MIKE MCCALLISTER
PLANNING AND ZONING DIRECTOR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD OREGON CITY, OR 97045

PLANNING COMMISSION AGENDA

Monday, November 14, 2016
6:30 p.m.
DSB Auditorium, 150 Beavercreek Rd., Oregon City

Contact: Darcy Renhard
Email: drenhard@clackamas.us
Phone: 503-742-4545

Also published on the internet at:
http://www.clackamas.us/planning/

This meeting location is accessible to persons with disabilities. To request accommodations, please contact Darcy Renhard at 503-742-4545 or drenhard@clackamas.us no later than Thursday prior to the meeting.

1. CALL TO ORDER

2. PUBLIC COMMENT
This is an opportunity for attendees to provide comment to an item that is not on the agenda.

3. PUBLIC HEARING

(a) ZDO-260: Mt. Hood Villages Ped/Bike Plan‡ — **Lori Mastrantonio**, **503-742-4511**, **LoriM@clackamas.us**

(b) Clackamas Town Center Urban Renewal Plan Amendment — **Dave Queener**, **503-742-4322**, **DavidQue@clackamas.us**

4. MINUTES

5. OTHER BUSINESS
(a) Election of officers

6. SCHEDULE REVIEW

Planning Commission
a. *12/12/16: Study Session – ZDO-261: ZDO Audit*
b. *1/23/17: Hearing – ZDO-261: ZDO Audit*

Board of County Commissioners
a. *11/30/16: Public Hearing – Monroe Neighborhood Street Design*
b. *12/7/16: Public Hearing – Mt. Hood Villages Ped/Bike Plan*
c. *12/14/16: Hal's LUBA remand (continued)*

6. ADJOURN

‡ Attachments

Mark Meek, Chair * John Drentlaw, Vice-Chair * Mark Fitz * John Gray * Gail Holmes
* Brian Pasko * Thomas Peterson * Michael Wagner * Michael Wilson

CLACKAMAS COUNTY

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STAFF REPORT

TO: Planning Commission

FROM: Lori Mastrantonio, Senior Planner

DATE: November 7, 2016

RE: ZDO-260: Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

PROPOSAL

ZDO-260, a legislative text amendment to the Clackamas County Comprehensive Plan, includes amendments to Chapters 5 and 10 and Appendix B. Specifically, the amendments include the following components:

1. Amend Chapter 10 of the Comprehensive Plan

   The proposed changes to Chapter 10, the Community Plans and Design Plans, are included in Attachment 1. There are seven community and design plans including the Mt. Hood Community Plan. The proposed amendments include updates to the Mt. Hood Community Plan. The majority of the text amendments are in the Transportation section and reflect policies that focus on the provision of safer pedestrian and bicycle improvements including road crossings, multi-use paths, improved connections to schools, trails and destinations, addressing access management issues, and recognizing the *Villages Plan* as the guiding document for the development of a connected multi-modal system in the Villages communities. Recommended policies also support the development of gateway and wayfinding signage, continuation and/or expansion of the bus system and enhancement of transit facilities.

2. Amend Chapter 5 of the Comprehensive Plan

   The proposed changes to Chapter 5, the Transportation System Plan, are included in Attachments 2, 3, and 4.

   One text change involving adding one word, "crossings" is recommended for policy 5.J.5. This addition is added to include achieving safe and convenient "crossings" to the remainder of the policy as noted below.

   "5.J.5. Coordinate with pedestrian, bicycle, and trail master plans, and with special transportation plans of the County, Oregon Department of Transportation, the United States Forest Service, Metro, and parks providers to achieve safe and convenient crossings and off-road, multi-use path and trail systems connecting to on-road pedestrian facilities and the bikeway networks."

Chapter 5 of the Comprehensive Plan also contains the County's TSP and the 20-year Capital Improvement Plan, which is a list of needed transportation-related projects to address gaps and deficiencies in the network.

The 20-Year Capital Projects (Table 5-3a of the Comprehensive Plan) include two projects (Arrah Wanna Blvd and Welches Rd) within the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan (the Villages Plan)*. It is recommended that these projects and an additional project (Brightwood Loop Rd) include allowing interim 4' paved shoulders (the standard is 6').

The Preferred Projects (Table 5-3b of the Comprehensive Plan) include one project (Sleepy Hollow Rd) within the *Villages Plan.* It is recommended that this project include allowing interim 4' paved shoulders.

The Long Term Capital Projects (Table 5-3c of the Comprehensive Plan) include five projects (multi-use paths; specific segments on the north and south sides of US 26, crossing improvements on US 26 of an existing facility and new crossing improvements, etc.) within the *Villages Plan.* It is recommended that these projects include allowing interim 4' paved shoulders and/or a multi-use path in certain areas.

The Regional Capital Projects (Table 5-3d of the Comprehensive Plan) includes an existing project on US 26. It is recommended that this project include a multi-use path and certain pedestrian improvements, e.g. crossings, sidewalk, etc. It is recommended that five additional projects along US 26 be added to include multi-use paths, crossings, ADA improvements, etc.

Capital Improvement Plan Map 5-11b includes capital projects in east county. It is recommended that this map be updated to include the recommended projects. This amendment package updates the Capital Projects to make them consistent with the *Villages Plan.*

3. <u>Amend Comprehensive Plan Appendix B</u>

   Appendix B, similar to a bibliography listing publications, includes the various sources and documents used in the preparation of the Comprehensive Plan policies and goals. The amendment package for this project adds the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* to Appendix B of the Clackamas County Comprehensive Plan (Attachment 5).

BACKGROUND

In fall 2014, Clackamas County received a Transportation and Growth Management (TGM) grant from the Oregon Department of Transportation (ODOT) to prepare a pedestrian and bicycle plan for the Villages at Mt. Hood area, which includes the communities of Brightwood, Welches/Wemme, Zig Zag and Rhododendron.

At a May 21, 2015 Business Meeting, the Board of County Commissioners approved an intergovernmental agreement with ODOT to prepare the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* (*the Villages Plan*).

The four main objectives of the Villages Plan are to:

1. Identify bicycle and pedestrian needs within The Villages at Mt. Hood
2. Develop a Safe Routes to School Plan for Welches elementary and middle schools
3. Identify potential locations for additional or enhanced US 26 pedestrian crossings
4. Evaluate the feasibility of a multi-use path in the area

One of the main goals of this project is to update the Mount Hood Community Plan in the Clackamas County Comprehensive Plan which includes some of the policies that directly relate to the four main objectives of the Plan.

When work began with the communities on this project, it became clear that many people already walk and bike in the area. A number of "demand" paths or dirt paths, especially adjacent to US 26, have already been established and are being used by community members and visitors. The communities are interested in safer pedestrian and bicycle travel especially to the various local destinations, e.g. library, post office, grocery stores, etc. They support a safer and more improved multi-use path to connect to the destinations that they frequent.

A well-connected pedestrian and bicycle system would improve the quality of life of residents and allow visitors to leave their car behind when enjoying the area's numerous destinations. The *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* provides a long-term, prioritized set of pedestrian and bicycle infrastructure improvements to increase transportation choices within the Villages, including access to transit. The infrastructure improvements can create a connected pedestrian and bicycle system, integrated with transit, to meet the daily needs of residents and visitors.

As the Plan developed, the focus was on determining projects that would implement the objectives. The Plan includes a summary of the projects for each community including the project priority as well as a map of each with a detailed description of each project.

PLANNING COMMISSION STUDY SESSION

An overview of the project and the draft *Villages Plan* were presented to the Planning Commission at a study session on August 22, 2016. The following are staff responses to the main items discussed at the study session and from comments received.

- US 26 Multi-Use Path: A question was raised regarding the maintenance of a multi-use path or paths along US 26 and the impacts of snow removal on a path. Maintenance of a multi-use path would need to be coordinated with various entities such as ODOT, Bureau of Land Management, etc. It is likely during heavy snow fall a path may not be useable just as the existing demand paths in the area may not be useable during a snowy weather event. In addition, consideration of the path construction material would be needed to ensure cost effective maintenance and longevity.

- Equestrian Trails: A member inquired about equestrian trails in the project area. The Villages Plan does not include recommendations regarding equestrian trail projects.

- Support of the *Villages Plan*: A letter of support was received from "Michele Lamoreaux and Rhododendron CPO Members" dated July 10, 2016 especially regarding a crossing in the Rhododendron area associated with pedestrian environment enhancements such as gateway signage, landscaping, sidewalks and/or lighting.

BOARD OF COUNTY COMMISSION POLICY SESSION

An overview of the project and the draft *Villages Plan* was presented to the Board of County Commission at a policy session on October 11, 2016. Discussion was brief and supportive.

COMMENTS RECEIVED FROM THE PUBLIC

- Rhododendron CPO Letter; July 10, 2016 (Exhibit 2, attached)
- Barlow Trail Association Letter; November 1, 2016 (Exhibit 3, attached)

ANALYSIS AND FINDINGS

1. Section 1307 of Zoning and Development Ordinance (ZDO): The proposed amendments are legislative in nature. Section 1307 of the ZDO establishes review procedures for legislative amendments. However, the ZDO contains no review criteria that must be applied when considering an amendment to the text of the Comprehensive Plan.

2. Chapter 11: The Planning Process of the Comprehensive Plan (Plan) contains a section titled City, Special District and Agency Coordination. The Oregon Department of Transportation, the Oregon Department of State Lands, Clackamas River Water District, Oak Lodge Sanitary District and all cities within the county are on a standing list to receive notice of all proposed amendments. This level of notification furthers the goals and policies of this section of the Plan. (See Exhibit 1 regarding public notices)

   Chapter 11 of the Plan also contains a section entitled Amendments and Implementation. This section contains procedural standards for Plan amendments, requires the Plan and the ZDO to be consistent with Statewide Planning Goals and Guidelines and Metro's Urban Growth Management Functional Plan, and requires the ZDO to be consistent with the Plan. Policy 3.0 establishes the procedural standards. The process followed for ZDO-260 is in compliance with these standards. Specifically, notice was mailed to all recognized Community Planning Organizations, Hamlets and Villages at least 35 days before the scheduled public hearing, and the Department of Land Conservation and Development and Metro were provided with an opportunity to review and comment on the proposed amendments. Advertised public hearings are scheduled before the Planning Commission and the Board of County Commissioners to consider the proposed amendments. The Statewide Planning Goals and Guidelines and the Urban Growth Management Functional Plan are addressed below.

3. Statewide Planning Goals and Guidelines

   a. Goal 1: Citizen Involvement: The text amendment does not propose to change the structure of the county's citizen involvement program. Notice of the proposed amendment was provided to

Community Planning Organizations, Hamlets, Villages and a list of interested parties. Also, notice of the Planning Commission and Board of County Commissioners hearings was published in the newspaper. The Department of Land Conservation and Development (DLCD) was notified of this proposal, but no response has been received.

b. Goal 2: Land Use Planning: Not applicable because the text amendment does not propose to change the county's land use planning process. The county will continue to have a comprehensive land use plan and implementing regulations that are consistent with the plan. No exceptions from the Goals are required.

c. Goal 3: Agricultural Lands: Not applicable because the text amendment does not propose to change the county's Plan policies or implementing regulations for agricultural lands.

d. Goal 4: Forest Lands: Not applicable because the text amendment does not propose to change the county's Plan policies or implementing regulations for forest lands.

e. Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources. Not applicable because the text amendment does not propose to change the county's Plan policies or implementing regulations for Goal 5 open spaces, scenic and historic areas, and natural resources.

f. Goal 6: Air, Water and Land Resources Quality. Not applicable because the text amendments do not propose to change the county's Plan policies or implementing regulations for compliance with Goal 6.

g. Goal 7: Areas Subject to Natural Disasters and Hazards: Not applicable because the text amendment does not propose to change the county's Plan or implementing regulations regarding natural disasters and hazards.

h. Goal 8: Recreational Needs: Not applicable because the text amendment does not propose to change the county's Plan or implementing regulations regarding recreational needs.

i. Goal 9: Economy of the State: Not applicable because the text amendments do not propose to change the county's Plan or implementing regulations regarding the economy of the state. The proposed text amendments will not prohibit, and the authorization of similar uses provisions may encourage, development proposals that enhance the local, regional and state economy.

j. Goal 10: Housing: Not applicable because the text amendments do not propose to change the county's Plan or implementing regulations regarding housing.

k. Goal 11: Public Facilities and Services: Not applicable because the text amendments do not propose to change the county's Plan or implementing regulations regarding public facilities and services.

l. Goal 12: Transportation: Goal 12 is implemented by Oregon Administrative Rules Chapter 660, Division 12, the Transportation Planning Rule (TPR). Regulations described in the TPR are largely directed at the development of a jurisdictions' Transportation System Plan (TSP) as a whole or at a land use regulation and land use changes that affect the transportation system. Clackamas County's TSP (Chapter 5 of the Comprehensive Plan) has been acknowledged by the

state and is therefore in compliance with OAR 660-012. The changes recommended by the proposed *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* represent relatively minor changes to the County's TSP and are consistent with the general TPR requirement that a local TSP should identify a system of planned transportation facilities for all modes of transportation. This proposal is in compliance with Goal 12.

m. Goal 13: Energy Conservation: Not applicable because the amendments do not propose to change the county's Plan or implementing regulations regarding energy conservation.

n. Goal 14: Urbanization: Not applicable because the amendments do not propose to change the county's Plan or implementing regulations regarding urbanization. Authorization of similar uses in areas outside urban growth boundaries would not waive the square footage limitations that apply to rural uses under the Oregon Administrative Rules that implement Goal 14.

o. Goal 15: Willamette River Greenway: Not applicable because the amendments do not propose to change the county's Plan or implementing regulations regarding the Willamette River Greenway.

4. Metro Urban Growth Management Functional Plan:

a. Title 1. Requirements for Housing and Employment Accommodation. Not applicable because the proposed text amendments would not decrease the amount of land zoned for residential or commercial/industrial use, affect design type boundaries, alter permitted densities or prohibit accessory dwelling units.

b. Title 2. Regional Parking Policy: Not applicable because the proposed text amendments would not change the county's Plan or implementing regulations regarding parking.

c. Title 3. Water Quality and Flood Management: Not applicable because the proposed text amendments would not change the county's Plan or implementing regulations regarding water quality and flood management.

d. Title 4. Industrial and Other Employment Areas: Not applicable because the proposed text amendment would not change the county's Plan or implementing regulations concerning designation of industrial and other employment areas, minimum lot sizes in these areas, or permitted uses in these areas. The ZDO has been found to comply with Title 4, based in part on the fact that the urban industrial zones regulated by Title 4 do not provide for the types of service and retail uses restricted by Title 4. The urban industrial zones regulated by Title 4 include strict limits or outright prohibitions on retail and service uses that would not be overridden by the proposed authorization of similar uses standards.

e. Title 5. Neighbor Cities and Rural Reserves: Not applicable because the proposed text amendments would not change the county's Plan or implementing regulations concerning neighbor cities and rural reserves.

f. Title 6. Central City, Regional Centers, Town Centers and Station Communities: Not applicable because the proposed text amendments would not change the boundaries of any of the centers.

g. Title 7. Housing Choice: Not applicable because the proposed text amendments would not change the county's Plan or implementing regulations concerning housing choices.

h. Title 8. Compliance Procedures: Not applicable. This Title is administrative and relates to Metro's process for ensuring local governments comply with the Functional Plan.

i. Title 9. Performance Measures: Not applicable. This Title is administrative and relates to requirements for measuring whether the Functional Plan is achieving the intended outcomes in the region.

j. Title 10. Functional Plan Definitions: Not applicable. This Title contains definitions only.

l. Title 11. Planning for New Urban Areas: Not applicable because the proposed text amendment would not change the county's Plan or implementing regulations concerning planning for new urban areas.

m. Title 12. Protection of Residential Neighborhoods: Not applicable because the proposed text amendment would not change the county's Plan or implementing regulations concerning residential density, designation of neighborhood centers or access to parks and schools.

n. Title 13. Nature in Neighborhoods: Not applicable because the proposed text amendment would not change the county's Plan or implementing regulations regarding Habitat Conservation Areas, the regulation of which is required by Title 13.

RECOMMENDATION

Staff recommends that the Planning Commission recommend approval of ZDO-260 to the Board of County Commissioners which includes amendments to the Comprehensive Plan:

1) Attachment 1: Amendments to Chapter 10, the Mt. Hood Community Plan;
2) Attachment 2: Amendments to Chapter 5 (text change);
3) Attachment 3: Amendments to Chapter 5 Tables 5-3a to 5-3d;
4) Attachment 4: Amendments to Chapter 5 Map 5-11b;
5) Attachment 5 ; Appendix B (added reference to the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan*);
6) Attachment 6: The *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan;* and
7) The *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, Appendices Volumes I and II.* (Appendices are not attached to this staff report but can be found along with electronic copies of all attachments at http://www.clackamas.us/planning/zdo260.html)

Chapter 10: COMMUNITY PLANS AND DESIGN PLANS

The following Community Plans and Design Plans are included in Chapter 10:

1. **Mount Hood Community Plan**
2. **Kruse Way Design Plan** (*Repealed 03/01/2014, per Ordinance ZDO-246*)
3. **Sunnyside Village Plan**
4. **Clackamas Industrial Area and North Bank of the Clackamas River Design Plan**
5. **Clackamas Regional Center Area Design Plan**
6. **Sunnyside Corridor Community Plan**
7. **McLoughlin Corridor Design Plan**

MOUNT HOOD COMMUNITY PLAN

The Mt. Hood area is unique, and the policies of the Mt. Hood Community Plan recognize this character. The economy of the community is dependent upon the conservation of the environment, which creates the setting so attractive to both residents and visitors. The Mt. Hood Community Plan, in conjunction with the rest of the Comprehensive Plan, provides the guidelines to assure reasonable development potential consistent with the need for environmental conservation.

The rest of the Comprehensive Plan is applicable to the Mt. Hood area; however, the Mt. Hood Community Plan takes precedence where conflicts exist.

The Mt. Hood Community Plan contains some policies that are in addition to, or different from, the rest of the Comprehensive Plan in four subject areas: Land Use, Public Facilities, Transportation, and Planning Process.

LAND USE

In the Mt. Hood area, the Forest, Agriculture, Rural, Rural Commercial, Urban Low Density Residential, Community Commercial, and Open Space land use plan designations are applicable. Additionally, the Mountain Recreation designation may be applied. All land designated Urban in the Mt. Hood area is Immediate Urban. The three village districts of Government Camp, Rhododendron, and Wemme/Welches are recognized for their separate character and individual environment.

VILLAGE DISTRICTS

1.0 Government Camp

1.1 The Government Camp Village is identified as an Urban Unincorporated Community in compliance with Chapter 660, Division 22 of the Oregon Administrative Rules (OARs).

1.2 Provide for a high intensity development character.

1.3 Development of US Forest Service lands may occur only if it complies with the US Forest Service regulations. Upon completion of a land transfer to private ownership, development of these lands may occur only if it complies with the provisions of this Plan.

1.4 Provide for pedestrian circulation and access within the business center.

1.5 Require new commercial or residential development of more than three units to provide a plan for snow removal and stockpiling.

1.6 Require one on-site parking space for each single-family residence developed on a lot of record existing prior to the adoption of this provision.

1.7 Require all new residential development of more than three units to provide covered parking.

2.0 **Rhododendron**

2.1 Provide for a development character of low intensity.

~~2.2 Encourage development of crosswalks, signals, or a pedestrian overpass or underpass to facilitate movement across Highway 26~~US 26~~.~~

3.0 Wemme/Welches

3.0 Provide for a development character of medium intensity.

~~3.1 Orient new development away from Highway 26, which is designated a scenic highway.~~

~~3.2~~3.1 Encourage development of recreational-resort facilities to provide accommodations for the users of the area's recreational amenities.

~~3.3~~3.2 Encourage development of a shuttle bus system to provide access to the ski areas.

RESIDENTIAL

1.0 Property may be zoned Recreational Residential in areas designated Rural within the Mount Hood Community Plan, when all of the following criteria are met:

a. Parcels are generally two acres or smaller,

b. The area is significantly affected by development, and

c. There are no natural hazards and the topography and soils conditions are well-suited for the location of homes.

2.0 Allow density bonuses within the Low Density Residential and Mountain Recreation designations pursuant to Chapter 6, *Housing*, and the Zoning and Development Ordinance. In the Mountain Recreation designation, units allowed through the density bonus provisions shall be developed with the same unit size mixture as provided in the base density for the development. For example, if a development is proposed with a mixture of 50 units of 700 square feet each, and 50 units of 500 square feet each, and a bonus density of 10 units is allowed—the ten units shall include five units of 700 square feet each, and five units of 500 square feet.

3.0 The Low Density Residential land use plan designation may be applied within the Mt. Hood urban area, according to the policies for designation stated in Chapter 4, *Land Use*.

4.0 Implement the Low Density Residential designation by application of only the Hoodland Residential (HR) zone, which shall allow a maximum density of four units per acre.

5.0 The Mountain Recreation areas provide overnight housing for the users of the recreational facilities in the Mt. Hood area, in addition to providing for a variety in housing types at a density higher than allowed in the Low Density Residential areas. Uses allowed include multifamily dwellings, resort housing, and motels.

5.1 The Mountain Recreation designation may be applied within the Mt. Hood urban area, when all of the following criteria are met:

a. The land is located within a village district,

b. Public sewer and a State-approved water system are available and adequate to support the development potential of this designation, and

c. The pattern and character of development within the area would not be adversely affected by uses allowed by this designation.

5.2 Recognize the unique character of individual village districts by varying density according to the village.

a. In Wemme/Welches and Rhododendron, encourage a variety of housing types and individual unit sizes by calculating density based on floor area, according to the following development level chart:

Floor Area per unit in sq. ft.	**No. of units per acre at development levels**	
	Wemme/Welches	**Rhododendron**
1200+	6	4
1000-1199	7	5
800-999	8	6
600-799	10	8
400-599	14	12
200-399	32	22

b. In Government Camp, allow a density of 22 units per acre.

5.3 Allow incidental commercial uses within a development in the Mountain Recreation area, as a limited use.

5.4 Implement the Mountain Recreation designation with the Mountain Recreational Resort zone.

6.0 Establish density standards for fragile or hazardous areas within the Mt. Hood urban area as follows:

a. Land within the 100-year floodplain shall be excluded from land area calculations; there is no density credit allowed for this area.

b. Except as modified by policy 6.1, identified land movement areas, wetlands, and slopes over 25 percent shall not be developed; 50 percent of the density allowed by zoning may be transferred to an unrestricted area within the development.

c. Except as modified by policy 6.1, development shall not occur within stream corridor areas; 100 percent of the density allowed by zoning may be transferred to an unrestricted area.

6.1 Notwithstanding Policy 6.0, one single-family dwelling may be developed on a lot of record, provided that such development is otherwise consistent with the provisions of the Comprehensive Plan and the Zoning and Development Ordinance. The policies stated in Policy 6.0 apply only to residential development; all other development shall be controlled by other provisions of the Comprehensive Plan and by the Zoning and Development Ordinance.

7.0 Implement dimensional and development standards to address compatibility, function, and aesthetics.

COMMERCIAL

1.0 The Community Commercial land use plan designation may be applied in the Mt. Hood urban area, according to the criteria for designation stated in Chapter 4, *Land Use*.

1.1 Implement the Community Commercial designation by application of only the Rural Tourist Commercial (RTC) zoning district.

1.2 Apply the density standards of Policy 5.2 of the Residential section to resort accommodations in Community Commercial areas.

2.0 The Rural Commercial land use plan designation may be applied outside of the Mt. Hood urban area, according to the criteria for designation stated in Chapter 4.

3.0 The Neighborhood Commercial zone shall not be applied in the Mt. Hood area.

4.0 Implement dimensional and development standards to address compatibility, function, and aesthetics.

OPEN SPACE

1.0 All areas within the 100-year floodplain, wetlands, and slopes exceeding 25 percent in the Mt. Hood area shall be designated Resource Protection Open Space. See Maps X-MH-1, X-MH-2, and X-MH-3.

2.0 For the Government Camp Urban Unincorporated Community, there are two Open Space designations that are implemented through the Government Camp Open Space Management District: (1) Public and Community Use, and (2) Buffer areas.

2.1 Designate Public and Community Use areas for utility facilities and public and private recreation uses and structures, including ski facilities, ice skating arenas, and indoor and other outdoor athletic and sport training facilities.

2.2 Designate buffer areas as open to maintain the area's environmental character and residential privacy. Development shall be minimized in these areas to the fullest possible extent.

3.0 Open space uses shall not substantially contribute to vehicular trip generations.

PUBLIC FACILITIES

1.0 Prohibit lot divisions or development requiring subsurface disposal systems, within the Mt. Hood urban area, except for:

a. Remodeling or additions to existing development, when such remodeling would not require any alteration or expansion of the subsurface disposal system, or

b. Parcels with unique topographic or other natural features which make sewer extension impractical.

2.0 Ensure that subsurface sewage disposal systems in non-urban areas are allowed only when lot sizes give maximum assurance that no failures will occur that could require annexation to the Hoodland Service District.

3.0 Extension of sanitary sewer service to lands outside an unincorporated community boundary may be allowed in the Hoodland Service District or Government Camp Sanitary District boundary only under the following circumstances:

a. The property is located within an acknowledged unincorporated community boundary or the sanitary sewer line extension is the only practicable alternative to resolve a health hazard as defined by the State of Oregon; or

b. The sanitary sewer extension provides service to an existing, committed nonforest public use area, such as Timberline Lodge and its related facilities, Silcox Hut, or a Boy Scout lodging facility provided: (1) these uses are approved as an exception to Statewide Planning Goal 4; and (2) the extension is approved as an exception to Statewide Planning Goal 11.

