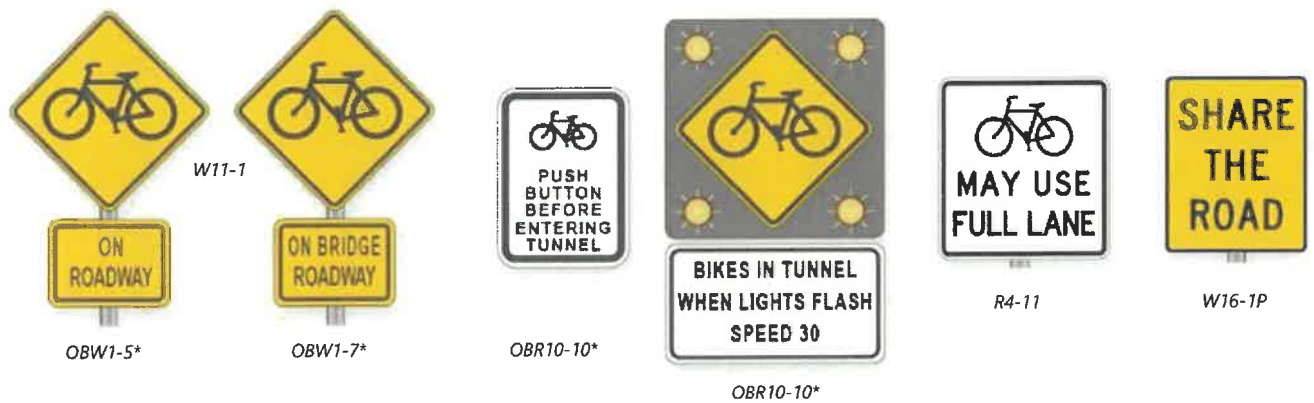
MARKINGS, SIGNS, AND BEACONS

Figure 21 displays potential treatments that can be implemented on an existing bridge structure to alert drivers to people biking on the bridge, including pavement markings ("sharrows"), advanced warning signage, and flashing beacons. Figure 22 shows examples of advance warning signage, including bicycle or pedestrian-activated flashing beacons.



Source: FHWA - Small Town and Rural Multimodal Networks

Figure 21. Example Markings, Signs, and Beacons on a Narrow Two-Lane Bridge

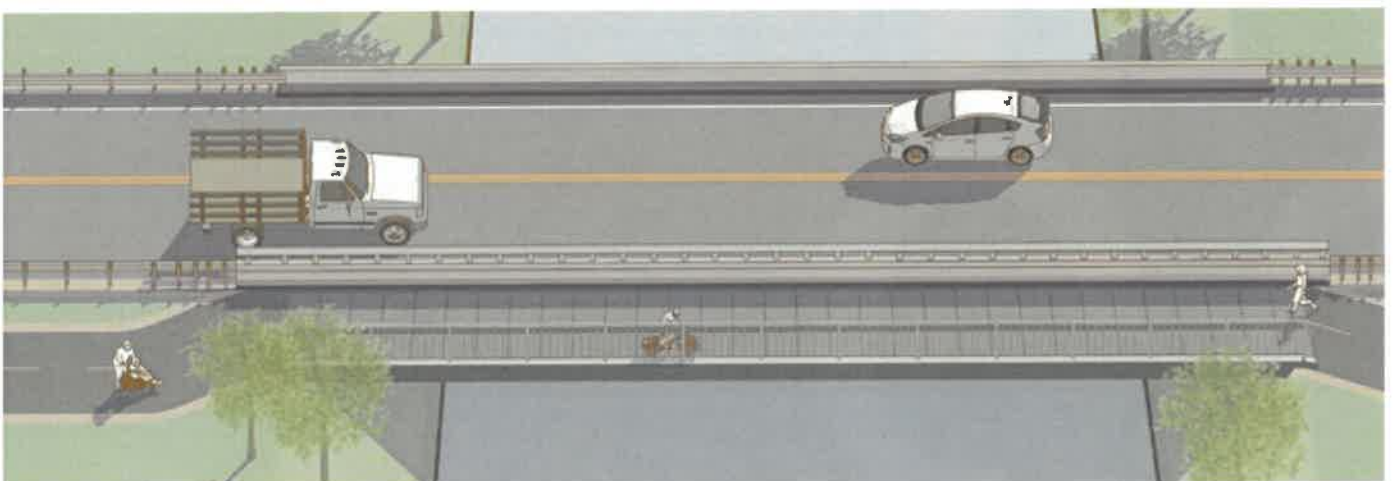


Signs indicated by an asterisk are special signs created by ODOT to guide cyclists along state and national touring routes. Standard details for these signs are provided by the ODOT Sign Policy & Guidelines (2023).

Figure 22. Examples of Advance Warning Signage (adapted from ODOT HDM Appendix L)

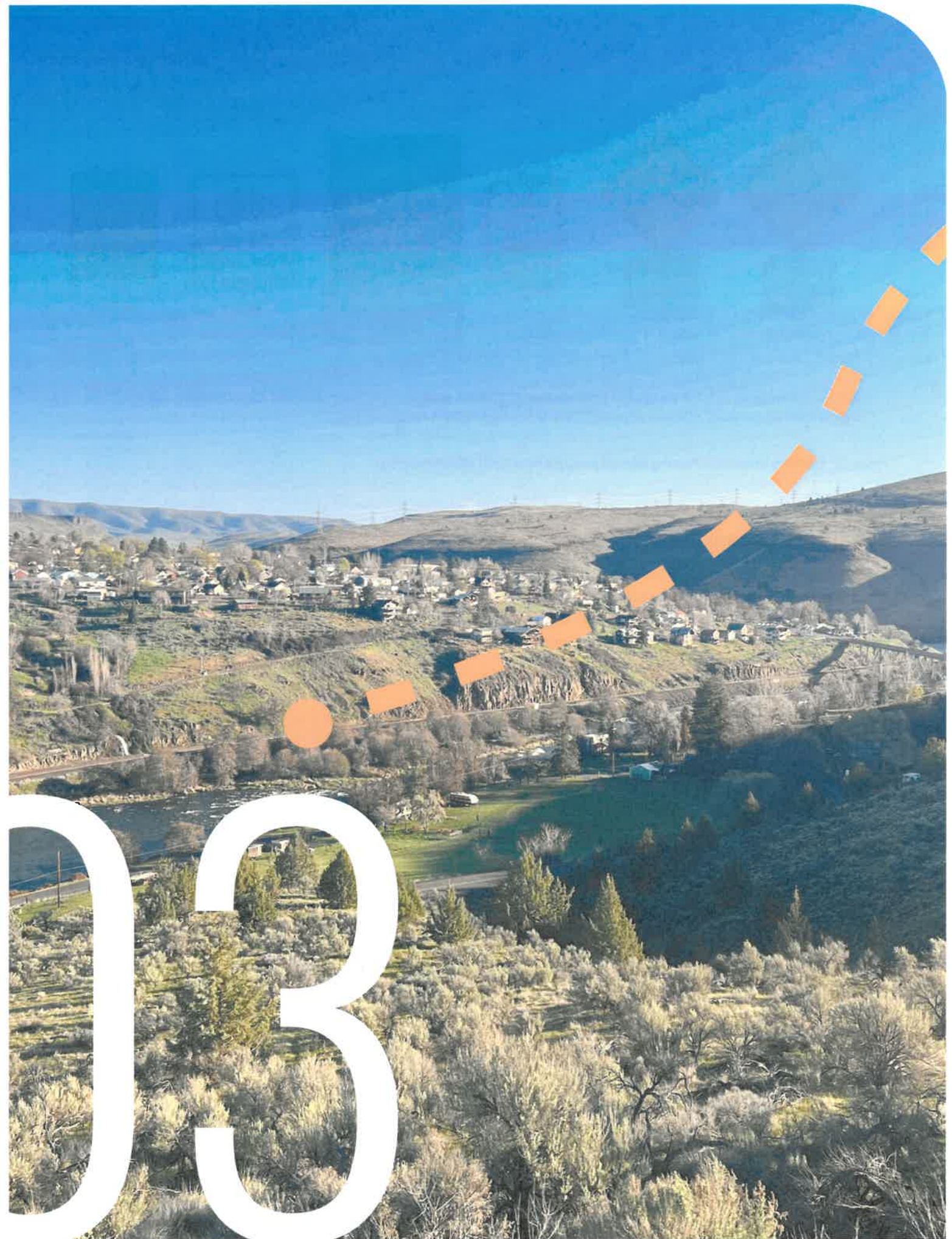
CANTILEVERED SIDEPATH

A cantilevered sidepath could be considered to provide space for people walking or biking without the need to reconstruct the entire bridge structure. The feasibility of a cantilevered sidepath should be further evaluated by the City and ODOT to ensure that the additional loading from cantilevering a sidepath would not compromise the structural sufficiency of the bridge. The design standards for sidepaths are provided in the Design Guidance for Pedestrian Facilities section. Figure 23 shows a cantilevered sidepath.



Source: FHWA - Small Town and Rural Multimodal Networks

Figure 23. Example Cantilevered Sidepath on a Narrow Two-Lane Bridge



03. RECOMMENDED PRIORITIZED PROJECTS

This section presents a list of improvement projects to address the identified needs of Maupin's transportation system as well as the needs identified by the PMT, AC, and the community to improve transportation facilities in Maupin. Table 9 summarizes the project name, description, type, and planning-level cost estimate. Table 10 provides approximate unit costs for traffic calming measures. Figure 24 illustrates the locations/extents of the recommended projects. Planning-level concepts for each project are provided in Appendix F. Detailed planning-level cost estimates are provided in Appendix G. The estimates do not include costs associated with right-of-way or easements.

For projects P-3 and P-6, approximate unit costs for traffic calming treatments are provided rather than a total cost due to uncertainty of exact quantities and types of treatments. Exact quantities and types of treatment will be refined and determined in future design phases.

