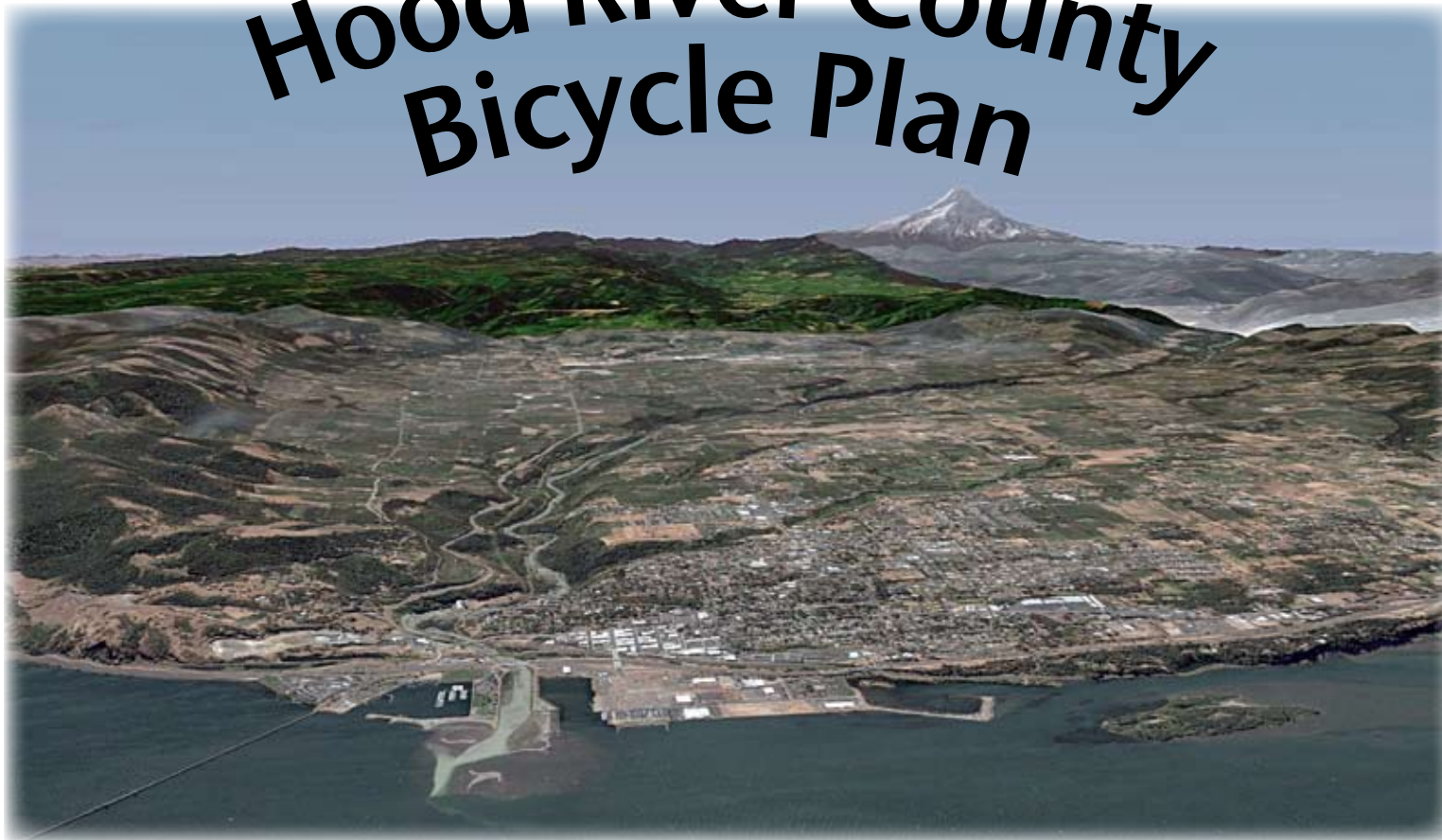


Hood River County Bicycle Plan



February 2010



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Summary



This Hood River County Bicycle Plan is an update of the bicycle element of the County's 2003 Transportation System Plan (TSP). The Bicycle Plan is in compliance with State requirements for planning safe and convenient bicycle facilities to meet local travel needs.

There are about 620 miles of publicly maintained roads in Hood River County. The roadways fall under a variety of jurisdictions, including State agencies (93 miles), the cities of Hood River and Cascade Locks (32 miles), the Federal government (292 miles) and Hood River County (202 miles). Bicycles can legally travel on all public roads in the County.

Most of the bicycle travel in Hood River County occurs on rural roads, typically with two paved travel lanes and little or no paved shoulder. Some of these roads are satisfactory for bicycle use because low traffic volumes result in few conflicts. However, for the State highways and most of the County's major roads, high traffic volumes and speeds can result in conflicts when there is not a paved shoulder or bike lane where bicyclists can ride out of the main traffic lane. The addition of paved shoulders at least four feet wide provide safety, capacity, and maintenance benefits for all road users including pedestrians and motorists as well as bicyclists. In fact, paved shoulders are a standard feature in the Hood River County road design guidelines.

The process of preparing this plan began in January 2006 with the formation of the Bicycle Advisory Committee (BAC), and continued through a public open house in July 2006. This plan is the culmination of many meetings, site visits and discussions, including coordination with affected agencies.

First, the BAC reviewed the bike projects identified in the County's 2003 TSP (see Section 2.1), reviewed existing planning documents and compiled a new list of potential projects, including projects from the 2003 TSP, and added several new County road projects and State Highway projects. Some projects were retained and transferred to the Project Rating Summary and other projects were removed or converted to pedestrian projects. The BAC then evaluated the proposed projects (see Section 4.4). This evaluation used seven criteria to evaluate the bicycle projects. The BAC and Staff did not evaluate trail projects that are outside of publicly owned right-of-way because of funding and jurisdiction limitations.

Work Tasks

1. Form Bicycle Advisory Committee

2. Review Existing Conditions

3. Review Policy and Code

4. Recommendations

5. Public Meeting

6. Draft Plan

7. County Planning Commission Hearing

8. Board of County Commissioners Hearing

As a result of this evaluation, all but one of the projects with a low feasibility ranking were eliminated. In addition, the AGA Road project (B-115) was removed as a multi-use path project because it has become a pedestrian project including curb, gutter and sidewalk on the west side of the road (this project will be identified as P-1 in the amended TSP).

The Summary of Recommended Projects (see Section 4.5) includes primarily those projects rated with a medium or high feasibility, and those identified as State highway projects and State trail segments associated with the Historic Columbia River Highway State Trail (HCRH) project. The Summary of Recommended Bicycle projects includes:

- ◆ one multi-use path;
- ◆ 10 county road projects;
- ◆ five State highway projects;
- ◆ three State highway intersection projects, and
- ◆ one HCRH project comprised of four segments.

This is a total of 20 recommended projects at an estimated total cost of approximately \$4,332,000 for County projects and a total of approximately \$52,020,000 for State projects.

In addition to incorporating these 20 bicycle projects and the one project converted to a pedestrian project into the County TSP, it is recommended that this Bicycle Plan be adopted in its entirety as an addendum to the 2003 Hood River County TSP, and appropriate amendments made to Comprehensive Plan documents.

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1

Introduction

1.1 Purpose

This Plan recommends bicycle facilities that should be constructed in Hood River County over the next 20 years to encourage and support bicycling as a safe, convenient and economic transportation choice. A network of bicycle facilities supports Statewide Transportation Planning Goal 12, which requires balancing vehicular use with other transportation modes, including bicycling, in order to avoid principal reliance upon any one mode of transportation.

1.2 Scope

This Plan will update the bicycle element of the County's TSP (adopted in 2003) in compliance with the Transportation Planning Rule (TPR), Oregon Administrative Rule (OAR) 660-012-0020(2)(d).

The Plan outlines the process the County went through to arrive at the recommended list of bicycle facilities, specifically identifies these projects, and recommends construction and maintenance guidelines to protect these facilities for long term use and enjoyment. The recommended bike facilities include County road shoulder widening projects, a multi-use path, several State highway shoulder and intersection improvements, and HCRH trail projects. These projects will facilitate safe and convenient bicycle circulation and provide more direct, convenient bicycle travel between residential areas and activity centers as required by OAR 660-012-0045(3) and (6).

Goal 12: Oregon's Statewide Transportation Planning Goal

To provide and encourage a safe, convenient and economic transportation system. A transportation plan shall:

- *consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian;*
- *be based upon an inventory of local, regional and state transportation needs;*
- *consider the differences in social consequences that would result from utilizing differing combinations of transportation modes;*
- *avoid principal reliance upon any one mode of transportation;*
- *minimize adverse social, economic and environmental impacts and costs; (6) conserve energy;*
- *meet the needs of the transportation disadvantaged by improving transportation services;*
- *facilitate the flow of goods and services so as to strengthen the local and regional economy; and*
- *conform with local and regional comprehensive land use plans.*

1.3 Tasks

The following tasks comprise the creation and adoption of the Bicycle Plan:

- ◆ Form the BAC (Bicycle Advisory Committee) and Conduct Introductory Meeting—*January 18, 2006.*
- ◆ Review Existing Documentation and Inventory Physical Facilities—*refer to Section 2.*
- ◆ Review Existing Policy and Code—*refer to Sections 3 and 4.*
- ◆ Bicycle System Recommendations—*refer to Section 4.*
- ◆ Public Open House—*July 25, 2006.*
- ◆ Draft Bicycle Plan—*November 15, 2006.*
- ◆ County Planning Commission Work Session, December 2009.
- ◆ County Planning Commission Hearing scheduled for early 2010.
- ◆ Board of County Commissioners Hearing and adoption scheduled for early 2010.



Work Tasks

1. Form Bicycle Advisory Committee

2. Review Existing Conditions

3. Review Policy and Code

4. Recommendations

5. Public Meeting

6. Draft Plan

7. County Planning Commission Hearing

8. Board of County Commissioners Hearing

1.4 BAC

The Bicycle Advisory Committee met for the first time in January 2006 to introduce themselves and the consultants, review work tasks, discuss the role of a BAC, look at bicycle planning principles, and brainstorm the Bicycle Plan. They continued to meet throughout the planning process. The BAC consists of:

- ◆ Alan Journeau, Volunteer, Hood River
- ◆ Bob Schuppe, Volunteer, Hood River
- ◆ Jennifer Wilson, Volunteer, Hood River
- ◆ Lisa Macy, Volunteer, Hood River
- ◆ Norberto Maahs, Volunteer, Hood River
- ◆ Pete Fotheringham, Volunteer, Hood River
- ◆ Shane Wilson, Volunteer, Hood River
- ◆ Jay Feldman, City of Cascade Locks
- ◆ Jennifer Donnelly, City of Hood River
- ◆ Virginia Kelly, Columbia River Gorge National Scenic Area
- ◆ Brent Gleason, Hood River County Forestry
- ◆ Josette Griffiths, Hood River County Planning
- ◆ Don Wiley, Hood River County Engineer
- ◆ Jeff Lorenzen, Hood River County School District
- ◆ Kevin Slagle, Hood River Ranger District
- ◆ Renee Vandegriend, Hood River Valley Parks and Recreation
- ◆ Kristen Stallman, Oregon Department of Transportation
- ◆ Michael Ray, Oregon Department of Transportation (former)

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Document Review

2.1 Previous Planning

Bicycling is addressed in two County planning documents:

- ◆ 1991 Bicycle Master Plan (not adopted)
 - Survey with 444 responses
 - Popular corridors identified
- ◆ 2003 Transportation System Plan (TSP, adopted)
 - 5 policies and 17 strategies relating to bike-ped
 - Calls for update of “County Bicycle and Pedestrian Plan”
 - County road inventory
 - 16 bicycle projects (Table 1 next page)

There are also planning documents from other agencies that address bicycling:

- ◆ 2003 City of Hood River TSP
 - 20 bicycle projects
- ◆ 2003 City of Cascade Locks TSP
- ◆ 2005 Parks and Recreation Capital Facilities Master Plan, Hood River Valley Parks & Recreation (not adopted by County)
 - The Plan identifies 8 County Parks in the Parks District:
 1. Tollbridge (Parkdale)
 2. Oak Grove (Country Club Rd.)
 3. Panorama Point (East Side Rd.)
 4. Ruthton (I-84)
 5. Georgiana Smith (Oak and 5th)

Top County Roads for Bicycling in 1991

Country Club Rd.
May Dr.
Frankton Rd.
Portland Dr.
East Side Rd.
Barrett Dr.

Bicycling Policies in TSP

- *Network of safe and convenient facilities*
- *Pathways*
- *Road standards*
- *New development*
- *Connectivity throughout County*

Table 1. Bicycle Projects from 2003 Hood River County TSP

TSP #	Project	Cost Est.	Jurisdiction	Status in 2009
B-1	Trail, Wyeth to Starvation Creek	\$16,569K	State	Part of HCRH, in Amended TSP as segment of B-125
B-2	Trail, Starvation Creek to Viento	\$750K	State	Completed
B-3	Trail, Mitchell Point to Hood River	\$6,143K	State	Part of HCRH; in Amended TSP as segment of B-125
B-4	Trail, Odell, Hwy 282 to Mt. Hood Railroad	\$25,000K	County	Converted to pedestrian project (sidewalk); retained in Amended TSP as P-1
B-5	Bike lanes on Cascade Ave., 13th St. to I-84 on-ramp	Funded	State	Removed from County TSP (inside City of Hood River City limits)
B-6	Bike Lanes on Belmont Ave., 22nd St. to 12th St. (2750 ft)	\$3K	City	Removed from County TSP (inside City of Hood River city limits)
B-7	4-ft paved shoulders on Belmont Rd., Belmont Dr. North to South	\$31K	County	Completed
B-8	4-ft paved shlds on Country Club Rd., Post Canyon Rd. to Cascade Ave.	\$186K	County	Split into 2 projects at UGB as B-102 & B-103 in Amended TSP
B-9	4-ft paved shoulders on Frankton Rd., Country Club Rd. to May Dr.	\$65K	County	Split into 2 projects at UGB as B-104 & B-105 in Amended TSP
B-10	4-ft paved shlds on Tucker Rd., Mt. View Cemetery to Exp. Station Dr.	\$31K	State	Extended to Odell Hwy as B-118 in Amended TSP
B-11	Trail, Viento to Mitchell Point	\$7,383K	State	Part of HCRH; in Amended TSP as segment of B-125
B-12	Trail, Mitchell Point	\$6,195K	State	Part of HCRH; in Amended TSP as segment of B-125
B-13	Path along West Cliff, Jaymar Rd. to Ruthton Park	NA	City, County, State	B-101 in amended TSP
B-14	Crossing of RR north of I-84 overpass, Riverside to Westcliff Ave.	\$500K	City, State	Removed from County TSP (inside City of Hood River city limits)
B-15	4-ft paved shoulders on Brookside Dr.	\$125K	County	Split into 2 projects at UGB as B-108 & B-109 in Amended TSP
B-16	Construct sidewalks on both sides of Odell Hwy from RR to Davis Dr and Atkinson Dr from Odell Hwy to PO	\$200K	County/State	Pedestrian-only project, retained in amended TSP as P-2
B-17	Trail easements and improvements, Indian Creek	\$50K	Parks & Rec.	Removed from County TSP (Parks & Rec. project)

A survey of district residents conducted in 2003 found that biking trails ranked highest for “most needed recreation facilities or activities,” above a community center, ball fields and dog parks.

6. Routson (south of Parkdale)
7. Dimmick (Parkdale)
8. Kingsley (Kingsley Rd.)

- A survey of district residents conducted in 2003 found that biking trails ranked highest for “most needed recreation facilities or activities,” above a community center, ball fields and dog parks.
 - The Plan includes a Loop Trail System that covers the width of the Hood River Valley from Oak Grove north to the Columbia River. It recommends expanding the system south to Odell and Parkdale.
- ◆ 2006 Historic Columbia River Highway Master Plan, ODOT
- The HCRH traverses Hood River County. There is one project, Westcliff Drive Enhancement, that involves County property. This project is included in the 2003 TSP and is recommended for inclusion in the Amended TSP.



2.2 Summary of Existing Conditions

There are about 620 miles of publicly maintained road in the Hood River County falling under a variety of jurisdictions, including state agencies (93 miles), the cities of Hood River and Cascade Locks (32 miles), the federal government (292 miles) and Hood River County (203 miles). There are also a substantial number of private roads, driveways and public roads maintained by the local residents. County roads are those roads which have been specifically accepted into the County Maintenance System by the Board of Commissioners in accordance with ORS 368.016. State law prohibits spending road fund money on any but county roads.