4.0 The Government Camp Water System Master Plan, dated July 2000, shall be acknowledged as the water element of the Government Camp Facilities Plan.

5.0 The Government Camp Sanitary District Wastewater Facilities Plan, dated October 1995, shall be acknowledged as the sanitary sewer element of the Government Camp Facilities Plan.

6.0 The County shall acknowledge periodic updates of the sanitary sewer, water and transportation elements of the Government Camp Facilities Plan.

7.0 Review of development applications shall be coordinated with all service agencies to ensure facility service capacity is available to new developments.

TRANSPORTATION

The development of ~~roads~~ the transportation system shall be in accordance with the following policies.

1.0 Encourage intersection improvements at the following intersections with ~~Highway 26~~US 26:

A. East Brightwood Loop

B. East Lolo Pass Road

C. East Welches Road

D. Highway 35

E. Entrance to Multorpor Ski Bowl facilities

F. Government Camp Loop

2.0 ~~3.0~~ Encourage development of a loop road south of ~~Highway 26~~US 26 in Government Camp. The loop would complete access from the west to the east side of Government Camp, and would improve access to the Multorpor/Ski Bowl facilities. Interchanges should be developed at the intersections with ~~Highway 26~~US 26.

~~2.0~~3.0 Recognize the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* as the guiding document for the development of a connected multi-modal system~~.~~ within the Villages of Mt Hood, as established pursuant to Clackamas County Code, Chapter 2.10.

4.0 Cooperate with the Oregon Department of Transportation (ODOT) to maintain a reasonable level of service and safety on ~~Highway 26~~US 26, in the Mt. Hood Corridor.

4.1 ~~4.1~~ Limit access to ~~Highway 26~~US 26, and encourage shared access where access to ~~Highway 26~~US 26 is necessary.

~~4.1~~4.2 Focus access management strategies on areas where access points are not defined and where driveways can be consolidated with new development or redevelopment according to the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan*.

~~4.2~~ 4.3 Encourage redesign of older platted areas along ~~Highway 26~~US 26, to reduce the number of access points.

4.4 Encourage the development of alternatives to automobile transportation to ski facilities, to reduce parking needs at ski areas and to reduce congestion on ~~Highway 26~~US 26. Individual developers and existing resort facilities should be encouraged to provide shuttle systems or other facilities such as an aerial tram between Government Camp and Timberline Lodge.

4.5 Coordinate with the community and ODOT to refine the design and location of safe and convenient pedestrian and bicycle crossings across ~~Highway~~ US 26, enhanced with rapid flashing beacons or other safety measures and/or signals~~, or a pedestrian overpass or underpass~~ as identified in the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* and Tables 5-3a-d~~c~~ and Map 5-11b. ~~.~~

4.6 Support the design and construction of a multi-use path adjacent to US 26 connecting Wildwood Recreation Site to E. Salmon River Road according to the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan*.

5.0 Cooperate with ODOT to provide a rest area and information center between Sleepy Hollow and Zigzag.

6.0 Encourage development of a community-wide network of pedestrian trails.

6.1 Ensure continued public access to recreation trails shown on Map X-MH-5-and located within the Government Camp Urban Unincorporated Community boundary. Provisions may be made through appropriate legal documents, and may include requirements such as retaining conservation easements on these lands.

6.2 Encourage the efficient connection of Forest Service trails located outside the Government Camp Urban Unincorporated Community Boundary to trail systems located within the boundary, to provide an integrated network of walkways, bikeways, and trails.

6.3 Support connections to destinations and to Forest Service and Bureau of Land Management trails ~~in and adjacent to the Villages at Mt. Hood~~ as part of an integrated network of pedestrian and bicycle facilities ~~in Brightwood, Wemme/Welches and Rhododendron/Zigzag~~.

7.0 Support development and installation of gateway signs that identify the entrances of the Villages at Mt. Hood.

8.0 Promote the active transportation by p~~P~~rovide wayfinding signs including signs to an existing underpass and "bike hubs" – areas of secure and sheltered parking, benches, bike tools, and/or other amenities – to maximize investment in existing and new transportation facilities that accommodate multimodal travel and tourism in the Villages at Mt. Hood.

9.0 Support continuation and/or expansion of a shuttle bus system providing access to the Villages at Mt. Hood and ski areas.

10.0 Enhance existing and planned transit facilities and services by providing supportive facilities and features such as park and ride facilities and wayfinding signs in the Villages at Mt. Hood.

11.0 Support the development of pedestrian and bikeway connections along Huckleberry Drive, Woodsey Way and Learning Lane in order to provide safe routes to schools.

PLANNING PROCESS

1.0 The statements of issues and alternatives and the inventories and data of the1976 Mt. Hood Community Plan, the 1976 Mt. Hood Planning Unit Draft Environmental Statement, 1989 Government Camp Village Revitalization Plan and Report, 1999 Government Camp Village Design Incentives Plan, 1980 Summit Ski Area Expansion Environmental Assessment Report, 1981 Multorpor Ski Bowl Master Plan, 1995 Government Camp Sanitary District Wastewater Facility Plan, 2000 Government Camp Water System Master Plan, 2000 Rural Transportation System Plan, Mt. Hood Corridor Plan-Final Environmental Impact Statement, and the revisions and additions to these documents are adopted as background reports for the policies and designations of the Mt. Hood Community Plan.

2.0 The *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* are adopted as a background report for the policies and designations of the Mount Hood Community Plan.

Chapter 5: TRANSPORTATION SYSTEM PLAN

The Clackamas County Transportation System Plan (TSP) will guide transportation related decisions and identify the transportation needs and priorities in unincorporated Clackamas County from 2013 to 2033. The TSP has been created in coordination with the County's 16 cities, the State of Oregon, area transit providers, and other affected agencies and has been vetted through an extensive public process, including a series of public outreach events and twelve Public Advisory Committee meetings. The public and county staff worked together to develop the following vision for the TSP and six goals to guide implementation of this vision:

> *Building on the foundation of our existing assets, we envision a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for people, goods and services; is tailored to our diverse geographies; and supports future needs and land use plans.*

TSP GOALS

- Goal 1: Provide a transportation system that optimizes benefits to the environment, the economy and the community
- Goal 2: Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the County.
- Goal 3: Tailor transportation solutions to suit the diversity of local communities.
- Goal 4: Promote a transportation system that maintains or improves our safety, health, and security.
- Goal 5: Provide an equitable transportation system.
- Goal 6: Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs.

BACKGROUND AND ISSUES

The County's transportation system includes an extensive network of public and private transportation facilities, including roads, railways, airports, pipelines, waterways, and multi-use paths. The system is intended to allow people to travel where they need to go safely and efficiently, while also providing for efficient movement of goods. The County's transportation system is also intended to support sustainable land use patterns and policies to serve a multitude of public needs without sacrificing air and water quality or creating noise pollution.

Government agencies, public and private service providers, and developers are involved in building and maintaining the County's transportation system. Metro, Portland's metropolitan planning organization, sets general policy guidelines for design, distributes regional funding for certain types of projects within its boundary, and sets standards for the operation of the

transportation system located within the Portland Metropolitan Urban Growth Boundary (UGB). All transportation facilities must conform to standards and guidelines outlined by federal, state and, in some cases, Metro regulatory documents.

Clackamas County faces several challenges as it attempts to continue to develop and maintain a safe and integrated transportation system, appropriate for and accessible to all potential users.

- Limited funding: Funding levels for roads, the backbone of the transportation system, have not kept pace with the mobility needs of our society. Limited funding makes it a challenge to balance the need for maintenance and management of existing facilities with the need for building new facilities to accommodate increased trip demand. As a result, the backlog of needed road maintenance and construction projects has grown larger.

- Reducing congestion: Community members help reduce traffic congestion when they choose to take the bus, join a carpool, or bicycle and walk to destinations. Reducing congestion decreases the need for costly road construction projects while improving air quality, neighborhood livability and access to goods, services and employment.

  Improving the relationship between land uses and transportation can also decrease reliance on automobiles and reduce congestion. Some ways to improve this relationship are to: alter the site design of new construction at or near major transit stops; increase connectivity in transportation systems; provide better pedestrian and bicycle facilities; use land more efficiently; and encourage mixed-use developments.

- Balancing needs: All land-based modes of travel, except rail and pipeline, must share the public rights-of-way. These modes includes autos, trucks, buses, bicycles, pedestrians and, in some localities, equestrians. Balancing the need for mobility (through movement of traffic) with the need for local movement and access to individual properties often creates design and safety challenges for roadways.

- Safety: From 2005 to 2009, there were approximately 160 fatalities and 1,245 serious injuries in Clackamas County due to traffic crashes. One of the County's goals is to improve the safety of its system for all users and reduce the number and severity of crashes for future years. Developing facilities to accommodate all modes of travel will help reduce conflicts that lead to safety problems for some users. The adopted Transportation Safety Action Plan calls for a 50 percent reduction of fatal and serious injury crashes by 2022.

- Fostering economic growth: Monitoring the effects of transportation on employment and economic activity is important during both good and bad economic times. Of particular significance are the ways transportation can be used as a tool to sustain and promote economic development both in the urban industrial and commercial centers and within the county's distinctive rural economy, including agriculture, forestry and equestrian facilities.

- Addressing environmental impacts: Development of transportation infrastructure needs to be sensitive to potential impacts to neighborhoods and to the natural environment, in order to create and maintain livable communities, preserve air and water quality, and conserve energy.

The northwest urban area of the County is within a designated Air Quality Maintenance Area (AQMA). Presently the AQMA meets state and federal air quality standards, but federal law requires the region to implement measures to maintain federal air quality standards. Federal law also prohibits significant degradation of air quality in the Mt. Hood Wilderness.

- Ensuring accessibility: In many areas of the County, transportation disadvantaged populations, such as the elderly, disabled or low-income residents, need improved access to public transit and special transportation services. Clackamas County will ensure that new and rebuilt roads are planned and designed to perform all necessary functions, including being accessible to those who choose not to drive or cannot drive.
- Maintaining and improving rural area roads: Clackamas County also is challenged by the responsibility to maintain and develop a safe and functional road network in rural areas. Upgrades to aging rural roadways are needed to enhance safety and accommodate different modes of travel.

TSP ORGANIZATION

To implement the vision and goals and to address the issues identified above, a series of policies have been created to direct the County in its efforts to build and maintain a multi-modal transportation system. Under each policy category, the countywide policies are listed first, followed by the urban policies, and the rural policies.

The policies are presented in this chapter by major topic or transportation mode as follows:

- **Foundation and Framework**: includes policies relating to coordination; safety; equity, health and sustainability; intelligent transportation systems; and transportation demand management
- **Land Use and Transportation**: includes policies relating to the integration of land use and transportation; parking; rural tourism; and scenic roads.
- **Active Transportation**: includes policies relating to pedestrian and bicycle facilities and multi-use paths.
- **Roadways**: includes policies relating to functional classification; urban and rural roadway considerations; project development; improvements to serve development; and performance evaluation and access standards.
- **Transit:** includes policies relating to transit and transit-supportive amenities.
- **Freight, Rail, Air, Pipeline and Water Transportation**: includes policies relating to general freight movement; freight trucking; rail; airports; pipelines; and water transportation.
- **Finance and Funding:** includes policies relating to funding capital transportation improvements and maintenance.
- **Transportation Projects and Plans:** includes policies relating to the 20-year and five-year capital improvement plans. Also identifies Special Transportation Plans that are adopted by

reference as refinements of the TSP and plans or studies that need to be completed in the future to support the TSP.

- **Definitions:** relevant definitions for use within this chapter.

The TSP also contains the following components:

- The County's ***20-year Capital Improvement Plan:*** a complete list of needed transportation-related projects to address gaps and deficiencies in the transportation network (Tables 5-3[a-d]).
- **Tables, Maps and Figures** illustrating the transportation system and street cross sections, and presenting guidelines and standards for developing the system.
- **Background documents** including detailed findings and conclusions relating to the various components of the transportation system (Appendix B).

ACTIVE TRANSPORTATION

Recognizing the increasing importance of having multiple ways to travel through a community and through the region has led to an increased awareness for designing transportation systems to safely enhance active transportation modes. "Active Transportation" is defined to include walking, bicycling and horseback riding.

The County completed transportation systems planning for pedestrian and bicycle modes in 1995 to implement the state's Transportation Planning Rule (TPR), particularly the following TPR principles:

1. Land use and transportation are intimately related.
2. Over reliance should not be placed on any one transportation mode.
3. Walking and bicycling reduce the number of motorized vehicle trips.
4. Compact, mixed-use development encourages the use of non-motorized modes.
5. Well-planned, properly designed facilities will encourage people to make trips by non-motorized modes.
6. Facilities for these non-motorized modes are essential for people not having access to an automobile, and constitute desirable elements in a well-designed community that are enjoyed by people who can drive, but choose to walk or bicycle.

These principles underlie the development of the Clackamas County Pedestrian Master Plan and the Clackamas County Bicycle Master Plan, both of which are adopted by reference. Both master plans were prepared under the guidance of the Clackamas County Pedestrian and Bikeway Advisory Committee, which was guided by the following vision:

> *Create an environment which encourages people to bicycle and walk on networked systems that facilitate and promote the enjoyment of bicycling and walking as safe and convenient transportation modes.*

The Clackamas County Active Transportation Plan (ATP), adopted by reference in Appendix A, contains priority routes connecting communities in both the urban and rural portions of the County. Development of the principal active transportation routes described in the ATP would provide opportunities for residents to safely bicycle or walk to schools, parks, shopping, and employment centers.

5.J. General Active Transportation Policies

5.J.1 Coordinate the implementation of pedestrian facilities and bikeways with neighboring jurisdictions and jurisdictions within the county.

5.J.2 Ensure an opportunity for a diverse and representative citizen involvement in the county pedestrian and bicycle planning process by sponsoring the Clackamas County Pedestrian and Bikeway Advisory Committee (CCPBAC) as a forum for public input. Recruit representatives of transportation disadvantaged populations as part of this process.

5.J.3 Monitor and update the Clackamas County Pedestrian Master Plan, Bicycle Master Plan, and Active Transportation Plan through data collection and evaluation, and review activities necessary to maintain and expand the programs established in these plans.

5.J.4 Support bicycle, pedestrian and transit projects that serve the needs of transportation disadvantaged populations.

5.J.5 Coordinate with pedestrian, bicycle, and trail master plans, and with special transportation plans of the County, Oregon Department of Transportation, the United States Forest Service, Metro, and parks providers to achieve safe and convenient crossings and -off-road, multi-use path and trail systems connecting to on-road pedestrian facilities and the bikeway networks.

5.J.6 Support the continuation of the "Bikes on Transit" program on all public transit routes.

5.J.7 Inform property owners of their responsibilities for the maintenance of sidewalks and pedestrian pathways.

5.J.8 Identify low traffic volume streets that are appropriate for signing as bicycle routes to enhance safety and connectivity and to supplement the system of bikeways found on the major street system.

5.J.9 **Rural** Support bicycle and pedestrian projects that improve access to public transit stops and provide connections to significant local destinations.

5.K. Design Policies

5.K.1 Require bikeways and pedestrian facilities for all new roadway construction or substantial reconstruction, allowing for flexibility to accommodate characteristics of terrain, scenic qualities, existing development, and environmental constraints.

5.K.2 Design and implement innovative bicycle and pedestrian facilities that improve the convenience and safety of these facilities. Use facility types described in the Active Transportation Plan as a reference.

5.K.3 Improve the safety and appeal of walking and biking by supporting the development of bikeways and pedestrian facilities and networks on low volume or local roads and off of existing street rights-of-way.

5.K.4 **Urban** Identify pedestrian facilities and bikeway improvements necessary to ensure direct and continuous networks of pedestrian facilities and bikeways on the county road system.

5.K.5 **Urban** Identify locations where bicycle and pedestrian access is blocked by rivers and other natural barriers and encourage the creation of bicycle and pedestrian facilities to extend across these barriers.

5.K.6 **Urban** Review development plans to ensure that they provide bicycle and pedestrian access.

5.K.7 **Urban** Create a networked system of pedestrian facilities and bikeways connecting cities, neighborhoods, commercial areas, community centers, schools, recreational facilities, employment centers, other major destinations, regional and city bikeways and pedestrian facilities, and other transportation modes. Utilize separate accessways for pedestrian facilities and bikeways where street connections are impractical or unavailable.

5.K.8 **Rural** Support the safe movement of equestrians in rural areas.

5.L. Construction Policies

5.L.1 Construct all pedestrian facilities, bikeways, and multi-use paths according to the current County design standards and to the applicable cross section, allowing for flexibility to accommodate characteristics of terrain, scenic qualities, existing development, and environmental constraints, and different designs identified in adopted Special Transportation Plans.

5.L.2 Construct all pedestrian facilities, bikeways, and multi-use paths designated on the Planned Bikeway Network (Maps 5-2a and 5-2b); the Essential Pedestrian Network (Map 5-3); and the Active Transportation Plan (Maps 5-12a and 5-12b).

5.L.3 Construct interim pedestrian facilities and bikeways, as appropriate, on existing streets that are not built to the applicable cross section and where the construction of full street improvements is not practicable or imminent as determined by the County Planning Director and County Road Official or County Engineer.

5.L.4 **Urban** Require that new development include construction of walkways and accessways within the development and between adjacent developments, where appropriate.

5.L.5 **Rural** In Unincorporated Communities, construct walkways adjacent to or within areas of development (such as schools, businesses, or employment centers) and at rural transit stops.

5.M. Facilities Policies

5.M.1 Encourage the provision of appropriate, supportive facilities and services for bicyclists, including showers, lockers, bike racks on buses, bike repair and maintenance information/clinics, and secure bicycle parking.

5.M.2 Establish and maintain way-finding systems to facilitate bicycle travel.

5.M.3 Install and maintain the signage and bicycle amenities identified in the Active Transportation Plan.

5.M.4 **Urban** Encourage the provision of street lighting to increase the visibility and personal security of pedestrians and bicyclists.

5.N. Multi-Use Path Policies

5.N.1 Support acquisition and development of multi-use paths on abandoned public and private rights-of-way.

5.N.2 Collaborate with the appropriate service providers, such as park providers, to plan for multi-use paths that accommodate equestrian facilities where possible.

5.N.3 **Rural** Consider multi-use paths where travel lanes or wide paved shoulders along roadways may not provide adequate safety for pedestrians or bicyclists.

5.N.4 **Rural** Consider equestrian uses when designing and constructing multi-use paths. Work with local communities and interest groups to plan, develop and maintain multi-use paths that also provide equestrian features. Plan for parking areas at such multi-use paths that support parking needs of equestrians, as well as needs of other path users.

5.N.5 **Rural** Establish a program to plan, develop, and maintain multi-use paths in the rural part of the County.

Table 5-3a 20-Year Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
1000	County-wide	ITS Plan Program	N/A	Develop a program to support the implementation of the County's ITS Plan and support the County's efforts to make improvements to traffic operations based on the ITS Plan.- Deploy traffic responsive signal timing, ramp metering, traffic management equipment for better routing of traffic during incidents along the three key ODOT corridors - I-205, I-5, 99E. Install signal controller upgrades and update County ITS plan.
1001	County-wide	Transportation Safety Action Plan Program	N/A	Develop a program to support the implementation of the County's TSAP and support the County's efforts to make improvements based on the outcomes of the road safety audits and other safety studies.
1002	5-11a	122nd Ave	Eagle Glen Dr to Hubbard Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1003	5-11a	122nd Ave	Sunnyside Rd to Hubbard Rd	Fill gaps in pedestrian facilities, turn lanes at Mather Rd
1004	5-11a	122nd Ave	Sunnyside Rd to Timber Valley Dr	Add bikeways and turn lanes at major intersections
1005	5-11a	132nd Ave	Sunnyside Rd to OR 212	Add bikeways, pedestrian facilities, traffic calming and turn lanes at major intersections
1006	5-11a	142nd Ave	Sunnyside Rd to OR 212	Add bikeways and pedestrian facilities
1007	5-11a	72nd Ave Multi-Use Path Connection	Thompson Rd to Harmony Rd	Construct multi-use path
1008	5-11a	82nd Dr	OR 212 to Lawnfield Rd	Fill in bikeways and pedestrian facilities gaps
1009	5-11a	85th Ave	Causey Ave to Monterey Ave	Add sidewalks and bikeways
1010	5-11a	92nd Ave	Johnson Creek Blvd to Emmert View Ct	Fill gaps in pedestrian facilities
1011	5-11a	97th Ave / Mather Rd	Lawnfield Rd to Summers Ln	Add bikeways, pedestrian facilities and eastbound left turn lanes at Mather Rd / Summers Ln
1012	5-11a	Boyer Dr	OR 213 to Fuller Rd	Construct new 2 lane roadway with turn lanes at OR 213 and Fuller Rd, bikeways and pedestrian facilities; install flashing yellow arrow for left turns on northbound and southbound approaches at OR 213 intersection.
1013	5-11a	Boyer Dr / 85th Ave / Spencer Dr	OR 213 to I-205 bike path	Add bikeways
1014	5-11a	Causey Ave	Fuller Rd to I-205	Add bikeways and shared facility markings in accordance with the Active Transportation Plan.
1015	5-11a	Clackamas Industrial area multi-modal improvements	N/A	Complete bike and pedestrian connections within the Clackamas Industrial area on Jennifer St., Evelyn St., 106th Ave, 122nd Ave, 130th Ave and 135th Ave.
1016	5-11a	Clackamas Regional Center Bike/Pedestrian Corridors	N/A	Construct pedestrian and bike improvements as described in the Clackamas Regional Center Pedestrian / Bicycle Plan
1017	5-11a	Clackamas Town Center Alternative Performance Standards Study	Clackamas Regional Center	Develop alternative performance standards for the intersections within the Clackamas Regional Center.
1018	5-11a	Clackamas Town Center Circulation Plan	West of the Town Center	Study area circulation and create plan
1019	5-11a	Flavel Dr	Alberta Ave to County boundary	Add bikeways in accordance with the Active Transportation Plan.
1020	5-11a	Fuller Rd	Otty St to Johnson Creek Blvd	Add pedestrian facilities, turn lanes, on-street parking, central median and landscaping.
1021	5-11a	Fuller Rd / King Rd Improvements	Fuller Rd / King Rd intersection	Restrict access to right-in/right-out only
1022	5-11a	Harmony Rd	OR 213 to OR 224	Construct bikeways and pedestrian facilities. Linwood Ave to Aquatic Center, construct in accordance with the Active Transportation Plan.
1023	5-11a	Harmony Rd	Railroad Ave / Linwood Ave / Harmony Rd	Railroad crossing and intersection improvements based on further study of intersection operations including bikeways and pedestrian facilities to be undertake jointly by the City of Milwaukie and the County
1024	5-11a	Harmony Rd / Sunnyside Rd	Harmony Rd / Sunnyside Rd / OR 213 intersection	Extend queue storage on westbound approach and rebuild median; extend queue storage on eastbound approach and install median; convert to right-in-right-out accesses on frontage road.

Table 5-3a 20-Year Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
1025	5-11a	I-205 Multi-Use Path Connection	Between Sunnyside Rd and Sunnybrook Blvd	Construct ADA compliant access to the commercial area from the I-205 Multi-Use Path
1026	5-11a	I-205 Multi-Use Path Gap	OR 224/OR 213 to OR 212	Study the I-205 multi-use path gap to create a plan for connection and path completion in accordance with the Active Transportation Plan
1027	5-11a	Johnson Creek Blvd	55th Ave to I-205	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1028	5-11a	Johnson Creek Blvd	Johnson Creek Blvd near 79th Pl	Add signal to either Johnson Creek Blvd and 79th Pl or 80th Ave
1029	5-11a	Johnson Creek Blvd	55th Ave to Bell Ave	Widen to 3 lanes with bikeways and pedestrian facilities
1030	5-11a	Johnson Creek Blvd	Johnson Creek Blvd / OR 213 intersection	Extend westbound left-turn lane and rebuild median; install dual northbound and southbound left-turn lanes
1031	5-11a	Johnson Creek Blvd	OR 213 to 92nd Ave	Add pedestrian facilities, restripe for bikeways
1032	5-11a	Johnson Rd	SE Lake Rd to North Clackamas Park Trail	Identify bike/pedestrian connections to fill gaps along 82nd Ave
1033	5-11a	Lake Rd	Lake Rd / International Way intersection	Add northbound right-turn lane
1034	5-11a	Linwood Ave	Monroe St to Johnson Creek Blvd	Add pedestrian facilities in accordance with the Active Transportation Plan.
1035	5-11a	Monroe St	72nd Ave to Fuller Rd	Add bikeways, pedestrian facilities and traffic calming in accordance with the Active Transportation Plan.
1036	5-11a	Monroe St / 72nd Ave / Thompson Rd / Fuller Rd	Linwood Ave to Causey Ave	Add bikeways and traffic calming in accordance with the Active Transportation Plan.
1037	5-11a	Monterey Ave	Stevens Rd to Bob Schumacher Rd	Construct collector roadway with bikeways and pedestrian facilities
1038	5-11a	Monterey Ave	OR 213 to Fuller Rd	Construct new 2 lane extension with pedestrian facilities and bikeways. Install flashing yellow arrow for left-turns on northbound and southbound approaches at OR 213 intersection.
1039	5-11a	North Clackamas Regional Park Trail	Linwood Ave to North Clackamas Park Complex	Construct multi-use path
1040	5-11a	North Clackamas Regional Parks Trail	OR 213 to Linwood Ave	Construct multi-use path
1041	5-11a	Otty Rd	OR 213 to 92nd Ave	Improve to minor arterial standard consistent with Fuller Road Station Plan; improve curb radius; add turn lanes, on-street parking, central median, landscaping, bikeways and pedestrian facilities
1042	5-11a	Otty St	Otty St / OR 213 / Otty Rd	Realign Otty St with Otty Rd at OR 213; install dual westbound left-turn lanes; install flashing yellow arrow for left-turns on northbound and southbound approaches.
1043	5-11a	Southwest Connector Multi-Use Path	North Clackamas Aquatic Center access road to 82nd Ave	Construct multi-use path in accordance with the Active Transportation Plan.
1044	5-11a	Springwater Rd	OR 224 to Hattan Rd	Widen to 3 lanes with shoulders (in accordance with the Active Transportation Plan between Clackamas River Dr and Gronlund Rd) and pedestrian facilities; bridge remains two lanes
1045	5-11a	Sunnyside Rd	93rd Ave to 126th Ave	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1046	5-11a	Sunnyside Rd	Sunnyside Rd / Stevens Rd intersection	Intersection improvements, such as additional turn lanes, turn lane extensions, and/or signal timing modifications
1047	5-11a	Tolbert St Overcrossing	82nd Dr to Industrial Way	Construct new 2 lane overcrossing with bikeways and pedestrian facilities
1048	5-11b	282nd Ave	US 26 to OR 212	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1049	5-11b	Amisigger Rd / Kelso Rd	OR 224 to Kelso / Richey Rd	Add paved shoulders; turn lanes at Amisigger/OR 212 and Kelso/Richey; smooth curves.
1050	5-11b	Arrah Wanna Blvd	US 26 to Fairway Ave	Add paved shoulders. In the interim, add 4-foot paved shoulders.
1051	5-11b	Cazadero Multi-Use Trail	Community of Boring to City of Estacada	Construct multi-use path in accordance with the Active Transportation Plan.