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Table 9. Recommended Prioritized Projects

Project ID	Project Name	Description	Type	Planning-Level Cost Estimate (2024 Dollars)
P-1	Donkey Trail ¹	Paved shared use path from Water Avenue to 6th Street/Lincoln Avenue. Includes an enhanced crossing at Highway 197/Water Avenue with Rectangular Rapid Flashing Beacons (RRFBs).	Trail	\$630,000
P-2	Canyon Rim Trail – Water Avenue to 6th Street ¹	Gravel/soil trail that connects Water Avenue at Mountain Fir Park to Staats Avenue/Burnham Avenue.	Trail	See P-9: Trails/ Active Transportation Study.
P-3	Neighborhood Route ¹	Traffic calming on Staats Avenue from Burnham Avenue/Elrod Avenue to 4th Street, 4th Street from Staats Avenue to Lincoln Avenue, and Lincoln Avenue from 4th Street to 6th Street. Would connect the Canyon Rim Trail to the Donkey Trail trailheads.	Bicycle/ pedestrian	See Table 9.
P-4	Highway 197 from Staats Avenue to North Side of Deschutes River Bridge	Install sidewalks along both sides of Highway 197 between Elrod Avenue and the north side of the Deschutes River Bridge.	Pedestrian	\$510,000
P-5	Highway 197 from Water Avenue to Blue Rock Road	Install sidepath on north side of Highway 197 between Water Avenue at the Donkey Trail trailhead and Blue Rock Road. Implement a high visibility crosswalk at the intersection of Blue Rock Road/Highway 197.	Bicycle/ pedestrian	\$400,000
P-6	Burnham Avenue/Elrod Avenue	Install bicycle wayfinding signage, speed humps, bicycle wayfinding “sharrows,” and other spot specific traffic calming measures along the extent of Burnham Avenue/Elrod Avenue.	Bicycle/ pedestrian	See Table 9.
P-7	Deschutes Avenue at 6th Street Enhanced Crossing	Install new marked crosswalk on the west side of Deschutes Avenue at 6th Street; install advance warning signage; maintain and restripe diagonal parking on the east side of 6th Street adjacent to Kaiser Park; stripe parallel parking on the west side of 6th Street.	Bicycle/ pedestrian	\$16,000
P-8	Deschutes Avenue at 4th Street Enhanced Crossing	Install new marked crosswalk on the west side of Deschutes Avenue at 4th Street; stripe parallel parking on the west side of 4th Street north of Deschutes Avenue; maintain and restripe diagonal parking on the east side of 4th Street north of Deschutes Avenue; install parking wayfinding signage.	Bicycle/ pedestrian	\$20,000
P-9	Maupin Trails Plan	Consider a Trails Plan to identify and evaluate a recreational trails network in Maupin including a potential pedestrian/bicycle bridge over Deschutes River.	Trail	\$75,000 - \$150,000

¹More information on the recommended concepts of Loop Trail concepts are provided in the DTP.

Table 10. Approximate Unit Costs for Traffic Calming Treatments

Traffic Calming Treatment	Approximate Cost Estimate (2024 Dollars)
High-visibility crosswalks	\$3,000 ¹
Rubber armadillo curbs	\$50 per 3-foot curb
Wayfinding/advanced warning signage	\$300 per sign assembly
Speed humps	\$2,500 per hump

¹Includes costs of thermoplastic striping and advanced warning signage.

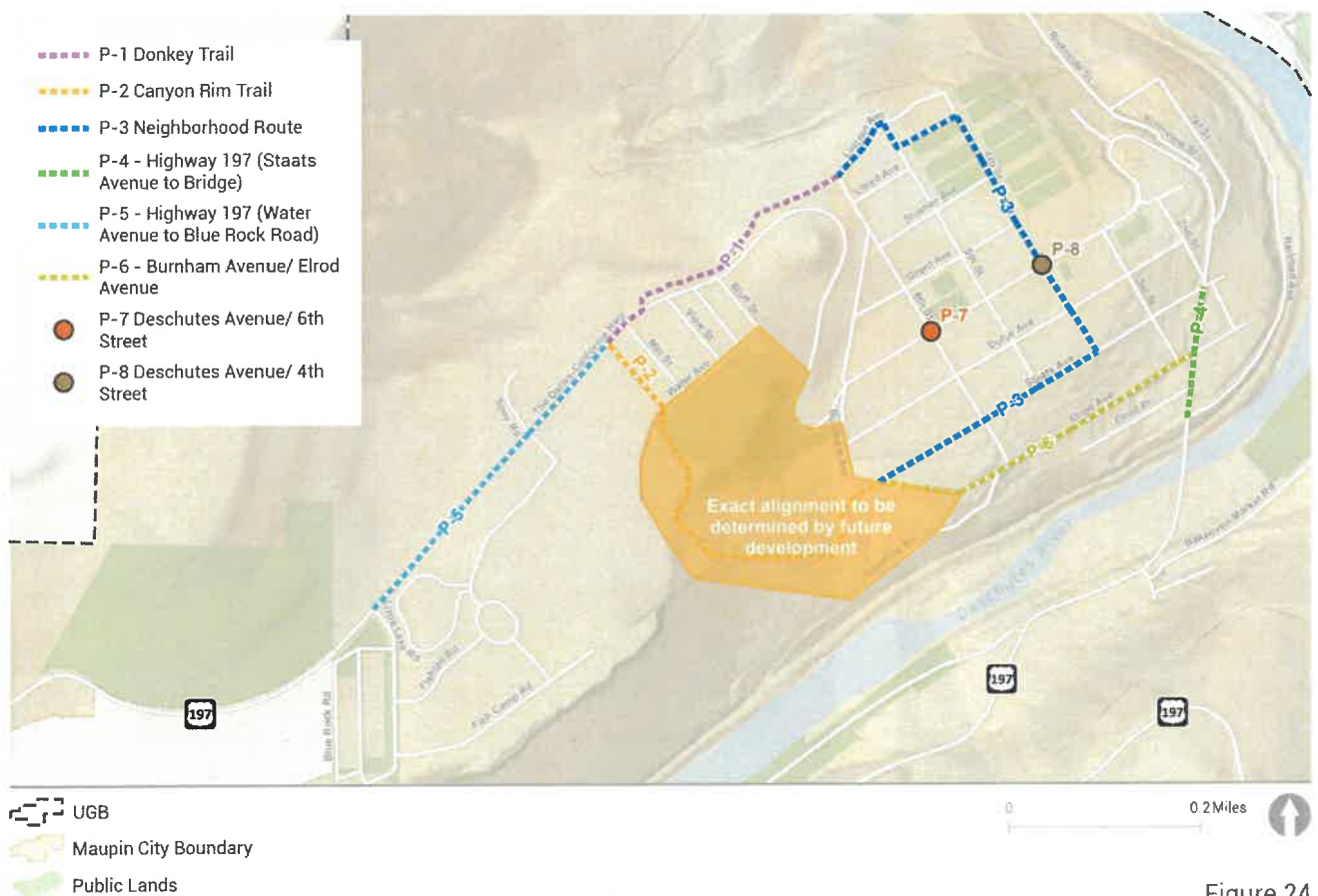


Figure 24

Figure 24. Proposed Projects

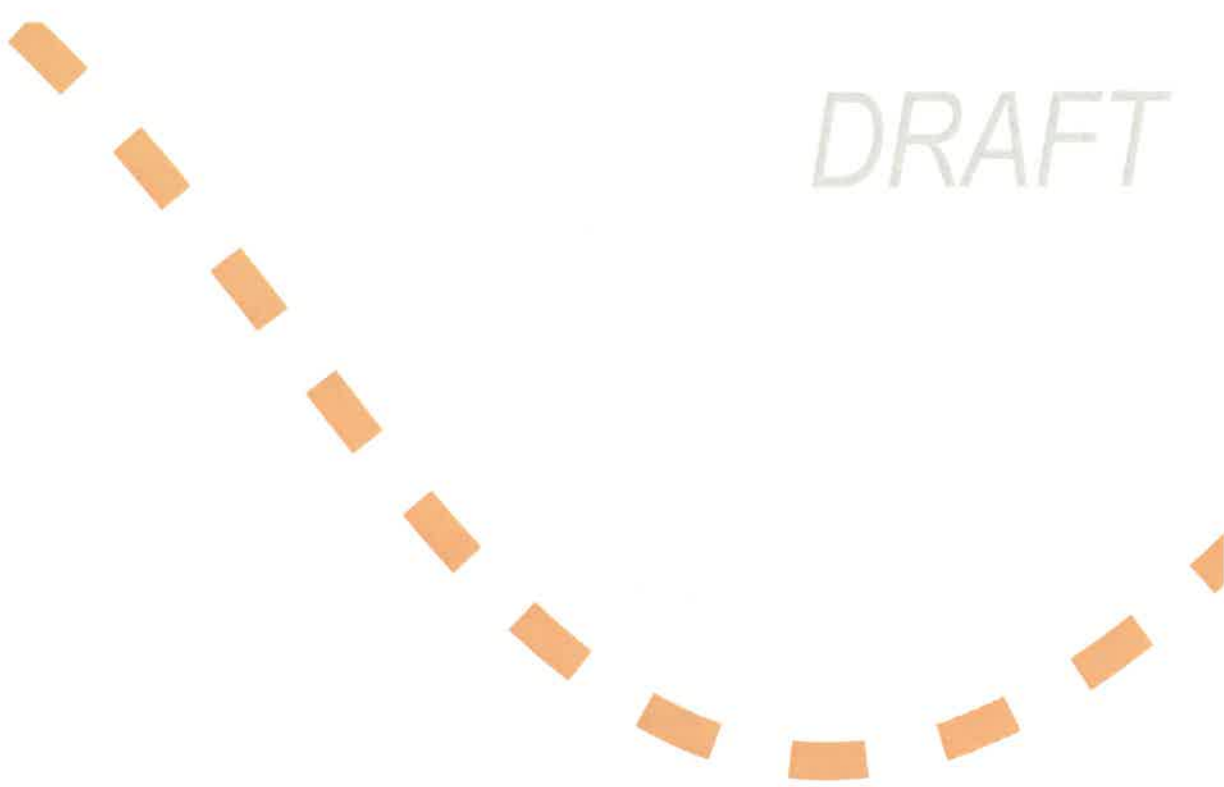
WEIGHT LIMIT
EMERGENCY
VEHICLES
3 AXLES 30T

NARROW
BRIDGE

TYGH VALLEY
THE DALLES
197
DESCHUTES RIVER
REC. AREA
CITY PARK



04



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04. FUNDING

Implementing the strategies and recommended prioritized projects as part of the SDSP is likely to come from a variety of funding sources, most notably local and federal grant opportunities. The City of Maupin will need to continue developing a strategy to fund the improvements identified in the SDSP.

Potential elements of this strategy are outlined in the following sections. In addition to the transportation specific funds described below, Maupin may also seek state and federal grant opportunities where transportation facilities are a secondary focus of the funds. For example, the Statewide Transportation Improvement Fund (STIF) is intended for improvements to transit services, but improvements to facilities that provide access to transit – such as sidewalks and bike lanes near bus stops – could also be eligible for funds.

LOCAL FUNDING MECHANISMS

Potential local-level funding sources summarized in Table 11 may be considered by the City of Maupin to adopt as new funding sources. Including this table in the SDSP does not create new funding sources but rather presents the various funding sources that local governments throughout Oregon have utilized. In general, local funding sources are more flexible than funding obtained from state or federal grant sources.

Table 11: Potential Local Funding Mechanisms

Funding Source	Description	Potential Application
Transportation Systems Development Charge (SDC)	SDCs are fees assessed to development for the capacity demand it creates on public infrastructure systems. SDCs may be an improvement fee, a reimbursement fee, or a combination thereof. Reimbursement fee revenues are dedicated to capital projects that increase capacity to meet the needs of growth. SDC credits are provided to developers for public improvements they construct which add capacity to the system beyond that required to serve their development. SDC credits may also be given for development provisions that reduce vehicular capacity demand on the transportation system, such as providing end-of-trip bike facilities within the new development.	SDCs may only be used for the portion of transportation improvements that generate additional capacity demand related to growth.
Public/Private Partnerships	Public/private partnerships have been used around the country to provide public transportation amenities within the public right-of-way in exchange for operational revenue from the facilities. These partnerships could be used to provide services such as EV charging stations, public parking lots, bicycle lockers, or car share facilities.	System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.
Hotel/Motel Taxes	Under state law, 70 percent of revenues from such taxes must fund programs boosting tourism. Many jurisdictions have hotel/motel taxes and could use a portion of the revenue for transportation investments.	Tourism, economic development, and sidewalk improvement programs.