There were 34 traffic fatalities including 3 pedestrians and no bicyclists in Hood River County during 9 years from 1997 through 2005 (NHSTA data).

There are many unpaved trails, both single and double-track, open to bicycles. These trails are on County Forest, National Forest, Hood River Valley Parks and Recreation, and private lands that may allow their use.

2.3 Bikeway Construction Guidelines

The County uses construction information and guidelines for bikeways found in the latest issue of *Guide for Development of New Bicycle Facilities*, published by the American Association of State Highway and Transportation Officials (AASHTO).

Signs, signals and markings for bicycle facilities are presented in the *Manual of Uniform Traffic Control Devices* (MUTCD), published by U.S. Department of Transportation, Federal Highway Administration.

State and local specifications for the construction of roads and bridges are applicable and should be consulted when constructing bicycle facilities. In particular, refer to the *Oregon Bicycle and Pedestrian Plan* for guidance on the planning, design, maintenance and safety of bikeways.

2.4 Maintenance and Operational Practices

There are 203 miles of County road for which Public Works is responsible. Most of these roads undergo periodic resurfacing, sweeping, vegetation control and inspection. The proper operation and maintenance of bikeways can be lost in the urgency to plan and develop new bikeway facilities. Adequate operation and maintenance of existing bikeways is necessary to protect the investment of public funds and to continue the safe enjoyment and service of these facilities. State responsibilities for highways are similar.

2.4.1 MAINTENANCE CONSIDERATIONS

The agencies responsible for the control, maintenance and policing of bicycle facilities will be established prior to construction. The costs involved with the operation and maintenance will be considered and budgeted for when planning a facility. Neglected maintenance renders bicycle facilities unridable, and the facilities will become a liability to the County or community. To prevent possible neglect of bicycle facilities, the County will adopt and incorporate into normal road maintenance activities with appropriate priority, approved maintenance practices that include:

- ◆ Provide a smooth surface, free of potholes and large bumps.



See Section 4.2.3 for a discussion of paved shoulders and Section 4.7 for recommended typical roadway sections.



Drainage grate repair

- ◆ Remove debris, such as glass or sanding aggregate, as soon as practical.
- ◆ Cut or trim trees, shrubs, and other vegetation to provide adequate clearances and sight distances.
- ◆ If winter warrants snow removal, it should be in the form of plowing and sanding or chemical de-icer.
- ◆ Place and maintain trash receptacles at convenient locations such as parking facilities and recreation areas.

2.4.2 ROADWAY IMPROVEMENTS

Because most highways in the County were not designed with bicycle travel in mind, there are often many ways in which roadways can be improved to more safely accommodate bicycle traffic. For all new roads and major reconstruction projects, bicycle-safe design practices will be followed to avoid the necessity for costly subsequent improvements. Roadway conditions should be examined for the following:

- ◆ **Drainage Grates** — Bicycle wheel safe and hydraulically efficient drainage grates will be used. When it is not immediately possible, consideration should be given to welding steel cross straps or bars perpendicular to the parallel bars to provide a maximum safe opening between straps. This should be considered a temporary correction for existing conditions only.
- ◆ **Railroad Crossings** — Ideally, railroad-highway crossings should be at right angles to the rail. The greater the crossing deviates from this ideal crossing angle, the greater is the potential for a bicyclist's wheel to be trapped in the flangeway. If the crossing angle is less than 45 degrees, consideration should be given to widening the outside lane, shoulder, or bicycle lane to allow bicyclists adequate room to cross the tracks at a right angle. Important consideration should be given to ensure the roadway approach be at the same elevation as the rail. Also, consideration should be given to the material of the crossing surface and to the flangeway depth and width.
- ◆ **Pavements** — Pavement surfaces must be free of irregularities and the edge of the pavement should be uniform in width. On older pavements it may be necessary to fill

joints, adjust utility covers or, in extreme cases, overlay the pavement to make it suitable for bicycling.



Marking pavement

- ◆ **Traffic Control Devices** — At intersections where bicycle traffic exists or is anticipated, bicycles should be considered in the timing of the traffic signal cycle, as well as the traffic detection device. The Manual On Uniform Traffic Control Devices (MUTCD) should be consulted for guidance on signs and pavement markings.
- ◆ **Paved Shoulders** — Shoulder width should be a minimum of 4 feet when intended to accommodate bicycle travel. If motor vehicle speeds exceed 35 mph, if the percentage of trucks, buses, and recreational vehicles is high, or if static obstructions exist at the right side, then additional width is desirable. Adding or improving shoulders can often be the best way to accommodate bicyclists in rural areas, and they are also a benefit to motor vehicle traffic. Where funding is limited, adding or improving shoulders on uphill sections first will give slow moving bicyclists needed maneuvering space and decrease conflicts with faster moving motor vehicle traffic.
- ◆ **Wide Curb Lanes** — On roadway sections without bicycle lanes, a right lane wider than 12 feet can better accommodate both bicycles and motor vehicles in the same lane. However, a lane width of 14 feet of usable pavement width is more desirable. Usable pavement width would normally be from curb face to lane stripe, or from edge line (shoulder line) to lane stripe, but adjustments need to be made for drainage grates, parking, and longitudinal ridges between pavement and gutter sections. Widths greater than 14 feet can encourage the undesirable operation of two motor vehicles in one lane, especially in urban areas, and consideration should be given to striping as a bicycle lane when wider widths exist.
- ◆ **Bicycle Lanes** — Bicycle lanes can be considered when it is desirable to delineate available road space for preferential use by bicyclists and motorists, and to provide for more predictable movements by each. If the need can be established, restriping existing roadways (that have adequate surface width) can increase a bicyclist's confidence in motorists not straying into his/her path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right. This can be achieved by narrowing travel lanes (including median) or by removing parking from one side.

Adequate pavement surface, bicycle-safe grate inlets, safe railroad crossings, and traffic signals responsive to bicycles should always be provided on roadways where bicycle lanes are designated. Raised pavement markings and raised barriers can cause steering difficulties for bicyclists and should not be used to delineate bicycle lanes.

For more detailed information regarding roadway improvements consult the *AASHTO Guide for Development of New Bicycle Facilities* and the *Oregon Bicycle and Pedestrian Plan*.

2.4.3 RESURFACING

About 175 miles of the roads maintained by the County are paved with asphalt concrete. In order to preserve the condition of paved roads the County uses a process called chip sealing. As asphalt road surfaces age they oxidize and become brittle which leads to cracking, raveling, and ultimately failure of the pavement. Sealing the surface on a regular basis (every 8 to 10 years) greatly prolongs the life of the pavement.



Rough chip-sealed road

For bicyclists, a drawback of chip-sealing is that the surface initially has some loose rock and is rougher than new pavement. The County will minimize the impacts on cyclists by using smaller aggregate (3/8 inch), sweeping as soon as possible after chip sealing, and follow-up sweeping in the first few months after chip sealing.

Every year the County constructs pavement overlays on about 4 to 6 miles of roads that have deteriorated to the point that they can not be restored by chip sealing. Pavement overlays are typically 2 to 3 inches thick and cost 8 to 10 times as much as chip seals.



Pavement overlay

Most of the rural local roads and some of the collector roads are paved with a construction material called cold-mix asphalt. This is a material made from an “open-graded” aggregate mixed with emulsified asphalt. The advantage of cold mix is that it can be produced locally in a simple, relatively inexpensive machine called a pug mill. It produces an excellent quality pavement with a minimum of energy use and a minimum of airborne pollutants. Disadvantages of cold mix are that it is initially more tender and prone to rutting, and because it is open graded it needs to be sealed more frequently than pavement constructed from hot mix.

Most of the County’s major collectors and urban local roads are paved with hot mix asphalt. This material is usually made from “close graded” aggregate mixed with hot liquid asphalt. For roads used frequently by bicyclists, hot mix overlays are preferred because they produce a very smooth even surface right from the start. Because of the equipment and energy required to produce hot mix, and the lack of a supplier inside the County, hot mix asphalt has typically been more expensive than cold mix.

2.4.4 DEBRIS REMOVAL

Removal of surface debris is a very important part of keeping the County’s roads usable by bicyclist. In the past, most debris removal was accomplished with side-cast brooms and water trucks. Because of concerns about water pollution and an interest in recycling as much aggregate as possible the County now does most debris removal with a vacuum sweeper.



Every spring the County spends several months sweeping all county roads to remove sanding aggregate that accumulates over the winter. Collector roads and roads frequented by bicyclist are one of the highest priorities. Roads are swept again after chip sealing or where debris is tracked onto the roads by shoulder work or roadside construction.

Because of the frequency of winter storms in Hood River, the County does not typically sweep up sanding aggregate in the winter months. Chemical de-icer is used when conditions warrant to reduce sanding.

2.4.5 VEGETATION CONTROL

Vegetation control is the process of keeping the roadsides clear of brush and weeds by brushing, spraying, and mowing. Encroaching weeds and brush damages the pavement and forces bicyclist to ride closer to the center of the road increasing the possibility of conflicts. Vegetation control helps maximize the visibility of cyclist and reduces the potential for conflicts at driveways and intersections.

Roadside vegetation control is controversial, particularly with respect to herbicides. Herbicide applicators are required to have extensive training through the State Department of Agriculture. Along county roads spray applications are made annually by trained applicators from the County Weed and Pest Department.

In addition to spraying, vegetation is controlled by cutting and mowing. The County has two heavy-duty, flail-type, tractor-mounted machines that are at work over 2000 hours per year. Two or three times per year a heavy duty hand trimming project is conducted to clear trees and tree limbs back from the roadway.

2.4.6 INSPECTIONS AND HAZARD REPORTING

The road foreman and road crew are continually on the lookout for general maintenance conditions and immediate hazards such as snow and ice, debris, potholes, downed trees, or missing signs. The pavement condition is inspected annually and entered into a pavement management program that helps prioritize surface maintenance treatments.

Reports of hazardous conditions and complaints from the public and other agencies are recorded in a database and forwarded to the appropriate crew members for response. The response and resolution to the problem are noted in the database.

2.5 Problem Areas

Weaknesses in the County's bicycle system were highlighted from the 2003 Transportation System Plan, discussions with the BAC, and public comment. The greatest areas of concern were:

- ◆ Poor shoulders on many of the most heavily traveled roads and highways. Brookside and Indian Creek are highest priority, followed by Country Club and Frankton.
- ◆ Many hazards on OR-35 including inconsistent paving, sections without paved shoulders, catch-basins in the paved shoulder, and inadequate clearance of guardrails.
- ◆ Coarse chip seal on County roads that wears and punctures bicycle road tires.
- ◆ Infrequent sweeping that makes the shoulders and travel lanes hazardous.
- ◆ Lack of a good, safe connection between the City of Hood River and Hood River Valley.
- ◆ Several difficult highway intersections on OR-35, OR-281 and OR-282.
- ◆ Developing areas on the urban fringe that have inconsistent facilities and sharp increases in motor vehicle traffic.
- ◆ A need for more trails and short connectors between County roads, especially near schools.
- ◆ A need for sidepaths on many County roads to accommodate pedestrians and child cyclists.
- ◆ A need for a system connecting the various mountain bike trails to allow a loop.
- ◆ A need to complete the section of the Historic Columbia River Highway trail through the County.
- ◆ Lack of coordination with the Parks and Recreation Master Plan.

2.6 Open House Comments

An Open House was held at the County meeting room on July 25, 2006 from 5:00 PM to 7:00 PM. Materials and displays described the planning process and the draft project list. Maps, comment forms and one-on-one discussion were used to collect comments from the 26 attendees.

Comments included the following in no particular order:

- ◆ Highway 281 is very dangerous and needs more space outside the fog line for bicyclists.
- ◆ Highway 35 travel lanes were repaved but the shoulders were not.
- ◆ Safe routes to school: May St. too narrow when cars park on both sides. No shoulders in county.
- ◆ For the City: State St. westbound for those who live on W side, left turn on Serpentine is dangerous, 13th not much better.
- ◆ Improve access to Twin Tunnels Trail.
- ◆ Enforce existing bike lane right of way. Ticket parking violations.
- ◆ Bike path on Mt. Hood R.R. right-of-way.
- ◆ Surface of east side road from Whiskey Creek up Panorama Place is very rough.
- ◆ Prioritize path development to enable kids to bike to school.
- ◆ Tucker Rd. up Davis Hill: there are grooves and a very rough and narrow shoulder.
- ◆ When repaving please do entire overlay on the road.
- ◆ Bike path to Lot 6, connect the hook, multi-use bridge.
- ◆ Bike access across Hood River Bridge (see Section 5, Appendixes for discussion).
- ◆ Have the City and County talk to each other about interconnecting routes from City to County roads.
- ◆ Keep the Hood River Crossing walk/bike suspension bridge.

2.7 Funding

The County manages local bicycle and pedestrian facilities using a combination of federal grants, state highway funds and local revenues. The motor fuel tax is the primary funding source for both local and state systems. ODOT, cities and counties annually expend an amount equivalent to at least one percent of the state Highway Fund to provide walkways and bikeways. For the County this is about \$15,000 per year.

3

Pathways & Trails



A small section of forest trails

3.1 Introduction

During the process of the Bicycle Plan, discussion by the BAC focused on the development of trails or pathways. In general, the discussion fell into two areas:

- ◆ Recreational trails that could link open space, parks, and other destinations (Sections 3.2 and 3.3 below).
- ◆ Off-road “connector” paths that allowed a way for pedestrians and bicyclists to traverse incomplete sections of road (Section 3.4 below).

3.2 Hood River County Forest Recreation Trails

Hood River County contains nearly 31,000 acres of land dedicated as County Forest, of which just over 27,000 acres is suitable for timber production. The Forestry Department manages the forest for optimum revenue for the present and future needs of the residents of Hood River County, while protecting wildlife, water quality, and recreational opportunities.

In 2003, the County adopted Ordinance No. 251, amending Title 12 of the Hood River County Code to include Section 12.10: Forest Recreation Trails. This section of code provides guidelines for forest recreation trails on County-owned lands.

3.3 Hood River Valley Parks and Recreation

In 1988, voters approved creation of the Hood River Valley Parks and Recreation District, which includes most of Hood River County. The District’s role has expanded from operating the Hood River Aquatic Center to meeting a variety of the community parks and recreational needs. Facilities and programs are developed and maintained to provide safe and economical recreational environments for all users.

A number of the recreational trails discussed by the Bicycle Advisory Committee are included in the District’s Master Plan as conceptual trails (see Section 4.4). For those trail alignments that are outside of the City of Hood River’s boundaries, the District and the County Forestry Department should coordinate their planning efforts so that overlap and duplicate efforts are avoided.

3.4 Connector Pathways

As noted previously, the BAC identified some potential connector trails that are included in the Project Rating Summary (Section 4.4) although they are not recommended for inclusion in the Amended 2003 TSP. In Hood River County, however, outside the City Limits of Cascade Locks and Hood River, connector pathways or bikeways outside of a public road right-of-way are generally not considered an outright permitted use. Such a proposal would likely require, at a minimum, a conditional use permit application, which includes notice and the opportunity for a hearing. In addition, proposed connector pathways located in the Columbia River Gorge National Scenic Area are at a minimum considered a review use and require compliance with scenic, natural, cultural and recreational resource guidelines, in addition to notice and the opportunity for a hearing.



West Indian Creek Trail

3.5 Columbia River Gorge Scenic Area

Portions of the Hood River County area are within the Columbia River Gorge Scenic Area. The County’s Zoning Code for the Scenic Area (Article 75, National Scenic Area Ordinance) allows trails if the trails meet the approval criteria for recreational uses. These criteria include an examination of the proposed trail’s contribution to cumulative effects on scenic values in the Gorge.