Table 5-3a 20-Year Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
1052	5-11b	Compton Rd	US 26 to 352nd Ave	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1053	5-11b	Dodge Park Rd Bridge	~192 feet south of Pipeline Rd	Replace bridge nearing the end of its useful life and include paved shoulders
1054	5-11b	Eagle Creek Rd	Firwood Rd to Duus Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1055	5-11b	Eagle Creek Rd	Currin Rd to Duus Rd	Remove horizontal curve, relocate intersection, add paved shoulders and turn lanes at major intersection; investigate speed zone south of Currin Rd
1056	5-11b	Fairway Ave	Arrah Wanna Blvd to Salmon River Rd	Add paved shoulders
1057	5-11b	OR 211	OR 211 / Judd Rd intersection	Realign roadway
1058	5-11b	Richey Rd	Kelso Rd to OR 212	Add paved shoulders and left turn lane at Richey Rd and OR 212
1059	5-11b	Welches Rd	US 26 to Birdie Ln	Add paved shoulders; add pedestrian facilities in Welches rural center; evaluate pedestrian crossing near Stage Stop Rd; add multi-use path. Improve pedestrian crossing near Fairway Ave with advance signs and split flashing beacons
1060	5-11c	Aldercrest Dr	Thiessen Rd to Oatfield Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1061	5-11c	Concord Rd	River Rd to Oatfield Rd	Fill gaps in pedestrian facilities
1062	5-11c	Concord Rd	River Rd to Oatfield Rd	Add turn lanes at major intersections
1063	5-11c	Courtney Ave	OR 99E to Oatfield Rd	Fill gaps in pedestrian facilities and bikeways
1064	5-11c	Courtney Ave	River Rd to OR 99E (McLoughlin Blvd)	Construct pedestrian facilities / complete gaps on the south side; add bikeways
1065	5-11c	Harold Ave	Concord Rd to Roethe Rd	Add pedestrian facilities and traffic calming
1066	5-11c	Hull Ave	Wilmot St to Tims View Ave	Fill gaps in pedestrian facilities
1067	5-11c	Jennings Ave	Webster Rd to OR 99E	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1068	5-11c	Jennings Ave	River Rd to Oatfield Rd	Widen to 2-lane urban minor arterial standard with bikeway and pedestrian facilities infill
1069	5-11c	Oak Grove Blvd	Oatfield Rd to River Rd	Fill gaps in pedestrian facilities and bikeways
1070	5-11c	Oatfield Rd	Jennings Ave to Lake Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1071	5-11c	Oatfield Rd	Oatfield Rd / Park Rd intersection	Install traffic signal and add turn lanes
1072	5-11c	Oatfield Rd	Oatfield Rd / McNary Rd intersection	Add southbound and eastbound left-turn lanes
1073	5-11c	Park Ave	River Rd to OR 99E (McLoughlin Blvd)	Add pedestrian facilities
1074	5-11c	River Rd	Lark St to Courtney Ave	Add pedestrian facilities
1075	5-11c	River Rd	Oak Grove Blvd to Risley Ave	Fill gaps in bikeways in accordance with the Active Transportation Plan and fill gaps in pedestrian facilities
1076	5-11c	School Pedways	Johnson Rd / Clackamas Rd / Webster Rd	Fill gaps in pedestrian facilities on Johnson Rd, Clackamas Rd and Webster Rd within 1/4 mile of schools
1077	5-11c	Thiessen Rd	Thiessen Rd / Aldercrest Rd intersection	Add turn lanes on Thiessen Rd; consider converting to two-way stop controlled
1078	5-11c	Torbank Rd	River Rd to Trolley Trail	Fill gaps in pedestrian facilities
1079	5-11d	65th Ave	65th Ave / Elligsen Rd / Stafford Rd intersection	Construct roundabout
1080	5-11d	Advance Rd	53rd Ave to 43rd Dr	Grade and sight distance improvements
1081	5-11d	Borland Rd	Tualatin city limits to Stafford Rd	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections
1082	5-11d	Borland Rd	Stafford Rd to West Linn city limits	Add paved shoulders in accordance with the Active Transportation Plan

Table 5-3a 20-Year Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
1083	5-11d	Carman Dr	Lake Oswego city limits to Roosevelt Ave	Add bikeways and pedestrian facilities; analyze for turn lanes
1084	5-11d	Childs Rd	Sycamore Ave to 65th Ave	Transfer roadway to local jurisdiction
1085	5-11d	French Prairie Bridge	Willamette River near I-5	Construct a bridge in accordance with the Active Transportation Plan
1086	5-11d	Rosemont Rd	Stafford Rd to West Linn	Add paved shoulders and turn lanes at major intersections
1087	5-11d	Stafford Rd	I-205 to Boeckman Rd / Advance Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1088	5-11d	Stafford Rd	Rosemont Rd to I-205	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections
1089	5-11d	Stafford Rd	Stafford Rd / Childs Rd intersection	Install traffic signal and southbound and northbound turn lanes or roundabout
1090	5-11d	Stafford Rd	Rosemont Rd to I-205	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1091	5-11d	Tonquin Trail	Willamette River through Wilsonville	Construct bike / pedestrian facilities pursuant to the Tonquin Trail Master Plan
1092	5-11d	Wilsonville Rd / Ladd Hill Rd	Wilsonville Rd / Ladd Hill Rd	Install Collision Countermeasure System
1093	5-11e	Airport Rd	Airport Rd / Miley Rd intersection	Install traffic signal
1094	5-11e	Barlow Rd	Barlow Rd / OR 99E intersection	Add dual left-turn lanes on southbound Barlow Rd
1095	5-11e	Beavercreek Rd	Lower Highland Rd to Butte Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1096	5-11e	Beavercreek Rd	Ferguson Rd to Spangler Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1097	5-11e	Beavercreek Rd	Henrici Rd to Yeoman Rd/Steiner Rd	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections.
1098	5-11e	Beavercreek Rd	Beavercreek Rd / Leland Rd / Kamrath Rd intersection	Construct roundabout with additional analysis
1099	5-11e	Canby-Marquam Highway	Canby-Marquam Hwy / Lone Elder Rd intersection	Reconstruct intersection; install northbound left-turn lane and southbound right-turn lane
1100	5-11e	Canby-Marquam Highway	~1,900 ft south of Barnards Rd	Replace bridge nearing the end of its useful life with 2-lane structure including paved shoulders
1101	5-11e	Clarkes Four Corners Intersection	Beavercreek Rd / Unger Rd	Reconstruct intersection
1102	5-11e	Emerald Necklace Trail	To Canby Ferry	Extend Molalla Forest Rd to Locust St in accordance with the Active Transportation Plan.
1103	5-11e	Ferguson Multi-Use Path	Thayer Rd to Ferguson Rd	Multi-use path to connect Ferguson Rd to Thayer Rd
1104	5-11e	Fischers Mill Rd	Fischers Mill / Hattan Rd intersection	Install eastbound left-turn lane
1105	5-11e	Graves Rd/Passmore Rd/Mulino Rd/ OR 213	Graves Rd/Passmore Rd/Mulino Rd/ OR 213	Work in conjunction with the Molalla River School District, ODOT and community stake-holders to complete a safety audit to look at all options for the safe movement of Mulino Elementary School students in relation to the adjacent transportation system. Utilize the results from the audit to develop a list of projects and/or programs to maximize safety for all users.
1106	5-11e	Greater Arndt Rd/I-5/Canby Access Feasibility Study	Southwest County in the vicinity of Arndt Rd/I-5/Canby	Conduct an alternatives analysis and land use study to identify and consider roadway improvements to address access to I-5 within the Southwest County and address capacity deficiencies.
1107	5-11e	Hattan Rd	Hattan Rd / Gronlund Rd intersection	Install southbound right-turn lane
1108	5-11e	Henrici Rd	Beavercreek Rd to Ferguson Rd	Add paved shoulders and turn lanes at major intersections. Remove horizontal and vertical curves
1109	5-11e	Holly St	Territorial Rd to Canby Ferry	Add paved shoulders in accordance with the Active Transportation Plan.
1110	5-11e	Hult Rd	OR 211 to Unger Rd	Re-open and improve Hult Rd

Table 5-3a 20-Year Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
1111	5-11e	Klang's Mill Bridge	~1,000 ft north of OR 211	Replace bridge nearing the end of its useful life
1112	5-11e	Lone Elder Rd Bridge	~5,800 feet east of Barlow Rd	Replace bridge (nearing the end of its useful life) and include paved shoulders
1113	5-11e	Maplelane Rd	Beavercreek Rd to Ferguson Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1114	5-11e	Meridian Rd	Meridian Rd / Whiskey Hill Rd intersection	Limit access/egress points to and from school on NE corner of intersection
1115	5-11e	Molalla Ave Flooding	Just south of city of Molalla	Construct bridge to resolve flooding issues
1116	5-11e	Mulino Rd	Mulino Rd / 13th Ave	Relocate intersection to south away from railroad trestle
1117	5-11e	OR 170	OR 99E to Macksburg Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1118	5-11e	Redland Rd	OR 213 to Hattan Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1119	5-11e	Redland Rd	Redland Rd / Springwater Rd intersection	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1120	5-11e	Redland Rd	Redland Rd / Holly Rd intersection	Install traffic signal and westbound and northbound left-turn lanes or roundabout
1121	5-11e	Redland Rd	Redland Rd / Ferguson Rd intersection	Construct roundabout
1122	5-11e	Ridge Rd	~1 miles north of Lower Highland Rd	Fix sinkhole
1123	5-11e	Springwater Rd	Springwater Rd / Clackamas River Dr intersection	Install signal at Clackamas River Dr
1124	5-11e	Springwater Rd	400 ft east of Hattan Rd	Construct bridge to accommodate paved shoulders
1125	5-11e	Springwater Rd	Hattan Rd to Bakers Ferry Rd	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections
1126	5-11e	Township Rd	Central Point Rd to Canby City limit	Add paved shoulders and turn lanes at major intersections
1127	5-11e	Union Mills Rd	OR 213 to OR 211	Add turn lanes at major intersections
1128	5-11e	Union Mills Rd	OR 213 to OR 211	Construct a shoulder on the south side of the roadway
1129	5-11e	Upper Highland Rd	Beavercreek Rd to Lower Highland Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements
1130	5-11c	Oetkin Rd - Naef Rd	Thiessen Rd to River Rd	Construct bike boulevard consistent with the Active Transportation Plan
1131	5-11c	River Rd	Park Ave to Glen Echo Ave	Construct buffered bike lane in accordance with the Active Transportation Plan.
1137	5-11b	Brightwood Loop Rd	US 26 to US 26	Add 4-foot paved shoulders

Table 5-3b Preferred Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
2000	5-11a	Bell Ave / Alberta St / 72nd Ave	King Rd to County line	Add bikeways and pedestrian facilities
2001	5-11a	Clatsop St / Luther Rd	72nd Ave to Fuller Rd	Add turn lanes and signals at OR 213 intersection; add bikeways, pedestrian facilities and traffic calming
2002	5-11a	Evelyn St	OR 224 to Jennifer St	Add bikeways and pedestrian facilities
2003	5-11a	Evelyn St / Mangan Dr	Jennifer St to Water Ave	Add bikeways
2004	5-11a	Hubbard Rd	122nd Ave to 132nd Ave	Fill gaps in pedestrian facilities
2005	5-11a	Jennifer St	82nd Dr to 135th Ave	Add pedestrian facilities
2006	5-11a	Lake Rd	Milwaukie City limits east to OR 224	Fill gaps in pedestrian facilities
2007	5-11a	Linwood Ave	Linwood Ave / Monroe St intersection	Add curbs/sidewalks, improve horizontal alignments
2008	5-11a	Linwood Ave	Queen Rd to Johnson Creek Blvd	Add bikeways in accordance with the Active Transportation Plan
2009	5-11a	Mather Rd	Summers Ln Rd to 122nd Ave	Add bikeways, pedestrian facilities and eastbound left turn lanes at Mather Rd / 122nd Ave
2010	5-11a	Monroe St / 72nd Ave / Thompson Rd	Linwood Ave to Fuller Rd	Add pedestrian facilities
2011	5-11a	Scouters Mountain / Mt Scott Loop Trail	Loop trail through Happy Valley, Damascus, Clackamas County and Portland	Construct multi-use path in accordance with the Active Transportation Plan
2012	5-11a	Stevens Rd / Stevens Way	Causey Ave to Idleman Rd	Add pedways and optional traffic calming
2013	5-11a	Strawberry Ln	Strawberry Ln / 82nd Dr intersection	Install traffic signal and eastbound turn lane
2014	5-11a	Sunnybrook Blvd	Sunnybrook Blvd / 82nd Ave intersection	Add dual southbound left-turn lanes, extend queue storage for southbound lefts and westbound lefts
2015	5-11a	Sunnyside Rd	OR 213 to 97th Ave	Modified boulevard treatment including lane redesign, medians, beautification, curb extensions, reconstructed sidewalks, landscaping, south side bikeways. Consider flashing yellow arrow for left-turns at signalized intersections.
2016	5-11b	282nd Ave	282nd / Haley Rd intersection	Install traffic signal and reduce speed limit on 282nd
2017	5-11b	362nd Ave	Skogan Rd to OR 211	Add paved shoulders
2018	5-11b	Eagle Creek Rd	OR 211 to Duus Rd	Add paved shoulders
2019	5-11b	Firwood Rd	Wildcat Mountain Dr to US 26	Add paved shoulders and turn lanes at major intersections.
2020	5-11c	Clackamas Rd	Johnson Rd and Webster Rd	Fill gaps in bikeways and pedestrian facilities
2021	5-11c	Jennings Ave	Oatfield Rd to Webster Rd	Widen to 2-lane urban minor arterial standard with bikeway and pedestrian facilities infill
2022	5-11c	Lake Oswego to Milwaukie Bridge	Between Sellwood and Oregon City	Construct bike/pedestrian crossing over the Willamette River in accordance with the Active Transportation Plan
2023	5-11c	Roots Rd	Webster Rd to McKinley Rd	Add pedestrian facilities

Table 5-3b Preferred Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
2024	5-11c	Thiessen Rd	Oatfield Rd to Webster Rd	Add bikeways and pedestrian facilities. For the Oetkin Rd to Webster Rd section, construct in accordance with the Active Transportation Plan
2025	5-11c	Webster Rd	OR 224 to Gladstone	Fill gaps in bikeways and pedestrian facilities
2026	5-11d	Advance Rd	~2,900 ft west of Mountain Rd	Realign roadway and grade improvements
2027	5-11d	Advance Rd	65th Ave to Mountain Rd	Add paved shoulders
2028	5-11d	Stafford Rd / 65th Ave	I-205 to Boeckman Rd / Advance Rd	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections
2029	5-11e	Arndt Rd Extension	Barlow to OR 99E	Construct new 2 or 3 lane roadway
2030	5-11e	Barlow Rd	Knights Bridge Rd to OR 99E	Add paved shoulders
2031	5-11e	Beavercreek Multi-Use Path	Loder Rd to Ferguson Rd	Construct multi-use path consistent with the Beavercreek Road Concept Plan
2032	5-11e	Boones Ferry Rd	Boones Ferry Rd / Butteville Rd intersection	Remove bank, remove/decrease horizontal curve
2034	5-11e	Dryland Rd	Macksburg Rd S to Macksburg Rd N	Realign to form one intersection at Dryland Rd
2035	5-11e	Hattan Rd	Fischers Mill Rd to Gronlund Rd	Add paved shoulders and turn lanes at major intersections
2036	5-11e	Henrici Rd	OR 213 to Beavercreek Rd	Add paved shoulders and turn lanes at major intersections
2037	5-11e	Henrici Rd	Ferguson Rd to Redland Rd	Add paved shoulders and turn lanes at major intersections. Remove horizontal and vertical curves
2038	5-11e	Molalla Forest Rd	City of Canby to City of Molalla	Pave to provide bicycle access in accordance with the Active Transportation Plan
2039	5-11e	Mulino Rd (13th St segment)	Canby city limits to OR 213	Add paved shoulders and turn lanes at major intersections
2040	5-11e	Newell Creek Trail / Oregon City Loop Trail	Loop around the perimeter of Oregon City	Construct Oregon City Loop Trail and Newell Creek Trail in accordance with the Active Transportation Plan
2041	5-11e	Redland Rd	Redland Rd / Bradley Rd intersection	Install eastbound left-turn lane
2042	5-11e	Redland Rd	Redland Rd / Fischers Mill Rd / Henrici Rd intersection	Install eastbound left-turn, eastbound right-turn and westbound right-turn lanes at Henrici Rd
2043	5-11e	Springwater Rd	Springwater Rd / Bakers Ferry Rd intersection	Install southbound left-turn lane; realign intersection to fix skew
2044	5-11b	Sleepy Hollow Rd	Barlow Trail Rd to US 26	Add 4-foot paved shoulders

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3000	5-11a	106th Ave	OR 212 to Jennifer St	Add bikeways and pedestrian facilities
3001	5-11a	152nd Ave Phase 2	Sunnyside Rd to OR 212	Add bikeways, pedestrian facilities and turn lanes at major intersections
3002	5-11a	162nd Ave	Sager Rd north to County line	Add bikeways, pedestrian facilities, turn lanes at major intersections
3003	5-11a	172nd Ave Bridge	~140 feet south of Troge Rd	Replace bridge nearing the end of its useful life
3004	5-11a	82nd Dr	OR 212 to Gladstone	Widen to 5 lane with bikeways and pedestrian facilities
3005	5-11a	84th Ave	Sunnyside Rd to Sunnybrook Blvd	Fill in bikeways and pedestrian facilities gaps
3006	5-11a	93rd Ave	Sunnyside Rd to Sunnybrook Blvd	Add bikeways in accordance with the Active Transportation Plan
3007	5-11a	Cheldelin Rd	Foster Rd to 190th Dr	Add bikeways and pedestrian facilities
3008	5-11a	Cheldelin Rd (Clatsop St extension)	172nd Ave to Foster Rd	Construct new two lane roadway with bikeways and pedestrian facilities
3009	5-11a	Cornwell Ave	OR 213 to Fuller Rd	Add pedestrian facilities; connect to I-205 Multi-Use Path
3010	5-11a	Fuller Rd	Otty Rd to King Rd / OR 213	Construct new 2 lane extension with pedestrian facilities and bikeways
3011	5-11a	Fuller Rd	Johnson Creek Blvd to County line	Add pedestrian facilities
3012	5-11a	Hillcrest St	92nd Ave to Stevens Rd	Add pedestrian facilities
3013	5-11a	I-205 Pedestrian / Bike Overpass	Between Causey Ave and Sunnyside Rd	Construct a bike / pedestrian crossing over I-205 to connect transit services, businesses and residents in accordance with the Active Transportation Plan
3014	5-11a	Idleman Rd	92nd Ave to Westview Ct	Fill gaps in bikeways and pedestrian facilities
3015	5-11a	Jennifer St	106th Ave to 130th Ave	Add bikeways
3016	5-11a	Johnson Creek Blvd	Bell Ave to OR 213	Widen to 3 lanes from Bell Ave to 76th Ave and 5 lanes from 76th Ave to 82nd Ave ; add bikeways and pedestrian facilities
3017	5-11a	King Rd	Milwaukie City Limits to Spencer Dr	Fill gaps in pedestrian facilities in accordance with the Active Transportation Plan
3018	5-11a	Lake Rd	OR 224 west to Milwaukie city limits	Add pedestrian facilities and turn lanes at major intersections
3019	5-11a	Lake Rd	Johnson Rd to Webster Rd	Fill gaps in pedestrian facilities and bikeways
3020	5-11a	Linwood Ave Bridge over Johnson Creek	Bridge	Construct bridge with bike lanes and sidewalks in accordance with the Active Transportation Plan
3021	5-11a	Luther Rd Bridge	Bridge crossing Johnson Creek	Replace bridge
3022	5-11a	Mather Rd	Mather Rd / 122nd Ave intersection	Install traffic signal or compact roundabout
3023	5-11a	Mather Rd	122nd Ave to 132nd Ave	Construct new 2 lane roadway with pedestrian facilities and bikeways
3024	5-11a	Mather Rd	Industrial Way to 98th Ave	Maintain as pedestrian facilities and bikeway. Construct undercrossing at Sunrise Expressway.
3025	5-11a	Michael Dr	72nd Ave to Fuller Ave	Fill gaps in pedestrian facilities
3026	5-11a	Phillips Creek Multi-Use Path	Causey Ave to North Clackamas Regional Parks Trail	Construct multi-use path
3027	5-11a	Sunnyside Rd Adaptive Signal Timing	OR 213 to 172nd Ave	Add adaptive timing to traffic signals
3028	5-11a	Valley View Terrace	Sunnyside Rd to Otty Rd	Add bikeways and pedestrian facilities

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3029	5-11a	West 82nd Ave Parallel Road	King Rd to Luther Rd	Construct collector road parallel to OR 213 with bikeways and pedestrian facilities
3030	5-11b	282nd Ave	282nd Ave / OR 212 intersection	Add second right-turn lane on 282nd Ave and additional intersection improvements as needed
3031	5-11b	282nd Ave	OR 212 to Multnomah County line	Add paved shoulders
3032	5-11b	352nd Ave / Dunn Rd	Bluff Rd to Bluff Rd	Add paved shoulders
3033	5-11b	362nd Dr	Colorado Rd to Dubarko Rd	Remove or decrease horizontal and vertical curves
3034	5-11b	362nd Dr	362nd Ave / Deming Rd intersection	Remove or decrease vertical curve, relocate intersection
3035	5-11b	Barlow Trail Rd/ Lolo Pass Rd	Between communities of Timberline, Welches and Zig Zag	Add paved shoulders in accordance with the Active Transportation Plan. In the interim, install 4-foot shoulders or 4-foot shoulders at specific areas with limited sight distance or steep uphill sections.
3036	5-11b	Bluff Rd	City of Sandy to County line	Add paved shoulders in accordance with the Active Transportation Plan
3037	5-11b	Bull Run Rd	Ten Eyck Rd to Multnomah County line	Add paved shoulders and turn lanes at major intersections.
3038	5-11b	Bull Run Truss	Bull Run truss between Waterworks Rd and Bowman Rd	Replace bridge nearing the end of its useful life
3039	5-11b	Coalman Rd / Cherryville Dr	Ten Eyck Rd to US 26	Add paved shoulders. In the interim, add 4-foot paved shoulders.
3040	5-11b	Compton Rd	US 26 to 352nd Ave	Remove vertical curve near Orient Dr and relocate intersection; add paved shoulders
3041	5-11b	Coupland Rd	Estacada City limits to Divers Rd	Add paved shoulders and turn lanes at major intersections
3042	5-11b	Eagle Creek Rd	Keegan Rd to Currin Rd	Realign Eagle Creek Rd to remove or decrease downgrade
3043	5-11b	Firwood Rd	Firwood Rd / Trubel Rd intersection	Realign Trubel Rd to remove or decrease downgrade
3044	5-11b	Hayden Rd	Springwater Rd to OR 211	Add paved shoulders in accordance with the Active Transportation Plan
3045	5-11b	Howlett Rd	OR 211 to Wildcat Mountain Dr	Add paved shoulders
3046	5-11b	Kelso Rd	Richey Rd to Orient Dr	Add paved shoulders
3047	5-11b	Kelso Rd	Orient Dr to Sandy Urban Growth Boundary	Remove vertical curve, relocate intersection, add paved shoulders and turn lanes at major intersections; investigate speed zone
3048	5-11b	Lolo Pass Rd	US 26 to Barlow Trail Rd	Safety analysis; add paved shoulders in accordance with the Active Transportation Plan
3049	5-11b	Mt Hood Aerial Transportation Link	Between Ski Bowl, Government Camp Village and Timberline Lodge	Aerial transportation link
3050	5-11b	Orient Dr	US 26 north to County line	Add paved shoulders
3051	5-11b	Porter Rd Bridge over Delph Creek	~100 ft east of Wilcox Rd	Replace bridge
3052	5-11b	Salmon River Rd	US 26 to Welches Rd	Add paved shoulders. Between US 26 and Fairway Ave, add paved shoulders or multi-use path
3053	5-11b	Springwater Rd	Hayden Rd to OR 211	Add paved shoulders