STATE & FEDERAL GRANTS

In addition to local funding sources, the City of Maupin can seek opportunities to leverage funding from grants at the state and federal levels for specific projects. Table 12 outlines such sources and their potential applications. State and federal sources are limited and competitive; they also change regularly as new transportation legislation is passed or existing legislation is modified. Any future improvements that rely on state funding may require regional consensus that the needs of the City of Maupin are more important than needs elsewhere in the region and the state. Combining multiple funding sources to pay for a single improvement project (e.g., combining state and City funds for new shoulders, bike lanes, sidewalks, and sidepaths) will likely be necessary.

At the federal level, many new grant opportunities are available through the Infrastructure Investment and Jobs Act (IIJA), which expires in Fiscal Year 2026. Maupin and partner agencies should continue to monitor available funding opportunities through this program and similar programs that may follow.

Table 12: Potential State and Federal Funding Mechanisms

Funding Source	Description	Potential Application
State Funding Mechanisms		
Statewide Transportation Improvement Program (STIP)	STIP is the State of Oregon's four-year transportation capital improvement program. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP.
Transportation and Growth Management (TGM) Grants	TGM grants are planning grants administered by ODOT and awarded on an annual basis. They are generally awarded to projects that will lead to more livable, economically vital, transportation efficient, sustainable, and pedestrian-friendly communities. The grants are awarded in two categories: transportation system planning and integrated land use/transportation planning.	Transportation system plans and planning efforts that integrate land use and transportation.
All Roads Transportation Safety Program (ARTS)	The federal Highway Safety Improvement Program (HSIP) is administered as ARTS in Oregon. ARTS provides funding to infrastructure and non-infrastructure projects that improve safety on all public roads. ARTS requires a data-driven approach and prioritizes projects in demonstrated problem areas.	Areas of safety concerns within the city, consistent with Oregon's Transportation Safety Action Plan.
Immediate Opportunity Fund (IOF)	The IOF is discretionary and provides funding for transportation projects essential for supporting site-specific economic development projects. These funds are distributed on a case-by-case basis in cooperation with the Oregon Economic and Community Development Department. These funds can only be used when other sources of financial support are insufficient or unavailable. These funds are reserved for projects where a documented transportation problem exists or where private firm location decisions hinge on the immediate commitment of road construction. A minimum of 50 percent match is required from project applications.	Any identified projects that would improve economic development in the city and where there are documented transportation problems.
Connect Oregon	Lottery-backed bonds distributed to air, marine, and rail projects statewide. No less than 10 percent of Connect Oregon funds must be distributed to each of the five regions of the state, if there are qualified projects in the region. The objective is to improve the connections between the highway system and other modes of transportation.	System-wide transportation facilities.

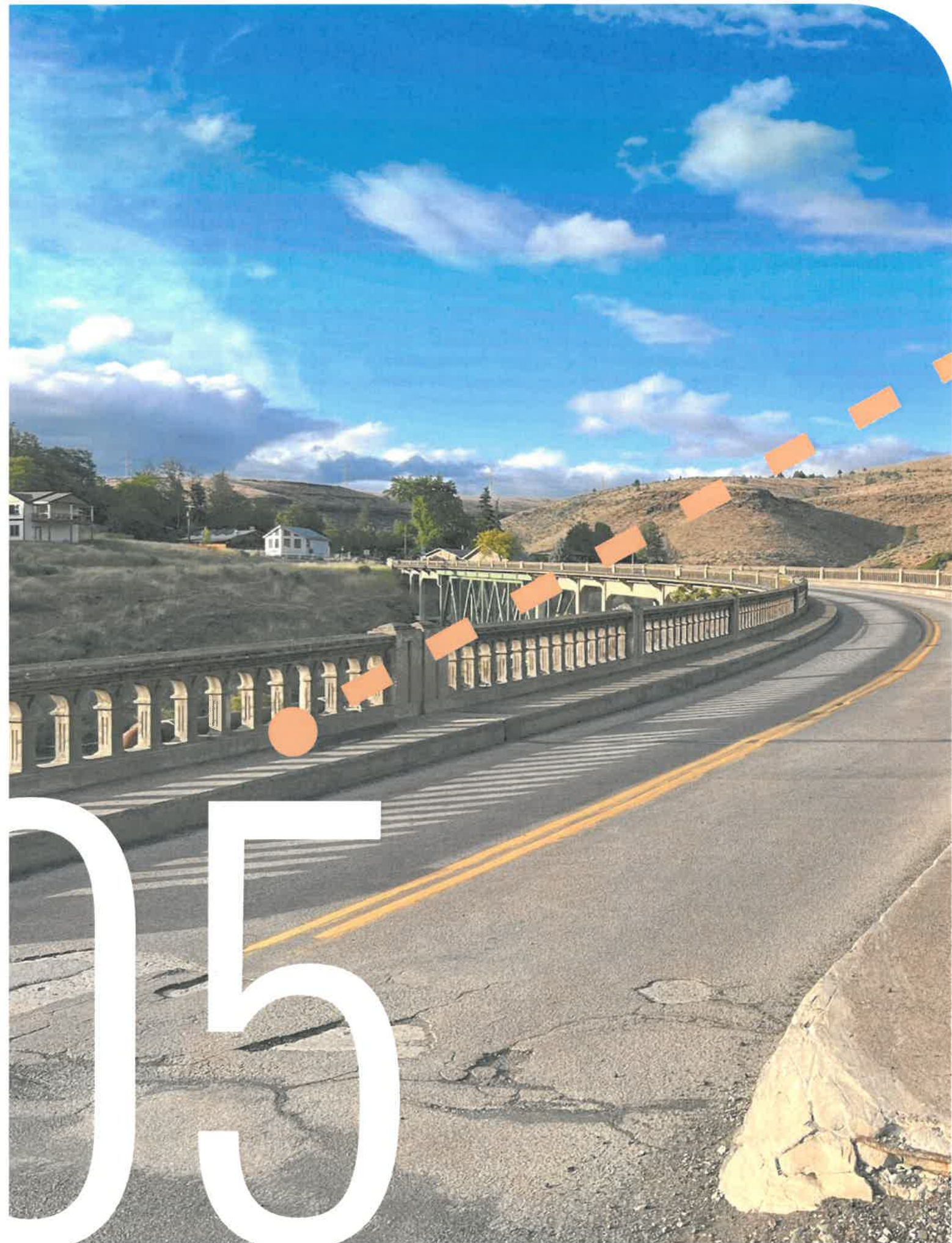
Funding Source	Description	Potential Application
Oregon Parks and Recreation Local Grants	Oregon Parks and Recreation Department administers this program using Oregon Lottery revenues. These grants can fund acquisition, development, and major rehabilitation of public outdoor parks and recreation facilities. Local match is required.	Trails and other recreational facility development or rehabilitation.
Oregon Transportation Infrastructure Bank (OTIB)	A statewide revolving loan fund is available to local governments for many transportation infrastructure improvements, including highway, transit, and non-motorized projects. Most funds made available through this program are federal; streets must be functionally classified as a major collector or higher to be eligible for loan funding.	Infrastructure improvements to major collectors or higher classified roads for vehicle, transit, and non-motorized travel.
State Highway Fuel Tax Increase or User Fee	ODOT is currently researching a state user fee for drivers to address steady or declining state gas tax revenues. An increase in the state gas tax or a user fee would need to pass through state legislation and would increase the state's transportation funds.	System-wide transportation facilities including streets, sidewalks, bikeways, and transit.
Multimodal Active Transportation Fund	This fund invests in multimodal transportation infrastructure improvements across Oregon.	Pedestrian and bicycle-related projects.
Safe Routes to School (SRTS)	SRTS, administered by ODOT, focuses on infrastructure and non-infrastructure programs to improve access and safety for children to walk, roll, and/or bike to school.	Pedestrian and bicycle-related projects within the vicinity of local schools.
Oregon Community Paths (OCP)	This State of Oregon program combines funds from the Multimodal Active Transportation Fund, Oregon Bicycle Excise Tax, and federal Transportation Alternatives Program to help communities create and maintain connections with primarily off-street pedestrian and bicycle facilities.	Off-street pedestrian and bicycle facilities (primarily).
Carbon Reduction Program (CRP)	The Carbon Reduction Program (CRP), administered by ODOT, provides funding for projects that reduce greenhouse gas emissions from transportation.	Examples include pedestrian, bicycle, transit, energy-efficient street lighting and traffic control devices, or public electric vehicle charging projects.
ODOT Bridge Program	ODOT's Bridge Section coordinates selection and funding of Federal Highway Bridge Program bridges through the Local Agency Bridge Selection Committee, a committee of city, county, and state representatives. Local agency bridges are prioritized using a Technical Ranking System and selected in categories of Large (30,000+ square feet of deck area), Small On-System, and Small Off-System.	Bridges.
ODOT Emergency Operations Program Funding	A federal program that provides emergency funding for repair or reconstruction of highways and roads damaged during natural disasters or catastrophic failures. ODOT's Maintenance and Operations Branch administers the Emergency Operations Program and can help local agencies navigate the Emergency Repair process.	Highway and bridge repair from natural disasters or catastrophic failures.
Transportation Options	The TO program focuses on implementation of the Oregon Transportation Options Plan, including managing demand across the transportation system; educating students and the public on travel options and how to safely use them; connecting veterans, low-income populations, communities of color, and others with ways to get to and from work or school; supporting vanpooling; and more.	Projects supporting implementation of the Oregon Transportation Options Plan.