Millennium Legacy Trails

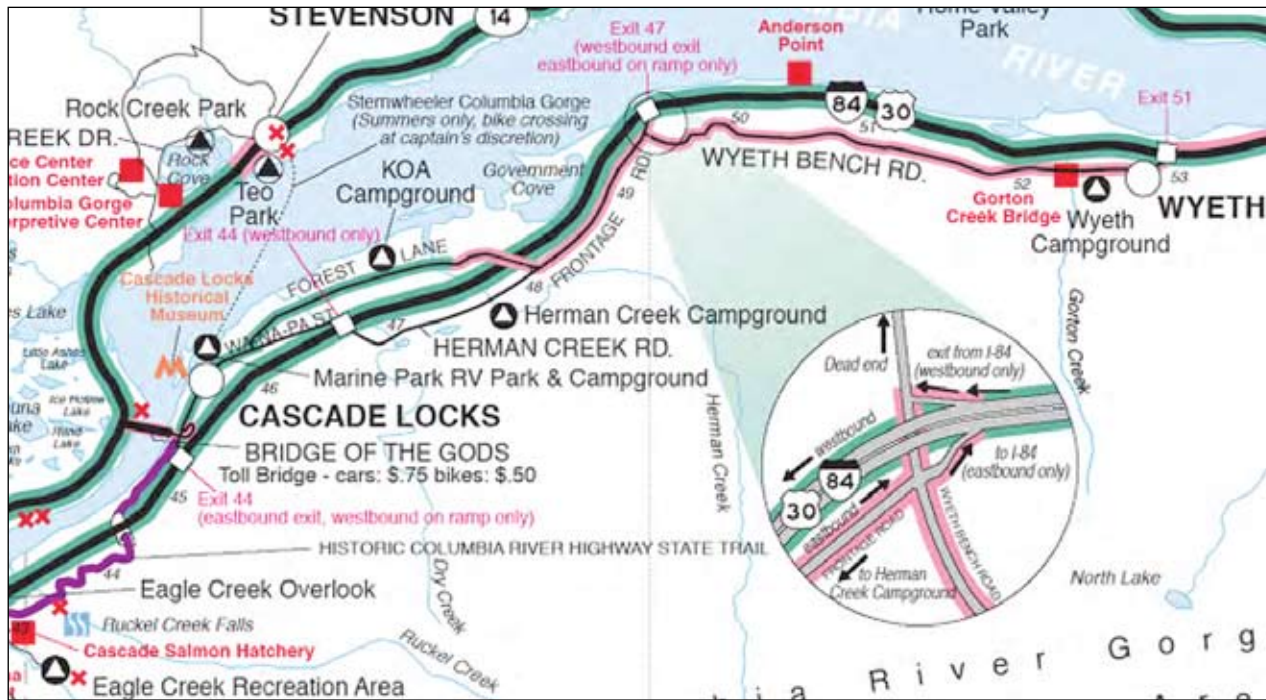
As one of the national millennium projects, Millennium Trails recognized, promoted and supported trails as a means to preserve open spaces, interpret history and culture and enhance recreation and tourism. Under this initiative, more than 2,000 trails across America were recognized, enhanced or built. Of these trails, one from each state was selected as a Millennium Legacy Trail because it reflects the essence and spirit of our nation and is representative of the diversity of trails. As former First Lady Hillary Rodham Clinton said when she announced these trails in 1999, “Each of them stitch a design in our landscape and together help to create a picture of America.”

3.6 Historic Columbia River State Trail

In March 2006 the Oregon Transportation Commission adopted the revised Historic Columbia River Highway Master Plan. The plan outlines a vision for the highway, “to create a continuous visitor attraction providing economic benefit to the communities” as outlined in 1987 legislative policy. The Historic Columbia River Highway (HCRH) was a marvel of engineering and road construction when it was dedicated in 1916, and it is still one of the great scenic highways in the country.



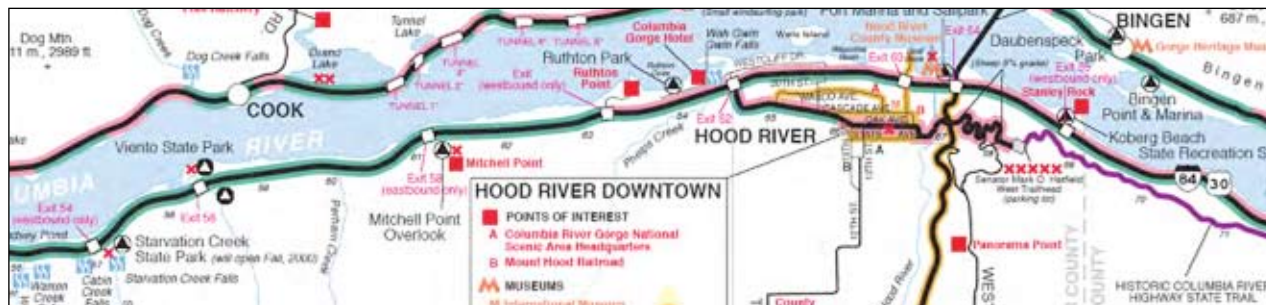
While many miles of the original highway are intact and are used and enjoyed by thousands of visitors to the Columbia River Gorge, some portions in Hood River County were abandoned or eliminated by the construction of I-84. The Historic Columbia River Highway State Trail, which links remnants of the original roadway, is also a National Recreational Trail and has been designated Oregon’s Millennium Legacy Trail.



Note: The Historic Columbia River Highway is maintained under the provisions of two Programmatic Agreements signed by ODOT, Federal Highway Administration, Hood River County, City of Cascade Locks, City of Hood River, and the State Historic Preservation Office. The HCRH includes portions of Wanapa Street and Forest Lane in Cascade Locks, as well as Cascade Avenue and Oak, Front, and State Streets in Hood River. A portion of Westcliff Drive west of the Exit 62 interchange is part of the HCRH although it is maintained by the County.

The HCRH Master Plan calls for a trail connections throughout the Gorge by providing multi-use trail connections between historic segments of the old highway between Hood River and Cascade Locks. Sections of the State Trail in Hood River County include (from west to east):

- ◆ *Moffett Creek to Cascade Locks.* This 5.8-mile trail is complete, providing a continuous hiking and biking facility that is wheelchair accessible between Bonnaville Dam to the Eagle Creek Recreation Area and into the community of Cascade Locks. The eastern trail section is in Hood River County.
- ◆ *Starvation Creek Trailhead to Viento State Park.* This 1.2-mile section is complete.
- ◆ *Hood River to Mosier.* This completed 4.8-mile multi-use trail follows the historic alignment of the HCRH. This is a popular bicycling destination and provides an off-road transportation alternative between Hood River and Mosier. The western trail section is in Hood River County.



There are four State projects planned on the HCRH trail between Wyeth and Hood River (west to east):

- ◆ *Wyeth to Starvation Creek* (long term, \$16.6 M). This is an extremely challeng-

ing section of trail to engineer and may require a mile-long floating path on the Columbia River. It connects with two historic pavement sections, one along the Columbia River east of Wyeth and the other at Lindsey Creek State Park; to do this would require a over or under crossing of I-84.

- ◆ *Viento to Mitchell Point* (medium term, \$7.4 M). A possibility is to use portions of the Wygant Trail to connect the historic HCRH pavement.
- ◆ *Mitchell Point* (medium term, \$6.2 M). The original tunnel location is a ledge. A reconstructed tunnel is proposed which would be more likely to meet the visual requirements of the National Scenic Area.
- ◆ *Mitchell Point to Hood River* (short term, \$6.1 M). This project constructs the trail from Mitchell Point to the western UGB of Hood River along Westcliff Drive (refer to County project B-101 in the Bicycle Plan). A trail head is possible at Ruthton Park. The trail parallels I-84 to Ruthton Point. Here the historic features associated with the highway have been restored. From Ruthton Point the trail parallels the highway to the Frontage Road. The trail would use the Frontage Road undercrossing and follow the road which includes portions of the historic alignment to the base of Mitchell Point. Portions of this trail alignment are being designed by ODOT.

4 Bicycle System

4.1 Introduction

A successful bicycle system consists of projects, maintenance, agency coordination, and supporting policies.

Projects

Sections 4.2 to 4.6 describe the process through which the list of preliminary projects identified in Chapter 2 was inventoried, evaluated, and ranked. The result was the list of recommended projects that will be included in the amended 2003 TSP (see Section 4.5). Over time, the County will improve its bicycle facilities by construction of the new projects.

Maintenance

The County has a small but active maintenance program. Increased sweeping and proactive repair of the roadway edge will enhance conditions for all road users, including bicyclists. Establishing and marking of bicycle loops will help visitors and recreational cyclists. Upgraded maintenance would require increased funding and staffing. The source of such funding has not been identified.

Agency Coordination

There are many overlapping government agencies and duplication of effort in regards to bicycle transportation. Discussions during the Bicycle Plan process, especially about trails, highlighted the need for coordination between the County, other agencies and the public. A unified planning approach will help in planning projects and will improve the chances of securing funding and grants.

Plan Amendments

It is recommended that the County adopt this Bicycle Plan in its entirety as an addendum to the County TSP and that the 2003 TSP Bicycle Projects be replaced with those projects listed in Section 4.5 of this Bicycle Plan (as well as the single project converted to a pedestrian project).

4.2 Bicycle Planning Considerations

4.2.1 BICYCLE-FRIENDLY PLANNING

There are many elements in a bicycle-friendly community:

- ◆ Transportation facilities and services
- ◆ Land-use and development
- ◆ Schools
- ◆ Parks, recreation and trails
- ◆ Safety, security and crime prevention

All Roads are Bikeways

- *Major roads are backbone.*
- *Local streets connect.*
- *Paths expand system and attract bicyclists.*

The focus of this plan is on the transportation elements, but all the elements are interrelated.

The principles of successful bicycle planning start with the idea that “all roads are bikeways,” beginning with the major roads and supported by local streets and pathways. Appropriate facility standards should be followed; Oregon is fortunate to have one of the best State plans which provides outstanding design guidance. Good maintenance practices are essential, as unmaintained facilities become unsafe and poorly used, and waste the investment. Finally, supporting facilities, such as bicycle parking and transit links, complete the picture.

4.2.2 RURAL BIKEWAYS

Most of the bikeways in the County are on rural roads, typically with 2 travel lanes and little or no paved shoulders. Many of these roads work fine the way they are for bicyclists but, as traffic volumes increase, conflicts happen more frequently, especially when there are many trucks. Then it is time to think about adding paved shoulders where the bicyclist can ride out of the main traffic stream. A relatively smooth surface is also important. Grade and sight distance affect bicycle operation and safety, and they are another reason for paved shoulders.

4.2.3 PAVED SHOULDERS

Need

While rural roads seldom serve large numbers of bicyclists, they are often the only connection between points A and B. Bicyclists who, for example, live on a farm and want to ride to town will have relatively few options compared to bicyclists who live in town and want to ride to the store. Rural bicyclists may also have to contend with high speed traffic and, in some cases, high traffic volumes with significant truck traffic. To further exacerbate the problem, the roadway may be narrow with damaged pavement and debris near the edge, and drainage ditches or rough gravel next to the pavement.

Rural Bikeway Factors

- *Traffic volume, especially trucks.*
- *Pavement width including paved shoulders.*
- *Surface quality.*
- *Grade.*
- *Sight distance.*



A road without a paved shoulder leaves the bicyclist with little maneuvering space and can discourage all but the most experienced riders

Other bicyclists on rural roadways include tourers, racers on training rides, and those out for a day's recreational ride. In some parts of the County, these users can be quite numerous, particularly on certain roads and during certain times of year.

Solution

Before the 1971 “Bike Bill” was passed, and before the terms “shoulder bikeways” or “bike lanes” were commonly used, the Oregon Highway Division advocated building paved shoulders when constructing roads and when improving existing roads. These were often referred to as “safety shoulders.” There are good reasons for this term.

The following lists are what AASHTO (American Association of State Highway Officials) says about the benefits of shoulders in regards to safety, capacity and maintenance. Most of these benefits apply to shoulders on rural roads and to marked, on-street bike lanes on urban roads.



Paved shoulders benefit all road users



Pedestrians on Belmont shoulder at dusk

Safety

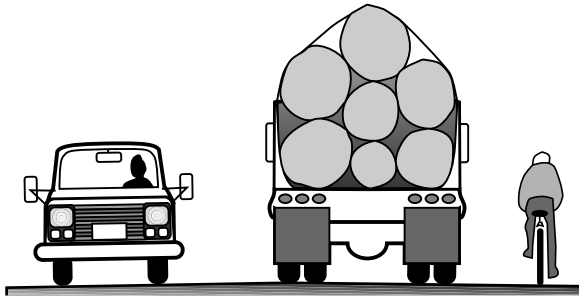
Roads with paved shoulders have lower accident rates because paved shoulders:

- ◆ Provide space to make evasive maneuvers.
- ◆ Accommodate driver error.
- ◆ Add a recovery area to regain control of a vehicle, as well as lateral clearance to road-side objects such as guardrail, signs and poles.
- ◆ Provide space for disabled or delivery vehicles (including postal service) to stop.
- ◆ Provide increased sight distance for through vehicles and for vehicles entering the roadway.
- ◆ Contribute to driving ease and reduced driver strain.
- ◆ Reduce passing conflicts between motor vehicles and farm equipment, bicyclists and pedestrians (i.e., squeeze points).
- ◆ Provide a smooth surface for pedestrians and people in wheelchairs where there are no sidewalks.
- ◆ Make the crossing pedestrian more visible to motorists.
- ◆ Provide for storm water discharge farther from the travel lanes, reducing hydroplaning, splash and spray to following vehicles, pedestrians and bicyclists.
- ◆ In dry areas reduce dust raised by passing vehicles, as they drive further from unpaved surfaces.

Capacity

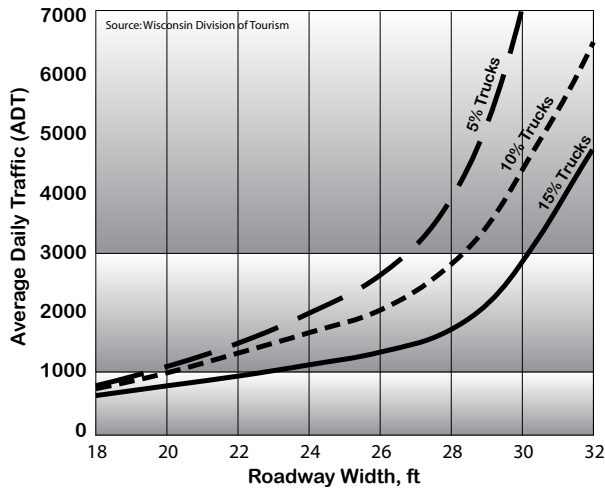
Roads with paved shoulders can carry more traffic because paved shoulders:

- ◆ Provide more intersection and safe stopping sight distance.
- ◆ Allow for easier exiting from travel lanes to side streets and roads (also a safety benefit).



“Squeeze points” occur when a bicyclist and two motor vehicles traveling in opposite directions meet on a narrow road

**Maximum Desirable ADT with Bicycles
2-Lane Rural Roads**



Paved roadway width should increase with higher traffic volumes, especially trucks

- ◆ Provide greater effective turning radius for trucks.
- ◆ Provide space for off-tracking of truck’s rear wheels in curved sections.
- ◆ Provide space for disabled vehicles, mail delivery and bus stops.
- ◆ Provide space for bicyclists to ride at their own pace.

Maintenance

Roads with paved shoulders are easier to maintain because paved shoulders:

- ◆ Provide structural support to the pavement.
- ◆ Discharge water further from the travel lanes, reducing the undermining of the base and subgrade.
- ◆ Provide space for maintenance operations and snow storage.
- ◆ Provide space for portable maintenance signs.
- ◆ Facilitate painting of fog lines.

Implementation

A study done in Wisconsin determined that a 24-ft wide road with more than 2000 ADT (average daily trips by vehicle) and 5% truck traffic would have enough conflicts to bother a moderately experienced adult bicyclist.

A smooth paved shoulder on rural roads is typically provided in one of three ways. First, shoulders are often part of a new road or a reconstruction project. This is, typically, the least expensive way to provide shoulders; when included as an original part of a larger project, shoulder provisions can benefit from possible savings in right-of-way acquisition, utility relocation, grading, and paving that must be done anyway.

The second alternative is to provide shoulders as an independent project. While this may well prove more expensive than including shoulders when a road is constructed or re-constructed, there are instances where it should be done anyway. For example, consider the case where development overtakes a previously adequate two-lane rural road. A new

park may be built near a school and a subdivision may go in just up the road. As a result of these use changes, the road may well start attracting higher levels of bicycle traffic than previously. And, while there may be plans to improve the roadway in the long term, such a project may be 10 or 20 years off.

Third, shoulders may be provided as part of a periodic overlay project. This approach can be cost-effective if the existing gravel shoulder can support a paved shoulder with minor excavation. It also has the benefit of providing a seamless joint.

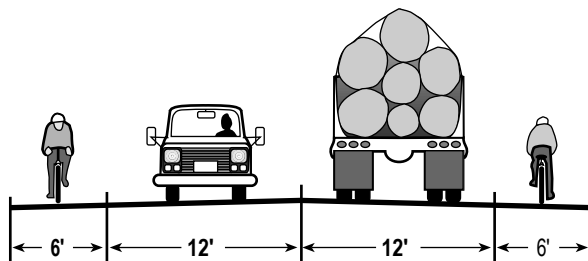
Providing short stretches of shoulder connected by roadway sections with no shoulders does little to help bicyclists. On the other hand, if including shoulders as incidental features of roadway reconstruction or overlay projects can provide important pieces of the puzzle, such opportunities should not be overlooked. The remaining sections can be connected at a later date to provide continuity at a substantially reduced cost. Ultimately, shoulders should be provided continuously between logical origins and destinations. This includes providing adequate width on bridges and other structures.