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3054	5-11b	Ten Eyck Rd	Lusted Rd to City of Sandy	Remove vertical curve, relocate intersection, add paved shoulders, turn lanes at major intersections; investigate speed zone. For paved shoulders between City of Sandy and Marmot Rd, refer to the Active Transportation Plan
3055	5-11b	Tickle Creek Trail	Springwater Corridor to Sandy city limits	Construct multi-use path in accordance with the Active Transportation Plan
3056	5-11b	Welches Rd	Birdie Ln to Salmon River Rd	Add paved shoulders or add multi-use path
3057	5-11b	Wildcat Mountain Dr	OR 224 to Firwood Rd	Add paved shoulders
3058	5-11c	Aldercrest Dr	Thiessen Rd to Oatfield Rd	Add pedestrian facilities to one side of the road and bikeways
3059	5-11c	Clackamas Rd	Clackamas Rd / I-205 interchange	Construct bike/pedestrian bridge over I-205
3060	5-11c	Hill Rd	Oatfield Rd to Thiessen Rd	Add bikeways and pedestrian facilities
3061	5-11c	Johnson Rd / McKinley Rd	OR 224 to I-205 multi-use path	Bikeway and pedestrian facilities infill. From Thiessen Rd to I-205 Multi-use Path, construct in accordance to the Active Transportation Plan
3062	5-11c	McNary Rd / Mabel Ave	Oatfield Rd to Webster Rd	Add bikeways and pedestrian facilities
3063	5-11c	Naef Rd	Oatfield Rd to River Rd	Add pedestrian facilities in accordance with the Active Transportation Plan
3064	5-11c	Oatfield Rd	Oatfield Rd / Hill Rd intersection	Add left-turn lanes, install signal if warranted
3065	5-11c	Oatfield Rd	Milwaukie city limits to Gladstone city limits	Fill gaps in pedestrian facilities and bikeways
3066	5-11c	Oatfield Ridge Connection	Between Jennings Ave and Thiessen Ave over Oatfield Ridge	Construct multi-use path
3068	5-11c	Portland Ave	Jennings Ave to Hull Ave	Fill gaps in pedestrian facilities
3069	5-11c	Risley Ave	Arista Dr to Hager Rd	Fill gaps in pedestrian facilities
3070	5-11c	River Rd	Courtney Ave to Oak Grove Blvd	Add pedestrian facilities
3071	5-11c	River Rd	Risley Ave to Rinearson Rd	Add pedestrian facilities
3072	5-11c	Roethe Rd	River Rd to OR 99E (McLoughlin Blvd)	Add bikeways, pedestrian facilities and traffic calming
3073	5-11c	Rusk Rd	OR 224 South to Aldercrest Rd	Add pedestrian facilities on one side of the roadway and bikeways
3074	5-11c	Strawberry Ln	Webster Rd to 82nd Dr	Add pedestrian facilities and fill bikeway gaps
3075	5-11c	Thiessen Rd	Thiessen Rd / Hill Rd intersection	Add right-turn lane on Thiessen Rd; consider converting to two-way stop controlled or installing roundabout
3076	5-11c	View Acres Rd	Oatfield Rd to Hill Rd	Add pedestrian facilities and traffic calming
3077	5-11c	Webster Rd	Webster Rd / Jennings Ave and Webster Rd / Roots Rd intersections	Construct traffic signals, turn lanes
3078	5-11c	Webster Rd	Webster Rd / Strawberry Ln intersection	Add signal; construct southbound and westbound left-turn lane
3079	5-11d	65th Ave	Stafford Rd to Tualatin city limits	Add paved shoulders
3080	5-11d	Baker Rd	Tooze Rd to County line	Add paved shoulders

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3081	5-11d	Bell Rd	Ladd Hill Rd to Wilsonville Rd	Add paved shoulders
3082	5-11d	Bonita Rd	Carman Dr to I-5	Add bikeways and pedestrian facilities
3083	5-11d	Childs Rd	Stafford Rd to Lake Oswego city limits	Add pedestrian facilities, bikeways and turn lanes at major intersections
3084	5-11d	Graham's Ferry Rd	County line to Westfall Rd	Add paved shoulders
3085	5-11d	Graham's Ferry Rd	Wilsonville Rd to Wilsonville city limits	Add paved shoulders
3086	5-11d	Hoffman Rd / Peach Cove Rd / Riverwood Rd	Mountain Rd to Tualatin River	Add paved shoulders
3087	5-11d	Homesteader Rd	Stafford Rd to Mountain Rd	Add paved shoulders
3088	5-11d	Johnson Rd	Stafford Rd to West Linn city limits	Add paved shoulders and turn lanes at major intersections
3089	5-11d	Ladd Hill Rd	Wilsonville Rd to Washington County line	Add paved shoulders and turn lanes at major intersections
3090	5-11d	Mountain Rd	Stafford Rd to Canby Ferry	Add paved shoulders in accordance with the Active Transportation Plan
3091	5-11d	Petes Mountain Rd	West Linn city limits to Hoffman Rd	Add paved shoulders and turn lanes at major intersections
3092	5-11d	Pleasant Hill Rd / McConnell Rd / Tooze Rd	Ladd Hill Rd to Westfall Rd	Add paved shoulders
3093	5-11d	Schaeffer Rd	Mountain Rd to Petes Mountain Rd	Add paved shoulders
3094	5-11d	Schatz Rd / 55th Ave / Meridian Way	65th Ave to Stafford Rd	Add paved shoulders
3095	5-11d	Tualatin / Lake Oswego Pedestrian and Bicycle Bridge	Tualatin River Bridge	Construct bike / pedestrian bridge
3096	5-11d	Wilsonville Rd	Wilsonville Rd / Bell Rd intersection	Realign roadway and grade improvements
3097	5-11d	Wilsonville Rd	Wilsonville Rd / Edminston Rd intersection	Remove bank, remove horizontal curve, relocate intersection
3098	5-11d	Wilsonville Rd Bridge	~300 feet south of Bell Rd	Replace bridge nearing the end of its useful life
3099	5-11d	Wisteria Rd / Woodbine Rd	Rosemont Rd to Johnson Rd	Add paved shoulders
3100	5-11e	Airport Rd	Arndt Rd to Miley Rd	Add turn lanes at major intersections
3101	5-11e	Bakers Ferry Rd	Springwater Rd to OR 224	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections; remove horizontal curve and relocate intersection from Eaden Rd to OR 224
3102	5-11e	Barnards Rd	Meridian Rd to Canby-Marquam Hwy	Add paved shoulders
3103	5-11e	Barnards Rd	Needy Rd to Stuwe Rd	Reconstruct bridge and widen to 36 feet
3104	5-11e	Beavercreek Rd	Yeoman Rd/Steiner Rd to OR 211	Add paved shoulders
3105	5-11e	Bradley Rd	Redland Rd to Holcomb Blvd	Add turn lanes at major intersections
3106	5-11e	Bradley Rd	Gronlund Rd to Redland Rd	Add paved shoulders

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3107	5-11e	Buckner Creek Rd	Gard Rd to Cochell Rd	Add paved shoulders
3108	5-11e	Canby-Marquam Highway	OR 170 / Macksburg Rd intersection	Reconstruct intersection; install southbound left-turn lane and northbound right-turn lane
3109	5-11e	Canby-Marquam Highway	City of Canby to OR 211	Add paved shoulders
3110	5-11e	Carus Rd	Central Point Rd to Beavercreek Rd	Add paved shoulders in accordance with the Active Transportation Plan
3111	5-11e	Casto Rd	Spangler Rd to Central Point Rd	Add paved shoulders and turn lanes at major intersections
3112	5-11e	Central Point Rd	Parrish Rd to Mulino Rd	Smooth curves; add paved shoulders (Parrish Rd to Bremer Rd in accordance with the Active Transportation Plan)
3113	5-11e	Clackamas River Dr	Oregon City limits to Springwater Rd	Construct bikeway in accordance with the Active Transportation Plan. Add turn lanes at Springwater Rd and Forsythe Rd.
3114	5-11e	Fellows Rd	Redland Rd to Lower Highland Rd	Add paved shoulders and turn lanes at major intersections
3115	5-11e	Ferguson Rd	Beavercreek Rd and Henrici Rd	Reduce the speed limit and install traffic calming
3116	5-11e	Fischers Mill Rd	Redland Rd to Springwater Rd	Add paved shoulders in accordance with the Active Transportation Plan
~~3117~~	~~5-11e~~	~~Forsythe Rd~~	~~Oregon City line to Bradley Rd~~	~~Add paved shoulders~~
3118	5-11e	Forsythe Rd	Oregon City limit to Bradley Rd	Add center turn lane and paved shoulders
3119	5-11e	Forsythe Rd	Forsythe Rd / Victory Rd intersection	Realign, widen Victory Rd; remove or decrease curves along Forsythe Rd; relocate intersection
3120	5-11e	Gard Rd	~100 ft south of Old Clarke Rd	Reconstruct bridge to accommodate paved shoulders
3121	5-11e	Gronlund Rd / Hattan Rd	Bradley Rd to Springwater Rd	Add paved shoulders and turn lanes at major intersections
3122	5-11e	Henrici Rd	Between Driftwood Dr and Shore Vista Dr	Widen bridge to accommodate paved shoulders
3123	5-11e	Holcomb Blvd	Edenwild Ln to Bradley Rd	Add paved shoulders and turn lanes at Holcomb Blvd / Bradley Rd
3124	5-11e	Kamrath Rd	Carus Rd to Spangler Rd	Safety analysis at Carus Rd, add paved shoulders, remove or decrease horizontal curves north of Spangler Rd
3125	5-11e	Knights Bridge Rd Bridge	~3,200 feet east of Barlow Rd	Replace bridge (nearing the end of its useful life)
3126	5-11e	Leland Rd	Oregon City line to Beavercreek Rd	Add paved shoulders
3127	5-11e	Leland Rd	~1,000 ft north of Warnock Rd	Reconstruct bridge to accommodate paved shoulders
3128	5-11e	Lone Elder Rd	County line to Canby-Marquam Hwy	Add paved shoulders
3129	5-11e	Lower Highland Rd	Beavercreek Rd to Fellows Rd	Add paved shoulders and turn lanes at major intersections
3130	5-11e	Macksburg Rd	Canby Marquam Hwy to OR 213	Add paved shoulders and turn lanes at major intersections
3131	5-11e	Maplelane Rd	~1,800 ft west of Walker Rd	Add paved shoulders
3132	5-11e	Maplelane Rd	Oregon City Urban Growth Boundary to Ferguson Rd	Add paved shoulders
3133	5-11e	Mattoon Rd	Fischers Mill Rd to Redland Rd	Add paved shoulders in accordance with the Active Transportation Plan and turn lanes at major intersections; remove vertical curves, remove horizontal curves north of Redland Rd

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3134	5-11e	Meridian Rd	Lone Elder Rd to OR 211	Add paved shoulders
3135	5-11e	Meridian Rd	Elliott Prairie Rd to Barlow Rd	Add paved shoulders; remove or decrease horizontal and vertical curves
3136	5-11e	Miley Rd	Airport Rd to Eilers Rd	Add paved shoulders
3137	5-11e	Molalla Ave	OR 213 to Molalla City limits	Add paved shoulders
3138	5-11e	New Era Rd / Haines Rd	OR 99E to Leland Rd	Add paved shoulders
3140	5-11e	Redland Rd	~900 ft west of Holly Ln	Reconstruct bridge to include shoulders and bikeways
3141	5-11e	Redland Rd	~400 ft west of Holly Ln	Reconstruct bridge to include shoulders and bikeways
3142	5-11e	Redland Rd	Henrici Rd to Oregon City limit	Add paved shoulders and bikeway in accordance with the Active Transportation Plan
3143	5-11e	Redland Rd	Henrici Rd to Springwater Rd	Add paved shoulders and turn lanes at major intersections. For the section between Mattoon Rd and Jubb Rd, see the Active Transportation Plan.
3144	5-11e	Ridge Rd	Lower Highland Rd to Redland Rd	Add paved shoulders
3145	5-11e	Rock Creek (Kropf Rd) Bridge	~3,500 ft north of Gibson Rd	Replace bridge
3146	5-11e	S Killdeer Rd	Ferguson Road and Yeoman Road	Extend S Killdeer Rd to connect with S. Ivel Rd. and provide bike/pedestrian access
3147	5-11e	South End Rd	Oregon City limits to OR 99E	Smooth curves; add paved shoulders
3148	5-11e	Spangler Rd	Casto Rd to Beavercreek Rd	Add paved shoulders and turn lanes at major intersections
3149	5-11e	Springwater Rd	Bakers Ferry Rd to Hayden Rd	Add paved shoulders and turn lanes at major intersections. For paved shoulders between Eaden Rd and Hayden Rd, see the Active Transportation Plan.
3150	5-11e	Thayer Rd/Ferguson Rd	Oregon City line to Redland Rd	Add paved shoulders
3151	5-11e	Toliver Rd	Dryland Rd to Molalla city Limits	Add paved shoulders in accordance with the Active Transportation Plan
3152	5-11e	Unger Rd	Beavercreek Rd to OR 211	Add paved shoulders and turn lanes at major intersections
3153	5-11e	Union Hall Rd	Central Point Rd to El Dorado Rd	Add paved shoulders
3154	5-11f	Bird Rd	Groshong Rd to Wilhoit Rd	Add paved shoulders and turn lanes at major intersections
3155	5-11f	Blair Rd	Groshong Rd to Maple Grove Rd	Add paved shoulders and turn lanes at major intersections
3156	5-11f	Callahan Rd S / Ramsby Rd	Dickey Prairie Rd to Fernwood Rd	Add paved shoulders and turn lanes at major intersections
3157	5-11f	Dhooghe Rd	OR 211 to Fernwood Rd	Add paved shoulders and turn lanes at major intersections
3158	5-11f	Fernwood Rd	Dhooghe Rd to Callahan Rd	Add paved shoulders and turn lanes at major intersections
3159	5-11f	Gray's Hill Rd	Green Mountain Rd to OR 211	Add paved shoulders
3160	5-11f	Maple Grove Rd	Nowlens Bridge Rd to Sawtell Rd	Add paved shoulders and turn lanes at major intersections
3161	5-11f	Nowlens Bridge Rd	OR 213 to Maple Grove Rd	Add paved shoulders and turn lanes at major intersections

Table 5-3c Long Term Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description
3162	5-11f	Sawtell Rd	Maple Grove Rd to Wilhoit Rd	Add paved shoulders and turn lanes at major intersections
3163	5-11f	Wildcat Rd	Wilhoit Rd to OR 213	Add paved shoulders and turn lanes at major intersections
3164	5-11f	Wright Rd	OR 211 to Callahan Rd	Add paved shoulders
3165	5-11a	Sunnyside Rd	93rd Ave to OR 212	Add pedestrian facilities and bikeways in accordance with the Active Transportation Plan
~~3166~~	~~5-11b~~	~~Barlow Trail Rd~~	~~Marmot Rd to Lolo Pass Rd~~	~~Add paved shoulders in accordance with the Active Transportation Plan~~
3167	5-11b	Marmot Rd	Ten Eyck to Barlow Trail Rd	Add paved shoulders in accordance with the Active Transportation Plan. In the interim, widen to 4-feet within Wildwood/Timberline, Zigzag, Rhododendron and Wemme/Welches.
3168	5-11c	Thiessen Rd	Webster Rd to Johnson Rd	Add pedestrian facilities and bikeways in accordance with the Active Transportation Plan
3169	5-11d	Willamette River Greenway	Lake Oswego north to County Line	Construct multi-use path in accordance with the Active Transportation Plan.
3170	5-11d	Willamette River Greenway	Canby Ferry to City of Wilsonville	Construct multi-use path in accordance with the Active Transportation Plan.
3171	5-11e	Bremer Rd	Central Point Rd to Haines Rd	Add paved shoulders in accordance with the Active Tranportation Plan
3172	5-11e	Butteville Rd	Willamette River to County line	Add paved shoulders in accordance with the Active Tranportation Plan
3173	5-11e	Dryland Rd	Macksburg Rd to Toliver Rd	Add paved shoulders in accordance with the Active Tranportation Plan
3174	5-11e	Eaden Rd	Bakers Ferry Rd to Springwater Rd	Add paved shoulders in accordance with the Active Tranportation Plan
3175	5-11e	Haines Rd	Bremer Rd to Territorial Rd	Add paved shoulders in accordance with the Active Transportation Plan
3176	5-11e	Harms Rd	Kraxberger Rd to Macksburg Rd	Construct bikeway in accordance with Active Transportation Plan
3177	5-11e	Hwy 170 / Kraxberger Rd	City of Canby to Harms Rd	Add paved shoulders in accordance with the Active Transportation Plan
3178	5-11e	Jubb Rd	Redland Rd to Springwater Rd	Add paved shoulders in accordance with the Active Tranportation Plan
3179	5-11e	Kamrath Rd	Leland Rd to Carus Rd	Add paved shoulders in accordance with the Active Transportation Plan
3180	5-11e	Knights Bridge Rd / Barlow Rd / Arndt Rd	Canby boundary to Airport Rd	Add bikeway in accordance with the Active Tranportation Plan
3181	5-11e	Territorial Rd	Haines Rd to OR 99E	Add bikeways in accordance with the Active Transportation plan
3182	5-11e	Willamette River Greenway	Oregon City to Canby	Construct multi-use path in accordance with the Active Transportation Plan.

Removed Projects:

3117: removed due to duplication with 3118

3166: removed due to duplication with 3035

Table 5-3d Regional Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description	Priority
4000	County-wide	TSP Refinement	State facility locations applicable where mobility target is not met in 2035	TSP Refinement to develop alternative mobility targets for state facilities consistent with Oregon Highway Plan (OHP) 1F3.	High
4001	5-11a	I-205 / Sunnyside Road interchange	I-205 / Sunnyside Road interchange	Add dual northbound right-turns; install bike signal.	High
4002	5-11a	OR 212	OR 212 / 172nd Ave intersection	Add second eastbound left-turn lane	High
4003	5-11a	OR 212	SE 162nd to Anderson Rd	Add bikeways, pedestrian facilities ways, and landscape pedestrian facilities buffer; widen to 6 lanes within Happy Valley; add center turn lane within Damascus	High
4004	5-11a	OR 213	Sunnybrook Blvd to Portland City Limits	Extend fiberoptic communications, CCTV at key intersections and adaptive signal timing	High
4005	5-11a	OR 224	OR 224 / Lake Rd / Webster Rd intersection	Add turn-lanes, including second left-turn lane on westbound OR 224, second left-turn lane and right-turn lane on northbound SE Webster Rd, and second left-turn lane on southbound SE Lake Rd	High
4006	5-11a	OR 224	OR 224 / Johnson Rd intersection	Add second left-turn lane on westbound OR 224	High
4007	5-11a	OR 224	OR 224 / Hubbard Rd / 135th Ave intersection	Add intersection improvements, including right-turn lanes	High
4008	5-11a	OR 224	Springwater Rd / OR 224 intersection	Add signal and turn lanes on all approaches	High
4009	5-11a	OR 224	Rock Creek Junction to Midway St	Widen to four lanes; add bikeways.	High
4010	5-11a	Sunrise Project - Preliminary Engineering	Webster Rd/ OR 224 to 172nd Ave / OR 212	Preliminary engineering from Webster Rd to 172nd Ave	High
4011	5-11a	Sunrise Project - Right-of-Way	Webster Rd/ OR 224 to 172nd Ave / OR 212	Acquire right-of-way to accommodate 6 lane expressway plus auxiliary lanes	High
4012	5-11a	SunriseProject - Multi-use Path	122nd to Rock Creek Junction	Construct multi-use path from 122nd to Rock Creek Junction parallel to the Sunrise project consistent with FEIS.	High
4013	5-11b	OR 224	OR 224 /232nd Ave intersection	Install traffic signal or roundabout	High
4014	5-11b	OR 224	Eaglecreek Rd / OR 224 intersection	Install signal	High
4015	5-11c	OR 99E	Milwaukie city limit to Gladstone city limit	Add bikeways, pedestrian facilities ways, median enhancements, crosswalks and pedestrian facilities refuges	High
4016	5-11d	I-205	Stafford Rd to OR 99E	Work with ODOT, Metro, Oregon City, West Linn and any other effected jurisdictions to analyze and develop a solution to the transportation bottle neck on I-205 between Oregon City and I-205 / Stafford Road Interchange. Possible solutions include widening to 3-lanes in each direction.	High
4017	5-11e	I-205	Willamette River to West Linn city limit	Add southbound truck climbing lane	High
4018	5-11e	I-205	I-205 Corridor	Corridor-wide operational improvements	High
4019	5-11e	OR 211	Beavercreek Rd, Union Hall Rd to Dhooghe Rd	Widen to include shoulders, bikeways, add passing lanes where needed and turn lanes at major intersections	High
4020	5-11e	OR 213	OR 213 / Spangler Rd intersection	Install traffic signal to replace existing two-way stop	High

Table 5-3d Regional Capital Projects

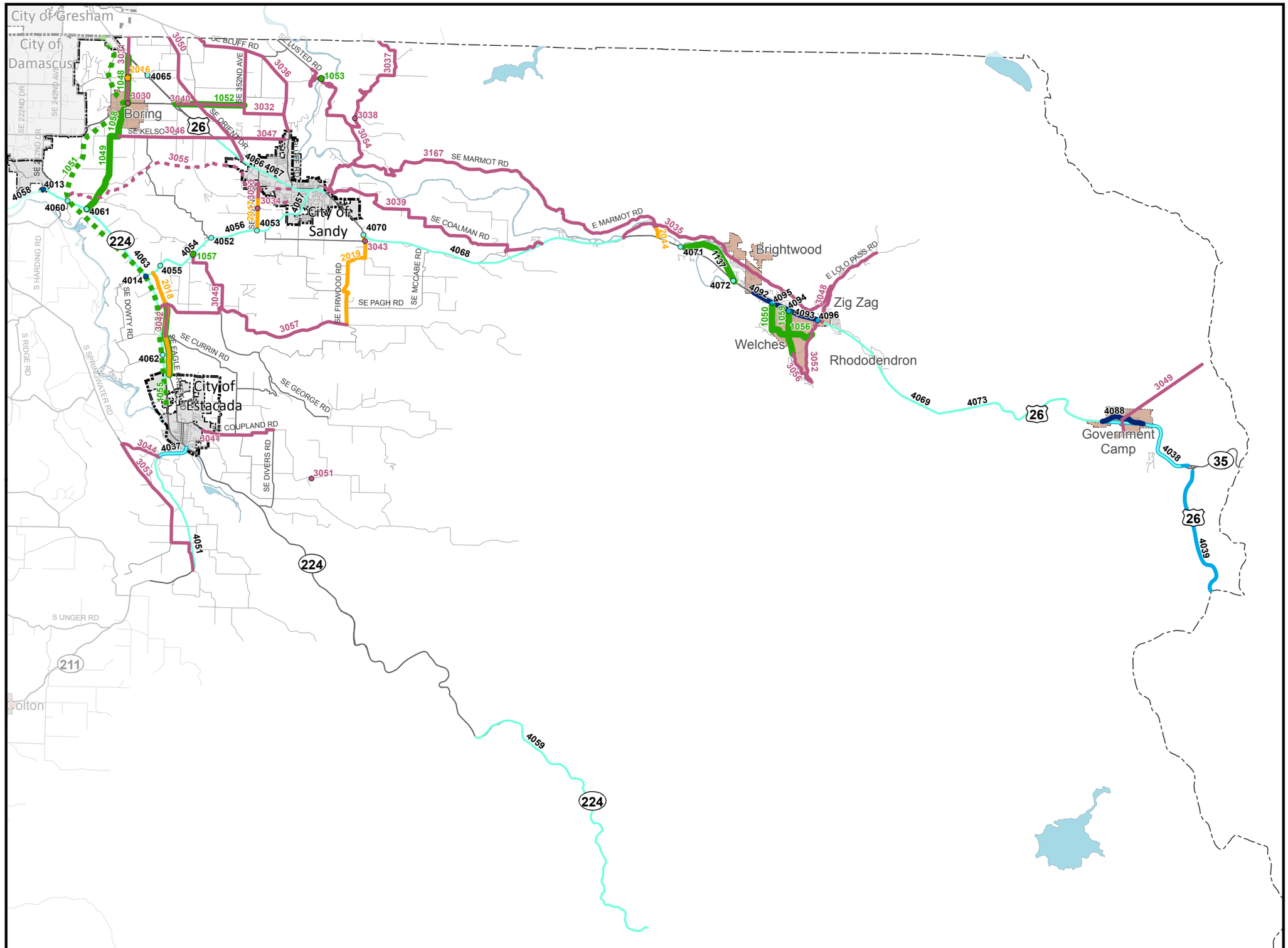
Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description	Priority
4021	5-11e	OR 213	OR 213 / Henrici Rd intersection	Install traffic signal or roundabout and additional intersection improvements as needed	High
4022	5-11e	OR 213	OR 213 / Leland Rd intersection	Add northbound through auxiliary lane	High
4023	5-11e	OR 213	Leland Rd / Union Hall Rd intersection	Add southbound auxiliary lane	High
4024	5-11e	OR 213	Mulino to Molalla	Perform road safety audit or transportation safety review to identify appropriate safety improvements	High
4025	5-11e	OR 99E	OR 99E / Barlow Rd intersection	Add left-turn lane on southbound Barlow Rd - To widen Barlow Rd to add a southbound left turn lane on the north approach would need to modify the existing railroad crossing warning system	High
4026	5-11a	I-205 / Johnson Creek Blvd interchange	I-205 / Johnson Creek Blvd interchange	Add loop ramp and northbound on-ramp; realign southbound off-ramp and install dual right-turn lanes	Medium
4027	5-11a	I-205 / OR 212/224 Interchange	In vicinity of Roots Rd and McKinley Ave	Connect bikeways in accordance with the Active Transportation Plan	Medium
4028	5-11a	OR 212	Rock Creek Junction to 172nd	Construct climbing lane	Medium
4029	5-11a	OR 212	OR 212 / SE 162nd Ave intersection	Add left-turn pockets and traffic signal	Medium
4030	5-11a	OR 213	Sunnyside Rd to Sunnybrook Rd	Widen to 7 lanes with boulevard treatments	Medium
4031	5-11a	OR 213	OR 213 / Harmony Rd / Sunnyside Rd intersection	Add bikeways, pedestrian facilities ways, dual northbound and southbound left-turn lanes, and lighting; convert driveways north of intersection to right-in / right-out	Medium
4032	5-11a	OR 224	OR 224 / Rusk Rd off-ramp	Extend right-turn lane on OR 224	Medium
4033	5-11a	OR 224	Milwaukie city limits to I-205	Construct multi-use path as parallel route to OR 224	Medium
4034	5-11a	OR 224	Lake Rd / Johnson Rd / Pheasant Ct	Realign Lake Rd / Johnson Rd to provide southern OR 224 access via Pheasant Ct; add turn lanes at OR 224 / Pheasant Ct intersection; close access at Lake / Webster south of OR 224	Medium
4035	5-11a	OR 99E	OR 99E / Jennings Ave intersection	Determine safe connection of Trolley Trail at OR 99E / Jennings Ave intersection	Medium
4036	5-11a	Sunrise Project	I-205 to 172nd Ave	Construct improvements to 172nd	Medium
4037	5-11b	OR 211	Hayden Rd to OR 224	Widen to rural arterial standard with shoulders, bikeways in accordance with the Active Transportation Plan and turn lanes at major intersections	Medium
4038	5-11b	US 26	Govt. Camp Loop W to OR 35	Implement Finding of Mt Hood Multimodal Study including phased safety improvements	Medium
4039	5-11b	US 26	OR 35 Junction to Wasco County line	Widen roadway to include bikeways /shoulders, add passing lanes where needed and turn lanes at major intersections	Medium
4040	5-11e	OR 211	OR 170 (Canby-Marquam Hwy) / OR 211 intersection	Install eastbound and westbound left-turn lanes, and eastbound right-turn lane; remove or decrease horizontal curve	Medium
4041	5-11e	OR 211	Marion County line to OR 170 (Canby-Marquam Hwy)	Widen to include shoulders, bikeways, add passing lanes where needed and turn lanes at major intersections	Medium
4042	5-11e	OR 99E	Barlow Rd to Marion County line	Four lane widening with median, left-turn lanes from mile post 24.05	Medium
4043	5-11e/f	OR 213	Oregon City boundary to Marion County line	Add shoulders and bikeways	Medium
4044	5-11a	OR 212	I-205 to OR 224	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low