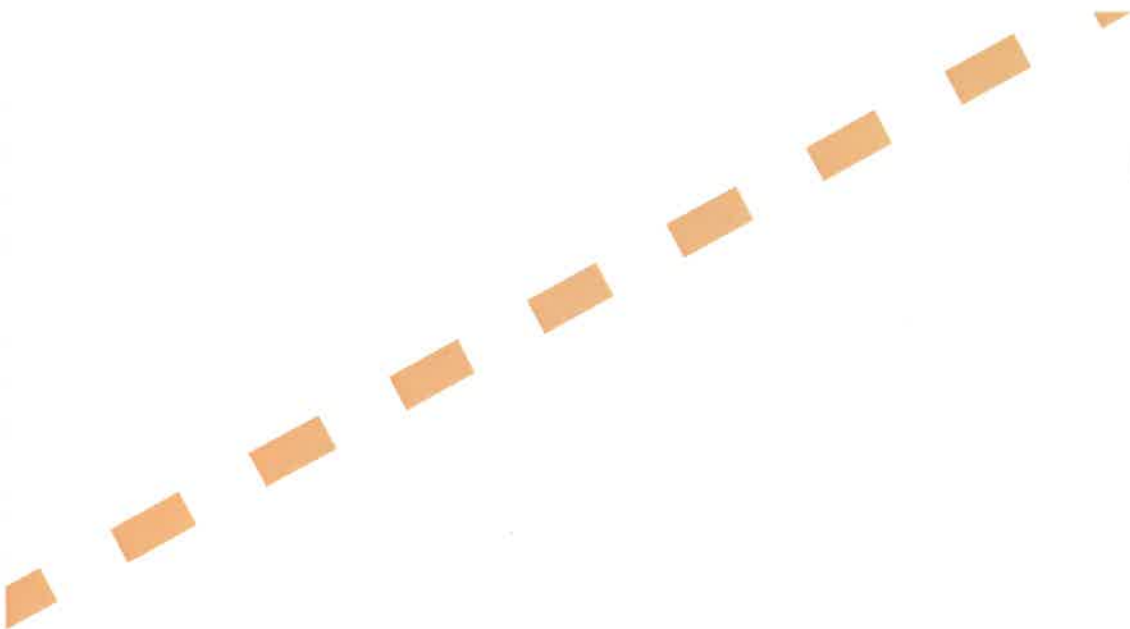
Funding Source	Description	Potential Application
Statewide Transportation Improvement Fund (STIF) and Public Transportation Funds	STIF is a newer dedicated source of funding under Section 122 of the House Bill (HB) 2017 Transportation Funding Package for improving or expanding public transportation service in Oregon.	Pedestrian and bicycle improvements that provide connections to transit.
Bicycle Bill	When roads are constructed or reconstructed, Oregon law requires walkways and bikeways to be provided. Additionally, all agencies receiving State Highway Funds are required to spend at least 1% of those funds on bicycle and/or pedestrian infrastructure improvements (ORS 366.514). Currently, cities and counties receive 20 percent and 30 percent of the state's highway trust funds, respectively, which can be used for walking and biking projects along roads.	Bicycle and pedestrian projects.
Sidewalk Improvement Program (SWIP)	ODOT's SWIP builds pedestrian and bicycle facilities on state roads and local roads that help people moving across or around the state system.	Bicycle and pedestrian projects.
Small City Allotment Program	Incorporated cities with populations of 5,000 or less are eligible to apply for ODOT's Small City Allotment (SCA) program. SCA funds can be used for local transportation projects on streets that are "inadequate for the capacity they serve or are in a condition detrimental to safety" (ORS 366.805).	Improvements to local streets that address capacity or safety issues.
Innovative Mobility Program	The Innovative Mobility program is a new ODOT initiative that aims to increase access to public and active transportation, reduce the number of drive-alone trips, and reduce greenhouse gas emissions. Eligible projects include studies assessments, and implementation strategies; new shared mobility services and/or improvements to existing services; minor infrastructure projects supportive of active and public transportation; outreach and education efforts; and special events.	Minor infrastructure projects supportive of active and public transportation.
Safe Route to School (SRTS) Surface Treatments Grants	Communities with completed SRTS Plans (or the equivalent) can apply for funding from the SRTS Surface Treatments program for design and installation of easy-to-install, low-cost infrastructure projects such as restriping crosswalks, painted curb extensions, and flexible posts within a 2-mile radius of schools.	Quick-build bicycle or pedestrian projects.
Various Public or Private Grant Programs	Many public and private grant programs exist, such as People for Bikes, that offer funding support for transportation infrastructure. New such grant programs are formed often and should be regularly tracked by the City.	Various depending on the grant program.
Federal Funding Mechanisms		
Infrastructure Investment and Jobs Act (IIJA)	The IIJA (aka "Bipartisan Infrastructure Law," BIL) signed into law in November 2021 includes a five-year (FY 2022-26) reauthorization of existing federal highway, transit, safety, and rail programs as well as new programs (resilience, carbon reduction, bridges, electric vehicle charging infrastructure, wildlife crossings, and reconnecting communities) and increased funding. Oregon will receive over \$4.5 billion over the next five years.	Projects around the state that will benefit drivers, transit riders, cyclists, and pedestrians, and that help maintain roads and bridges, and address climate change.
Infrastructure for Rebuilding America (INFRA)	INFRA (known statutorily as the Nationally Significant Multimodal Freight & Highway Projects) awards competitive grants for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas.	Projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.

Funding Source	Description	Potential Application
Active Transportation Infrastructure Investment Program (ATIIP)	The ATIIP is a competitive grant program created to provide safe and connected active transportation facilities in active transportation networks or active transportation spines, improving quality of life in local communities.	Focused planning and construction of bicycle, pedestrian, and roadway projects.
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	The RAISE Discretionary Grant program invests in road, rail, transit, and port projects that will improve safety; environmental sustainability; quality of life; mobility and community connectivity; economic competitiveness and opportunity including tourism; state of good repair; partnership and collaboration; and innovation. RAISE can provide capital funding directly to any public entity, including municipalities, counties, port authorities, tribal governments, MPOs, or others in contrast to traditional Federal programs which provide funding to very specific groups of applicants (mostly State DOTs and transit agencies).	Road, rail, transit, and port projects aimed toward national objectives with significant local or regional impact.
National Highway Performance Program (NHPP)	The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.	NHS roads and bridges (and non-NHS bridges so long as bridge condition provision requirements are satisfied).
Highway Safety Improvement Program (HSIP)	The HSIP is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.	Safety projects.
Bridge Investment Program (BIP)	The BIP is a competitive, discretionary program that focuses on existing bridges to reduce the overall number of bridges in poor condition, or in fair condition at risk of falling into poor condition. It also expands applicant eligibilities to create opportunity for all levels of government to be direct recipients of program funds. Alongside states and federal lands management agencies, metropolitan planning organizations and local and tribal governments can also apply directly to FHWA, making it easier to advance projects at the local level that meet community needs.	Existing bridge projects.
Transportation Alternatives (TA)	The BIL continues the TA set-aside from the STBG program. Eligible uses of the set-aside funds include all projects and activities that were eligible under the previous spending bill. This encompasses a variety of smaller-scale transportation projects.	Pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.
Federal Lands Access Program (FLAP)	The FLAP was established to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.	Projects accessing high-use Federal recreation sites or Federal economic generators.

Funding Source	Description	Potential Application
Congressionally Directed or Discretionary Funds	Congressionally Directed funds may be received through either highway program authorization or annual appropriation processes. These funds are generally described as “demonstration” or “earmark” funds.	Highway freight projects on the National Highway Freight Network, NHS highway/bridge projects/ project in National Scenic Areas, freight rail/intermodal/port projects, rail-highway grade crossings or grade separation projects.
National Highway Freight Program (NHFP)	The NHFP was created by the FAST Act to invest in freight projects on the National Highway Freight Network. This program is apportioned to States by formula and a State must have had a freight plan in place beginning FY 2018 in order to receive formula funding.	Construction, operational improvements, freight planning, and performance measures.







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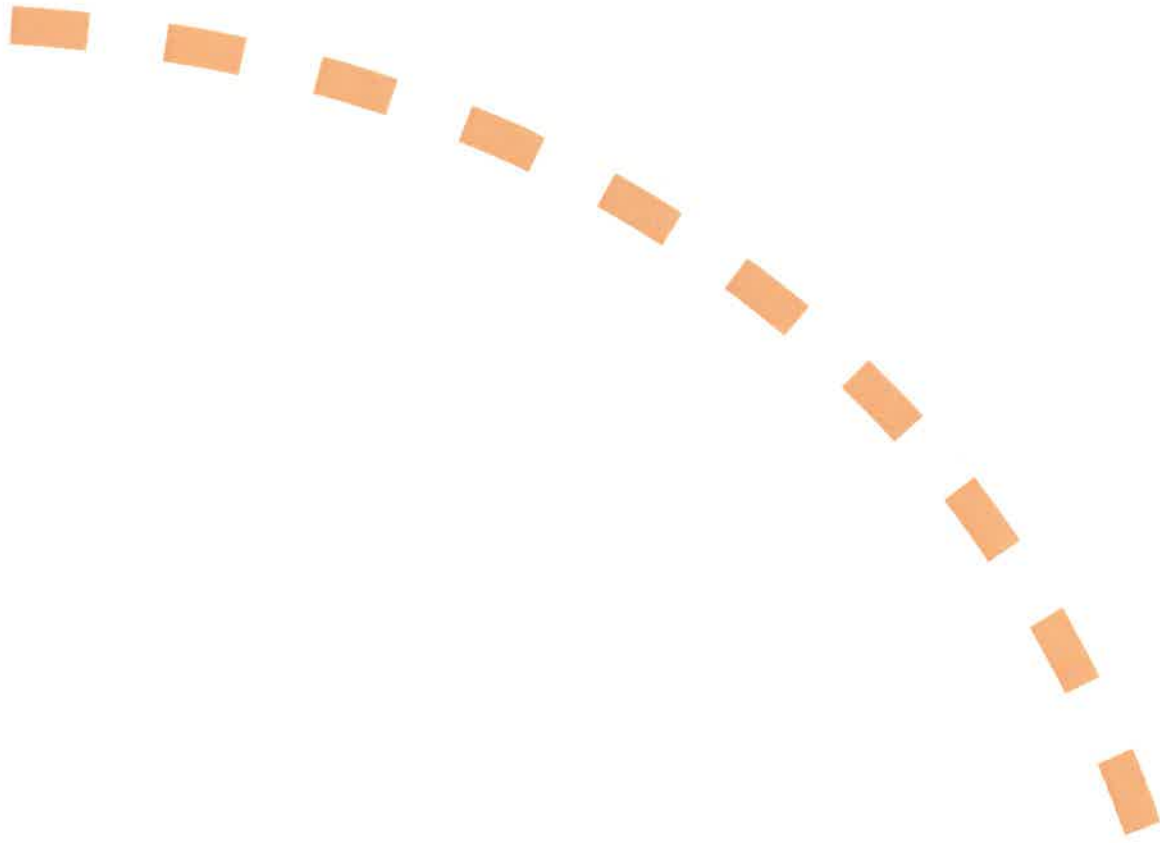
05. IMPLEMENTATION

To implement the recommended street design standards and transportation improvement projects identified in this SDSP, the City may need to amend land use policies that guide transportation-related activities related to development. These include the Comprehensive Land Use Plan, the Zoning Ordinance, and the Subdivision Ordinance. The proposed amendments for these documents are provided in the Implementation Measures memorandum (Appendix H).

A blue rectangular sign with a white border. It features a circular logo for 'CITY OF MAUPIN INC. 1922' at the top. Below the logo, it says 'City Park 541.395.2252' and 'City Hall 541.395.2698'. The main text reads 'MAUPIN CITY PARK' in large, bold, black letters, followed by 'Cityofmaupin.org/city-park/'. Below this is 'OVERFLOW PARKING AREA' in red, bold, sans-serif capital letters. A section titled 'OVERFLOW PARKING FEES' contains a table with parking fees. To the right of the table is a QR code. Below the table is 'REGISTER AT OFFICE' in red, bold, sans-serif capital letters. Further down, it states 'ALL UNREGISTERED VEHICLES WILL BE TOWED & IMPOUNDED AT OWNERS EXPENSE BY: BARNETT'S TOWING · DESCHUTES AVENUE · MAUPIN, ORE' and '541-395-2543'. At the bottom, it says 'MAUPIN CITY ORDINANCE #139' and 'ALL FUNDS COLLECTED ARE USED TO OFFSET COSTS AND PROVIDE IMPROVEMENTS TO MAUPIN CITY PARK'. The sign is decorated with orange dashed lines and a large white number '00' in the bottom left corner.