Shoulder width

The state recommends paved shoulders on rural highways of:

- ◆ 2-ft on low-volume (less than 400 ADT) rural collector and local roads.
- ◆ 4-ft on low-volume rural arterial and moderate-volume (400–1000 ADT) rural collector and local roads.
- ◆ 6 to 8-foot shoulders on higher-volume rural roads.

When providing shoulders for bicycle use, a width of 6 ft is recommended. This allows a cyclist to ride far enough from the edge of pavement to avoid debris, yet far enough from passing vehicles to avoid conflicts. If there are physical width limitations, a minimum 4-ft shoulder may be used (5 ft if against a curb face, guardrail or other roadside barrier). On steep grades, it is desirable to maintain a 6-ft shoulder, as cyclists need more space for maneuvering.



Minimum shoulder: 5' against curb, parking or guardrail; 4' open

Source: Oregon Bicycle and Pedestrian Plan

4.3 Project Selection Criteria

Potential projects were evaluated and selected using 7 criteria:

- ◆ Relevance
- ◆ Need
- ◆ Funding
- ◆ Technical
- ◆ Political
- ◆ Use
- ◆ Cost

There is no particular weighting to these criteria. In general, if the majority of criteria rate well, then the project is a good candidate. However, one extremely negative criterion tends to offset several positive ones.

A given project may have alternative designs with different tradeoffs. In particular, it may be tempting to accept a design with low standards to avoid confrontation with affected property owners, to avert perceived inconvenience to motorists, or to simply keep construction costs down. Except in special circumstances, minimum standards in the Oregon Bicycle and Pedestrian Plan should be used, and attention should always be paid to long-term goals.

Some questions asked in evaluating projects are discussed below.

☛ Relevance to plan goals – High is best

Projects that strongly support multiple transportation and community goals are preferable.

- Is the project part of the city's transportation plan?

- Is there a bicycle transportation problem that the project will solve or alleviate?
- Will the project support business, health or other community goals?

Need – High is best

Areas or corridors that serve bicyclists poorly are better candidates for projects than those that already have facilities.

- Is the existing road a deterrent to bicycling? Roads with narrow lanes and heavy traffic, or that are difficult to cross, receive priority treatment. Other factors include high truck volumes, poor sight distance, dangerous intersections or other obstacles to direct travel by bicyclists.
- Does the project upgrade a major roadway (arterial or major collector street), bridge an obstacle, provide a more direct route (reducing significant out-of-direction travel), or provide access to important destinations such as schools?
- Will the facility link, complete or extend the system? Are there clear origin and destination points along the corridor served?

Available funding – More is best

Projects that have identified funding sources are preferable.

- Can the project be funded from existing transportation sources?
- Are special grants or loans available?
- Are private or community interests willing to invest in the project?
- Can the project be timed to take advantage of other road work being performed?

Technical implementation – Simple is best

Straightforward projects with standard designs are preferable.

- Is the project the appropriate treatment for the problem?

- Does the project meet current design standards?
- Are highway design exceptions needed?
- Are there any unusual engineering problems such as a steep slope, poor drainage, or constrained right-of-way?
- Does the project involve many elements or complex phasing?

Political implementation – Easy is best

Non-controversial projects with strong support are preferable.

- Is a substantial amount of public involvement necessary?
- Does the project require additional right-of-way?
- Is removal of on-street parking necessary?
- Has the public shown support for the project?
- Do affected or adjacent property owners agree to the project?
- Does the business community support the project?
- Do government officials support the project?
- Does the responsible agency agree to maintain the facility?
- Is there a willing party to see the project through to completion?

Potential use – High is best

Projects that attract bicyclists are preferable.

- Is the potential use high compared to similar facilities? Factors to consider include proximity to residential areas, schools, parks, shopping centers and business.
- Does the project consider the needs of both bicyclists and pedestrians? In most cases, bicyclists and pedestrians require separate facilities. If the project provides

for only one mode, the design should not preclude use by the other mode, where appropriate.

- Does the project help meet the needs of the young, the elderly, the low-income, and the disabled?
- Does the project provide connectivity to other modes? Facilities that provide bicycle access to existing or future bus stops and park-and-ride sites enhance intermodal transportation.

Inventory

A good inventory is key to evaluating projects.

Potential projects identified in Section 2 were inventoried to clarify the conditions and needs. Each proposed project was visited, documented and photographed. The approximate size or length of the project, existing conditions, and relevant features were noted.

The information collected during the inventory (see Section 4.6) was used to inform the ranking of the projects.

Realistic cost — Low is best

Projects that provide a good return on investment are preferable.

- Are the estimated engineering and construction costs typical for this type of project?
- Are expected maintenance costs reasonable?
- Are there secondary benefits that help mitigate the cost such as economic vitality, lower crime or improved safety?

4.4 Evaluation of Potential Projects

Based on the review of the 2003 TSP (Section 2), good bicycle planning practices (Section 4.2), and information from site visits and BAC review, a total of 33 projects were evaluated using the process described in Section 4.3. These projects are shown in Table 2 and on the map of Figure 1. The proposed projects that were evaluated included:

- ◆ 2 multi-use paths
- ◆ 13 County roads
- ◆ 5 State highway segments
- ◆ 4 State highway intersections
- ◆ 9 trails

Table 2. Project Rating Summary

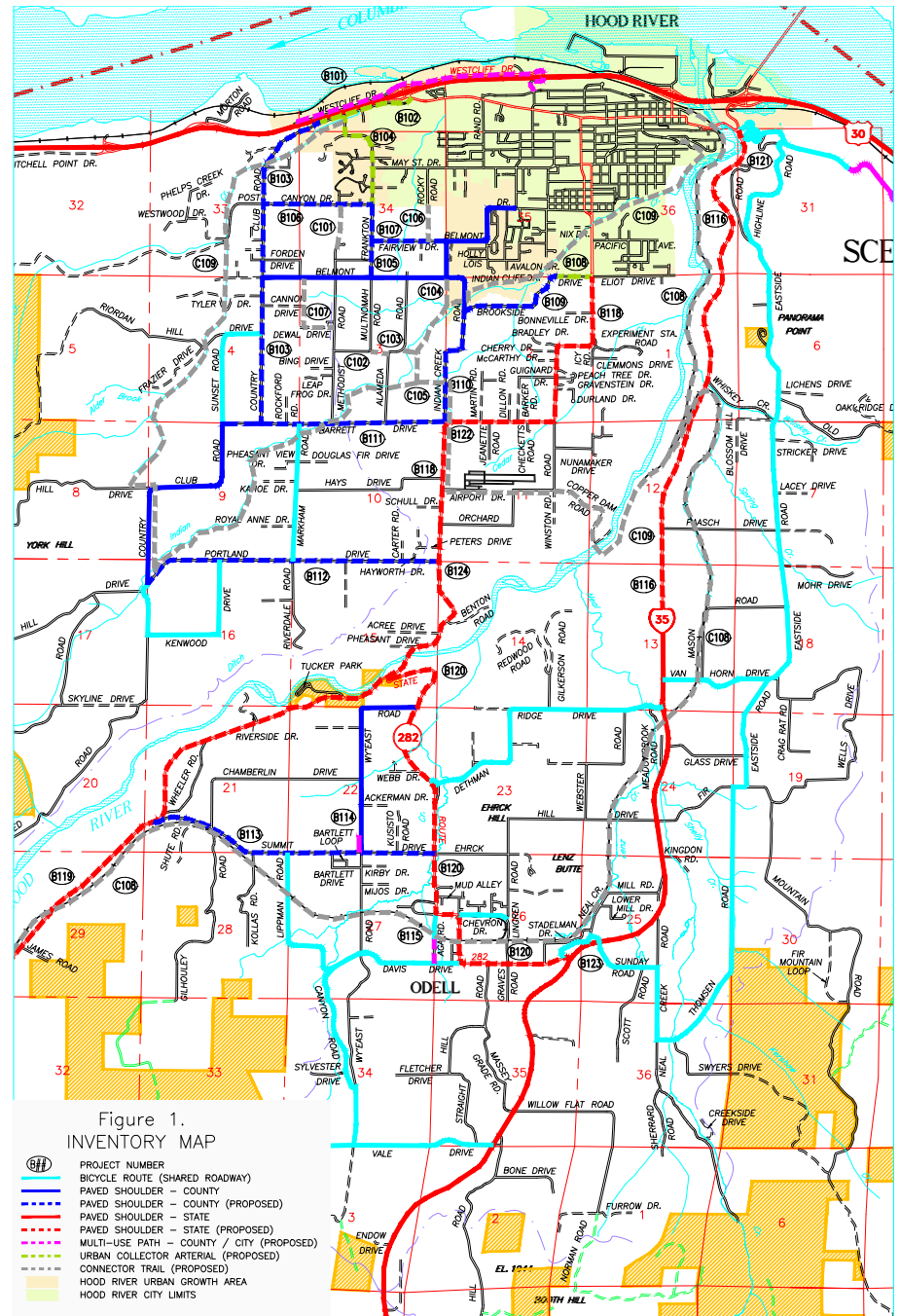
Project	Relevance	Need	Funding	Technical	Political	Use	Cost	Feasibility
Multi-Use Paths								
B-101 Westcliff Dr.	★★★	★★★	★★★	★	★★★	★★★	★★	High
B-115 AGA Rd. (east side)	★★★	★★	★★	★★	★★	★★★	★★★	High
Roads								
B-102 Country Club Rd. (North)	★★★	★★★	★★	★★	★★	★★	★	High
B-103 Country Club Rd. (South)	★★★	★★	★	★	★★	★★	★★	Medium
B-104 Frankton Rd. (North)	★★★	★★	★	★	★★	★★	★	Low
B-105 Frankton Rd. (South)	★★★	★★	★	★★★	★★	★★	★★★	High
B-106 Post Canyon Dr.	★★	★	★	★★	★	★★	★★★	Low
B-107 Fairview Dr.	★★	★	★	★★	★★	★★	★★★	Low
B-108 Brookside Dr. (East)	★★★	★★★	★	★★★	★★★	★★★	★★★	High
B-109 Brookside Dr. (West)	★★★	★★★	★	★★	★	★★★	★	Medium
B-110 Indian Creek Rd.	★★★	★★★	★	★★	★	★★★	★★	High
B-111 Barrett Dr.	★★	★★	★	★★★	★★	★★	★★	Medium
B-112 Portland Dr.	★★	★	★	★★★	★★	★	★	Low
B-113 Summit Dr.	★★★	★	★	★★	★★	★★★	★	Medium
B-114 Wy'east Rd	★★★	★★	★	★★	★★	★★	★★	Medium
Highways								
B-116 OR-35 Mt. Hood Hwy. (North)	★★★	★★★	★	★★	★	★	★	Spot
B-117 OR-35 Mt. Hood Hwy. (South)	★★★	★★	★	★★	★	★	★	Spot
B-118 OR-281 Hood River Hwy. (North)	★★★	★★★	★	★★	★	★★★	★	Spot
B-119 OR-281 Hood River Hwy. (South)	★★★	★★	★	★	★	★★	★	Spot
B-120 OR-282 Odell Hwy.	★★★	★★	★	★	★	★★	★	Spot
Intersections								
B-121 OR-35 & HCRH	★★★	★★★	★	★★	★	★★★	★	Medium
B-122 OR-281 & Indian Creek Rd.	★★	★★★	★	★★	★	★	★★	Medium
B-123 OR-35 & OR-282	★★★	★★	★	★★	★★	★★★	★	Medium
B-124 OR-281 & Portland Rd.	★★	★★	★	★	★★	★	★	Low

Project	Relevance	Need	Funding	Technical	Political	Use	Cost	Feasibility
Trails								
C-101 North of Methodist Rd. (Methodist to Post Canyon)	★	★★	★	★★	★	★★	★★	—
C-102 West of Alameda Rd. (Multnomah to Alameda)	★	★★★	★	★★	★★★	★★	★★	—
C-103 East of Alameda Rd. (Alameda to High School)	★	★★★	★	★	★	★★	★★	—
C-104 South of Hutson Rd. (to Arrowhead Dr.)	★	★★	★	★★	★★	★★	★★★	—
C-105 East of Alameda Rd. (Alameda to Indian Creek Trail)	★	★★	★	★★	★★	★★	★★	—
C-106 Henderson Creek (Fairview to Rocky Road)	★	★★	★	★★	★	★★	★★	—
C-107 Dewal Dr. (north to Belmont Dr.)	★	★	★	★★	★★★	★	★★	—
C-108 Mt. Hood Railway (regional)	★	★★★	★	★★	★	★★★	★	—
C-109 Loop Trail (regional)	★	★★★	★	★	★	★★★	★	—

★ = Poor ★★ = Fair ★★★ = Good

Figure 1. Inventory Map

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Note that the nine trail projects included in Table 2 were evaluated but were not given a feasibility rating and were not recommended for inclusion in the Amended 2003 TSP. As noted in Section 3.4, connector pathways and trails are generally considered a conditional use or a review use, and thus require notice and the opportunity for a hearing. Hood River County will continue to seek opportunities to work cooperatively with other agencies, districts and interested parties to create such trails.

4.5 Recommended Projects

Of the projects shown in Table 2 and on Figure 1 that were evaluated for feasibility, 20 projects are recommended for inclusion into an amendment to the 2003 Hood River County TSP. Table 3 summarizes these projects, Figure 2 shows their locations, and Section 4.6 provides illustrations and detailed information about the recommended projects.

In addition, three County road projects (B-106, B-107, and B-112) and one State highway intersection project (B-124) were eliminated due to a low overall feasibility score.

One project (B-115) was converted from a bicycle project to a pedestrian project, which is recommended for inclusion into the Amended TSP as P-1.

Also note that the 2003 TSP included five segments of the HCRH Trail that were not evaluated in Table 2 because they are already part of the State's adopted plan for the HCRH. One segment has been completed and the four remaining segments are recommended as a single project for the Amended TSP (listed in Table 3 as B-125).

4.6 Project Descriptions

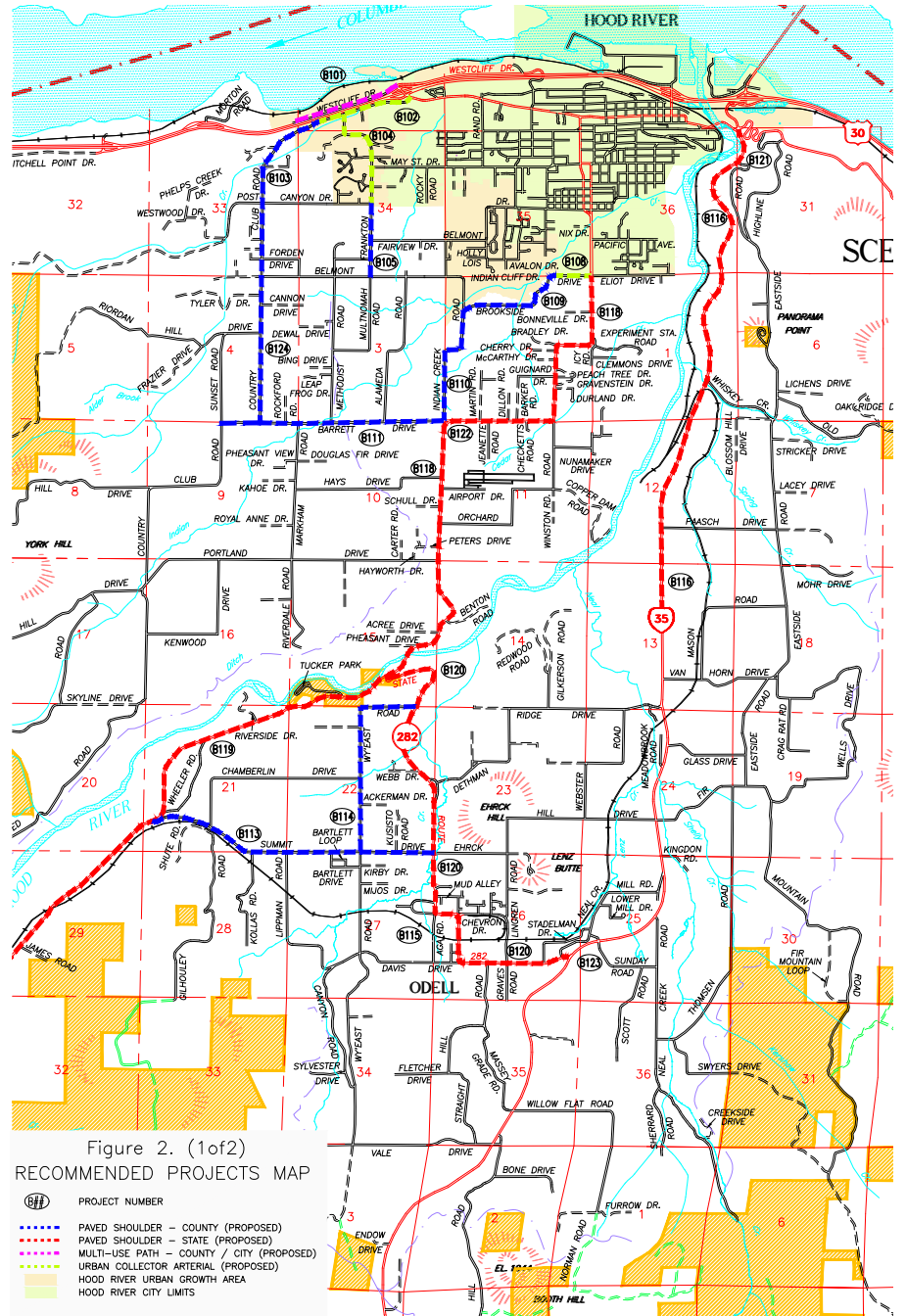
The following pages include detailed project descriptions for the projects forwarded to the Amended TSP. Note that descriptions of the HCRH trail segments (B-125) are not included because these are detailed in the ODOT HCRH Plan.