Table 5-3d Regional Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description	Priority
4045	5-11a	OR 212	Within the Damascus City Limits (Armstrong Cr to 257th)	Obtain right-of-way for future 4 lane facility with planted median and 5 lanes at major intersections; build as major development occurs and apply access management to reduce number of driveways.	Low
4046	5-11a	OR 213	Clatsop St to Sunnyside Rd	OR 213/82nd Avenue Boulevard Design Improvements - Widen to add sidewalks, lighting, central median, planting strips and landscaping; fill gaps in the bike and pedestrian facilities network. 2014 ODOT OR 213 paving project programmed King to OR 224.	Low
4047	5-11a	OR 213 (82nd Ave)	Luther Road to Sunnybrook Blvd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4048	5-11a	OR 224	Webster Rd and 82nd Ave	Provide frontage connection on the north side of OR 244	Low
4049	5-11a	OR 224	Springwater Rd to 232nd Dr	Shoulder widening, horizontal realignment, realignment of roadway to bluff	Low
4050	5-11b	OR 211	OR 224 to eastbound US 26	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4051	5-11b	OR 211	OR 224 to Hillcockburn Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4052	5-11b	OR 211	Tickle Creek Rd/OR 211 intersection	Remove or decrease horizontal curve, relocate intersection	Low
4053	5-11b	OR 211	362nd Dr / OR 211 intersection	Remove or decrease vertical curve and remove vegetation	Low
4054	5-11b	OR 211	Eagle Creek Rd to Tickle Creek Rd	Widen to include bikeways /shoulders and add passing /climbing lanes where needed	Low
4055	5-11b	OR 211	0.14 miles east of Coop Rd to Jacknife Rd	Widen to add shoulder / bikeways; realign to remove horizontal and vertical curves	Low
4056	5-11b	OR 211	Tickle Creek Rd to 362nd Dr	Widen to include bikeways /shoulders and add passing /climbing lanes where needed	Low
4057	5-11b	OR 211	Bornstedt Rd to City of Sandy	Add shoulders and bikeways	Low
4058	5-11b	OR 224	232nd Ave to OR 211	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4059	5-11b	OR 224	Fish Creek Rd to National Forest Rd 46	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4060	5-11b	OR 224	Bakers Ferry Rd / OR 224 intersection	Add eastbound right-turn lane	Low
4061	5-11b	OR 224	Amisigger Rd / OR 224 intersection	Install traffic signal; add southbound and eastbound left-turn lanes and westbound right-turn lane	Low
4062	5-11b	OR 224	Heiple Rd / OR 224 intersection	Add southbound right-turn lane	Low
4063	5-11b	OR 224	OR 212 to Estacada city limits	Widen to include shoulders and bikeways; add passing lanes where needed	Low
4065	5-11b	US 26	US 26 / Haley Rd intersection	Develop a plan to address to address access and safety issues on US 26 at this intersection and implement that plan	Low
4066	5-11b	US 26	Kelso Rd to Duncan Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4067	5-11b	US 26	Duncan Rd to Langensand Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4068	5-11b	US 26	Firwood Rd to Sleepy Hollow Dr	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4069	5-11b	US 26	Rhododendron to OR 35	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low

Table 5-3d Regional Capital Projects

Project ID	Map	Project Name / Street Name	Segment / Locations	Project Description	Priority
4070	5-11b	US 26	US 26 / Firwood Rd intersection	Add eastbound right-turn lane	Low
4071	5-11b	US 26	US 26 / Brightwood Loop W	Add westbound right-turn lane	Low
4072	5-11b	US 26	US 26 / Brightwood Loop E	Add westbound right-turn lane	Low
4073	5-11b	US 26	Lolo Pass Rd to Govt. Camp Loop Rd. W	Implement Finding of Mt Hood Multimodal Study including ITS approach with variable speed signage; construct multi-use path between Lolo Pass Rd and John Lake Rd; add enhanced pedestrian crossing, sidewalks, curbs, gutters, pedestrian refuge island, pedestrian illumination and access management in Rhododendron; construct multi-use path connecting Mt. Hood Express transit stop and Pioneer Bridle Trailhead	Low
4074	5-11c	OR 99E	Park Ave to Gladstone city limits	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4075	5-11d	OR 43	Lake Oswego to Portland	Develop active transportation connection in accordance with the Active Transportation Plan.	Low
4076	5-11e	OR 211	Dhooghe Rd / OR 211 intersection	Remove or decrease horizontal curve, relocate intersection	Low
4077	5-11e	OR 211	OR 170 (Canby-Marquam Hwy) to City of Molalla	Add shoulders and bikeways	Low
4078	5-11e	OR 211	Needy Rd to 0.6 miles west of Needy Rd	Remove or decrease vertical curve to allow passing zone, add passing lane in one or both directions, possible relocation of intersection	Low
4079	5-11e	OR 211	Molalla city limits to Hayden Rd	Widen to rural arterial standard (2 lanes) with shoulders and bikeways	Low
4080	5-11e	OR 211	Beavercreek Rd to Upper Highland Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4081	5-11e	OR 213	OR 213 / Carus Rd intersection	Install traffic signal to replace existing two-way stop See U339	Low
4082	5-11e	OR 213	OR 213 / Beavercreek Rd intersection	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4083	5-11e	OR 213	Carus Rd / OR 213 intersection	Install southbound left-turn and right-turn lanes	Low
4085	5-11e	OR 99E	Oregon City to Canby	Add shoulders and bikeways	Low
4086	5-11e	OR 99E	Sequoia Parkway to Lone Elder Rd	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4087	5-11e	OR 99E	Territorial Rd to Metro boundary	Perform road safety audit or transportation safety review to identify appropriate safety improvements	Low
4088	5-11b	Government Camp Loop Rd	US 26 to US 26	Add bikeways through Government Camp in accordance with the Active Transportation Plan	High
4092	5-11b	US 26	Arrah Wanna Blvd to Welches Rd	Add multi-use path on north side of US 26	High
4093	5-11b	US 26	Main Park Rd to Salmon River Rd	Add multi-use path on south side of US 26	High
4094	5-11b	US 26 / Welches Rd	US 26 / Welches Rd	Pedestrian and ADA improvments at signal, including crossing improvments on the north side of the intersection.	Medium
4095	5-11b	US 26 / Arrah Wanna Blvd	US 26 / Arrah Wanna Blvd	Install a continental style crosswalk, accompanied by roadway and streetscape improvements	Medium
4096	5-11b	US 26 / Salmon River Rd	US 26 / Salmon River Rd	Install an enhanced pedestrian crossing	High



Capital Improvement Plan

East County

Priority

- 20-Year Capital Projects (Table 5-3a)
- Preferred Capital Projects (Table 5-3b)
- Long-Term Capital Project Needs (Table 5-3c)

Projects on Non-County Facilities

Priority

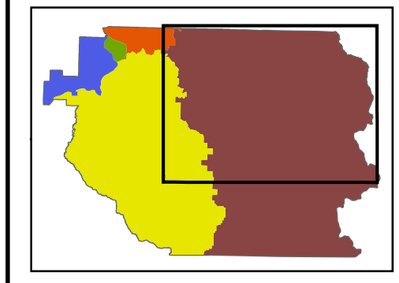
- High (Table 5-3d)
- Medium (Table 5-3d)
- Low (Table 5-3d)

NORTH

- Study*
- Multi-Use Path*
- Metro Urban Growth Boundary
- Incorporated City

*Symbol color consistent with Priority symbologies shown above

0 1.25 2.5 5 Miles



Ordinance ZDO-260
Draft Date October 10, 2016

CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045

CLACKAMAS COUNTY COMPREHENSIVE PLAN

MAP 5-11b

Appendix B

SUMMARY OF SUPPORTING DOCUMENTS

CITIZEN INVOLVEMENT

Citizen and Agency Involvement Program.

Clackamas County Citizen Involvement Program. Comprehensive Plan Chapter 2.

Committee for Citizen Involvement Bylaws.

Committee for Citizen Involvement Roster.

Community Planning Organization Leaders. Lists and maps of CPO areas.

NATURAL RESOURCES AND ENERGY

Clackamas County Energy Project Publications, 1983:

1. An Energy Anthology
2. Clackamas County Energy Use and Supply Background Data
3. Clackamas County Energy Management Plan
4. Technical Memorandum, Energy Emergency Planning
5. Technical Memorandum, County Buildings
6. Technical Memorandum, County Motor Fleet
7. Technical Memorandum, County Organization

Clackamas County Resources Atlas, Clackamas County Dept. of Environmental Services, Planning Division. Includes maps of the following:

General Resources

Agricultural Land Types and Major Production Areas

Forest Zones and Vegetative Types

Cubic Foot Forest Site Classes

Forest Ownerships

Urban Forest Cover

Detailed SCS Soil Mapping Index

Unique National and Scenic Features

Open Urban Land Inventory

Park and Recreation Facilities; Historic and Cultural Sites

Fisheries and Wildlife Habitats

Aggregate Sites

Groundwater Studies Index

Geologic Hazards, Northwest Clackamas County

River Corridors, Existing Conditions and Management Strategies

Precipitation and Physiography

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Environmental Geology of the Kellogg Creek-Mt. Scott Creek and Lower Clackamas River Drainage Areas, Northwestern Clackamas County, Oregon, M.S. Thesis, Matthew John Brunego, March, 1978.

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Planning Background Report, Natural Hazards; Clackamas County Dept. of Environmental Services, Planning Division.

Planning Background Report, Natural Resources; Clackamas County Dept. of Environmental Services, Planning Division.

Planning Background Report, Rivers; Clackamas County Dept. of Environmental Services, Planning Division.

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SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix B – Analysis of Preferred Alternative

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix C – 15% Design Plans, Alignment Alternative AT2, Clackamas County, October 24, 2011

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix E – Corridor Centerline Survey, November 10, 2011

Clackamas County Active Transportation Plan, Appendices A through F

HOUSING

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Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, June 2016

ATTACHMENT 6

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

PREPARED FOR

Clackamas County
with support from Oregon Department of Transportation

JUNE 2016

RECOMMENDED DRAFT PLAN

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Project Advisory Committee

Marilan Anderson, Villages at Mt. Hood Board of Directors
Mary Ann Coyle, Hoodland Senior Center
Corinne Handelman/Steve Wise, Sandy River Watershed Council
Petr Kakes, Ski Bowl;
Michelle Lamoreaux, Rhododendron CPO
Don Mench, Barlow Trail Association
Coni Scott, Mount Hood Chamber
Kathleen Walker, Trails Advocate and Consultant
George Wilson, Mt. Hood Bicycle and Pedestrian Coalition

Technical Advisory Committee

Kate Freitag, PE, Oregon Department of Transportation (ODOT)
Teresa Christopherson, Administrative Services Manager, Clackamas County Health, Housing and Human Services
Christian Snuffin, Traffic Engineer, Clackamas County Transportation Engineering
Bill Westbrook, US Forest Service Mt. Hood National Forest
Scott Hoelscher, Senior Planner, Clackamas County Planning Department
Andrew Dobmeier, Clackamas County Parks & Forests
Scott France, Human Services Coordinator, Clackamas County Health, Housing, and Human Services
Heidi Beierle, Clackamas County Tourism Board
Samara Phelps, Tourism Development Coordinator, Clackamas County Tourism and Cultural Affairs
Dan Davis, Outdoor Recreation Planner, Bureau of Land Management
Gail Curtis, Oregon Department of Transportation and Transportation Growth Management

Stakeholders Interviewed

Jason Miller, Ski Bowl and Mt. Hood Adventures
Petr Kakes, Hurricane Racing
Coni Scott, Mt. Hood Chamber
George Wilson, Mt. Hood Bicycle and Pedestrian Coalition
Nate Seifert, Resort at the Mountain
Teresa Christopherson, Mt. Hood Express
Jeff McCusker, David Moore, Dan Davis, Bureau of Land Management
Kristin Austin, PE, Jen Wade, Vicki Peterson, Greg Warner, US Forest Service Mt. Hood
Susan Corwin, Barlow Trail Association
Jana Jarvis, Oregon Trucking Association

Project Staff

Lori Mastrantonio, Project Manager and Senior Planner, Clackamas County
Karen Buehrig, Transportation Planning Supervisor, Clackamas County
Steve Williams, Principal Transportation Planner, Clackamas County
Gail Curtis, Contract Manager, ODOT and Transportation Growth Management (TGM)
Sumi Malik, AICP, Project Manager, CH2M
Kate Drennan, CH2M
Sharon Daleo, PE, CH2M
Kirsten Pennington, CH2M
Catherine Ciarlo, CH2M

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

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Executive Summary

The Mt. Hood National Forest is one of Oregon's most scenic and important lands—it provides some of the best recreational opportunities in the state, forest and habitat lands, and is a nationally recognized icon that supports the economy of Oregon. Located 66 miles east of downtown Portland, Mt. Hood National Forest extends south from the Columbia River Gorge across miles of forested mountains, lakes, and streams encompassing over a million acres. The area serves thousands of recreationalists, tourists and is home to permanent and seasonal residents.

The Villages at Mt. Hood include the communities of Brightwood, Welches/Wemme, Zig Zag, and Rhododendron. The Villages are connected by US 26 and county roadways. For travelers on foot or bicycle, conditions are uncomfortable and not well connected.

- People walk on shoulders that disappear into ditches. They walk in poorly-lit conditions and on dirt footpaths worn along roads over time, which are usually only known to residents.
- Bicycle riding is popular in the scenic area for recreation and to access Sandy Ridge Trail System. Pedestrians, bicycle riders, and cars are packed into roadway lanes with no shoulders, resulting in conflicts.
- Many residents would like to walk and bike for daily needs, but do not feel safe doing so. US 26 bisects The Villages at Mt. Hood, and poses a significant barrier to pedestrian and bicycle crossings.
- Missing directional signage for visitors in the area for both for day trips and overnight stays. Visitors are left to use their cars to go to restaurants and stores.

A well-connected pedestrian and bicycle system would improve the quality of life of residents and allow visitors to leave their car behind when enjoying the area's numerous destinations.

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan (the Plan) provides a long-term, prioritized set of pedestrian and bicycle infrastructure improvements to increase transportation choices within The Villages, including access to transit. The infrastructure improvements create a connected pedestrian and bicycle system, integrated with transit, aimed to meet residents' and visitors' daily needs (Figure 1).

The Plan has been guided by the following project objectives:

- Identify bicycle and pedestrian needs within The Villages at Mt. Hood
- Develop a Safe Routes to School Plan for Welches Elementary and Middle School
- Identify potential locations for additional or enhanced US 26 pedestrian crossings. The project team will consider at-grade and grade-separated solutions, or enhancements to the current crossings
- Evaluate the feasibility of a multiuse path in the area

Priority Improvement Category and Costs

This *Implementation Plan* describes all improvements and identifies whether they are low, medium or high priority. Improvements are grouped into the following categories of project types -- multiuse path, crossing treatment, shoulder expansion, safe routes to schools, and streetscape amenities – as described below.

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Multiuse Path: A wide path (ideally 12 feet) separated from the roadway and shared by pedestrians, bicycle riders and people who use a mechanical device to help them travel due to a disability.

Crossing Treatment: Painted high-visibility crosswalk which may include a rapid-flashing beacon to warn drivers when people are crossing, as well as additional improvements (decorative streetlamps, curb "bulb-outs" that shorten crossing distances or landscaped paths along the road near crossings) to give drivers advance notice that they are in an area where people will be walking.[1]

Shoulder Expansion: Adding or expanding paved shoulders on roadways to provide a space for people to walk or bicycle outside of the travel lane. It is a lower cost alternative to sidewalks that can increase safety.

Safe Routes to School: Projects to better enable school children to walk or bike safely to school such as enhanced crossing treatments or a path that provides an alternative to busy streets.

Streetscape Amenities: Curb extensions, pedestrian-oriented lighting and gateway signs can alert drivers to the presence of pedestrians and improve the pedestrian experience. Other options include directional signs, bike hubs and driver speed feedback signs.

Throughout the Plan cost estimates are provided based on general cost factors. More details on the cost of each proposed improvement can be found in Appendix D. Cost factors range from $ - $$$. The dollar signs equate to:

$	0 -100,000
$$	100,000- 500,000
$$$	500,000- 1 million
$$$$	Greater than 1 million

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[1] Pedestrian treatments, including crossings, will require a traffic engineering investigation/ analysis to determine which treatments are appropriate based on the existing conditions such as vehicular and pedestrian volumes. Approval by the ODOT Region 1 Traffic Engineer or the State Traffic Engineer (STE) would likely be required dependent on proposed treatment type.

Figure 1 Recommended Improvements in the Villages at Mt. Hood

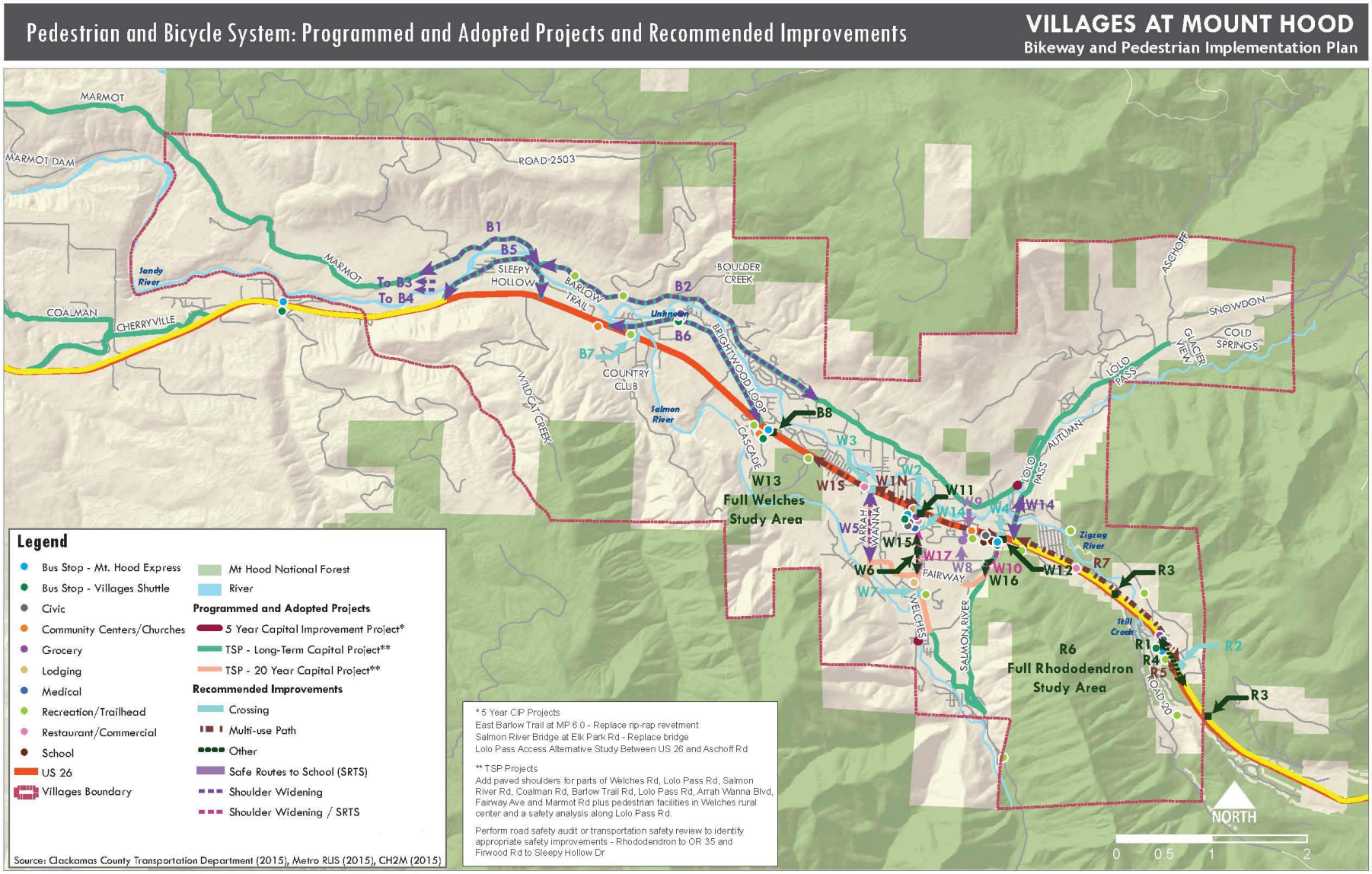

Table 1 Summary of Proposed Improvements

Project Description	Cost	Improvement Category
High Priority Recommended Improvements		
B2: Barlow Trail Road Principal Active Transportation Route (Option A and B) Strategically construct widened shoulders on Barlow Trail Road from Sleepy Hollow Road to Lolo Pass Road	$$$$	
B6: Brightwood Loop Shoulder Widening Widen Brightwood Loop shoulder to 4 feet on each side from US 26 to US 26 (full extent)	$$	
B7: US 26 Undercrossing Directional Signs Provide directional signage to direct bicycle riders and pedestrians to an existing undercrossing of US 26	$	
W1S: Multiuse Path along US 26 Construct a multiuse path along US 26, along the south side, between the Wildwood Recreation Site and Salmon River Road.	$$	
W6: Welches Road Shoulder Widening and Multiuse Path Widen shoulders and/or develop a multiuse path on Welches Road, with a priority between Fairway Avenue and Huckleberry Drive, and extending to US 26	$$	
W9: Woodsey Way and Learning Lane Path Construct path along Woodsey Way that connects to the existing sidewalk on Cedar Hill Terrace and add crossing enhancements.	$	
W15: Driver Speed Feedback Signs On US 26 on Welches Road, Salmon River Road, lower Lolo Pass Road and in the vicinity of Rhododendron	$	
W1N: Multiuse Path along US 26 Construct a multiuse path along the north side of US 26 between Arrah Wanna Road and Welches Road	$$	
W4: Salmon River Road Crossing of US 26 Enhance crossing through a treatment such as the installation of a rectangular rapid flashing beacon at the Salmon River Road crossing of US 26	$	
W7: Welches Road at The Resort at the Mountain Crossing Improvements Enhance existing crossing by adding advance warning signs and a split rapid flash beacon	$	
W13: Directional Signs and Bike Hubs Enhance pedestrian and bicycle accessibility within the area with the strategic placement of directional signage and bike hubs.	$	
R4: Pedestrian Accommodation along US 26 in Rhododendron Install curbs, sidewalk, and gutter to accommodate pedestrians along US 26 in Rhododendron	$$	

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Project Description	Cost	Improvement Category
R1: Consolidate and Define Driveways in Rhododendron Consolidate and define driveways within Rhododendron through access management	$$	
R2 Enhanced Crossing of US 26 in Rhododendron Install a treatment such as marked, continental style crosswalk in Rhododendron on US 26 with a rapid flashing beacon to alert drivers	$	
R3: Rhododendron Gateway Sign Install gateway signs in advance of Rhododendron in both directions of US 26	$	
R5: Bicycle Facility for Trail Connection Construct a bicycle facility (multiuse path or other design) to connect Pioneer Bridle Trailhead to Rhododendron, particularly the Mt. Hood Express stop	$	
W14: Lolo Pass Road Paved Shoulders Widen shoulders to 4 feet along Lolo Pass Road, with a priority between Barlow Trail Road and US 26	$$	
W10: Salmon River Road Shoulder Widening Add paved shoulders or a path to Salmon River Road between US 26 and Fairway Avenue	$$	
R6: Directional Signage and Bike Hub in Rhododendron Install directional signage to highlight the presence of Mt. Hood Express transit stops and a bicycle hub in Rhododendron	$	
Medium Priority Recommended Improvements		
B1: Marmot Road Shoulder Widening Widen the Marmot Road shoulder to 4 feet on each side from The Villages boundary to Barlow Trail Road	$$$$	
B8: Transit Park and Ride Direction Signage Provide directional signage at Hoodland Senior Center Park and Ride	$	
W2: Crossing Improvements on US 26 at Welches Road Construct sidewalk and relocate pedestrian activation buttons to be ADA-compliant at Welches Road crossing of US 26	$	
W3: Arrah Wanna Boulevard Crossing of US 26 Create an uncontrolled crossing of US 26 at Arrah Wanna Road, with a continental style crosswalk	$	
W5: Arrah Wanna Shoulder Widening Add a 4-foot-wide paved shoulder along each side of Arrah Wanna Boulevard	$$	

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Project Description	Cost	Improvement Category
W11: Welches Road Park and Ride Pave and formalize the Welches Road Mt. Hood transit stop location to create a park and ride	$	
W12: Salmon River Road Park and Ride Pave and formalize the Salmon River Road Mt. Hood transit stop location to create a park and ride	$	
W13: Directional Signage and Bike Hubs Enhance pedestrian and bicycle accessibility with the strategic placement of directional signage and bike hubs	$	
Low Priority Recommended Improvements		
B3: Coalman Road Shoulder Widening Widen the Coalman Road shoulder to 4 feet on each side from The Villages boundary to Baty Road	$$$	
B4: Cherryville Road Shoulder Widening Widen the Cherryville Road shoulder to 4 feet on each side from The Villages boundary to US 26	$$$	
B5: Sleepy Hollow Road Shoulder Widening Widen the shoulder of Sleepy Hollow Road	$$	
W8: Huckleberry Drive Path Formalize demand-path connecting Huckleberry Drive and Woodsey Way to create direct Safe Routes to Schools path	$	
R7: Multiuse Path between Lolo Pass Road and Rhododendron Further evaluate the feasibility of a multiuse path/bike route between Lolo Pass Road and Rhododendron	$$$	
W16: Welches Road Crossing at Stage Stop Road Further evaluate the potential for a high visibility crosswalk across Welches Road at Stage Stop Road	$	

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1 The Villages at Mt. Hood

Visitors enjoy fishing, camping, boating, hiking, hunting, mountain biking, skiing and other snow sports in the winter. Popular destinations include Timberline Lodge and Ski Resort, Lost Lake, Trillium Lake, Rock Creek Reservoir and portions of the Old Oregon Trail. In addition, Mt. Hood offers two other major ski resorts, Ski Bowl and Mt. Hood Meadows. Preserving the pristine nature of Mt. Hood is important to Oregon's environment, identity and collective legacy.