OVERFLOW PARKING FEES	
SINGLE VEHICLE	\$10.00
VEHICLE WITH TRAILER	\$15.00
BUS	\$25.00

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06. APPENDICES

APPENDIX A. MEMORANDUM #1: PLAN, POLICY, & EXISTING CONDITIONS

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APPENDIX B. PUBLIC INVOLVEMENT PLAN

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APPENDIX C. PUBLIC EVENTS SUMMARY

MAUPIN STREET DESIGN STANDARDS PLAN AND DONKEY TRAIL PLAN – INTERACTIVE MAP COMMENTS

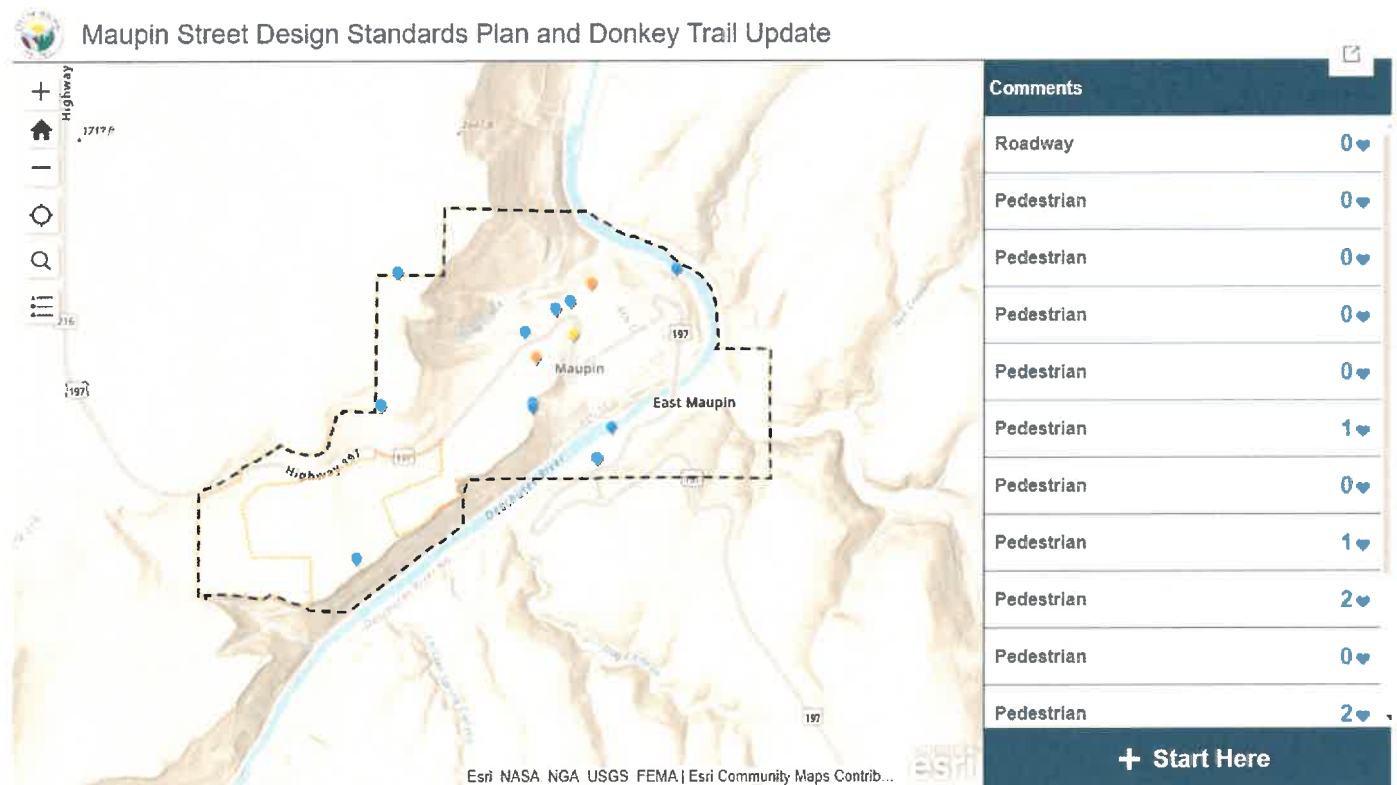


Figure C.1 Interactive Map Comments

Table C.1 Interactive Map Comments

Comment #	Category	Comment
1	Roadway	Lloyd Avenue on the map is incorrectly rendered and labeled, the northernmost portion to where it connects to the Donkey Trail is Lincoln Ave. Lincoln Avenue extends up the donkey trail for 100-150 feet.
2	Pedestrian	This marks the end of Lincoln Avenue and the beginning of the Donkey Trail (private land/old roadbed).
3	Pedestrian	Add a trail that connects "downtown" with the new development up on the top flat. Make it so those residents can walk to downtown Maupin along a lovely bluff side trail
4	Pedestrian	Create a trail that starts at the "Donkey trail" and heads down then up the ridge and ends with a VIEW OF MT HOOD. It would be rad to make it so those of us stuck down in the gorge can do a short hike to take in a view of Mt Hood
5	Pedestrian	River front trail! Make a nice and long as possible trail that parallels the river front property.
6	Pedestrian	East Maupin river access. Make it easy to walk down to the river to access more trails. Many people eating at Riverside or staying at Oasis may want to go for a river walk
7	Pedestrian	This is a great bluff and would make a really nice hiking trail from town.
8	Pedestrian	Can the Mt Hood view trail traverse the bluff then come back down and connect with the Donkey trail? Make it a loop?
9	Pedestrian	Can we bring a trail down to the river on this side or does having the railroad present mean we are complete blocked out from accessing the river on this side? That would suck. We should be able to walk "down the hill" and give people access to the river
10	Pedestrian	It would be great for livability and interconnectedness to link Uptown, East and West Maupin with safe, family and pet friendly pedestrian pathways. Love the idea of connecting Mountain Fir Park with downtown as a priority.
11	Pedestrian	The roads in an around Maupin are great for walking, driving and bicycling. The streets feel safe and of a good scale. A focus of resources on pedestrian/bike only paths and trails would enhance the Maupin experience.
12	Pedestrian	The "Donkey Trail" has always been East of the zoned industrial land. I would think it cost effective to keep that as the trailhead.

APPENDIX D. DESIGN GUIDANCE FOR PEDESTRIAN FACILITIES

PEDESTRIAN FACILITIES

The range of facilities that could be appropriate for Maupin are summarized in Table D.1. The appropriate pedestrian facility for a location is context specific. Considerations such as adjacent land use, connecting land uses, utility of the facility (i.e., recreational facility vs. facility connecting essential destinations) are important to the decision-making process. All walkways and crossings must be accessible to all people, including people with disabilities. Accessibility standards are established by the Public Right-of-Way Accessibility Guidelines (PROWAG), which supports implementation of the Americans with Disabilities Act (ADA) and includes guidance for sidewalks, pedestrian street crossings, pedestrian signals, and other facilities for pedestrians.

Table D.1 Design Guidance for Pedestrian Facilities

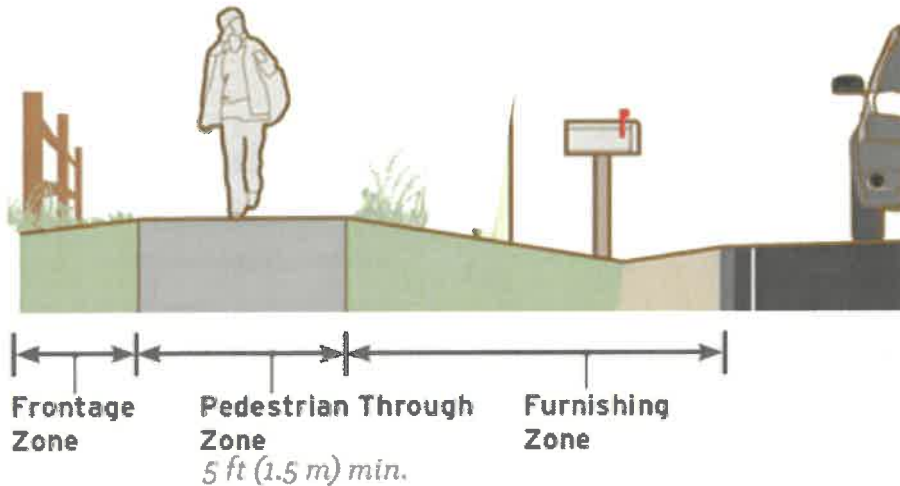
Facility Type	Total Width		Buffer from Roadway	
	Minimum	Ideal	Minimum	Ideal
Sidewalk	6 ft ¹	≥6 ft ¹	2 ft	4 ft
Shared use path ²	8 ft	12-14 ft	-	-
Sidepath ²	8 ft	10 ft	5 ft	6.5 ft – 20 ft
Pedestrian lane	5 ft	8 ft	0 ft	4 ft
Paved Shoulders ²	4 ft	5 ft – 8 ft	0 ft	1.5 ft – 5 ft
Trails	See Table D.7, Design Guidance for Trails			

¹ Does not include width for Frontage or Furnishing Zones (see Sidewalks section in Design Guidance for Pedestrian Facilities). Pedestrian Through Zone minimum on bridges is 7 feet per the Oregon HDM. Figure D.1 shows widths for the Furnishing Zone.

² Shared use paths, sidepaths and paved shoulders are shared facilities for people walking and biking. They are only included in the Design Guidance for Pedestrian Facilities but can be considered as both pedestrian and bicycle facilities.

SIDEWALK

Sidewalks are paved pedestrian facilities located immediately adjacent to the roadway, separated by a curb. In addition to the space dedicated to people walking or using mobility devices, sidewalks can include space for landscaping, street furniture, or utilities like trash cans and street lighting. These areas encourage a welcoming streetscape and enhance the walking environment. Figure D.1 shows the recommended dimensions for a sidewalk.



Where to Use Sidewalks

Speeds: Low to moderate speeds

Volumes: Low to moderate volumes

Land Use: Local, collector, and arterial streets connecting major destinations.

Figure D.1 Recommended Sidewalk Design

Benefits

- Provides a designated pedestrian space that is raised above motor vehicles on curbed areas.
- Enhances the urban environment when paired with buffering and streetscaping.
- Can be implemented along the existing roadway network where right-of-way is available.
- Can be paired with enhanced crossing treatments to connect sidewalks on opposite sides of the roadway.
- Benefits to stormwater drainage.

Considerations

- Curb-tight sidewalks are perceived as high level of stress facilities when adjacent to high-speed and/or high traffic roadways.
- The pedestrian walking area should be kept clear of utilities such as sign posts, lighting, trash cans, and fire hydrants.

Design standards for sidewalks are provided in Table D.2. Sidewalks include three distinct zones that serve different uses. The Frontage Zone is the area between the property line and the walking area, providing space for people to enter and exit buildings. The Pedestrian Through Zone is a clear space for people to walk or use mobility devices and should not include any utilities or other obstructions. The Furnishing Zone is the area between the Walking Zone and the roadway and provides space for street features like lighting, trash receptacles, signs, mailboxes, and other utilities.