Table 3. Summary of Projects Recommended for Amendment to TSP

Project	Origin	Priority	Jurisdiction	Cost (\$k est.)
Multi-Use Paths				
B-101 Westcliff Dr.	2003 TSP	Short-range	County/ODOT	2400
B-125 HCRH trails (4 segments) <ul style="list-style-type: none"> ◆ Wyth to Starvation Creek ◆ Viento to Mitchell Point ◆ Mitchell Point ◆ Mitchell Point to Hood River 	2003 TSP (HCRH Plan)	Long-range Medium-range Medium-range Short-range	ODOT	16600 7400 6200 6100
Roads				
B-102 Country Club Rd. (North)	2003 TSP	Short-range	County	1200
B-103 Country Club Rd. (South)	BAC	Medium-range	County	408
B-104 Frankton Rd. (North)	BAC	Long-range	County	72
B-105 Frankton Rd. (South)	BAC	Short-range	County	90
B-108 Brookside Dr. (East)	2003 TSP	Short-range	County	60
B-109 Brookside Dr. (West)	2003 TSP	Medium-range	County	300
B-110 Indian Creek Rd.	BAC	Short-range	County	180
B-111 Barrett Dr.	BAC	Medium-range	County	192
B-113 Summit Dr.	BAC	Medium-range	County	378
B-114 Wy'east Rd	BAC	Medium-range	County	252
Highway Segments				
B-116 OR-35 Mt. Hood Hwy. (North)	BAC	With other hwy projects	ODOT	1200
B-117 OR-35 Mt. Hood Hwy. (South)	BAC	With other hwy projects	ODOT	1800
B-118 OR-281 Hood River Hwy. (North; Tucker)	BAC	With other hwy projects	ODOT	1440
B-119 OR-281 Hood River Hwy. (South)	BAC	With other hwy projects	ODOT	6480
B-120 OR-282 Odell Hwy.	BAC	With other hwy projects	ODOT	1200
Highway Intersections				
B-121 OR-35 & HCRH	2003 TSP	Medium-range	ODOT	Unknown
B-122 OR-281 & Indian Creek Rd.	2003 TSP	Medium-range	ODOT/County	2400
B-123 OR-35 & OR-282	2003 TSP	Medium-range	ODOT	Unknown

Figure 2. Recommended Projects Map (1 of 2)

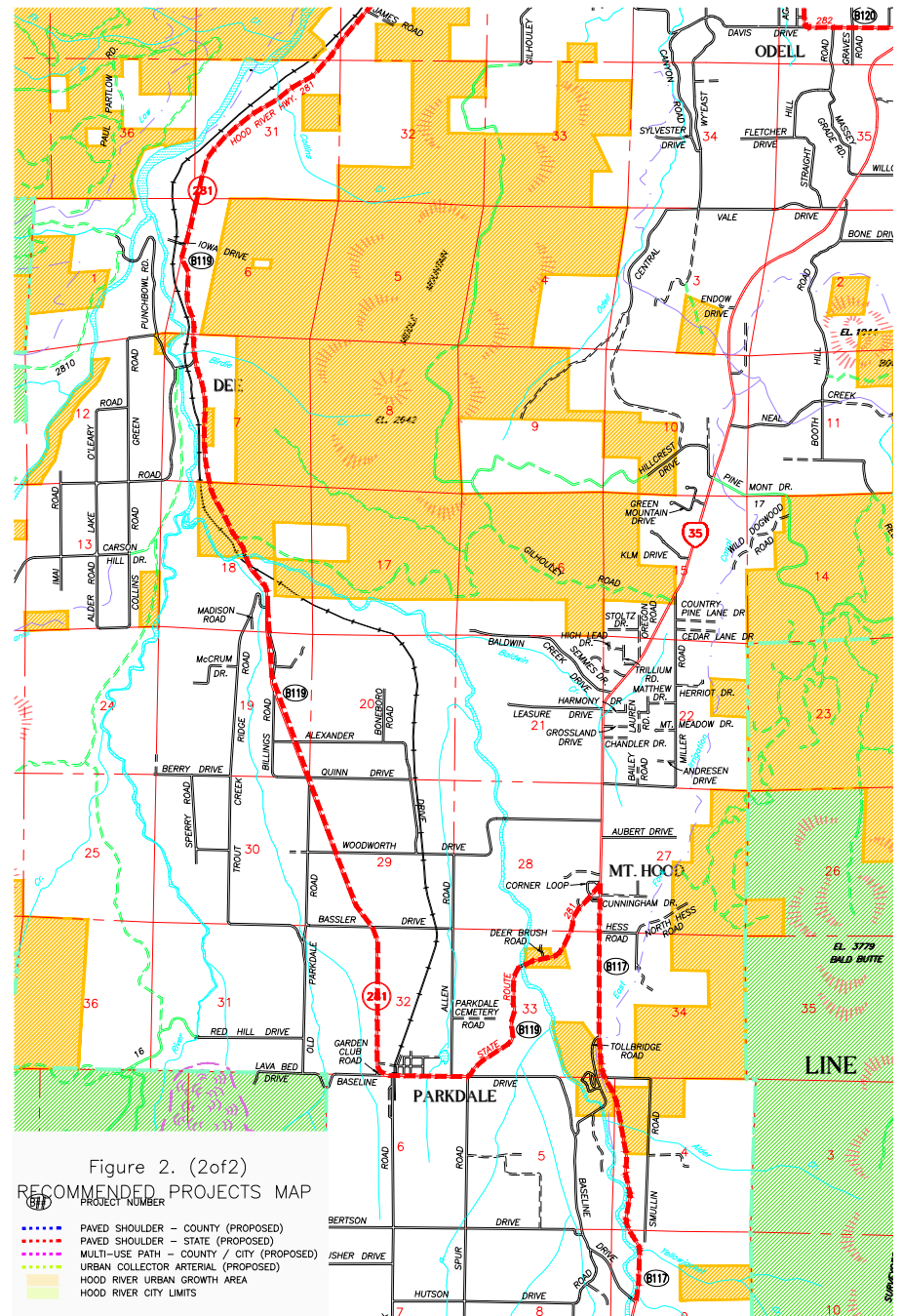
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Figure 2. Recommended Projects Map (2 of 2)

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B-101

Westcliff Dr. (multi-use path on County Road within the UGB)



*Westcliff Dr. project (red) and HCRH project from Mitchell Point (yellow).
Abandoned Meredith Motel at west end of road.*

Project	8' Path Cascade to Meredith Motel
Length	0.75 mi
ADT	1400 on Westcliff Dr. east end; west dead-end
Cost	\$2,000,000
Comments	Tied into HCRH Master Plan which has support and probable funding.

B-102

Country Club Rd. (north)



Country Club Rd. (red) south of I-84. Westcliff Dr. (green) north of I-84.

Project	6' bike lanes & sidewalks Cascade to UGB
Length	0.75 mi
ADT	4800
Speed	45 mph
Cost	\$1M realignment project (County estimate)
Class.	Urban collector
Comments	Primary access to valley above. Dependent on development. Intersection with highway to be realigned.

B-103 Country Club Rd (south)



Country Club heads up a hill (above) and then gradually climbs south (elevation profile below) for a total gain of about 460 ft.

Project	4' shoulders UGB to S. Sunset
Length	2.75 mi
ADT	2600 (3480 in 2020)
Speed	45 mph
Cost	\$340,000
Class.	Rural major collector
Comments	Primary access to valley above. Cross-slope on hill with no shoulder. Remainder of road above varies but generally has room.

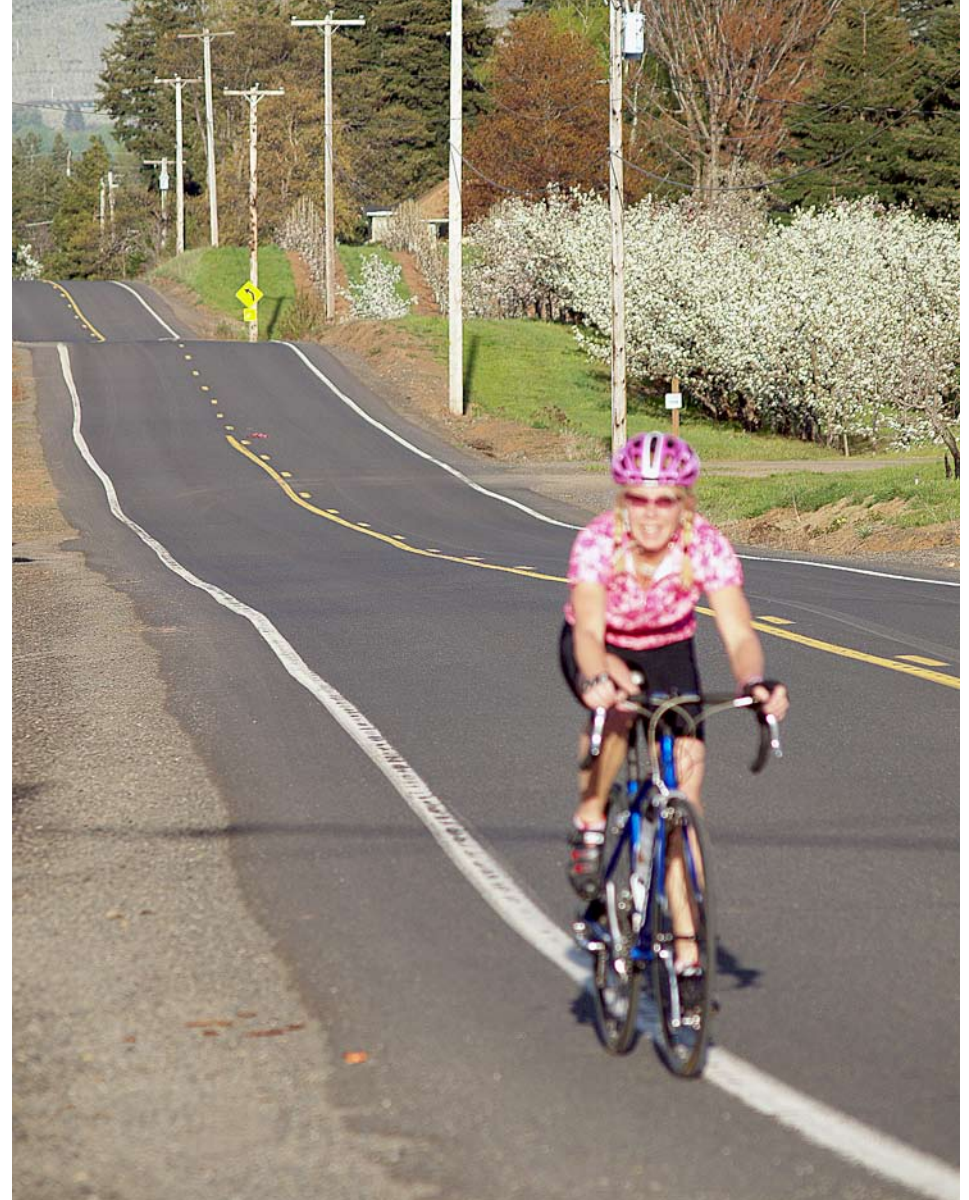


Country Club Rd (south) cont'd



Full-width shoulders would be of particular benefit on rises where vertical sight distance is poor.

Shoulders on Country Club are inconsistent and a little too narrow for bicycles, so that cyclists tend to ride on the stripe or in the travel lane.



B-104 Frankton Rd. (north)



Project 6' bike lanes & sidewalks
Length 0.8 mi (Country Club Rd. to Post Canyon Dr.)
ADT 1800 (2215 in 2020)
Speed 40 mph
Cost \$600,000
Class. Urban collector
Comments Alternate access to valley above. Like Country Club, the road has a steep cross-slope and no shoulder.



B-105 Frankton Rd. (south)



Looking north at Fairview Dr.



Project	4' shoulders (existing 0')
Length	0.5 mi (Post Canyon Dr. to Belmont Dr.)
ADT	2300 (3300 in 2020)
Speed	40 mph
Cost	\$75,000
Class.	Rural major collector
Comments	Relatively straight and level with some ditches. Many driveways and some intrusion into ROW by fences and landscaping.

Looking east on Belmont Dr. where Frankton Rd. on the left turns into Multnomah Dr. on the right



B-108

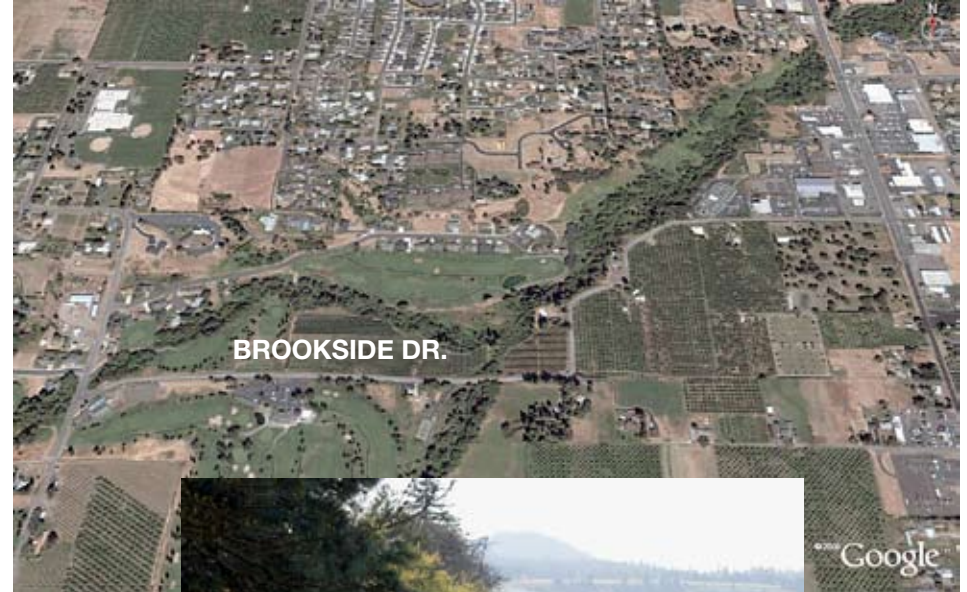
Brookside Dr. (east)



Project	6' bike lanes & sidewalks
Length	0.1 mi to Adult Center
ADT	2600
Speed	Not posted
Cost	\$50,000
Class.	Urban collector
Comments	Short section west of signalized intersection.

B-109

Brookside Dr. (west)



Project	4' shoulders (existing 0'; 40' ROW)
Length	1.0 mi (Indian Creek Rd. to Adult Center)
ADT	2000 (appears higher)
Speed	Not posted
Cost	\$250,000
Class.	Rural major collector
Comments	Important east-west connection. Poor sight distance and speeding motor vehicles.

B-110 Indian Creek Rd.



Project 4' shoulders Broken Tee to Barrett (40'-60' ROW)
 Length 1.0 mi
 ADT 3400 (4880 in 2020)
 Speed 35 mph
 Cost \$150,000
 Class. Rural major collector
 Comments High School and Indian Creek Trail access. Several corners and hills.



B-111

Barrett Dr.