The project area includes communities along the US 26 corridor in Clackamas County, Oregon in the vicinity of Mt. Hood. The major populated areas include the communities of Brightwood, Welches/Wemme, Zig Zag, and Rhododendron. Together, these areas are recognized as The Villages at Mt. Hood.

The Villages at Mount Hood are home to over 5,000 permanent residents and 15,000 seasonal residents. The surrounding area serves thousands of recreational users every year—estimated at over 85,000 to the Mt. Hood area.

Residents and visitors alike enjoy the area's beauty and recreational opportunities.

Who lives in the Villages?

- 4.5% of population are youths (10-19)
- 18.9% of population are older adults (65+)
- 8.1% of population are low-income
- 10.2% of population have an ambulatory disability
- 98.6% of population identify as White, 1.4% identify as two or more races

US 26 is the primary travel route connecting the communities, and local roads serve important circulation needs. US 26 is classified as a state highway and National Freight Route, and is part of the National Highway System (NHS). This high-volume section of US 26 connects the Portland metropolitan area with Central Oregon. Generally, US 26 in this area is five lanes with two vehicle travel lanes in each direction and a shared center turn lane. The roadway has wide shoulders that serve pedestrian and bicycle circulation. The roadway serves local needs as well as through travel, with average daily traffic between 15,800 vehicles at the western end of the project area (near Hoodland Senior Center in Welches) and 8,500 vehicles at the eastern end (near Rhododendron).

The Wildwood Recreation Site and the Sandy Ridge Trail System (a mountain biking trail system), managed by the Bureau of Land Management (BLM), are within the study area and have large numbers of visitors in the summer and fall. Several trailheads for camping and hiking in the Mt. Hood National Forest and study area contribute to higher traffic volumes on US 26 and collector and arterial roads, particularly during weekends and summer months. In the winter, snow sports enthusiasts contribute to increased weekend through-traffic while visiting snow parks east of the project area.

1.1 Why this Plan?

The current pedestrian and bicycle network is poorly connected. People walk on shoulders that disappear into ditches or are poorly lit. Many use dirt footpaths worn along roads over time and only known to residents. At open houses, many residents cited bicycling as one of the ways they move around Mt. Hood, and bicycling is also popular in the scenic area for recreation and to access the Sandy Ridge Trail System. Pedestrians, bicycle riders and motorists often share roadway lanes with no shoulders, leading to conflicts. Many residents would like to walk and bike more for their daily needs, but do not feel safe doing so. Crossing US 26, the highway bisecting the Villages, is a significant barrier to pedestrian and bicycle travel.

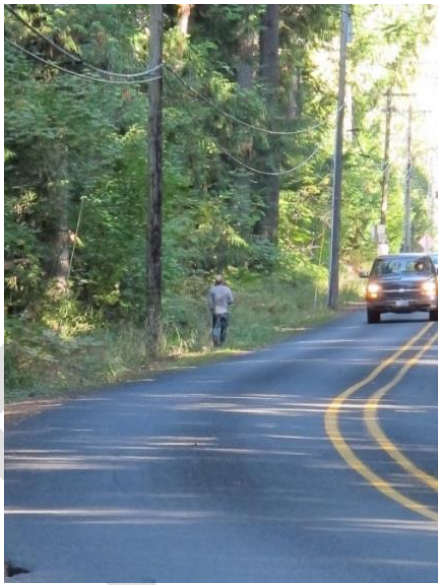

Figure 2: Existing walking conditions on Welches Road

The area hosts significant numbers of visitors, both for day trips and overnight stays. There is no directional signage for visitors who wish to walk or bike and they are left to use their cars to go to restaurants and stores. A well-connected pedestrian and bicycle system would support the quality of life of residents and allow visitors to leave their car behind when enjoying the area's numerous destinations.

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan also provides an important update to the Clackamas County Mt. Hood Community Plan, which was adopted in 1976. The Plan considers changes to land use to support proposed transportation investments and further supports project needs identified in the Clackamas County Transportation System Plan. The Plan provides a long-term, prioritized set of pedestrian and bicycle infrastructure improvements aimed at increasing transportation choices within The Villages, including access to transit. The infrastructure improvements create a connected pedestrian and bicycle system, integrated with transit, aimed to meet residents' and visitors' daily needs.

Project Advisory Committee (PAC)

The PAC included:

- neighborhood representatives
- local pedestrian and bicycle advocates
- local business owners
- community volunteers
- agency-based technical advisors

Technical Advisory Committee

The TAC included representatives from:

- Clackamas County Transportation Engineering and Planning
- US Forest Service
- Oregon Department of Transportation
- Mt Hood Express
- Clackamas County Tourism

1.2 Project Objectives

Clackamas County received a grant through the Oregon Department of Transportation's Transportation and Growth Management (TGM) program to define solutions. The Plan has been guided by the following project objectives:

- Identify bicycle and pedestrian needs within The Villages at Mt. Hood
- Develop a Safe Routes to School Plan for Welches Elementary and Middle School
- Identify potential locations for additional or enhanced US 26 pedestrian crossings. The project team will consider at-grade and grade-separated solutions, or enhancements to the current crossings.
- Evaluate the feasibility of a multiuse path in the area

The long-term, pedestrian and bikeway system proposed in this Plan meets these objectives within a 20-year timeframe.

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It is important to note that while funds do not currently exist to implement proposed projects, the Plan provides a foundation from which Clackamas County, agency partners and other stakeholders can seek funding through programs or grants. The existence of a well-supported, prioritized, community-driven plan provides credibility and heft to grant and program applications.

The Plan has several improvements for US 26. All US 26 improvement projects are subject to ODOT review and approval.

1.3 Planning Process

Stakeholders within The Villages at Mt. Hood communities contributed to the development of the Plan, as have technical staff at every stage. A public advisory committee, made up of stakeholders from the community, and a technical advisory committee, made up of Clackamas County and other agency staff, reviewed and advised development of the Plan. In addition, two public workshops were held to gain public feedback on proposed projects, their priority and the draft Plan.

The advisory committees and public workshop attendees provided substantive feedback on the projects, including design elements and prioritization, which is reflected in this Plan. Section 3 provides details about each project, and includes a short summary of public feedback regarding individual project proposals.

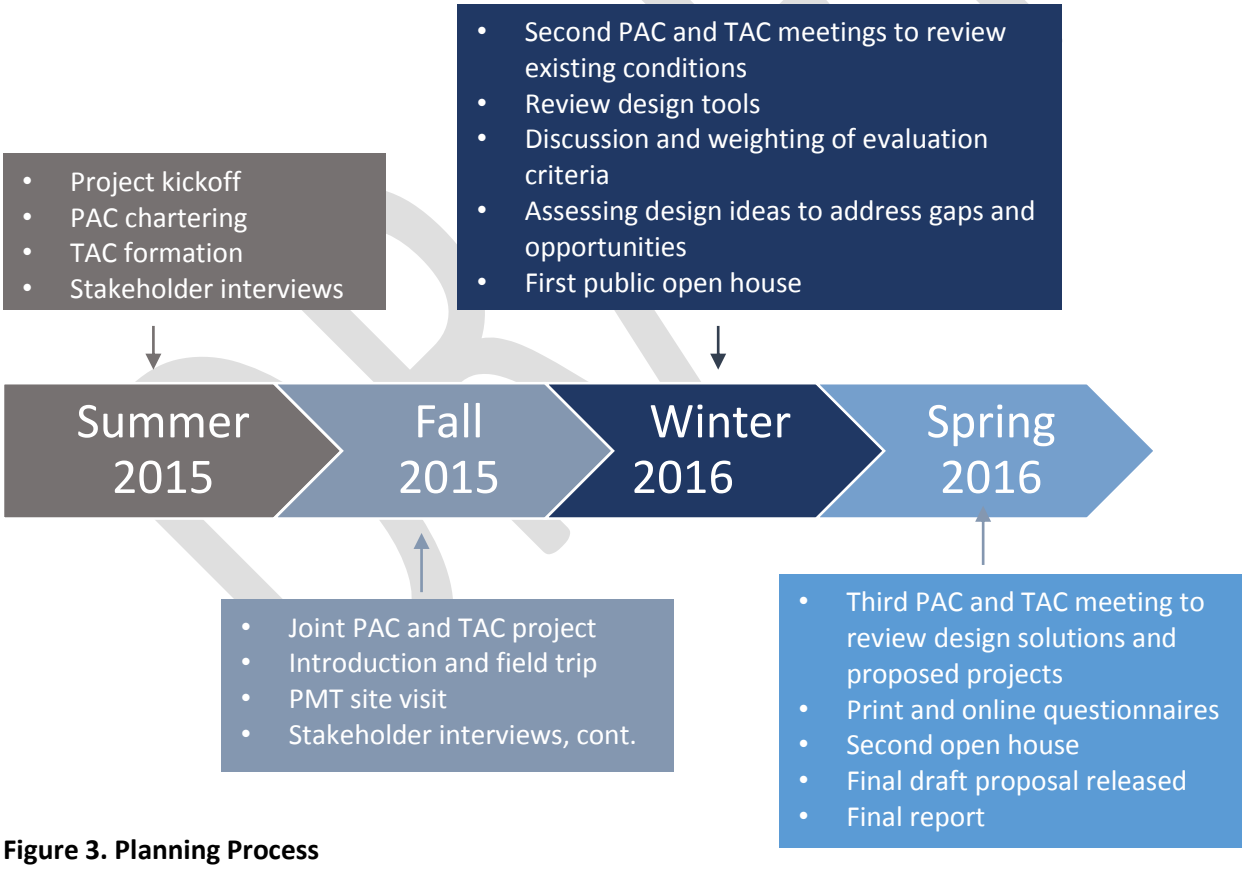

Figure 3. Planning Process

1.4 Planning Context

The Plan builds upon and recommends implementation of several plans.

- The *Clackamas County Active Transportation Plan* (ATP) identifies key active transportation routes connecting destinations and communities in Clackamas County, both rural and urban. The Clackamas County ATP identifies Barlow Trail Road within the project area as a principal active transportation route. The *Implementation Plan* provides more detail for implementation of Barlow Trail Road as a principal active transportation route.
- The 15-year *Mt. Hood Multi-Modal Transportation Plan*, with a planning time horizon of 2014-2029, is a multi-jurisdictional plan created to improve safety for all highway users and expand travel options along the Mt. Hood Highway Corridor. While the plan does not call for any projects specifically in The Villages at Mt. Hood, it does call for expansion of pedestrian and bicycle options integrated with transit, and of multi-modal directional signage within Mt. Hood. The *Implementation Plan* further describes the intent of the Mt. Hood Multi-Modal Plan with complementary projects.

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan will be used to update the Mt. Hood Community Plan and Chapter 10 of the Clackamas County Comprehensive Plan. The Mt. Hood Community Plan provides land use and transportation guidance for The Villages at Mt. Hood, such as facilitating pedestrian movement across US 26 within Rhododendron. The *Implementation Plan* also provides an update to Chapter 5: Transportation System Plan (TSP) of the Clackamas County Comprehensive Plan. Prioritized projects from this Plan will include improvements for pedestrians, bicycle riders and transit users. The projects will be integrated into the prioritized list of projects for the countywide TSP.

Priority

Priority indicates how important the improvement is to implementing a pedestrian and bicycle system.

- High – very important
- Medium – important
- Low – somewhat important

1.5 Types of Transportation System Users

Descriptions of area improvements state what type of users would benefit from the improvement. It is important to note that throughout the public involvement process, the team learned many individuals often fall into multiple categories of users. For example, many residents also recreate in the area regularly and find the recreational opportunities a great benefit to living within the community.

- **Residents:** Residents want to walk and bicycle safely within their own community. In particular, low-income and zero-car households may have less access to auto travel and rely on transit, walking or riding a bicycle to meet their daily needs. Important destinations for residents include food markets, schools, medical offices and community centers or churches. Crossings and improvements along US 26 would be most heavily used by residents.
- **Transit Riders:** Mt. Hood Express and The Villages at Mt. Hood Shuttle serve both commuters and recreational users. Bus stops are not typically served by sidewalks or marked crossings. Pedestrians and bicycle riders rely on road shoulders and demand paths on US 26 to access bus stops. Two bus stops (at Welches Road and E Salmon River Road) are near crosswalks on US 26.
- **Lodgers:** Visitors staying at local area inns, resorts and vacation rentals may drive up to the area, but prefer to walk or bicycle during their stay. Many guests like to park their vehicles and enjoy the scenery by walking to area restaurants, stores or recreation attractions. These users may benefit from improved pedestrian and bicycle facilities and directional signage that link lodgings and commercial areas.
- **School Children/Older Adults:** These groups are particularly vulnerable as they may have slower reflexes, use mobility devices and need more time to cross roadways. The Welches Elementary

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School, Middle School, area parks and the Hoodland Senior Center are common destinations. Sidewalks, separated paths and crossings would particularly benefit these user groups.

- **Recreational Visitors:** Mt. Hood is a common destination for both road cyclists and mountain bikers. Many recreational users ride through The Villages at Mt. Hood while traveling recreational routes advertised by Travel Oregon, Clackamas County Tourism and local cycling groups. These users often prefer to ride roads away from US 26 to avoid heavy and fast-moving vehicles. Improvements to roadway shoulders, particularly those designated by the Clackamas County Transportation Plan, would improve the experience of these users.

Figure 4: Example of recreational users

2 Proposed Projects in The Villages

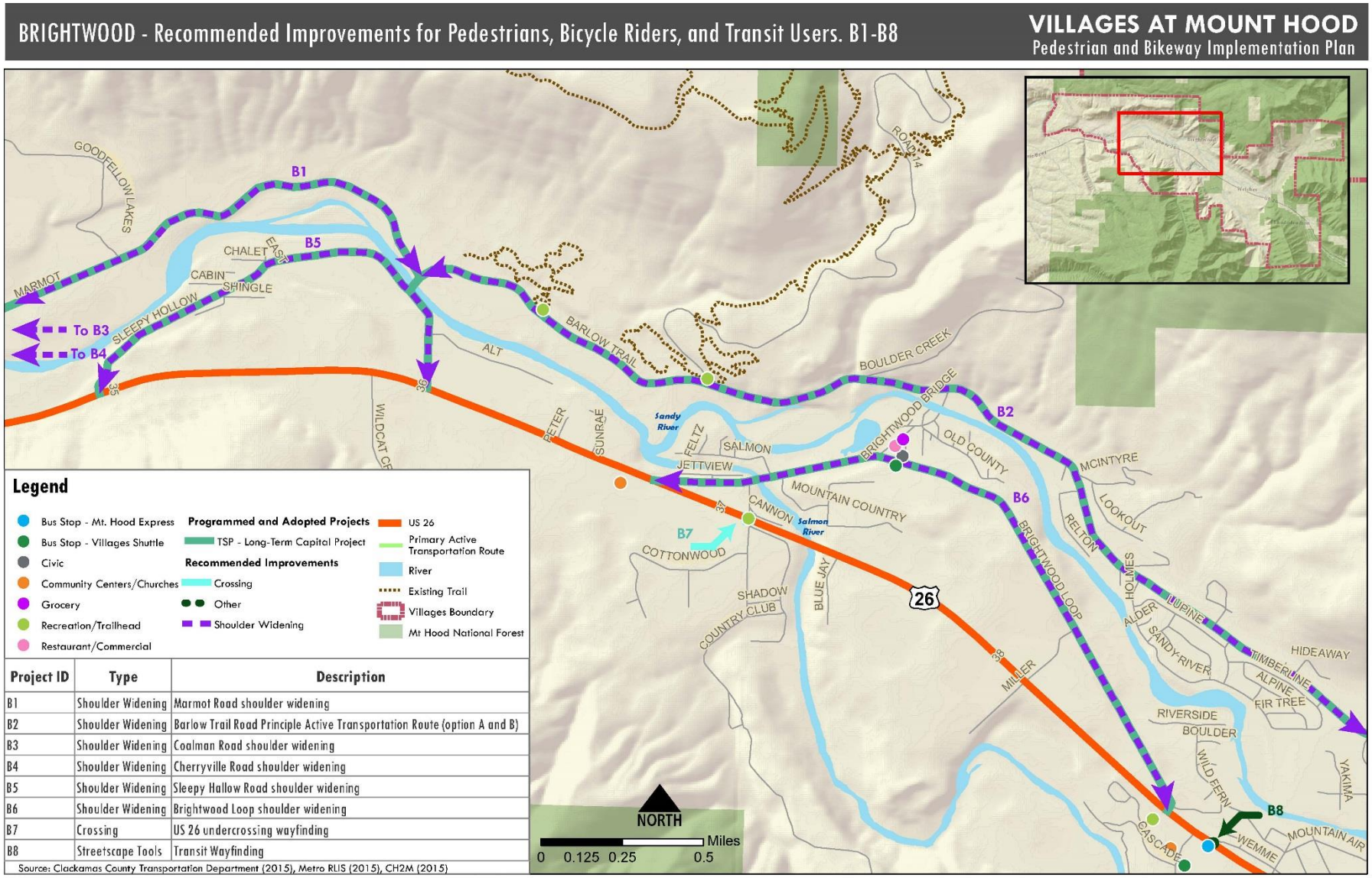
Projects proposed in the *Implementation Plan* reflect an analysis of existing conditions that considered the needs, opportunities and constraints within the existing pedestrian and bicycle system. Community stakeholders and PAC members helped define needs related to walking and bicycling, and defined the system values such as safety, access and safe routes to school.

PAC members, TAC members and the general public validated and augmented the team's assessment of needs, opportunities and constraints during Public Workshop #1. Following analysis of existing walking and bicycling conditions, the project team created a series of improvement projects to address needs, opportunities and gaps.

This section describes the background and need for each area improvement; the recommended improvement; any alternatives considered and dismissed; feedback from the public, committees and team; an order-of-magnitude cost factor, and priority for the improvement. Projects are grouped by geography in the communities of Brightwood/ Wemme, Welches and Rhododendron.

ATTACHMENT 6

Figure 5: Brightwood/Wemme Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users



Project ID	Type	Description
B1	Shoulder Widening	Marmot Road shoulder widening
B2	Shoulder Widening	Barlow Trail Road Principle Active Transportation Route (option A and B)
B3	Shoulder Widening	Coalman Road shoulder widening
B4	Shoulder Widening	Cherryville Road shoulder widening
B5	Shoulder Widening	Sleepy Hollow Road shoulder widening
B6	Shoulder Widening	Brightwood Loop shoulder widening
B7	Crossing	US 26 undercrossing wayfinding
B8	Streetscape Tools	Transit Wayfinding

Source: Clackamas County Transportation Department (2015), Metro RLIS (2015), CH2M (2015)

2.1 Brightwood/Wemme Area (B1-B8)

Clackamas County identified projects in its Transportation System Plan (CCTSP) that reflect many of the same priorities identified by the PAC, TAC and public. These include adding paved shoulders to Marmot Road, Barlow Trail Road, Coalman Road and Arrah Wanna Boulevard.

B1: Marmot Road shoulder widening Medium Priority $$$$

Potential Improvement Recommendation: Widen Marmot Road shoulder to 4 feet on each side from The Villages boundary to Barlow Trail Road.

Marmot Road is classified as a Clackamas County Active Transportation Route in the County's Active Transportation Plan (CCATP), but lacks a facility adequate for pedestrians or bicyclists. The cross-section of Marmot Road is comprised of one 10-11-foot travel lane in each direction with a 0-1-foot-wide shoulder that is lacking fog lines defining the shoulder.

Marmot Road needs a widened shoulder to provide an adequate facility for pedestrians and bicycles. Adding paved shoulders to Marmot Road is identified as project #3167 in the CCTSP as a Long-term Capital Project. This project is also in accordance with the CCATP. Marmot Road is classified as a minor arterial. The standards in the CCTSP dictate that a typical section include a 6-foot bike lane and 6-foot pedestrian facility on each side of the street. Tight right-of-way constraints preclude this level of improvement in the near term.

Improvement Description: Add a 4-foot-wide paved shoulder along each side of Marmot Road with advisory signing to alert drivers to the presence of bicyclists and pedestrians along the route (Figure 6).

Benefits: Provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. It would benefit both residents and recreational users.

Figure 6: Example of shoulder widening

Considered and Not Recommended: Bike lanes, pedestrian paths and multiuse paths -- each would require additional right-of-way and construction expense not justified by the current level of use.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

B2: Barlow Trail Road Principal Active Transportation Route (Option A and B) High Priority A - $$$$ and B - $$$

Barlow Trail Road is classified as a Clackamas County Principal Active Transportation Route, but lacks a facility adequate for pedestrians or bicyclists. The cross-section of Barlow Trail Road is comprised of a single 11-12-foot travel lane in each direction with a total paved width varying between 22-25 feet, leaving little to no shoulder for pedestrian and bicycle use. Residential development along Barlow Trail Road would be served by improvements to this route.

The preferred improvement to Barlow Trail Road would be a shared path to separate bikes and pedestrians from vehicular traffic. Adding paved shoulders to Barlow Trail Road is identified in the CCTSP as a Long-term Capital Project (#3166). This project is also in accordance with the CCATP. STRAVA data, voluntarily recorded by riders tracking their riding performance, demonstrates Barlow Trail Road is one of the most popular area bicycle routes, and provides a parallel through route to US 26 (Appendix B). The Sandy Ridge mountain bike trail system is accessed by bicycle riders off of Barlow Trail Road.

It is unlikely that funding could be secured for a path; therefore, a widened shoulder to provide adequate space for pedestrians and bicyclists is recommended. Barlow Trail Road is classified as a minor arterial which per the CCTSP is a typical section that includes a 6-foot bike lane and 6-foot pedestrian facility on each side of the street. Tight right-of-way constraints, trees and drainage ditches preclude this level of improvement.

Improvement Description Option A

Strategically add a 4-foot wide shoulder from Sleepy Hollow Road to Lolo Pass Road in key areas to facilitate walking and bicycle riding.

Determining strategic, spot improvements requires a topographic survey to determine sight-distance limitations. Criteria for future projects to use to determine key locations where widened shoulders would best serve bicycle riders are:

- Areas where bicycle riders face a steep uphill section, which requires survey and/or as-built records
- Areas of limited sight-distance around a curve or up a hill

Figure 7: Mountain biker in Sandy Ridge Trail System

Benefits: Provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. The project benefits both residents and recreational users.