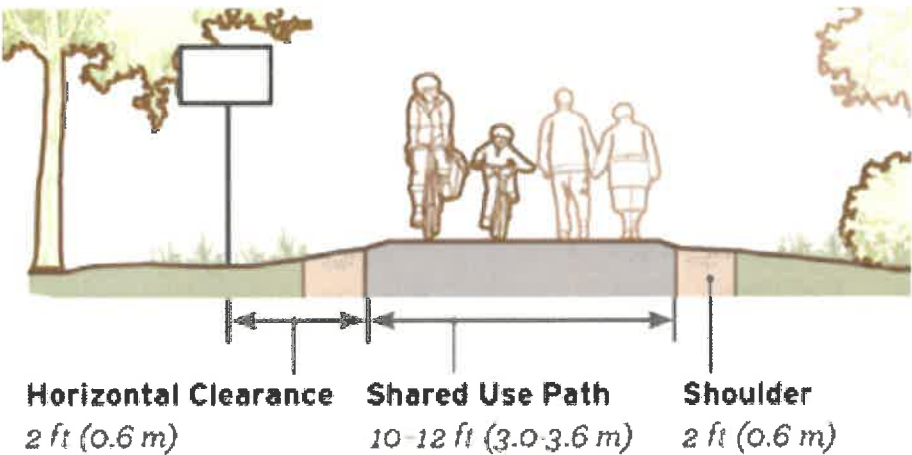
Table D.2 Design Guidance for Sidewalks

Facility Type	Frontage Zone		Pedestrian Through Zone		Furnishing Zone		Total Width	
	Minimum	Ideal	Minimum	Ideal	Minimum	Ideal	Minimum	Ideal
Sidewalk	1 ft	≥ 2 ft	6 ft	6-8 ft	2 ft	≥ 4 ft	8 ft	≥ 12 ft

SHARED USE PATH

Shared use paths are separate from the roadway network and can provide alternate paths for people walking or biking. These paths can provide more efficient routes for people walking and biking than the roadway network. Shared use paths accommodate two-way traffic, with an absolute minimum of 8 feet width required. They are most appropriate where roadway-adjacent facilities have high speeds or high volumes, and pedestrian travel is not comfortable or desirable.

Shared use paths are recommended to be 10 to 14 feet wide depending on the trail volume and mode mixing. This space allows for a bicyclist to pass another user going in the same direction without conflicting with trail users in the opposite direction. This is shown in Figure D.2.



Where to Use Shared Use Paths

- Speeds:** Off-roadway facility.
- Volumes:** Off-roadway facility.
- Land Use:** Areas where bicyclist and pedestrian usage are expected to be high (e.g., parks, along rivers) and along corridors where there are few conflicts with motorized vehicles.

Figure D.2 Recommended Design of Shared Use Path

Benefits

- Provides network opportunities beyond what can be provided by roadways.
- Provides designated facilities that are comfortable for people of all ages and abilities.
- Accommodates two-way travel for multiple modes of transportation.
- Provides opportunities for maintaining rural character in a natural landscape.
- Shared use paths are most successful when they link major recreational destinations such as parks and schools.

Considerations

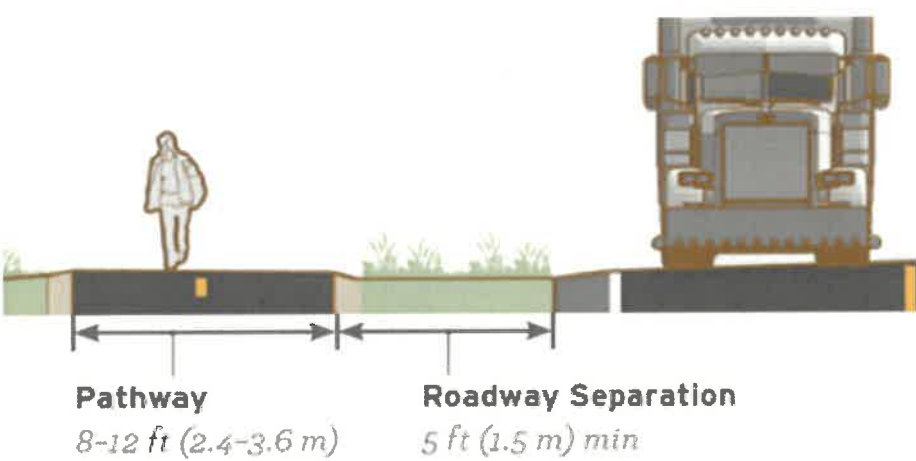
- Path continuity at crossings.
- Requires right-of-way on land parcels beyond the roadway.
- May not be suitable in areas where there is low demand for recreational routes or in more urban zones with limited space.
- Notifying vehicles of their prohibition on shared use paths may necessitate additional countermeasures such as offset fencing or bollards. These present potential hazards to people biking or using mobility devices.

Table D.3 Design Guidance for Shared Use Paths

Facility Type	Frontage Zone		Pedestrian Through Zone		Furnishing Zone
	Minimum	Ideal	Minimum	Ideal	Volume and Mode Mix ¹
Shared use path	8 ft	10 ft	2 ft each side	5 ft	Low volume, low mix
		12 ft			Low volume, heavy user mix
		12 – 14 ft			Heavy volume, low mix

SIDEPATH “PATHWAY”

Sidepaths are similar to shared use paths but are located adjacent to a roadway. They provide two-way travel for people walking, biking, or rolling as shown in Figure D.3. These facilities are especially favorable where there are high volumes and moderate to high speeds on roadways, and on-street facilities such as sidewalks do not provide a comfortable walking environment for users. These facilities enhance the walking or biking experience for all users while maintaining the rural or small town feel of the surrounding environment.



Where to Use Sidepaths

Speeds: Moderate to high speeds.

Volumes: High volumes.

Land Use: Built-up areas with high-speed and high-volume roads are the only corridors available.

Figure D.3. Recommended Design of Sidepath “Pathway”

Benefits

- Provides designated facilities for people of all ages and abilities.
- Provides a designated pedestrian and bicycle facility for roadways that have high speeds and high volumes and lower stress connections are not an option.
- Provides two-way travel for non-motorized users.
- Provides a comfortable walking environment that complements rural and small-town character.

Considerations

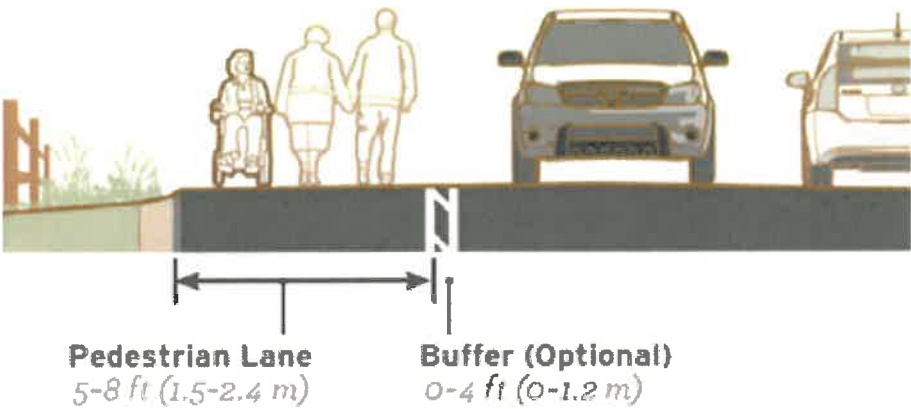
- Path continuity at crossings.
- Requires wide right-of-way on one side of the roadway to develop a wide buffer and the sidepath.

Table D.4 Design Guidance for Sidepaths

Facility Type	Sidepath Width		Buffers		Network
	Minimum	Ideal	Minimum	Ideal	
Sidepath	8 ft	10 ft	5 ft	6.5 ft	Moderate speed
				16.5 ft to 20 ft	High-speed roadways

PEDESTRIAN LANE

Pedestrian lanes provide temporary separation from motor vehicles on roadways that do not have sidewalks as shown in Figure D.4.



Where to Use Pedestrian Lanes

- Speeds:** Low to moderate speeds
- Volumes:** Low to moderate volumes
- Land Use:** Interim solution on roadways lacking sidewalks to fill short gaps between other dedicated facilities.

Figure D.4 Recommended Design for Pedestrian Lane

Benefits

- Pedestrian lanes are a low-cost interim solution that can be implemented temporarily before sidewalks are constructed.
- They often fill short gaps between other higher quality facilities.
- Can be paired with vertical separation like bollards or rubber curbs to visually alert drivers that the space is for pedestrians.

Considerations

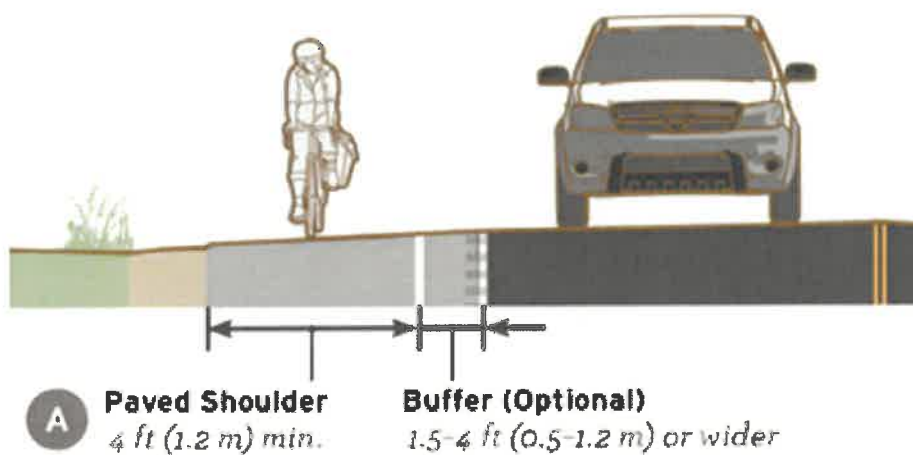
- Pedestrian lanes are **not** alternatives to sidewalks.
- The existing paved surface where the pedestrian lane is implemented must meet accessible cross-slope requirements and ADA standards.

Table D.5 Design Guidance for Pedestrian Lane

Facility Type	Pedestrian Lane Width		Buffers	
	Minimum	Ideal	Minimum	Ideal
Pedestrian Lane	5 ft	8 ft	0 ft	4 ft

PAVED SHOULDERS

Paved shoulders provide functional space on the edge of roadways for people walking or biking to travel where facilities with more separation are not available. Paved shoulders provide a refuge for non-motorized users traveling on moderate to high volume and speed roadways. They contribute to road safety and accessibility in emergency situations and for recreational users on facilities where designated bicycle and pedestrian infrastructure are not available or feasible. Special striping or stencils may be considered to enhance driver awareness of people walking or biking in the shoulder.



Where to Use Paved Shoulders

Speeds: Moderate to high speeds.

Volumes: Moderate to high volumes and on roadways with high truck traffic.

Land Use: Built-up areas with county roads or highways that provide longer distance or regional connections.

Figure D.5 Recommended Design for Paved Shoulder

Benefits

- Provides a designated pedestrian and bicycle facility on roadways where sharing the roadway is not comfortable.
- Rumble strips can be implemented as an additional measure to notify vehicles that they are entering the shoulder space. The shoulder should have enough width to have a minimum of 4 feet for the clear traveled way in addition to the rumble strips.