Project	4' shoulders (existing 0')
Length	1.25 mi
ADT	2600 (3865 in 2020)
Speed	40 mph
Cost	\$160,000
Class.	Rural major collector
Comments	Primary east-west connection.



B-113

Summit Dr.



Project 4' shoulders (existing 0')

Length 2.1 mi

ADT 1800 (2190 in 2020)

Speed 25-45 mph

Cost \$315,000

Class. Rural major collector

Comments School and fairgrounds access. Western section part of County Tour Route. Bartlett Dr. to Hwy 282 is residential.



B-114

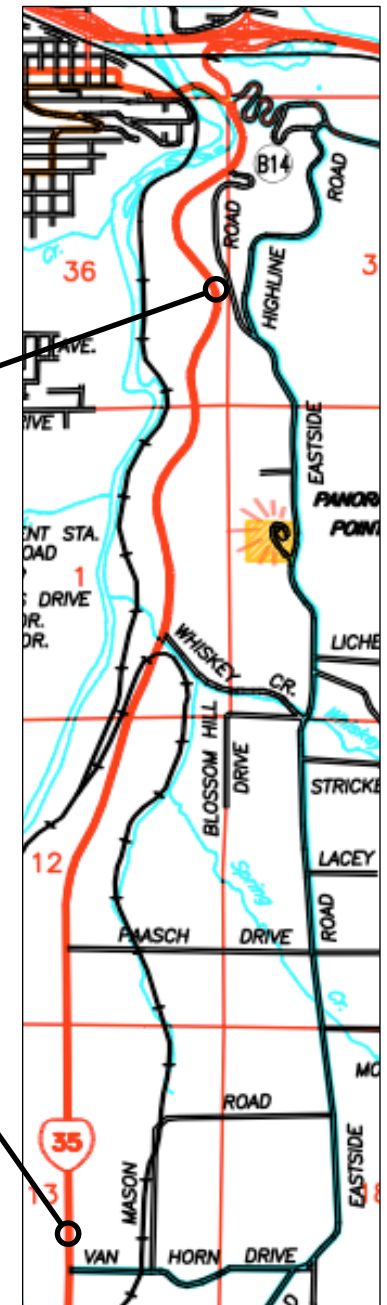
Wy'east Rd.



Project	4' shoulders in 40' ROW
Length	1.6 mi (Highway 282 to Mijos Dr.)
ADT	---
Speed	45 mph with 25 mph speed zone
Cost	\$252,000
Class.	Rural major collector
Comments	School access. Part of County Tour Route. Summit Dr. to Bartlett Dr. completed Summer 2009.

B-116 OR-35 (north)

- Project 6' shoulders (existing mostly 5'-9' with narrower sections)
- Length 3.6 mi (Historic Highway to Van Horn Drive)
- ADT 6700 (11245 in 2020)
- Speed 45-55 mph
- Cost \$1M (County estimate)
- Class. State highway
- Comments Inconsistent shoulders from passing lanes, guard rails and drainage catch basins. Speeding motor vehicle traffic and trucks. See also intersection with HCRH.



B-117 OR-35 (south)



*Narrows 1 km south of Cooper Spur
(south of project, pre-flood)*

Project	6' shoulders (existing 2'-8')
Length	5.0 mi (OR-281 to Baseline Drive)
ADT	2000 (3400 in 2020)
Speed	40-55 mph
Cost	\$1.5M (County estimate)
Class.	State highway
Comments	Inconsistent shoulders. Speeding motor vehicle traffic and trucks. See also intersection with OR-282.

B-118 Tucker Rd. (Hood River Hwy, OR-281)

Project 6' shoulders (existing mostly 0'-6')

Length 4.0 mi (City Limits to Highway 282)

ADT 7100-11600 (15360 in 2020)

Speed 25-55 mph

Cost \$1.2M (County estimate)

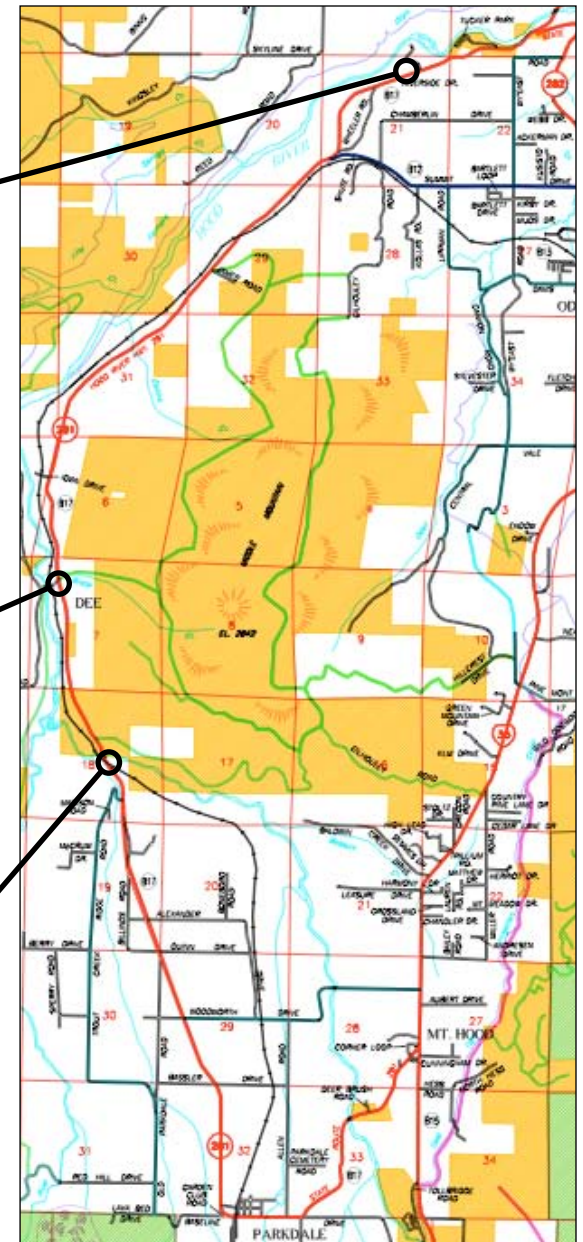
Class. State highway

Comments Inconsistent shoulders and pavement grinding. Speeding motor vehicle traffic and trucks. See also intersection with Indian Creek Rd. (Wind Master).

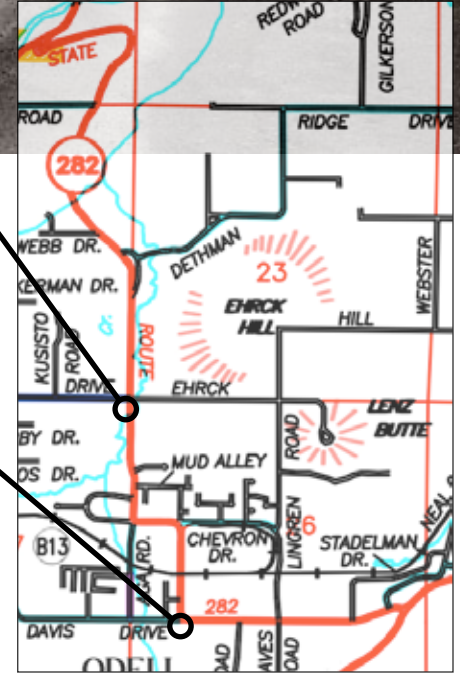


B-119 Hood River Hwy (OR-281) south

- Project 6' shoulders (existing 0'-5'); sidewalks in Parkdale
- Length 17.9 mi (Highway 282 south to Highway 35)
- ADT 1200-2400 (2700 in 2020)
- Speed 25-55 mph
- Cost \$5.4M (County estimate)
- Class. State highway
- Comments Inconsistent shoulders. Speeding motor vehicle traffic and trucks.



B-120 OR-282 (Odell Hwy)



- Project 6' shoulders (existing 0'-8'); sidewalks in Odell
- Length 3.4 mi
- ADT 5200 (5500 in 2020)
- Speed 25-55 mph
- Cost \$1M (County estimate)
- Class. State highway
- Comments Inconsistent shoulders. Speeding motor vehicle traffic and trucks. See also intersection with OR-35.

B-121

Intersection: Mt. Hood Hwy (OR-35) & HCRH



Project Intersection of Mt. Hood Hwy (OR-35) and east-west (US-30) highways to the east of the City of Hood River. All-way stop with slip lanes. No sidewalks or bike lanes. Access to Historic Columbia River Highway (HCRH). Can be difficult to cross by bicycle.

The County TSP notes that the intersection generally operated satisfactorily (per motor vehicle delay) in 1999 but failed during peak seasonal periods. The TSP lists a project (R-18) for ODOT to study and propose intersection improvements.

The Exit 64 East Hood River Interchange Study Final Report, June 2005, studied this intersection (called Button Junction in the report) because it is close to the interchange. A signal was recommended over a roundabout because it was estimated to take slightly less area and could be remotely controlled during unusual traffic events. Neither the signal nor roundabout meet capacity standards in 2025. The Exit 64 Report did not evaluate bicycle facilities, safety, or access to the HCRH, and the public meeting notice for the report did not mention this intersection. Proposed improvements have not been funded.

B-121

Intersection: Mt. Hood Hwy (OR-35) & HCRH cont'd

The BAC was unaware of the Exit 64 Report recommendations for this intersection. A conceptual roundabout was approved by the BAC for the draft Bicycle Plan and was presented at the Bicycle Plan Open House in July 2006 where there were no specific comments. In light of the Exit 64 Report, it is recommended that ODOT study the best approach for overall safety of all users and for bicycle use of the intersection. A roundabout would have potential advantages in these areas that may not have been considered.

- ADT Average daily traffic on OR-35 south of the intersection was estimated in the TSP to be about 13,500 in 2020. The Exit 64 Report noted that a 2005 weekday PM peak count was over 1000 vehicles per hour and met two signal warrants.
- Period Short-range (presumably completed by now) per TSP
- Cost Unknown
- Class. State highway
- Comments High feasibility although priority appears low unless development occurs near the intersection.



Existing intersection with slip lanes can be difficult for a bicyclist to negotiate. A signal would potentially increase crossing distance and conflicts.



The Astoria roundabout is an example of a highway facility on the edge of a city that works well for all users.

B-122

Intersection: OR-281 and Indian Creek Rd.



- Project** Intersection of Hood River Hwy (OR-281, Tucker Rd) with Indian Creek Rd to the north and Barrett Dr to the west. All-way stop with an eastbound bypass lane on Tucker. No sidewalks and narrow shoulders (0'-2'). These features combined with high speeds (posted 40 mph) make crossing difficult. The County TSP lists a project (R-58) for ODOT and the County to realign the intersection. Shoulders and sidewalks should be included.
- ADT** Average daily traffic in 2020 was estimated in the TSP to be 15,360 on OR-281.
- Period** Long-term per TSP
- Cost** \$200,000 per TSP
- Class.** State highway
- Comments** A roundabout would work well here (see conceptual layout at right).

B-123

Intersection: Mt. Hood Hwy (OR-35) at Odell Hwy (OR-282)

Description T-intersection of primary Mt. Hood Hwy and secondary Odell Hwy to the east of Odell. Stop control on Odell Hwy with slip lanes. No sidewalks or bike lanes. The long crossing, grade, high speeds (posted 55 mph), limited sight distance, heavy trucks, and winter sanding debris make the turn onto northbound OR-35 difficult. There are generally 9' shoulders but the critical northbound section between the Odell Hwy and Sunday Drive were narrowed to make room for turn lanes. Some bicyclists prefer the intersection 0.2 mi. to the north at Sunday Drive which has less side traffic but is not an improvement otherwise.

The County TSP lists a project (R-2) for ODOT to restripe the pavement markings to clarify turn movements and improve safety. The project was completed although it appears to have had negligible benefit for bicyclists. The intersection may be restriped in the future.

Average daily traffic in 2020 was estimated in the TSP to be 12,360 on OR-35 and 7,265 on OR-282. Given the volumes and speeds, the existing stop control may be inadequate for left turns.

Period Short-term
Cost Unknown
Class. State highway
Comments In the short-term the shoulder should be widened and speed-control warnings for downhill highway traffic added.



B-123

Intersection: Mt. Hood Hwy (OR-35) at Odell Hwy (OR-282) cont'd



Looking into the sun from alternate crossing at Sunday Drive.

Downhill traffic takes about 8 seconds to round corner and reach the intersection—not nearly enough time for a cyclist to cross the 4 lanes (2 southbound, left-turn and northbound).

4.7 Typical Bikeway Sections and Standards

4.7.1 ON-ROAD BICYCLE FACILITIES

Bicycle Lanes

Location

General: one-way facilities not physically separated from travel lanes.

Urban areas: both sides of most highways, arterial streets and collector streets (generically referred to as “streets” below).

Rural areas: typically not used (paved shoulders or shared lanes preferred).

Width

Curbed street without on-street parking:

4 to 6 ft;

6 ft where use is high, in-line skaters are expected, or grades exceed 5%.

Curbed street with on-street parking:

5 to 6 ft;

6 ft where use is high, in-line skaters are expected, or grades exceed 5%.

Uncurbed street with parking in swale:

4 to 5 ft.

Add 1 ft:

on bridges, or

where there are 30 or more heavy vehicles per hour in the outside lane.

Standard Bikeway Width

(One-way travel; exact recommended width depends on motor vehicle speed and volume.)

- Bike Lane = 4 to 6 ft
- Paved Shoulder = 4 to 6 ft
- Wide Curb Lane (shared by cars and bikes) ≥ 14 to 16 ft

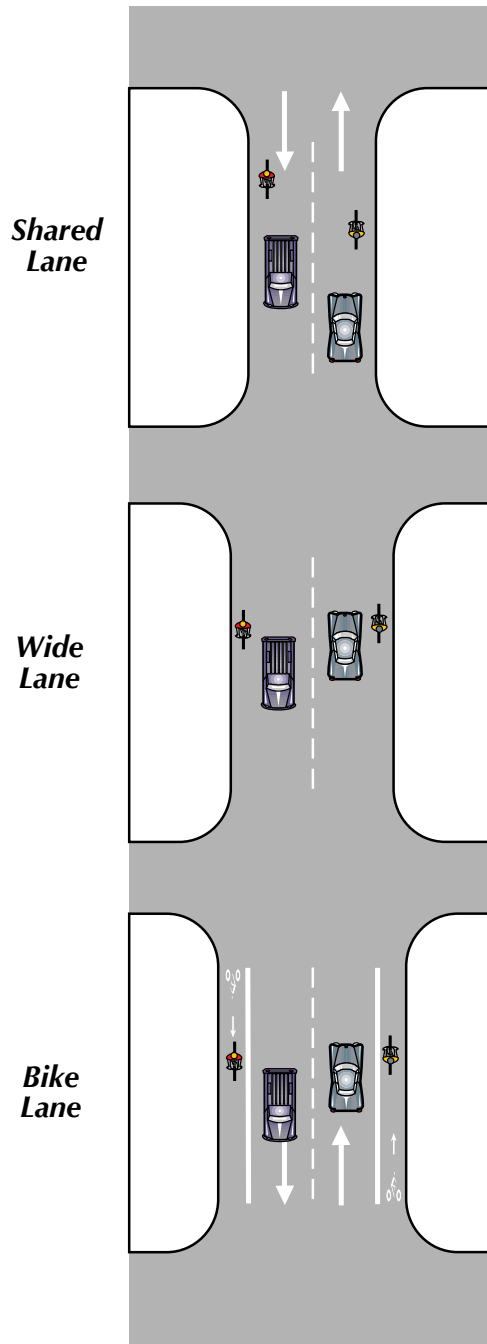
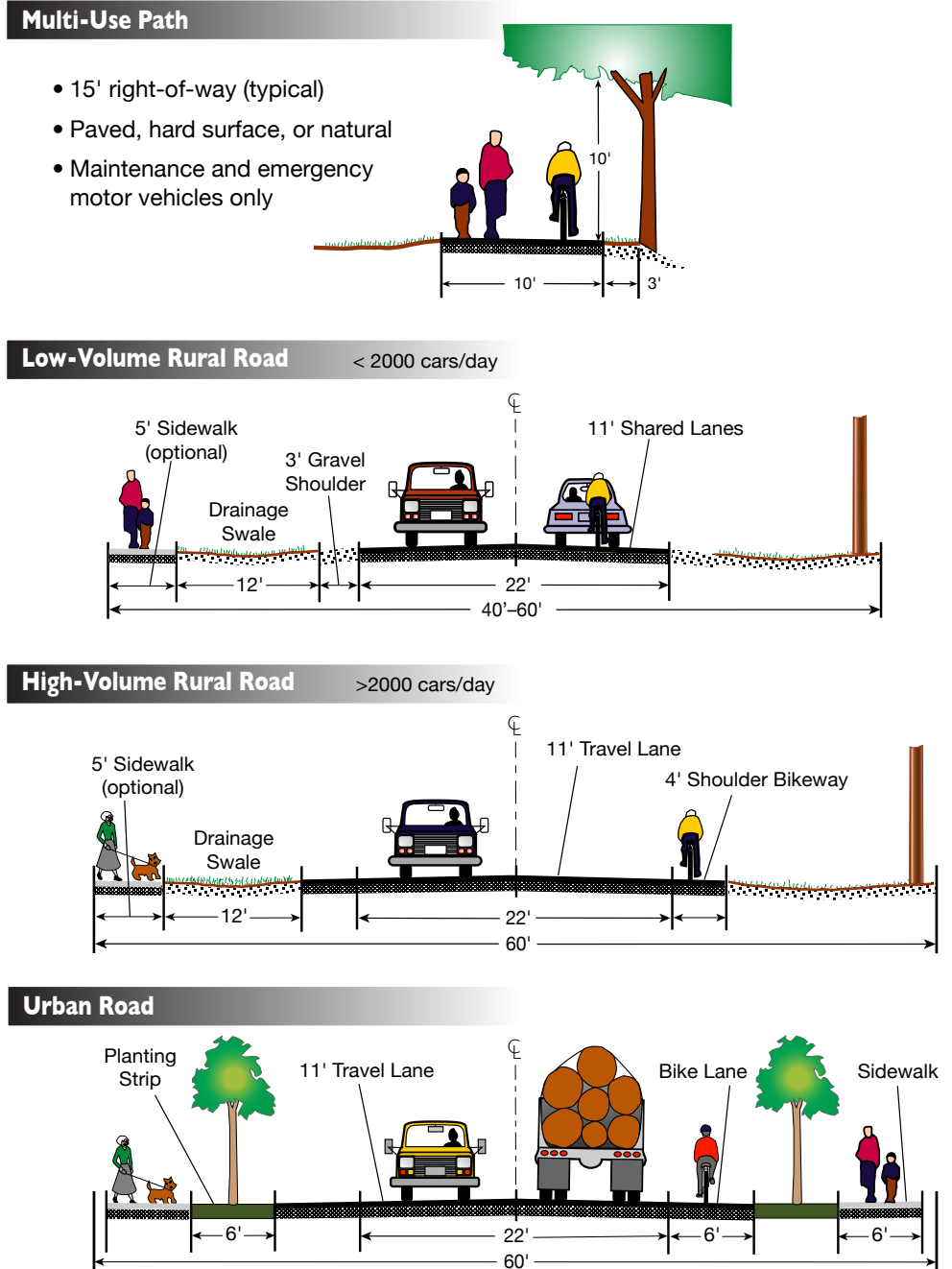