Improvement Description Option B

Widen the Barlow Trail Road shoulder to 4 feet on each side from Sleepy Hollow Road to Lolo Pass Road, with advisory signing to alert drivers to the presence of bicyclists and pedestrians along the route.

Figure 8: Example of Bike Advisory Sign

Residential development, which is more predominant along Barlow Trail Road, would be served by improvements to this route.

As previously mentioned, Barlow Trail Road is classified as a Principal Active Transportation Route and bicycle tourism is being promoted along this route. These factors along with the greater residential development led to this recommendation. Some signage does exist on the road and additional signage is recommended

due to the heavier usage of the route. Residents and recreational users would all benefit from these improvements.

This level of improvement has right-of-way constraints, cost constraints and potential objections from residents along Barlow Trail Road.

Benefits: Provide a continuous space for pedestrians and bicycle riders, and access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. It would benefit both residents and recreational users.

Considered and Not Recommended: Bike lanes, and pedestrian and multiuse paths. The tight right-of-way and construction expense eliminated these facilities from consideration in the near-term. This Plan recommends that any proposed projects avoid impacts to the ditches running parallel to Barlow Trail Road as this would greatly increase construction costs.

Public Feedback and Discussion	Project Team Response
Public feedback included that Barlow Trail Road is too narrow for cars, bicycles and pedestrians, but is used by all. It is a primary route for bicycle riders and provides access to the Sandy Ridge Trail System. There are concerns with volumes and speeds of truck traffic in and out of the gravel pit off Barlow Trail Road. Some requested consideration of a separated path instead of shoulder widening. The public preferred Option B, full shoulder widening instead of spot treatment, but acknowledged the need to evaluate its feasibility.	In response to public feedback, this Plan recommends a phased approach beginning with Option A. Targeted shoulder widening in critical areas (in places with sight distance issues or an uphill section) will be built first. Later phases will include full widening throughout the entirety of the corridor. The improvement will meet shoulder standards of 4 feet.

B3: Coalman Road Shoulder Widening *Low Priority $$$*

Potential Improvement Recommendation: Widen Coalman Road shoulder to 4 feet on each side from The Villages boundary to Baty Road.

Coalman Road, classified as a collector according to the CCTSP, has one 11-foot travel lane in each direction and no paved shoulder. Coalman Road is outside the project boundary, but was included in the Existing Conditions Memorandum, and adding paved shoulders to Coalman Road is project #3039 in the Long-term Capital Project list in the CCTSP. The CCTSP shows the typical section for a collector 6-foot bike lane and 6-foot pedestrian facility on each side of the street. Tight right-of-way constraints, trees and drainage ditches preclude this level of improvement in the near term.

Improvement Description: Adding a 4-foot wide paved shoulder along each side of Coalman Road. Due to its location outside the study area and lower vehicle volumes, this project is a lower priority.

Benefits: Provide pedestrian and bicycle access to key destinations, including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. Improvements would primarily serve residents.

Public Feedback and Discussion
The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

B4: Cherryville Road Shoulder Widening *Low Priority $$$*

Project Recommendation: Widen Cherryville Road shoulder to 4 feet on each side from The Villages boundary to US 26.

Cherryville Road, classified as a collector according to the CCTSP, has one travel lane in each direction and no paved shoulder. While improvements to Cherryville Road are not included in the CCTSP, they are recommended in this Plan to provide connectivity from Coalman Road to US 26. Tight right-of-way, trees and drainage ditches are challenges for any level of improvement.

Improvement Description: Add a 4-foot-wide paved shoulder along each side of Cherryville Road. The added space for pedestrians and bicycles would be beneficial, but the location and low volumes of users make it a lower priority for near-term improvement.

Benefits: Provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. Improvements would primarily serve residents.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

B5: Sleepy Hollow Road Shoulder Widening *Medium Priority $$*

Potential Improvement Recommendation: Widen Sleepy Hollow Road shoulder to 4 feet on each side from US 26 to US 26 (full extent).

Sleepy Hollow Road, classified as a collector according to the CCTSP, has one travel lane in each direction and no paved shoulder. Improvements to Sleepy Hollow Road are not included in the CCTSP. Tight right-of-way constraints, trees and drainage ditches are challenges for any level of improvement.

Improvement Description: Add a 4-foot-wide paved shoulder along each side of Sleepy Hollow Road. Traffic analysis did not support any improvements to Sleepy Hollow Road, based on vehicle traffic volumes being too low; however, feedback from the PAC and TAC contributed to this recommendation.

Benefits: Provide pedestrian and bicycle access to key destinations including the Brightwood Post Office, Brightwood Store and Brightwood Tavern. Improvements would primarily serve residents.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority. Within the pedestrian and bicycle system, Sleepy Hollow Road provides connections to other system facilities, such as Barlow Trail Road. This greater level of connectivity compared to other shoulder-widening improvements led to a medium priority ranking for the project.

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B6: Brightwood Loop Shoulder Widening *High Priority $$*

Potential Improvement Recommendation: Widen Brightwood Loop shoulder to 4 feet on each side from US 26 to US 26 (full extent).

Brightwood Loop, classified as a collector according to the CCTSP, has one travel lane in each direction and no paved shoulder. Improvements to Brightwood Loop are not included in the CCTSP, however the business cluster and transit stop are key destinations. The connection to Barlow Trail Road also elevates the need for improvements. Tight right-of-way constraints, trees and drainage ditches are challenges for any level of improvement.

Improvement Description: Add a 4-foot-wide paved shoulder along each side of Brightwood Loop. Traffic analysis did not support any improvements; however, feedback from the PAC and TAC contributed to this recommendation. Improvements at the intersections along Brightwood Loop would provide access to the business cluster on Brightwood Loop.

Benefits: Provide pedestrian and bicycle access to key destinations including the Mt Hood Express bus stop, Brightwood Post Office, Brightwood Store and Brightwood Tavern. Residents and recreational users would all benefit from the recommended improvements.

Public Feedback and Discussion

The public expressed moderate to high level support for this improvement, had no specific changes and ranked this improvement higher than others due to the connections to destinations and other system facilities offered via Brightwood Loop.

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B7: US 26 Undercrossing Directional Signs *High Priority $*

Improvement Recommendation: Provide informational/directional signage to direct pedestrians and bicycle riders to an existing undercrossing of US 26

Figure 9: The underpass is in good condition, but not widely known by recreational riders or even residents in the area.

Figure 10: Entrance to the US 26 underpass for bicycle riders and pedestrians

There is an undercrossing of US 26 at Salmon River that is vastly underused primarily due to the lack of knowledge of its existence.

Potential Improvement: Directional signage to the undercrossing on Barlow Trail Road, US 26 and within the vicinity to help direct bicycle riders and pedestrians to the undercrossing of US 26 accessed via Country Club Road. Directing bicycle riders to the undercrossing would allow those eastbound on the south side of US 26 to cross grade-separated, and access Brightwood Loop and Barlow Trail Road. Signage at intersections along Brightwood Loop and Barlow Trail Road would provide information on how to access key destinations.

Benefits:

Bicycle riders eastbound on US 26 and trying to cross US 26 to access Brightwood Loop or Barlow Trail Road, for a parallel through route or because they have a destination on those roads, would benefit from knowing about this undercrossing. Use of the undercrossing instead of crossing at-grade on US 26 has tremendous safety benefits and directional signage is relatively low cost. Residents in the area would also benefit from the undercrossing and could use it as a walking path. The improvement has potential to benefit bicycle riders and pedestrians, with recreational or access purposes.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority due to the relative ease of implementation and low cost.

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B8: Transit Park and Ride Directional Signage *Medium Priority $*

Potential Improvement Recommendation: Provide directional signage at Hoodland Senior Center Park and Ride.

No signage currently marks the transit stop and the park-and-ride location at the Hoodland Senior Center. This stop is primarily used by residents.

Improvement Description: Adding signage along US 26 and onsite for the transit stop at the Hoodland Senior Center.

Benefits: Underutilization of RV parking allows for easy bus circulation and provides all-day parking for vehicles. The location just off US 26 makes the area an attractive spot to advertise the park-and-ride capability. Calling attention to the park-and-ride could attract riders traveling to the stop by car from a broader area. This addition would benefit transit users in the area, who are primarily residents.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements as a higher priority.

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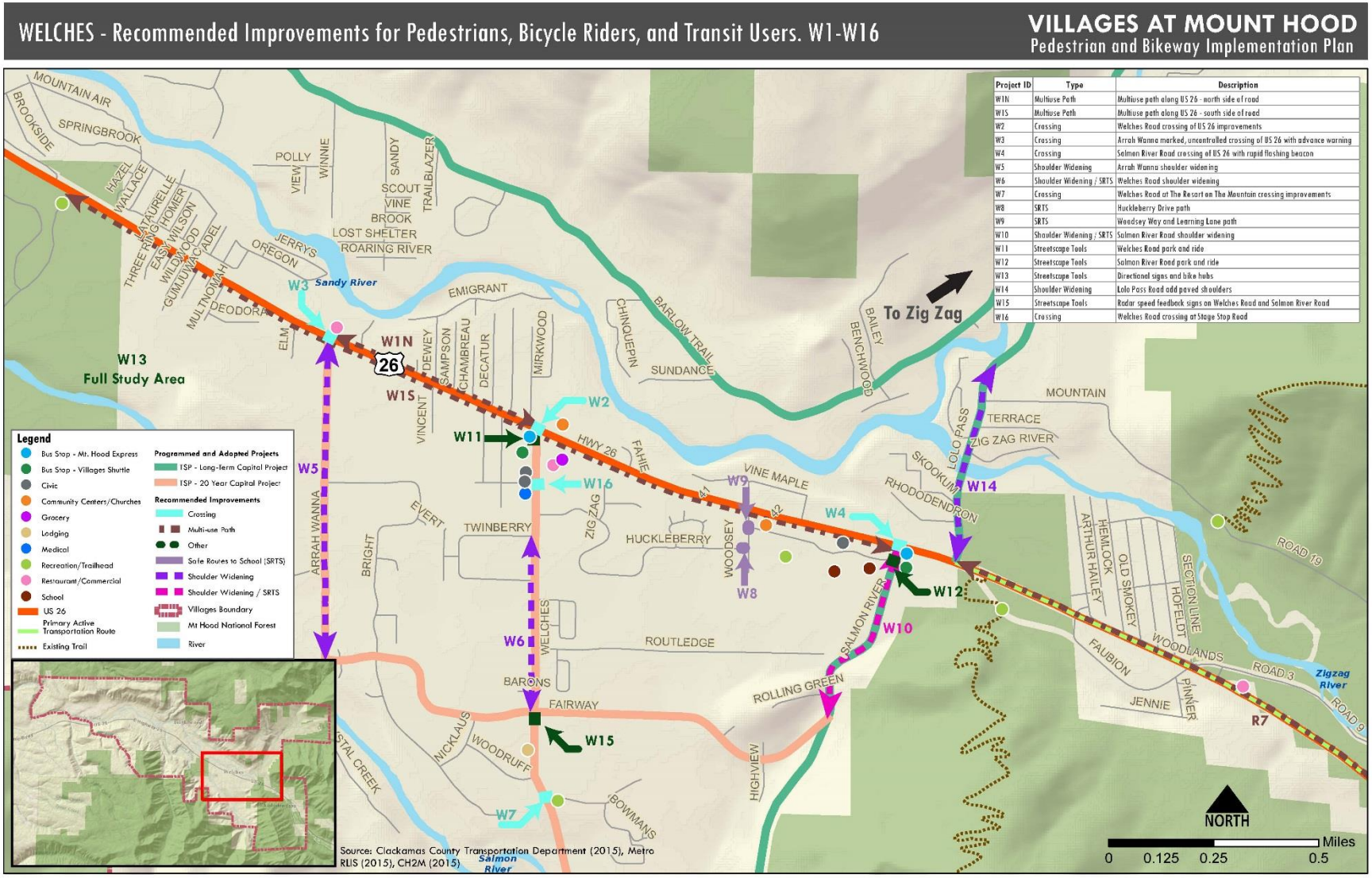
Figure 11: Welches Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users



Project ID	Type	Description
W1N	Multiuse Path	Multiuse path along US 26 - north side of road
W1S	Multiuse Path	Multiuse path along US 26 - south side of road
W2	Crossing	Welches Road crossing of US 26 improvements
W3	Crossing	Arrah Wanna marked, uncontrolled crossing of US 26 with advance warning
W4	Crossing	Salmon River Road crossing of US 26 with rapid flashing beacon
W5	Shoulder Widening	Arrah Wanna shoulder widening
W6	Shoulder Widening / SRTS	Welches Road shoulder widening
W7	Crossing	Welches Road at The Resort on The Mountain crossing improvements
W8	SRTS	Huckleberry Drive path
W9	SRTS	Woodsey Way and Learning Lane path
W10	Shoulder Widening / SRTS	Salmon River Road shoulder widening
W11	Streetscape Tools	Welches Road park and ride
W12	Streetscape Tools	Salmon River Road park and ride
W13	Streetscape Tools	Directional signs and bike hubs
W14	Shoulder Widening	Lolo Pass Road add paved shoulders
W15	Streetscape Tools	Radar speed feedback signs on Welches Road and Salmon River Road
W16	Crossing	Welches Road crossing at Stage Stop Road

2.2 Welches (W1-W16)

W1S: Multiuse Path along US 26 *High Priority* *$$*

Improvement Recommendation: Construct a multiuse path along US 26, along the south side, between the Wildwood Recreation Site and Salmon River Road. This improvement is the recommended near-term phase of building an eventual path network to connect the full length of The Villages – from Brightwood to Rhododendron.

A dirt path, which has been worn down by pedestrians, parallels US 26 along the south side between Arrah Wanna and Salmon River Road. This area has the greatest concentration of destinations within the study area. Pedestrians regularly use the informal dirt paths to access destinations. The existing condition is not up to standard and uncomfortable for pedestrians because they are walking in marginal areas on uneven surfaces. Bike lanes on US 26 are provided for bicycle riders, but most riders find riding adjacent to high speeds and high traffic volumes intimidating and forgo riding their bicycle.

Improvement Description: Formalize the existing demand path to a multiuse path for bicycle riders and pedestrians. The preferred width for a multiuse path is 12 feet with 2-foot shoulders; however, 10 feet could be used as a minimum width where there are right-of-way constraints. Projects located on ODOT facilities are subject to ODOT review and approval.

Figure 12: Example of a shared use path

A multiuse path in this location could be concrete, asphalt or permeable pavement. Concrete is the most expensive option, however it lasts longer and requires less maintenance. Permeable pavement requires maintenance twice a year (sweeping to remove debris and moss), however any concerns with water runoff and stormwater are greatly reduced because water does not collect on or run-off the surface. Permeable pavement should be evaluated as a possible approach when the project is being developed, with consideration given to environmental priorities as well as ease of maintenance. For estimating purposes, concrete construction was calculated.

Although there are currently no plans to widen US 26, these pedestrian and bicycle improvements should be preserved if US 26 is ever widened. Likewise, during project development, the multiuse path should be located outside of potential future widening areas.

The paved section of US 26 is 73 feet wide. Analysis of US 26 right-of-way shows that available right-of-way for the entire extent of the path is 100-150 feet, providing ample room for a path on the south side. During project development, the site would need to be surveyed to determine precise right-of-way availability. It is likely the path would be able to be constructed within existing right-of-way; therefore, adjacent property owners would not have a liability for maintenance.

Benefits: Residents, transit users, lodging users, recreational users and any wheeled users who cannot navigate uneven dirt surfaces, such as wheelchair users and bicycle riders, would have better access to shopping, lodging, restaurants and transit stops.

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Public Feedback and Discussion	Project Team Response
Of all of the proposed improvements, this project received the strongest support from the public and the highest priority. During the public workshop, attendees expressed concern for adjacent property owners' liability and called for greater lighting in the area in conjunction with a path. Workshop attendees also suggested some type of physical barrier from traffic.	This is the top priority. Analysis demonstrates ample available right-of-way for path construction (geometric survey would be required for a precise assessment during project development). With the ability to construct the path within right-of-way, adjacent property owners would not have liability for the path. However, this Plan recommends property owners be consulted during the project development process, and community advocates for the path could help during these discussions. Pedestrian lighting has been added as an element of the improvement. A maintenance agreement for the path will be evaluated by partner agencies.

W1N: Multiuse Path along US 26 *High Priority* *$$*

Improvement Recommendation: Construct a multiuse path along US 26, the north side, between Arrah Wanna Boulevard and Welches Road. Like Project W1S, this improvement is the recommended near-term phase of building an eventual path network to connect the full length of The Villages – from Brightwood to Rhododendron.

A dirt path, worn down by pedestrians accessing business clusters off US 26 in Wemme and Welches, parallels US 26 along the north side between Arrah Wanna and Welches Road. Most destinations are on the south side of US 26, and this improvement would provide access to the crosswalk and signal at Welches Road. The existing path is not up to standards and uncomfortable for pedestrians because they are walking in marginal areas on uneven surfaces. Bike lanes on US 26 are provided, but most riders find riding adjacent to high speeds and high traffic volumes intimidating and forgo riding their bicycle.

Potential Improvement

Formalize this demand path to a multiuse path for bicyclists and pedestrians. The preferred width for a multiuse path is 12 feet with a 2-foot shoulder; however 10 feet could be used as a minimum width where right-of-way constraints exist. The design would be subject to ODOT approval.

Similarly to the south side path, concrete has been used for estimating purposes.

Although there are currently no plans to widen US 26, these pedestrian and bicycle improvements should be preserved if US 26 is later widened. Likewise, during project development, the multiuse path should be located outside of potential future widening areas.

The paved section of US 26 is 73 feet wide. Analysis of US 26 right-of-way shows that available right-of-way for the entire extent of the path is 100-150 feet, providing ample room for a path on the south side. During project development, the site would need to be surveyed to determine precise right-of-way availability. It is likely the path would be able to be constructed within existing right-of-way; therefore, adjacent property owners would not have a liability for maintenance.

Benefits

Residents, transit users, lodging users, recreational users and any wheeled users who cannot navigate uneven dirt surfaces, such as wheelchair users and bicycle riders, would have better access to shopping, lodging, restaurants and transit stops.

Public Feedback and Discussion	Project Team Response
Of all of the improvements, this improvement received the second highest support, second to the south path. During the public workshop, attendees expressed the same concerns as they did for the south path: adjacent property owners' liability, greater lighting in the area in conjunction with a path and the desire for some type of physical barrier.	This Plan ranks this improvement as the second top priority. Right-of-way analysis demonstrates ample right-of-way for path construction (geometric survey would be required for a precise assessment during project development). With the ability to construct the path within right-of-way, adjacent property owners would not have liability for the path. However, the Plan recommends property owners be consulted during the project development process. Pedestrian lighting has been added as an element of the improvement.

W2: Crossing Improvements on US 26 at Welches Road *Medium Priority* *$*

Potential Improvement Recommendation: Construct sidewalk and relocate pedestrian activation buttons to be ADA compliant at Welches Road Crossing of US 26.

There is a signal at the Welches Road intersection. The signal controls and intersection grading need improvements to meet current standards. The existing ramp facilities appear to be compliant with Americans with Disabilities Act (ADA) standards, however each corner should be surveyed.

The project team reviewed signal timing and used the crosswalks. Neither demonstrated a need to adjust signal timing and pedestrian crossing times are adequate.

Improvement Description

Construct sidewalk between ADA ramps on the northwest and northeast corners of the intersection. Coupled with multiuse paths recommended above, this signal would become more safely and comfortably accessible by pedestrians and bicycle riders. Relocate pedestrian activation buttons and add pedestrian countdown controls to each corner. Topographically survey the existing ADA ramps to ensure their compliance with applicable standards.

Benefits

Enhanced pedestrian access to key destinations at the intersection with US 26 for residents, lodging users, transit users and recreational users. Those in wheelchairs would benefit from compliance with ADA standards. Improved connectivity to the recommended multiuse path paralleling US 26.

Public Feedback and Discussion
The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

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W3: Arrah Wanna Boulevard Crossing of US 26 *Medium Priority* *$*

Potential Improvement Recommendation: Create an uncontrolled crossing of US 26 at Arrah Wanna Boulevard, with a continental style crosswalk.

Figure 13: Rendezvous Grill on US 26 in the vicinity of Arrah Wanna

A cluster of restaurants is located in the vicinity of the Arrah Wanna Boulevard intersection with US 26. The number of restaurants and businesses at this location create pedestrian demand to cross at this location.

Improvement Description

Install a continental style crosswalk, accompanied by roadway and streetscape improvements.

Drivers respond to visual cues along the roadway more so than marked signs. Visual cues that indicate to drivers that pedestrians may be present or crossing are sidewalks and curbs, clearly defined driveways, pedestrian scale lighting and curb extensions to narrow the visual roadway width. Additional cues such as buildings adjacent to the roadway with parking in the rear further emphasize an orientation towards pedestrians. Using a toolkit of streetscape elements added over time can contribute to a more safe and pleasant pedestrian environment.

To reduce conflicts and traffic, backage roads for property and parking access are recommended. Based on mapping data, geographic constraints would not limit construction of backage roads; however geometric survey would be required to precisely evaluate the possibility. This Plan recommends any crossing of US 26 to be implemented in conjunction with these streetscape elements. The crossing itself would be controlled with a high visibility treatment such as a rectangular rapid flashing beacon and continental style crosswalk.

Figure 23 demonstrates how these elements would come together to create a pedestrian-oriented environment and safer crossing conditions. Implementation of the range of improvements requires partnership and support from various agencies such as ODOT and the BLM. A collaborative effort would need to be undertaken to apply for grants and leverage redevelopment as it occurs.

ORS 366.215 states the Oregon Transportation Commission may not permanently reduce the vehicle-carrying capacity of an

Creating a Pedestrian Environment for US 26 Crossings

Drivers respond to visual cues more so than signs. A streetscape that cues drivers to the presence of pedestrians creates a safer crossing environment. This Plan presents a toolkit of elements that could be combined to accompany a crossing of US 26.

- Sidewalks and curbs
- Consolidated and clearly defined driveways
- Pedestrian scale lighting
- Curb extensions or bulb-outs
- Gateway signs at the entrance of a village
- A crosswalk with rapid flashing beacons and a refuge island for pedestrians
- Temporary speed detectors so drivers know how fast they are driving and if they are over the limit

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identified freight route; US 26 is a freight route. This regulation requires that 26 feet of clear space be maintained on the roadway. Right-of-way is wide enough to accommodate this required clear space in conjunction with a continental style crossing with a pedestrian refuge island.

Benefits

Providing a marked crosswalk to key destinations at the intersection with US 26 would benefit residents, lodging users and recreational users. Improved connectivity to the recommended multiuse path paralleling US 26.

Public Feedback and Discussion

The public supports crossings of US 26; however, this particular crossing received modest support relative to other projects within the Welches area, and relative to other proposed locations for US 26 crossings described in this plan.

W4: Salmon River Road Crossing of US 26 *High Priority* *$*

Improvement Recommendation: Install an enhanced crossing using treatments such as a rectangular rapid flashing beacon at the Salmon River Road crossing of US 26.

Figure 14: Example of an advance warning beacon

An uncontrolled crossing of US 26 at Salmon River Road, marked by a continental style crosswalk, provides access to a Mt. Hood Express transit stop, schools and other destinations including the Lions Club. Transit riders regularly use this crosswalk to access transit stops. Although the school does not encourage students to cross US 26, there are numerous events at the school that increase the potential for vulnerable users to cross US 26 at this location.

Improvement Description

Install an enhanced crossing, such as a rectangular rapid flashing beacon at the Salmon River Road crossing of US 26.

Change visual cues to drivers through streetscape improvements, such as sidewalks and curbs, few and clearly defined driveways, pedestrian-scale lighting and curb extensions to narrow the visual roadway width. Additional cues such as buildings adjacent to the roadway with parking in the rear further emphasize an orientation towards pedestrians.

Considered but Not Recommended

An under or overcrossing was ruled out for several reasons. Placement of the entrance and exit would be considerably setback from US 26, due to the required clearances for each structure. Pedestrians seek the shortest path, and under and overcrossings require out-of-direction travel. They also create points of isolation, and people can have concerns for their personal safety, especially at night or with low use. The very high cost for such structures would be difficult to justify given the limited potential of crossing use.

A High-intensity Activated Crosswalk (HAWK) was considered. However, pedestrian counts conducted for the traffic analysis showed the pedestrian volumes did not justify this level of improvement.

Benefits

Enhanced existing marked crosswalk to residential areas, Welches Elementary and Middle Schools (as a community activity hub) and transit stops, at the intersection with US 26 for residents, lodging users, transit users and recreational users. Improved connectivity to the recommended multiuse path paralleling US 26.

Figure 15: Zig Zag Café on US 26 in the vicinity of Salmon River Road

Public Feedback and Discussion	Project Team Response
PAC members were in strong support of this crossing because Welches is the largest population center within The Villages at Mt. Hood. Welches Elementary and Middle Schools on Salmon River Road are an activity hub within the community. The nearby firehouse also acts as neighborhood hub. A crossing enhancement at Salmon River Road is most helpful if a path connection is created on the north side of US 26 to Lolo Pass Road, which would provide a needed connection to residential areas along Lolo Pass Road.	The project team recognizes the importance of this crossing due to the nearby confluence of activity hubs and population centers. This crossing is a high priority, but is proposed to follow a proposed crossing improvement in Rhododendron based on Rhododendron's existing roadway and development characteristics that have more pedestrian-oriented streetscape elements. Installing a crosswalk and flashing beacon in Rhododendron would serve immediate pedestrian needs, while also training drivers to expect crossings in The Villages on US 26.