Considerations

- Does not provide adequate separation from motor vehicles often traveling at higher speeds.
- Paved shoulders should only be implemented where a more separate facility is not feasible.

Table D.6 Design Guidance for Paved Shoulders

Facility Type	Paved Shoulders Width		Buffer		Volumes	Speed	Network
	Minimum	Ideal	Minimum	Ideal	Minimum		
Sidepath	8 ft	5 ft	0 ft	1.5 – 4 ft	Up to 1,100	35 mph	Minor collector
		6.5 ft			Up to 2,600	45 mph	Major collector
		7 ft			Up to 6,000	55 mph	Minor arterial
		8 ft			Up to 8,500	65 mph	Principal arterial

TRAIL FACILITIES

Trails provide designated off-road facilities for pedestrian and bicyclist recreational use while preserving the natural features of the environment. They are unpaved facilities that are primarily used for recreational purposes. Trails can include additional features that enhance user experience, such as trail destinations to natural features, picnic tables, scenic viewpoints, interpretive information displays, water access, and built facilities such as shelters, bicycle racks, and restrooms. Trails may vary in terrain and are designed for hiking, walking, running, or biking.

Where to Use Trails

- Speeds:** Off-roadway facility.
- Volumes:** Off-roadway facility.
- Land Use:** Areas where preservation of the natural environment is desired, like parks, forests, scenic areas, and other natural lands.

Benefits

- Provides recreational facilities for people walking and biking while preserving features of the natural environment.
- Unpaved facilities reduce cost and maintenance compared to a paved facility.

Considerations

- Unpaved facilities may present challenges for people using wheelchairs or mobility devices.

Design guidance for trails varies depending on the intended users and terrain, shown in Table D.7. Trails intended for shared use of people walking, biking, rolling, or jogging are consistent with design guidance for shared-use paths and should meet accessibility guidelines established by PROWAG or the Forest Service Trail Accessibility Guidelines¹⁰. Trails can also have more specific uses, such as equestrian, mountain biking, and high challenge hiking trails. These trails may navigate through steep or irregular terrain where accessible infrastructure is not feasible. Therefore, narrower widths may be more appropriate to work with the more challenging terrain. Trail surfaces can consist of native soil or rock, gravel, woodchips, or engineered fiber.

Table D.7 Design Guidance for Trails

Facility Type	Trail Width		Grade	Vertical Clearance	Desired Users
Primary Use	Minimum	Ideal	Maximum	Minimum	
Pedestrian Lane	8 ft	12-14 ft	0 – 5% (8% max for 50 ft)	8 ft	All users, including people using wheelchairs or mobility devices.
High challenge hiking	18 in	30 in	0 – 15%		Hikers
Hiking and mountain biking	4 ft	10 ft	0 – 5% (12% if needed)		Hikers, walkers, joggers, and mountain bikers. Wheelchairs and mobility devices could be used, but the surface may not be suitable.

¹⁰ <https://www.fs.usda.gov/managing-land/national-forests-grasslands/accessibility/resources>

HIGH VISIBILITY CROSSINGS

High visibility crossings aim to increase visibility of crosswalks and people within the crosswalk, which can reduce crashes by making drivers more aware of pedestrians who are more vulnerable to serious crashes. An example is shown in Figure D.7. Increased visibility can be accomplished by improved lighting, signage, pavement markings, and other design elements. High visibility crossings can be combined with other treatments like curb extensions to increase visibility of pedestrians entering the roadway.



Where to Use Pedestrian Lanes

Speeds: All speeds.

Volumes: All volumes.

Land Use: All crossing locations.

Figure D.7 Example of a High Visibility Crossing

Source: FHWA Small Town and Rural Multimodal Networks

RAISED INTERSECTIONS/CROSSINGS

Raised intersections or raised crossings are sections of a roadway or an entire intersection that are elevated, providing a distinct change in environment for motor vehicles as shown in Figure D.8. These treatments serve multiple purposes, including traffic calming, pedestrian and bicyclist safety, and enhancing the pedestrian environment. The raised elements encourage drivers to slow down in advance of a crossing and increase the visibility of pedestrians and bicyclists. Raised intersections or raised crossings are typically supported by other treatments such as high visibility markings or signage.



Where to Use Raised Intersections/Crossings

Speeds: Low

Volumes: Low

Land Use: Urban environments with high pedestrian or bicycle activity.

Figure D.8 Example of a Raised Crosswalk

Source: FHWA Safe Transportation for Every Pedestrian Countermeasure Fact Sheet – Raised Crosswalk

RECTANGULAR RAPID FLASHING BEACONS

Rectangular Rapid Flashing Beacons (RRFBs) are placed at uncontrolled, marked crosswalks to increase driver awareness of crossing users. RRFBs are implemented with a pedestrian warning sign and consist of two, rectangular-shaped yellow LED indications. When the RRFB is activated by a crossing user, it flashes with an alternative high frequency to indicate to drivers that they must yield for pedestrians.

RRFBs are most effective at locations on roadways with posted speeds less than 40 mph where there is a high number of people needing to cross. They can also be implemented at schools or trail crossings.



Where to Use RRFBs

Speeds: Posted speeds less than 40 mph.

Volumes: Low to moderate

Land Use: Uncontrolled crossings near major pedestrian activity centers on low-speed roadways, including schools and trail crossings.

Figure D.9 Example of RRFBs

Source: FHWA Small Town and Rural Multimodal Networks

RECTANGULAR RAPID FLASHING BEACONS

A Pedestrian Hybrid Beacon (PHB) is a traffic control device to enhance pedestrian or bicyclist safety at crossings on higher-speed roadways at uncontrolled intersections, trail crossings, or mid-block crossings. Once activated by people walking or biking, the PHB runs through a sequential phase of a flashing yellow indication, steady yellow indication, steady red indication during the pedestrian crossing time, alternative flashing red, then returns to its default inactivated dark phase.

PHBs have a range of benefits to the safety of crossing users. The PHB is a viable option where a full traffic signal is not warranted, providing short-term traffic control during the pedestrian walk phase, and allowing motor vehicles to continue moving once the user is done crossing. An example is shown in Figure D.10.



Where to Use PHBs

Speeds: Posted speeds greater than 35 mph.

Volumes: Moderate to high

Land Use: Uncontrolled crossings near major pedestrian activity centers on high-speed roadways.

Figure D.10 Example of a PHB

Source: FHWA Small Town and Rural Multimodal Networks

STREET SIGNAGE

Street signage enhances safety at crossings by increasing awareness for all road users providing guidance for people walking and biking. The signage designates crossing areas so drivers can anticipate any potential conflicts with people walking or biking in the roadway.

Some examples of MUTCD-compliant signage at crossings include:

- Advance Yield Here for (Stop Here for) Pedestrians and yield (Stop) sign (R1-5 or R1-6 series) (in-street or adjacent to the roadway)
- Pedestrian Crossing Ahead (W11-2, W16-7p, and W16-9P)
- Pedestrian and Bicycle Crossing (W11-15)
- Turning Traffic Must Yield to Pedestrians (R10-15)

Where to Use Street Signage

Speeds: Low

Volumes: Low

Land Use: Urban environments with high pedestrian or bicycle activity.

CURB EXTENSIONS

Curb extensions (often called “bulb-outs”) reduce crossing distance, increase visibility of crossing users, and reduce motor vehicle speeds. They are considered at intersections where on-street parking is allowed. People walking and biking are more visible to drivers when the curb extends into the roadway. Curb extensions also lead to increased yielding by drivers, especially drivers making right turns.

Where to Use Curb Extensions

Speeds: Low

Volumes: Low

Land Use: Roadways with on-street parking.

ADDITIONAL DESIGN GUIDANCE

[FHWA – Small Town and Rural Multimodal Networks](#)

[Public Rights-of-Way Accessibility Guidelines \(PROWAG\)](#)

[Oregon Pedestrian and Bicycle Plan](#)

[Oregon Highway Design Manual Appendix L – Bicycle & Pedestrian Design Guide](#)

[FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations](#)

[Bureau of Land Management - Ready, Set, Plan!? An Introductory Guide to Trail Planning and Development](#)

[US Forest Service Accessible Trail Resources](#)

[US Forest Service Standard Trail Plans and Specifications](#)

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APPENDIX E. DESIGN GUIDANCE FOR BICYCLE FACILITIES

The range of facilities that could be appropriate for a rural area like Maupin are summarized in Table E.1. In addition to these facilities, shared use paths, paved shoulders, and trails described in the Design Guidance for Pedestrian Facilities section are multi-use facilities that can also accommodate people who bike. All Crossing Treatments can also accommodate people who bike and can complement many of the bicycle facility options described in this section.

Table E.1 Design Guidance for Bicycle Facilities

Facility Type	Total Width		Buffer from Roadway	
	Minimum	Ideal	Minimum	Ideal
Bicycle boulevard	-	-	-	-
Advisory shoulder "dashed bicycle lanes"	4 ft	6 ft	-	-
Paved shoulder	4 ft	5 ft – 8 ft	0 ft	1.5 - 4 ft
Bicycle lane	4 ft	6.5 ft	1.5 ft	≥ 4 ft
Separated bicycle lane	5 ft	7 ft	1 ft	3 ft
Shared roadways	-	-	-	-

BICYCLE BOULEVARD

A bicycle boulevard is like a shared roadway but gives precedence to bicycle traffic over motor vehicles. Riders who may feel less comfortable on busy streets or shared facilities may prefer to ride on bicycle boulevards where speeds and traffic volumes are lower. Elements of a bicycle boulevard include pavement markings, wayfinding, and traffic calming to encourage lower vehicular speeds.

Local street grids provide an opportunity to implement bicycle boulevards where local land uses are compatible. Bicycle boulevards must be paired with a designated pedestrian facility to accommodate people who walk or use mobility devices, such as a sidewalk. Complementary crossing treatments such as all-way stop controlled intersections or traffic circles are also needed to extend the low-stress environment across intersecting streets. An example is shown in Figure E.1.



Figure E.1 Example of a Bicycle Boulevard

Where to Use Bicycle Boulevards

Speeds: Low

Volumes: Low

Land Use: Local streets, residential areas

Benefits

- Bicycle boulevards can be implemented within the current local network without significant modifications.
- Signage and pavement markings increase awareness of people utilizing the roadway. This could increase compliance with lower speeds when a bicyclist is present.

Considerations

- Similar to shared roadways, bicycle boulevards lack physical separation between cyclists and motor vehicles, making cyclists more vulnerable to collisions.
- Children or other less comfortable riders generally experience higher stress in shared roadway facilities like bicycle boulevards.

ADVISORY SHOULDER “DASHED BICYCLE LANES”

When roadways are too narrow to accommodate a paved shoulder, advisory shoulders can be implemented to create a separate space for bicyclists when they are using the roadway. Motor vehicles use a two-way center travel lane, only encroaching into the advisory shoulder to make a passing movement as needed.