Figure 3. Typical Facility Cross-Sections

The four sections at right are typical County applications based on land use and motor vehicle volume. Sidewalks may be needed in rural communities and near schools and business centers.



*Creative variations on
the bicycle symbol
add local color*



Striping

- 8 in. solid white stripe standard.
- On-street parking (right side of lane) marked with 4 in. solid white stripe or tick marks.
- Do not extend striping through intersections (except across from T-intersection) and crosswalks.
- Dotted guidelines (2 ft dots and 6 ft spaces) may be extended through complex intersections.
- At intersections controlled by signals or stop signs and where right-turn lanes exist, use a dotted line with 2 ft dots and 6 ft spaces for the approach in lieu of solid striping for 50 to 200 ft.
- Where sufficient width exists, place a separate through bicycle lane between the right-turn lane and the through travel lane.
- At ramps and dedicated right-turn slip lanes, use a minimal turning radius or a compound curve to reduce entry speed.

Marking

- Bicycle symbol with directional arrow on pavement; or (optional) word legend “BIKE ONLY” with directional arrow.
- Symbol with arrow on far side of each intersection no closer than 65 ft from intersection; additional symbols placed periodically along uninterrupted sections.

Signing

- MUTCD signs R3-16 and R3-17 designate the presence of a bike lane.
- Many other signs are available for special situations; refer to MUTCD Part 9 and the Oregon Bicycle and Pedestrian Plan.

Wide Curb Lanes

- Urban streets with insufficient width for bike lanes.
- 13 ft wide without on-street parking and 14 ft wide with on-street parking.
- Where 15 ft or more width is available, consider striping bicycle lanes or shoulders.

Paved Shoulders

Location

Rural: most roads and highways.

Urban areas: both sides of lower volume major streets where bike lanes are not appropriate.

Width

5 ft:

- on steep up-grades where bicyclists require maneuvering room or where downgrades exceed 5% for 0.6 mi;
- where there are 30 or more heavy vehicles per hour in the outside lane; or
- where motor vehicle posted speeds exceed 50 mph.

4 ft against guardrail, curb or other roadside barrier.

3 ft minimum.

Striping

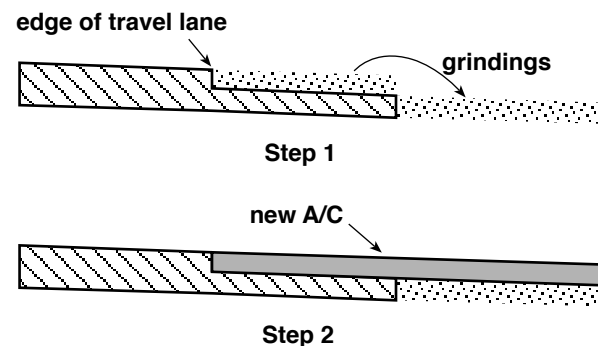
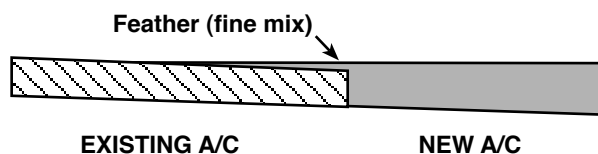
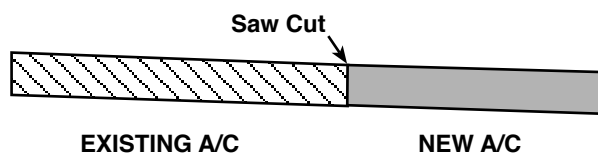
4 in. solid white edge line.

Shared Lanes

Roads are as they exist with no special provisions for bicyclists.

Common on neighborhood streets, low-volume (< 500 ADT) rural roads and highways, and commercial and downtown centers with constrained right-of-way.

How to add paved shoulder without overlay for smooth riding surface



🚲 Marginal Improvements

- Add usable riding surface to right of roadway edge stripe by:
 - » paving extra width—as little as 2 ft extra width is beneficial;
 - » reducing travel lane width;
 - » eliminating unneeded travel lanes; or
 - » eliminating parking on one or both sides.
- Bicycle-safe drainage grates.
- Bicycle-friendly railroad crossings.
- Pavement surfaces free of irregularities.
- Bicycle-oriented signs and bicycle-sensitive traffic detection devices.
- Roadway maintenance including removal of accumulated dirt, broken glass and other debris.
- Reducing and enforcing posted speed limits.

🚲 Joint between Bikeway and Existing Roadway

The following techniques should be used to add paved shoulders to roadways where no overlay project is scheduled:

Saw Cut: A saw-cut 1 ft. inside the existing edge of pavement provides the opportunity to construct a good tight joint. This eliminates a ragged joint at the edge of the existing pavement.

Feathering: “Feathering” the new asphalt onto the existing pavement can work if a fine mix is used and the feather does not extend across the area traveled by bicyclists.

Grinder: Where there is already some shoulder width and thickness available, a pavement grinder can be used to make a clean cut at the edge of travel lane, grade the

existing asphalt to the right depth and cast aside the grindings in one operation, with these advantages:

- less of the existing pavement is wasted;
- the existing asphalt acts as a base;
- there will not be a full-depth joint between the travel lane and the shoulder; and
- the grindings can be recycled as base for the widened portion.

New asphalt can then be laid across the entire width of the shoulder bikeway with no seams.

Unpaved Driveways and Side Streets

Wherever a street is constructed, widened or overlaid, all unpaved driveways and approaches should be paved back to prevent loose gravel and dirt from spilling onto the shoulders.

4.7.2 MULTI-USE PATHS

Location

- Within highway right-of-way or within an independent right-of-way.
- Physically separated from motorized traffic by open space or barrier.
- Shortcuts between neighborhoods, parks, schools, and business areas.
- Access to areas served only by controlled-access highways where pedestrians and bicycles are prohibited; otherwise, not a substitute for on-road facilities.
- Access to areas not well served by roads such as streams, lakes, rivers, greenways, abandoned or active railroad and utility rights of way, school campuses, and planned unit developments and community trail systems.

Path Design

Width

Paved shared use:

10 to 14 ft [8 ft minimum (rare)];

14 ft or more with separated bicycle, horse or running lanes.

Unpaved shared use: 8 to 10 ft.

One-way shared use (rare): 6 ft (5 ft minimum).

Paved pedestrian only: 6 ft (5 ft minimum).

Shoulders

Width on both sides: 3 ft (2 ft minimum)

Side slope: 4%.

Recovery Area

If side slope greater than 1:4:

5 ft recovery area at maximum 1:6 slope from edge of path; or barrier.

Clearance

Lateral: 6 ft (5 ft minimum).

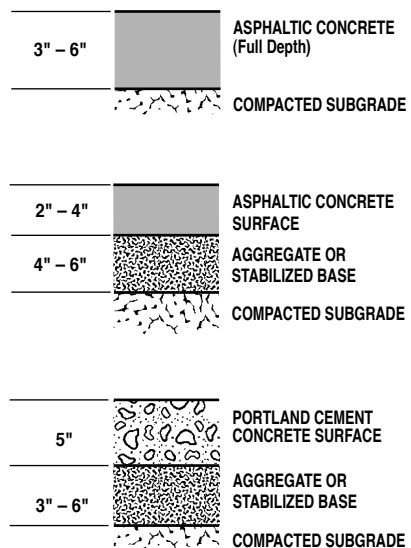
Vertical 10 ft (8 ft minimum), 12 ft minimum for equestrians.

Separation from Roadway

Curbed section: 4 ft minimum.

Uncurbed section: 5 ft minimum, at least 3 ft of which is a buffer zone or landscape strip.

Pavement alternatives for multi-use paths



Source: Oregon Bicycle and Pedestrian Plan

Surface

Stable, firm, and slip-resistant (see Table 4).

At unpaved roadway or driveway crossings of paved paths, pave the roadway or driveway at least 10 ft on each side of crossing.

Unpaved surface: 4 in. layer of granular stone no larger than 3/8 in. in diameter over prepared subgrade of at least 6 in. of crushed gravel (top layer) and 8 in. of gravel (bottom layer), roller compacted.

Grade

5% for up to 800 ft.

8% for up to 300 ft.

11% or more for up to 50 ft.

Running grade over 8.33% less than 30% of the total path length.

Cross Slope

Slopping in one direction instead of crowning preferred.

Paved: 2% maximum.

Unpaved: 5% maximum.

Superelevation: 2% maximum.

Design Speed

Paved: 20 mph; 30 mph for downgrades over 4% for 800 ft.

Unpaved: 15 mph.

Table 4. Summary of Surface Materials for Multi-Use Paths

Surface Material	Firmness	Stability	Slip Resistance (dry)
Asphalt	firm	stable	slip resistant
Concrete	firm	stable	slip resistant
Soil with Stabilizer	firm	stable	Slip resistant
Soil with High Organic Content	soft	unstable	Not slip resistant
Crushed rock (3/4" minus) with Stabilizer	firm	Stable	Slip resistant
Crushed Rock w/o Stabilizer	firm	stable	Not slip resistant
Wood Planks	firm	stable	Slip resistant
Engineered Wood Fibers – that comply with ASTM F1951	Moderately firm	Moderately stable	Not slip resistant
Grass or Vegetative Ground Cover	Moderately firm	Moderately stable	Not slip resistant
Engineered Wood Fibers that do not comply with ASTM F1951	soft	unstable	Not slip resistant
Wood Chips (bark, cedar, generic)	Moderately firm to soft	Moderately stable to unstable	Not slip resistant
Pea Stone or 1-1/2" minus Aggregate	soft	unstable	Not slip resistant
Sand	soft	unstable	Not slip resistant

Source: Adapted from Federal Highway Administration Designing Sidewalks and Trails for Access, Part II, Best Practices Design Guide.

Barriers

Purpose: Safety and security, protection from falls, screening of adjacent uses, separation from adjacent roadway or other uses, vertical or grade separation, or enhanced aesthetics.

Need: Protective barrier use based on clear area, side slope steepness and material, and type of hazard.

Types: Fences, walls, vegetation, guardrails, jersey barrier, and railing.

Retaining walls no closer than 2 ft from path edge.

Railings should be at least 3.5 ft high.

Crossings

Marking: Either none, crosswalk stripes, or dotted guidelines.

At-grade:

Mid-block: Not near intersection, angled 75 degrees maximum.

Parallel path: Near intersection

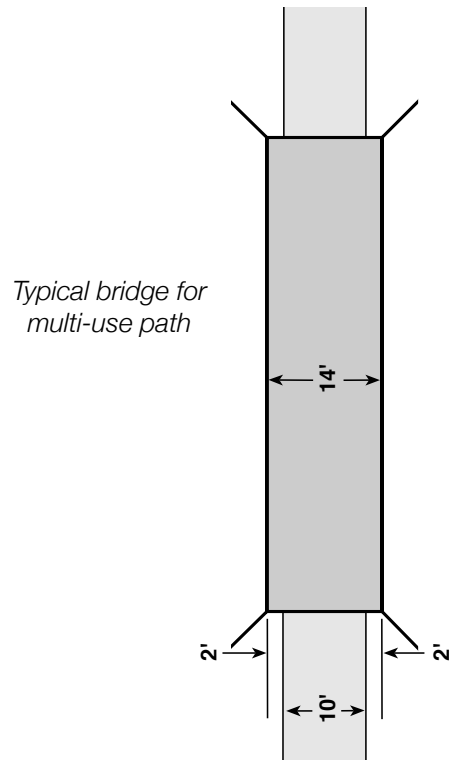
Complex intersection: highly skewed or multiple-leg, often with two-step crossing.

Refuge island:

Necessary with marked crossing of more than 2 lanes.

12 ft (8 ft minimum) wide.

Cut-through angled 30 degrees towards oncoming traffic.



Bridges

Width: approach width plus 2 ft on each side.

Vertical clearance: same as for path.

Loading: H10 or a 10-ton load for a two-axle vehicle.

Approach railing: Extend 15 ft from end of bridge and flared.

Decking: Transverse (90 degrees to the direction of travel).

Railing: height of 4.5 ft; openings no more than 6 in. wide; optional rub-rail at 3 ft.

4.5.3 SIGNS, PAVEMENT MARKINGS AND SIGNALS

General Application

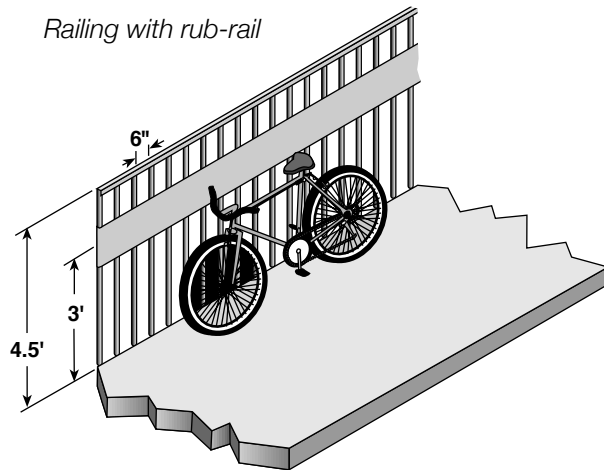
- Warranted by use and need per latest Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).
- All signs and markings retroreflective or illuminated.
- Most signs, pavement markings, signals, and delineators for motorists apply to bicycles.
- Part 9 of the MUTCD covers specific traffic controls for bicycles.

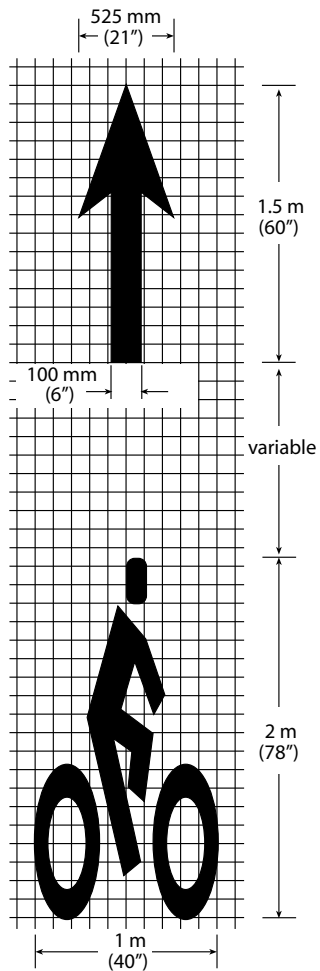
Signs

Bike lanes: MUTCD signs R3-16 and R3-17 designate the presence of a bike lane.

Warning: signs denoting unexpected or changed conditions.

Bicycle Route: used to guide cyclists to destinations or to mark regional, interstate and international facilities.





Markings

Bike lane:

8 in. wide retroreflectorized white stripe; and symbol of cyclist with directional arrow in lane.

Object markings:

Delineate presence of potentially hazardous objects and obstructions.

Signals

Timing:

5 ft (3 ft minimum) unobstructed width.

2 to 3 ft for shoulder-high barriers such as walls, railings and fences.

Demand actuated signal:

Adjust detector sensitivity for bikes and mark most sensitive location.

Mark pavement where sensitivity is highest.

Consider alternatives to pavement loops (video, microwave, infrared).

Programmable signal heads:

Ensure that cyclist can see signals.

Signal synchronization:

Add 2 to 3 sec. to automobile green time.

Yellow interval of 3 sec.

All-red clearance interval greater than 2 sec.

Shared Use Paths

- Requires its own signing because separate alignment from roadway.
- Signs reduced size per MUTCD.
- Special markings for railroad crossings.
- Supplemental markings may be used (center line, stop bar, etc.).

School Areas

- Part 7 of the MUTCD discusses school routes, crossings, signs, markings, signals, and other considerations.

- ◆ Glossary
- ◆ Oregon Bike Bill—State Statute
- ◆ Hood River Bridge

Glossary

- AASHTO American Association of State Highway and Transportation Officials. They publish national road and bicycle facility design guidelines which have been used by the State with modifications.
- ADT Average Daily Trips or Traffic. The average traffic volume in both directions of travel at a given point on a road.
- BAC Bicycle Advisory Committee
- Bicycle A vehicle having two tandem wheels, a minimum of 14 inches in diameter, propelled solely by human power, upon which any person or persons may ride. Three-wheeled adult tricycles and four-wheeled quadracycles are considered bicycles; tricycles for children are not.
- Bicycle facilities A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically designated for bicycle use.
- Bicycle lane (or bike lane) A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.
- Bikeway A generic term for a facility that is created when a road has the appropriate design treatment for bicyclists, based on motor vehicle traffic volumes and speeds; shared roadway, shoulder bikeway and bike are the most common. Another type of facility, the multi-use path, is separate from the roadway.
- CRGNSA Columbia River Gorge National Scenic Area
- EFU Exclusive Farm Use
- HRCZO Hood River County Zoning Ordinance

- Multi-use path A path physically separated from motor vehicle traffic by an open space or barrier and either within a highway right-of-way or within an independent right-of-way, used by bicyclists, pedestrians, joggers, skaters and other non-motorized travelers. Sometimes called a shared-use path.
- MUTCD Manual of Uniform Traffic Control Devices. The national standard, approved by the Federal Highway Administration, for selection and placement of all traffic control devices on or adjacent to all highways open to public travel.
- NHSTA National Highway Traffic Safety Administration
- OAR Oregon Administrative Rule
- ODOT Oregon Department of Transportation
- OR-281 Hood River Highway
- OR-282 Odell Highway
- OR-35 Mt. Hood Highway
- ORS Oregon Revised Statute, the laws that govern the state of Oregon, as proposed by the legislature and signed by the Governor.
- OTP Oregon Transportation Plan
- Path (or pathway) A sidewalk, trail or shared-use path.
- Paved shoulder The portion of a shoulder which is paved.
- Pavement markings Painted or applied lines or legends placed on a roadway surface for regulating, guiding or warning traffic.
- Pedestrian A person on foot, in a wheelchair, or walking a bicycle.
- Right-of-way A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes (ROW).

- Roadway The paved portion of the road.
- Shared roadway A type of bikeway where bicyclists and motor vehicles share a travel lane.
- Shoulder The portion of a road that is contiguous to the travel lanes and provided for pedestrians, bicyclists, emergency use by vehicles and for lateral support of the base and surface.
- Shoulder bikeway A type of bikeway where bicyclists travel on a paved shoulder.
- STIP State Transportation Improvement Program.
- TPR Transportation Planning Rule 12 (OAR 660-12).
- Traffic Pedestrians, ridden or herded animals, vehicles, streetcars and other conveyances either singly or together while using any highway for purposes of travel.
- Traffic volume (see ADT) The given number of vehicles that pass a given point for a given amount of time (hour, day, year).
- Trail A path of travel within a park, natural environment or designated corridor.
- Travel lane The portion of a roadway provided for the movement of vehicles, exclusive of shoulders.
- TSP Transportation System Plan, the overall plan for all transportation modes for the County.
- Vehicle Every device in, upon or by which any person or property is or may be transported or drawn upon a highway, including vehicles that are self-propelled or powered by any means.
- Wide curb lane (or wide outside lane) A wide travel lane adjacent to a curb, parking lane or shoulder provided for ease of bicycle operation where there is insufficient room for a bike lane or shoulder bikeway.

Oregon Bike Bill—State Statute

Source: Oregon Department of Transportation, Bicycle and Pedestrian Program

👉 Background

ORS 366.514, aka the Bike Bill, was passed by the Oregon Legislature in 1971. It requires the inclusion of facilities for pedestrians and bicyclists wherever a road, street or highway is built or rebuilt. It applies to ODOT, cities and counties. It also requires ODOT, cities and counties to spend reasonable amounts of their share of the state highway fund on facilities for pedestrians and bicyclists. These facilities must be located within the right-of-way of public roads, streets or highways open to motor vehicle traffic. The funds cannot be spent on trails in parks or other areas outside of a road, street or highway right-of-way.

👉 Notes

The bill is divided into Sections (1)-(5).

The original language of the bill is written in italics, with ODOT's interpretation following in regular print.

The terminology of the original bill is outdated: *“footpaths and bicycle trails”* should read *“walkways and bikeways.”*

👉 Interpretation of ORS 366.514

(1) Out of the funds received by the department or by any county or city from the State Highway Fund reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project.

The law requires that reasonable amounts of State Highway Funds be expended by the Department of Transportation, counties and cities to provide walkways and bikeways. Reasonable amounts are related to the need for bikeways and walkways; if there is a need, the governing jurisdiction shall expend a reasonable amount to construct the needed facilities.

When the bill was introduced in 1971, most road projects were funded through the highway fund. While the law itself refers to the highway fund, several drafters of the original bill have indicated that the intent was not to limit this requirement to the highway fund only, but rather to make this fund available for the construction of walkways and bikeways, to benefit all users of the highway.

Footpaths and bicycle trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated.

The law requires the Department of Transportation, counties and cities to provide walkways and bikeways on all roadway construction, reconstruction or relocation projects. The funding source or amount are not the determining factors; what is important is that pedestrian and bicycle facilities be provided as part of road improvements.

“Construction, reconstruction and relocation” refers to all projects where a roadway is built or upgraded. Walkways and bikeways don’t necessarily have to be provided on projects such as signal or signing improvements, landscaping and other incidental work. Preservation overlays are also excluded if the only intent of the project is to preserve the riding surface in usable condition, without any widening or realignment. Projects where the entire depth of the roadway bed is replaced are usually considered reconstruction projects.

Funds received from the State Highway-Fund may also be expended to maintain footpaths and trails and to provide footpaths and trails along other highways, roads and streets and in parks and recreation areas.

The law also allows highway funds to be used for maintenance and to provide walkways and bikeways independently of road construction. The Department, a city or a county may use its highway funds for projects whose primary purpose is to provide improvements for pedestrians and bicyclists.

The 1980 Constitutional Amendment (Article IX, section 3a) now prohibits the expenditure of highway funds in parks and recreation areas. A subsequent Oregon Supreme Court opinion, **Rogers v. Lane County**, supports continued use of highway funds to construct and maintain walkways and bikeways within the highway right-of-way, but allows such use only when they are within the highway right-of-way.

(2) Footpaths and trails are not required to be established under subsection (1) of this section:

(a) Where the establishment of such paths and trails would be contrary to public safety;

(b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use: or

(c) Where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails.

The law provides for reasonable exemptions. The determination that one or more exemption is met should be well-documented. The decision should allow opportunities for public review and input by interested parties. Exemptions (b) and (c) refer back to the need. The burden is on the governing jurisdiction to show the lack of need to provide facilities; the need is legislatively presumed but can be rebutted.

... contrary to public safety: this exemption applies where the safety of any group of highway users would be jeopardized by the inclusion of walkways or bikeways. In most instances, the addition of walkways and bikeways improves safety, both for motorists and non-motorized users, but there may be instances where the inclusion of a walkway or bikeway decreases safety, for example, sidewalks on a limited access freeway would be considered unsafe.

... cost is excessively disproportionate to need or probable use: this exemption applies if it can be shown that there is insuf-

ficient need or probable use to justify the cost. Probable use must extend to cover the anticipated life of the project, which can be twenty years or longer for roadway projects, fifty years or longer for bridge projects. It is not sufficient to claim that there is little or no current pedestrian or bicycle use. This is often due to the lack of appropriate facilities. The law does not provide guidelines for determining when costs are excessively disproportionate.

... sparsity of population ... indicates an absence of any need: This exemption most commonly applies to rural roads or highways where walkways and bikeways would get very little use.

... other available ways ... indicate an absence of any need: For this exemption to apply, it must be shown that the “other available ways” serve bicyclists and pedestrians as well as or better than would a facility provided on the road, street or highway in question. The “other available ways” must provide equal or greater access and mobility than the road, street or highway in question. An example sufficient to indicate other available ways would be providing sidewalks and bike lanes on a parallel or adjacent street rather than along a freeway. An example not sufficient would be choosing not to provide bike lanes and sidewalks on an arterial street and encouraging use of local side streets that do not

include bicycle and pedestrian facilities nor offer the equivalent direct route or access as the arterial street.

... other factors ... indicate an absence of any need: This exemption allows consideration of other factors that are particular to a project. A common example is the acceptability of cyclists sharing the roadway with automobiles on low volume, low traffic local streets. Again, the absence of any need must be found.

(3) The amount expended by the department or by a city or county as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund. However:

(a) This subsection does not apply to a city in any year in which the one percent equals \$250 or less, or to a county in any year in which the one percent equals \$1500 or less.

(b) A city or county in lieu of expending the funds each year may credit the funds to a financial reserve or special fund in accordance with ORS 280.100, to be held for not more than 10 years, and to be expended for the purposes required or permitted by this section.

(c) For purposes of computing amounts expended during a fiscal year under this

subsection, the department, a city or county may record the money as expended:

(A) On the date actual construction of the facility is commenced if the facility is constructed by the city, county or department itself; or

(B) On the date a contract for the construction of the facilities is entered with a private contractor or with any other governmental body.

The law requires that in any given fiscal year, the amounts expended to provide walkways and bikeways must be a minimum of 1% of the state highway fund received by the Department, a city or county. The law does not establish a special fund (“bicycle fund”), nor does it limit the expenditures to 1%: section (1) requires that “reasonable amounts” be expended. 1% is only a minimum.

Cities and counties are not required to spend a minimum of 1% each year; they may credit this amount to a reserve fund and expend these amounts within a period not to exceed ten years.

The 1% minimum requirement is independent from the requirement to provide bikeways and walkways as part of road construction. A jurisdiction spending more than 1% of its funds on walkways and bikeways must still provide bikeways and walkways

as part of all new construction projects, unless determined not to be otherwise required pursuant to section (2).

The 1% minimum requirement does not apply to cities receiving less than \$25,000 a year, or to counties receiving less than \$150,000 a year from the fund. However, bikeways and walkways must be provided wherever roads are constructed, as required in Section 1, subject to the exemptions in Section 2.

(4) For the purposes of this chapter, the establishment of paths, trails and curb cuts or ramps and the expenditure of funds as authorized by this section are for highway, road and street purposes.

This section is the legislature’s statement of intent that these uses would qualify under the Constitution as highway uses. This is reinforced in the 1980 constitutional amendment (Article IX, section 3a) and by **Rogers v. Lane County**.

The department shall, when requested, provide technical assistance and advice to cities and counties in carrying out the purpose of this section. The division shall recommend construction standards for footpaths and bicycle trails. Curb cuts or ramps shall comply with the requirements of ORS 447.310. The division shall, in the manner prescribed for marking highways

under ORS 810.200, provide a uniform system of signing footpaths and bicycle trails which shall apply to paths and trails under the jurisdiction of the department and cities and counties.

One of the purposes of this Bicycle/Pedestrian Plan is to implement this section. ODOT develops standards and designs for bikeways and walkways. ODOT staff is available to assist cities and counties with technical problems, as well as with planning and policy issues.

The department and cities and counties may restrict the use of footpaths and bicycle trails under their respective jurisdictions to pedestrians and non-motorized vehicles.

Motor vehicles are generally excluded from using bike lanes, sidewalks and multi-use paths.

(5) As used in this section, “bicycle trail” means a publicly owned and maintained lane or way designated and signed for use as a bicycle route.

A “bicycle trail” is currently defined as a “bikeway.”

The Oregon Court of Appeals upheld the intent of this statute in **Bicycle Transportation Alliance v. City of Portland** (9309-05777; CA A82770). The judge’s summary was: “Read as a whole, ORS 366.514 requires that when an agency receives state highway funds and constructs, reconstructs or relocates highways, roads or streets, it must expend a reasonable amount of those funds, as necessary, on bicycle and pedestrian facilities. The statute also requires the agency to spend no less than one percent per fiscal year on such facilities, unless relieved of that obligation by one of the exceptions in subsection (2).”

From the 2006 Oregon Transportation Plan:

Federal and state highway funds and local revenues help fund local government bike-ways and walkways. Bicycle and pedestrian facilities within a street, road or highway right-of-way are eligible for funding from the Oregon Highway Fund. ODOT and local governments must spend a minimum one percent of the state Highway Fund they receive on walkways or bikeways. Bicycle and pedestrian facilities are also eligible for federal Transportation Enhancement and Congestion Mitigation and Air Quality funds.

The state develops the statewide bicycle and pedestrian plan and constructs and maintains state highway bicycle and pedestrian facilities, focusing on urban highways. About half the sidewalk and bikeway network on the state system, roughly 272 miles, is in place. ODOT administers state grants and provides advocacy and technical advice to cities and counties through code assistance and engineering standard recommendations. The state also carries out federal programs such as the “Safe Routes to School Program.”

Hood River Bridge



*Hood River Bridge
Opened December 9, 1924
4755 feet long*

The Hood River Bridge connects the City of Hood River in Oregon with the cities of White Salmon and Bingen in Washington across the Columbia River. The Hood River Bridge is currently inaccessible to bicyclists and pedestrians due to extremely narrow travel lanes, heavy vehicle traffic, and other conditions that make it unsuitable for non-motorized traffic. Structural solutions for non-motorized access on the Hood River Bridge, such as the addition of a multi-use pathway on the bridge, have been explored previously by the Port of Hood River but were found to be cost prohibitive. Bridge replacement has also recently been studied, but is not anticipated within the next 20 years.

With the nearest alternative river crossings located approximately 20 miles up and downriver, the demand for improved bicycle and pedestrian access across the Hood River Bridge and between the nearby communities has been a longstanding concern of community members. In September 2009, the Port of Hood River and the Hood River Valley Residents Committee (HRVRC), and Alta Planning + Design published a report (Non-Motorized Crossing Alternatives at the Hood River Bridge) investigating solutions and recommending a course of action to enable bicyclist and pedestrians to cross the Hood River Bridge.

Recommended alternatives were selected based on user safety and convenience, cost-effectiveness, potential liability concerns, and impacts on traffic operations. The report recommended that the Port, HRVRC, and surrounding communities pursue one of two alternatives, presented in preferred order:

1. Establish a new or expanded fixed-route transit service that serves communities in both Washington and Oregon and crosses the Hood River Bridge multiple times a day, with bicycle racks installed on all transit vehicles serving the route. The service should operate year round to facilitate commute and medical trips as well as non-motorized bridge crossings.
2. If a year-round, fixed-route transit service is determined financially infeasible, it is recommended that the Port pursue development of informal rideshare pick-up and drop-off sites combined with a seasonal fixed-route transit service.

No action plan has yet been adopted to implement these recommendations.