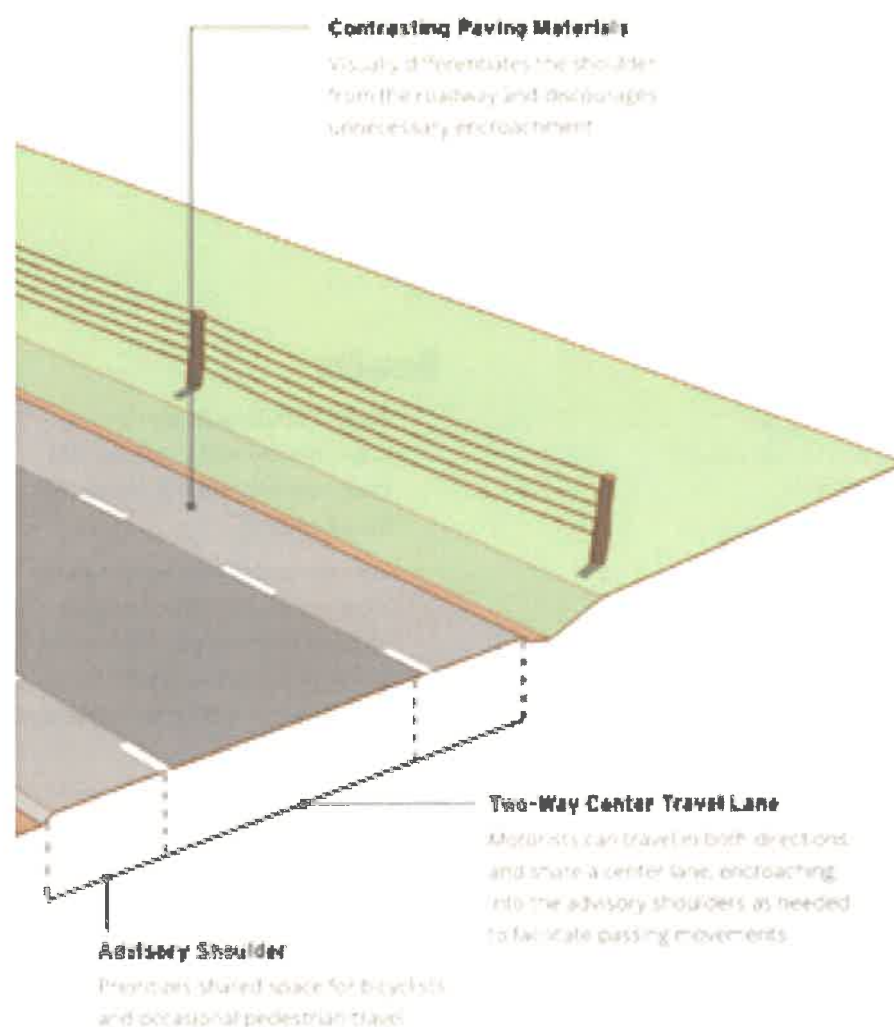


Figure E.2 Example of an Advisory Shoulder

Table E.2 Design Guidance for Pedestrian Lane

Facility Type	Advisory Shoulder Width		Two-Way Center Travel Lane Width		
	Minimum	Ideal	Minimum	Ideal	Maximum
Advisory shoulder	4 ft	6 ft	10 ft	13.5 - 16 ft	18 ft

Where to Use Advisory Shoulders

Speeds: Low to moderate

Volumes: Low to moderate

Land Use: Local street network in areas with bicycle and pedestrian demand and narrow roadways.

Benefits

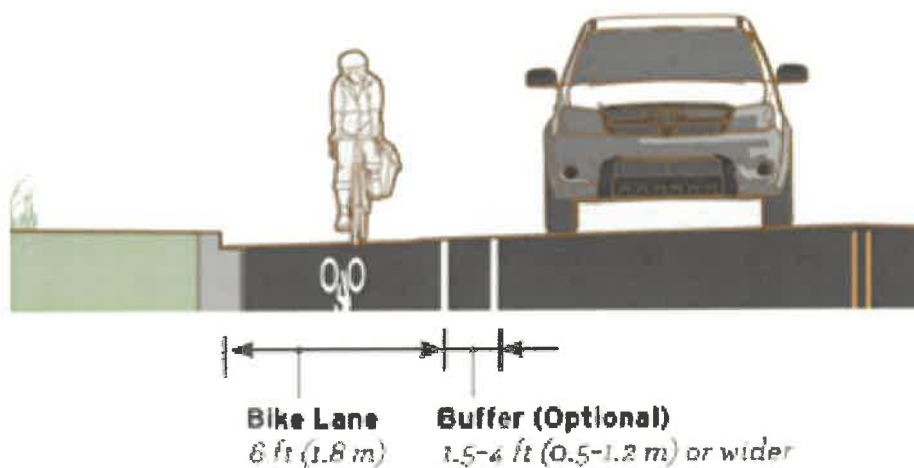
- Delineates space for bicyclists where the roadway is otherwise too narrow to accommodate paved shoulders.
- Narrow two-way traffic may contribute to reduced speeds.
- Supports the natural environment by reducing the roadway width needed for implementing dedicated bicycle facilities.

Considerations

- Similar to shared roadways, bicycle boulevards lack physical separation between cyclists and motor vehicles, making cyclists more vulnerable to collisions.
- Children or other less comfortable riders generally experience higher stress in shared roadway facilities like bicycle boulevards.

BICYCLE LANE

Bicycle lanes provide designated space within the roadway for people biking, separate from motor vehicles and pedestrians, reducing conflicts with other roadway users as shown in Figure E.3. They are visibly delineated by pavement markings, which may also continue into intersections to alert drivers that bicyclists may be crossing. The recommended bicycle lane width is six and a half feet, with seven feet as the absolute maximum. If bicycle lanes on roadways with steep grades only have room for a bike lane on one side, the lane should be placed in the uphill direction.



Where to Use Bicycle Lanes

Speeds: Moderate

Volumes: Moderate

Land Use: Areas where moderate to high volume of bicyclists and pedestrians is expected.

Figure E.3 Recommended Design of a Bike Lane

Benefits

- Provides a visually separate facility for people walking, separate from motor vehicles, pedestrians, and other roadway users.
- Bicycle lanes provide users with the space to travel at their own speeds with the ability to pass vehicles.
- Alert drivers that there may be people biking on the roadway, increasing awareness at access driveways and intersections.
- Vertical elements like flex posts or “armadillo” curbs can be designed to be removed in winter for snow maintenance.

Considerations

- No physical buffer or barrier between motor vehicles and people biking.
- Presents challenges when motor vehicles utilize the space as parking or delivery, since there is no physical barrier blocking them from utilizing bicycle space.
- Requires paved roadway space.

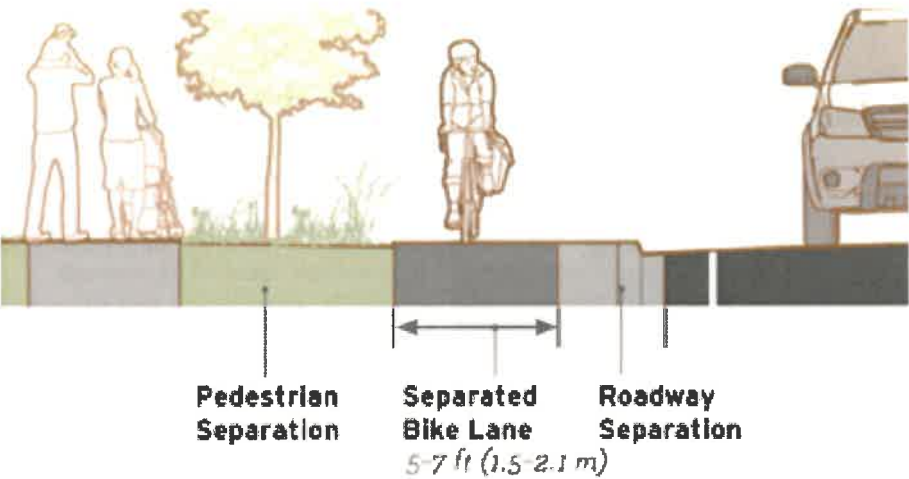
Table E.3 Design Guidance for Bicycle Lanes

Facility Type	Bicycle Lane Width		Buffers	
	Minimum	Recommended	Minimum	Ideal
No curb or gutter present	4 ft	6.5 ft	1.5 ft	≥ 4 ft
Adjacent to curb, guardrail, or on-street parking	5 ft			

SEPARATED BICYCLE LANE

Separated bicycle lanes provide designated space within the roadway for people biking and are physically separated from motor vehicle traffic with vertical elements as shown in Figure E.4.

Vertical features can include bollards, a median curb, planters, flexi-posts, concrete barriers, or other raised infrastructure that alerts vehicles they can't enter the bicycle lane.



Where to Use Separated Lanes

- Speeds:** Moderate to High
- Volumes:** High
- Land Use:** Areas where a moderate to high volume of bicyclists or pedestrians is expected, like a school. Areas where there are fewer driveways.

Figure E.4 Recommended Design of a Separated Bike Lane

Benefits

- Provides a more comfortable environment for people biking on high-speed and high-volume roadways.
- Reduces conflicts between pedestrians and bi-directional traffic compared to sidepaths or shared-use paths.

Considerations

- Requires wide paved roadway space to provide separation.
- Physical separation may present challenges for maintenance and plowing the bicycle facilities in the winter.

Table E.4 Design Guidance for Bicycle Lanes

Facility Type	Separated Bicycle Lane Width		Buffers	
	Minimum	Recommended	Minimum	Ideal
Separated Bicycle Lane	5 ft	7 ft	1 ft (with vertical curb)	3 ft

SHARED ROADWAYS

Shared roadways allow bicyclists and motor vehicles to travel in the same lane. They are most suitable for neighborhood residential streets, rural roads, and low-volume highways. There are no design standards for shared roadway facilities. "Sharrow" ("share" and "arrow") pavement markings can be implemented to alert motor vehicles that bicyclists will be using the facility.

In a shared roadway facility, people biking can either ride in the center of the directional lane or as far right as possible to allow vehicles to pass on the left. Shared roadways must be paired with a designated pedestrian facility to accommodate people who walk or roll, such as a sidewalk. Yield roadways, described in the Street Design Standards section, are a type of shared roadway.

Where to Use Shared Roadways

Speeds: Low

Volumes: Low

Land Use: Local streets, residential areas

Benefits

- Shared roadways can be integrated within the current local network, promoting connectivity without the need for significant investment or modifications.

Considerations

- Shared roadways lack physical separation between cyclists and motor vehicles, making cyclists more vulnerable to collisions.
- The presence of bicyclists on shared roadways can impact traffic flow, potentially causing delay.
- Children or other less comfortable riders generally experience higher stress in shared roadway facilities compared to designated bicycle facilities. This may deter these riders from using shared facilities.

ADDITIONAL GUIDANCE

[Oregon Highway Design Manual Appendix L – Bicycle & Pedestrian Design Guide](#)

[FHWA Bikeway Selection Guide](#)

[AASHTO Guide for the Development of Bicycle Facilities](#)

APPENDIX F. PROJECT CONCEPTS

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APPENDIX G. PLANNING-LEVEL COST ESTIMATES

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APPENDIX H. IMPLEMENTATION MEASURES MEMORANDUM

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CITY OF MAUPIN
**STREET DESIGN
STANDARDS PLAN**
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