W5: Arrah Wanna Shoulder Widening *Medium Priority* *$$*

Potential Improvement Recommendation: Add a 4-foot wide paved shoulder along each side of Arrah Wanna Boulevard between US 26 and Fairway Avenue.

Arrah Wanna Boulevard is classified as a collector according to the CCTSP. The facility has one travel lane in each direction and no paved shoulder, with total roadway width varying from 18-21 feet. Improvements to Arrah Wanna Boulevard are not included in the CCTSP; however, feedback from the PAC and TAC contributed to this project recommendation to add a paved shoulder along each side between US 26 and Fairway Avenue. PAC and TAC members noted that the boulevard serves many residential neighborhoods.

Improvement Description: Add a 4-foot-wide paved shoulder along each side of Arrah Wanna Boulevard.

Benefits: Provide pedestrian and bicycle access to key destinations including the restaurant cluster at the intersection with US 26 for residents, transit users and recreational users . Provide connectivity to the recommended multiuse path paralleling US 26 and recommended crossing improvement.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

W6: Welches Road Shoulder Widening and Multiuse Path *High Priority* *$$*

Improvement Recommendation: Widen shoulders and/or develop a multiuse path on Welches Road. The improvement should span from US 26 to Fairway Avenue.

The shoulder along Welches Road is narrow or nonexistent and pedestrians have to cross from side to side to find space to walk along the road. Options providing pedestrian and bicycle access considered including a multiuse path, a widened shoulder or a combination. The CCTSP shows adding paved shoulders in the Long-term Capital Projects list (#3056).

Welches Road is a key to providing Safe Routes to School and safe access to popular destinations. Many pedestrians use this roadway because of the density of residences and lodging along Welches, and the commercial cluster, including the largest supermarket in the Villages, at the intersection of Welches Road and US 26.

Figure 16: Existing walking conditions on Welches Road

Improvement Description

Install a multiuse path, a widened shoulder or a combination of each. The long-term vision for Welches Road is to have a multiuse path along at least one side to provide separation between cars, and pedestrians and bicycles. While greater separation of users is preferred, widened shoulders may be an appropriate interim measure until a multiuse path can be built.

Shoulder-widening on Welches Road is particularly needed between Fairway Avenue and Huckleberry Drive. This segment of roadway is important for providing Safe Routes to Schools. The widened shoulder should be expanded to US 26, connecting residents and visitors along Welches Road to destinations and shopping on US 26.

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Benefits

Provide better access to shopping, lodging, restaurants and transit stops at the US 26 intersection for residents, transit users, lodging users, recreational users, school children and any wheeled users who cannot navigate ditches and uneven surfaces, such as wheelchair users.

Public Feedback and Discussion	Project Team Response
The improvement received strong support during the public workshop at a level equal with the multiuse paths along US 26. This corridor serves as a primary connection to destinations on US 26, but existing shoulders for walking or bicycling disappear into ditches. Community members expressed a desire to go beyond expanded shoulders to propose a multiuse path along Welches Road. A short multiuse path along Welches Road built as part of a private development was referenced as an example of a pleasant path. A future multiuse path should connect to the existing private path. Workshop attendees additionally urged the team to consider illumination because the area is extremely dark from tree cover. This limits the visibility of pedestrians and bicyclists.	This Plan recommends a multiuse path where feasible, and widened shoulders elsewhere. Reviewing mapping data, the right-of-way on Welches Road varies between 50 and 75 feet, with most places between 60 and 65 feet. The public expressed a preferences for a west side path; however it appears right-of-way is more available on the east side of the roadway. Based on mapping data, right-of-way may need to be acquired north of Fairway. PAC members have already started talking with property owners advocating for the project and gaining support. Continued efforts by community leaders will help project development. Geographic surveys will need to be conducted during project development to precisely understand the availability of right-of-way. The project recommends lighting that is cast down and in accordance with night sky ordinances. The lights should be illuminated during day and night. Finally, secure bike parking can be placed at the nearby trailheads for the Old Salmon River Trail and others. This would complement a multiuse path and widened shoulders, and create multimodal access to the trails.

W7: Welches Road at The Resort at the Mountain *High Priority* *$*

Crossing Improvements

Potential Improvement Recommendation: Enhance existing crossing by adding advance warning signs and a split rapid flash beacon.

The Resort at the Mountain on Welches Road has constructed a painted crosswalk to provide connections between their lodging and the golf, spa and event facilities. Visitors, staff and residents frequently cross at the crosswalk. Although the crossing is in place, it is in an area of poor sight distance due to both horizontal and vertical curves in the road—the crossing is just north of a large hill.

Improvement Description

Improve the visibility of the crossing by adding advance warning signs and a split rapid flash beacon. Split flashing beacons offer flashing warnings both at the site of the crosswalk and down the approaching roadway to provide advance warning. On Welches Road, the beacon would need to be placed on the hill south of the crossing to provide drivers with advance warning where their sight distance is limited. Low level lighting at the crosswalk should also be considered to provide increased visibility for pedestrians.

Figure 17: Crossing of Welches Road at The Resort at the Mountain

Benefits

Benefit to residents, school children, recreational users, lodging users and staff. Based on site visits and public input, this is one of the most popular non-US 26 pedestrian crossing locations in the study area.

Public Feedback and Discussion

This project received strong support from the PAC and lower support during the public open house. Given the mixed support and the existence of a marked crosswalk now, the improvement is a high priority because it is a safety feature for a location with frequent pedestrian crossings.

W8: Huckleberry Drive Path *Low Priority* *$*

Potential Improvement Recommendation: Formalize demand-path connecting Huckleberry Drive and Woodsey Way to create direct Safe Routes to School path.

Huckleberry Drive offers direct access from Welches Road to the Welches Elementary and Middle Schools (via Woodsey Way and Learning Lane). Currently, a gap exists between Woodsey Way and Huckleberry Drive. In place of sidewalks, pedestrians - primarily school children - have worn a dirt path.

Improvement Description

Formalize a demand-path connection to connect a 20-30-foot gap between Huckleberry Drive and Woodsey Way. The path would be a Safe Routes to School improvement, providing access to the school away from US 26, and ideally would be a minimum of 10 feet wide and constructed with permeable pavement. Ownership of right-of-way along the route is unknown, and is likely private. County investments cannot be made on private property, requiring any improvements be made by the owner or other partnerships with the approval of the property owner.

Benefits

The location is in a fairly dense residential area and close to Welches Elementary and Middle Schools. The connection would primarily benefit residents and school children, and is already being informally used as an alternative to US 26.

Public Feedback

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority. The existing path is safe for walking, and due to the unknown ownership status of the area, the improvement was ranked as a low priority.

W9: Woodsey Way and Learning Lane Path *High Priority* *$*

Potential Improvement Recommendation: Construct path along Woodsey Way that connects to the existing sidewalk on Cedar Hill Terrace and add crossing enhancements.

Path improvements on Woodsey Way would provide a continuation of the proposed trail on Huckleberry Drive, and connect to the existing sidewalk between Cedar Hill Terrace and Woodsey Way. As the potential path continues on Woodsy Way, it would reach an intersection at Learning Lane, which provides direct access to the schools and the ball fields to the west of the school buildings. Learning Lane is not a County-owned facility, so the County would have to collaborate with the owners to implement proposed improvements.

Improvement Description

A proposed path along Learning Lane on the north side of the road to avoid conflicts with parking and access to sports fields. A crossing of Learning Lane to the school facilities is best placed at the west end of the observed parking areas. Learning Lane is owned by the school district, which would therefore be responsible for implementation.

To make this route complete and safe for school children to use, a painted crosswalk with advance signing should be considered at the intersection of Huckleberry Drive and Welches Road as a Safe Routes to School improvement. A path along the west side of Welches Road between Rutledge and Twinberry with a painted crossing at Twinberry Loop would provide access to the school children in these developments.

More secure bicycle parking at the schools would support the staff and students who bicycle to school. Existing bicycle parking at the school is dilapidated and should be replaced with staple-style racks.

Benefits

This project would benefit residents and primarily school children in one of the densest residential areas of the study area. Crossing enhancements would improve the visibility of school children walking and bicycling, and would reduce conflicts amongst modes.

Public Feedback

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

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W10: Salmon River Road Shoulder Widening *High Priority* *$$*

Potential Improvement Recommendation: Add paved shoulders or a path to Salmon River Road between US 26 and Fairway Ave.

Salmon River Road is classified as a minor arterial, and lacks pedestrian and bicycle facilities, particularly for school access. Both Welches Elementary and Middle Schools are located on Salmon River Road. Adding paved shoulders to Salmon River Road between US 26 and Welches Road is project #3052 in the CCTSP Long-Range Capital Projects list.

Improvement Description

Widened shoulders between US 26 and Fairway Avenue. In the longer-term, a multiuse path along the roadway is preferred.

Benefits

Provide optimal access to schools and the Mt. Hood Express bus stop for residents, transit riders and school children.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

W11: Welches Road Park and Ride *Medium Priority* *$*

Potential Improvement Recommendation: Pave and formalize existing Welches Mt. Hood transit stop location to create a park and ride.

The Mt. Hood Express transit stop is in the southwest corner of the Welches Road/US 26 intersection in an empty gravel lot owned by The Resort at the Mountain. This could provide an ideal location for a park and ride facility. Signage along US 26 alerting recreational users to the presence of the stop could increase awareness of the transit service.

Improvement Description

The County should partner with The Resort at the Mountain to pave the empty lot at the Mt. Hood Express Welches transit stop. Formalize the lot with delineated parking to create a park and ride and provide directional signage for transit users.

Benefits

This project would benefit transit riders, residents, lodging users and recreational users by allowing them to drive and park to access transit.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

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W12: Salmon River Road Park and Ride *Medium Priority* *$*

Potential Improvement Recommendation: Formalize Mt. Hood Express Salmon River Road stop with delineated parking and directional signage for a park and ride.

A Mt. Hood Express stop is located along the east side of Salmon River Road just south of US 26 and directly across from Welches Middle School. This stop is located on a County-owned parcel and also has ample space for a park-and-ride facility. The riders that utilize this stop are mostly commuters along with some recreational users.

Improvement Description

Formalize the Mt. Hood Express Salmon River Road stop with delineated parking and directional signage to create a park-and-ride.

Benefits

This project would primarily benefit transit users, including commuters and some recreational users.

Public Feedback and Discussion

The public and PAC expressed general support for this improvement, had no specific changes and ranked other improvements at a higher priority.

W13: Directional Signs and Bike Hubs *Medium Priority* *$*

Potential Improvement Recommendation: Enhance pedestrian and bicycle accessibility within the area with the strategic placement of directional signage and bike hubs.

With the addition of the various pathways and widened shoulders, signage is key to directing users to bicycle/pedestrian/Safe Routes to School and key destinations within the area. Bike hubs would provide bicycle amenities in the area, such as secure sheltered parking, a bench, basic bike tools and other amenities that support bicycle riding. Directional signs and bike hubs support economic development and tourism goals for the area.

Improvement Description

Locate directional signs along US 26, Barlow Trail Road and at each major intersection. Add signs providing direction to the transit stops and park and rides.

Add bike hubs at key locations along US 26 to better allow long-distance bicycle riders to stop and patronize businesses. Potential locations for a bike hub within the Plan study area include the plaza at the Hoodland Shopping Center and the business cluster in Rhododendron. Bike hubs could also be located elsewhere throughout the US 26 corridor and bicycling destinations, such as the Sandy Ridge Trail System.

Bike hubs would at least have high-security, covered bike parking that could also be functional art. Other features could include a water fountain (where feasible), loaner locks or built-in locks, seating, pump, simple bicycle repair tools and directional signage to destinations within the area. Bike hubs can be designed with a consistent look for community branding.

Benefits

Directional signs and bike hubs would support bicycle tourism and economic development goals for the area, and would provide convenience and recreational opportunities for residents.

Public Feedback and Discussion
The public and some members of the PAC expressed strong support for this improvement, and suggested branding efforts to emphasize the corridor as a ride that is welcoming to visitors.

W14: Lolo Pass Road Paved Shoulders *High Priority* *$$*

Potential Improvement Description: Widen shoulders to 4 feet along Lolo Pass Road. The highest priority is between US 26 and Barlow Trail Road.

Although Lolo Pass Road does have an 1-2-foot shoulder, it is classified as a minor arterial and needs improved pedestrian and bicycle facilities. Adding paved shoulders to Lolo Pass Road is project #3048 in the CCTSP and is also noted in the ATP.

A safety analysis is also included in the CCTSP. A traffic signal warrant analysis for the intersection with US 26 completed as part of this study determined that, although a signal is warranted on US 26, it is not warranted on Lolo Pass Road. Per guidance in the Manual on Uniform Traffic Control Devices (MUTCD) and results from ODOT's Preliminary Signal Warrant Analysis worksheet, a traffic signal warrant is not met. The warrant volumes must be met on both approaches to be considered for a controlled intersection.

Improvement Description

Widen existing 1-2-foot shoulders to 4-foot shoulders along Lolo Pass Road.

Benefits

This project would benefit residents in the area for their walking and bicycle riding needs, and benefit recreational bicycle riders. STRAVA data, a smartphone tool primarily used by bicycle riders to track their riding and post information to social media, show that Lolo Pass Road is often used as a bicycle riding route.

Public Feedback and Discussion	**Project Team Response**
This improvement received strong support in the public workshop, nearly equal to paths along US 26 and Welches Road. Lolo Pass Road is a well-used bicycling route and provides access to many residential areas. The public expressed concern that the improvement will be expensive.	Currently the entire roadway alignment of Lolo Pass Road is being evaluated as part of the Lolo Pass Road Alternatives Analysis due to its periodic washouts. The Plan recommends integrating a shoulder-widening project with the recommended improvements from the Lolo Pass Road Alternative Analysis. Priority for shoulder widening is between US 26 and Barlow Trail Road, which is often used by bicycle riders and pedestrians.

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W15: Driver Speed Feedback Signs on *High Priority $*

Potential Improvement Description: Welches Road, Salmon River Road, lower Lolo Pass Road and US 26 in the vicinity of Rhododendron

Residents have described the presence of traffic with speeds above posted speed on both Welches Road and Salmon River Road. Permanent radar speed feedback signs would help with compliance of posted speed limits by making drivers aware of their travel speed. They are typically mounted on a speed limit sign and visually display drivers' real-time speeds as they pass. Drivers see how fast they are actually driving compared to the posted speed limit.

Improvement Description: Mount permanent radar speed feedback signs to keep drivers aware of their speeds and the need to slow down, especially near schools.

Benefits: Better speed limit compliance from motor vehicle drivers.

Public Feedback and Discussion	Project Team Response
This improvement received strong support in the public workshop. Participants added lower Lolo Pass Road as an additional location for a temporary radar speed feedback signs.	The County has a waiting list for radar speed feedback signs to be deployed and will add this location to the list. The highest priority location for a temporary radar speed feedback signs is on US 26 in the vicinity of Rhododendron.

W16: Welches Road Crossing at Stage Stop Road *Low Priority $*

Potential Improvement Description: Further evaluate the potential for a high visibility crosswalk across Welches Road at Stage Stop Road

This project was proposed by community members over the course of two open houses. Residents describe Stage Stop Road as a popular crossing location because it serves the Hoodland Shopping Center on the east side of the street, and the Post Office, Welches Library and other community destinations on the west side of the street. The proximity of Stage Stop Road to the stoplight at US 26 may pose a potential issue if the crosswalk results in significant vehicle queueing unseen to vehicles turning onto Welches Road from US 26. A formal traffic and queueing analysis would be conducted in advance of installing crossing treatments.

Improvement Description: Paint a high visibility continental-style crosswalk on Welches Road at Stage Stop Road, accompanied by pedestrian advance warning signs.

Public Feedback and Discussion
This improvement was initiated at the request of local residents who identified Stage Stop as a place where a high number of crossings currently take place. The team has added the crossing to the list of proposed project solutions while noting that a formal queuing study will need to take place due to the proximity to the stoplight at US 26.

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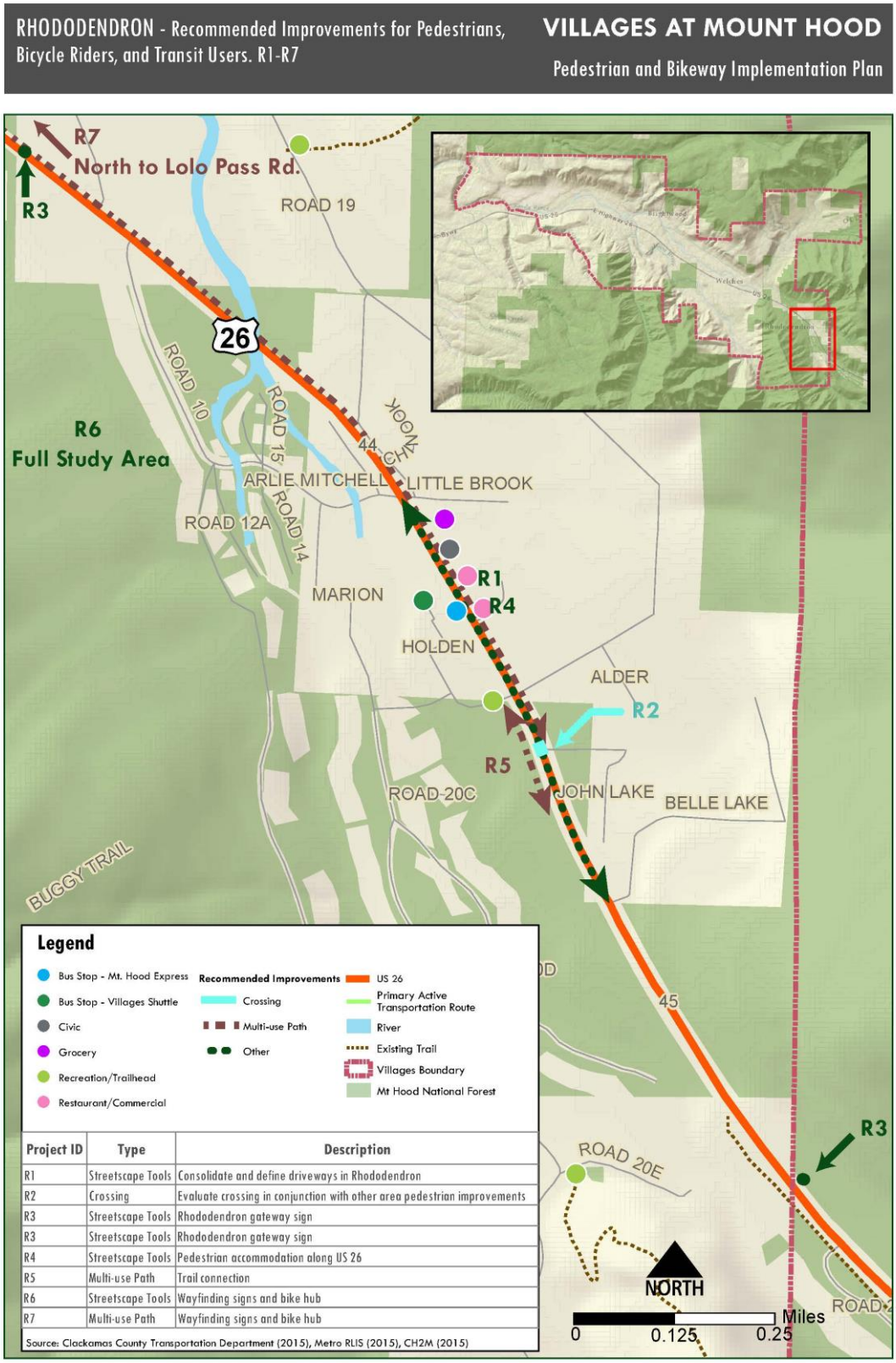
2.3 Rhododendron (R1-R7)

Figure 18: Rhododendron Potential Area Improvements for Pedestrians, Bicycle Riders and Transit Users



Various destinations are located along both sides of US 26 through Rhododendron, including restaurants, a market, and a bicycle and winter sport rental shop. The area has few defined access points, which allows vehicles to enter along much of US 26 and pedestrians to cross US 26 at undefined points inconsistently. The lack of access management creates a challenging condition that will require a series of improvements to achieve a safe pedestrian and bicycle environment.

Within Rhododendron, this Plan recommends a series of improvements to change visual cues to better indicate to drivers they are entering an area with active pedestrian and bicycle use. Those improvements are:

1) access management,

2) US 26 crossing improvement,

3) a gateway treatment to cue drivers that they are entering a developed area, and

4) a path with buffered landscape along US 26.

R1: Consolidate and Define Driveways in Rhododendron *High Priority $$*

Potential Improvement Recommendation: Consolidate and define driveways within Rhododendron through access management.

The current condition, with no access management, allows vehicles to enter and leave the roadway at any location instead of only at intersections and driveways. As shown in Figure 22, creating specific access points decreases points of conflict between vehicles and pedestrians and bicyclists. The diagram below shows that allowing one access point instead of two drops the total potential conflict points from 32 to 8. While the Plan does not recommend installing a non-permeable median, limiting driveways on US 26 within Rhododendron would create more predictable traffic patterns, add gaps in traffic and provide opportunities for pedestrians to cross US 26 at a desired location.

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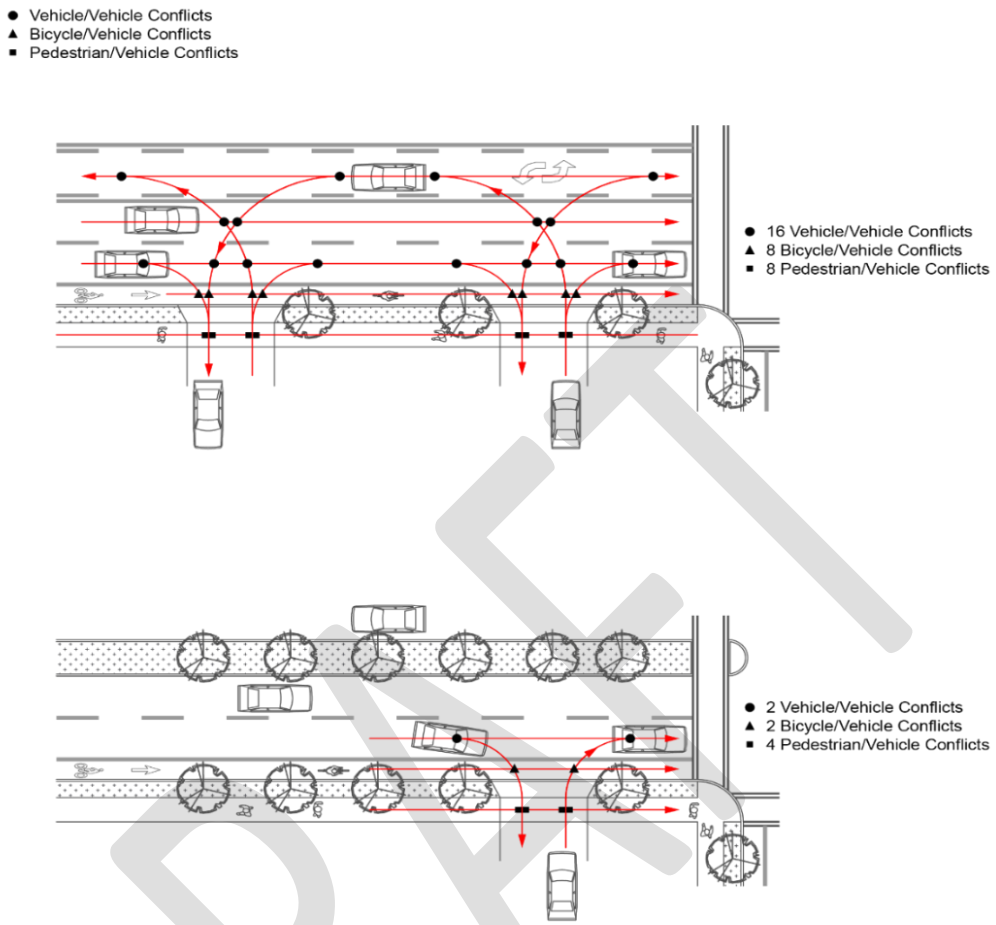

Figure 19: Reduction of conflict points due to access management

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Improvement Descriptions

Consolidate and define driveways within Rhododendron through access management, which would provide definition of driveways and intersections. The driveway(s) could be defined by breaks in a landscape buffer, by colored paved driveways, or by stamped concrete or pavers delineating the path across a driveway.

Land owners may be more open to negotiating access points if the state provides a path for pedestrians and bicycle riders in front of their parcel as an incentive. The path would enhance their property, while access management would enhance the transportation system. This would require outreach to affected property owners.

Benefits

Reducing the number of conflict points for pedestrians and drivers would benefit residents, lodging users, recreational users and transit riders.

Public Feedback and Discussion

Feedback during the public workshop was supportive of this project and agreed this improvement could be introduced with other pedestrian-oriented improvements.

R2: Enhanced Crossing of US 26 in Rhododendron *High Priority $*

Potential Improvement Recommendation: Install a marked, continental style crosswalk in Rhododendron on US 26 with enhanced crossing features such as a rapid flashing beacon to alert drivers. Install in conjunction with R1 streetscape improvements and access management practices.

Rhododendron has commercial uses on the north and south side of US 26, and during site visits pedestrians of many types, including mothers with children, recreational users and transit riders, were observed crossing the street. Mt. Hood Express transit stops are on either side of US 26, and the service reports that transit riders often cross US 26 to access a market or food. The crossing would service regional bus riders whose service stops at the Dairy Queen, allow riders a half-hour to be in town. The proposed improvements are in accordance with recommendations in the Mt. Hood Community Plan, which call for the "development of crosswalks, signals […] to facilitate movement across Highway 26".

ODOT's greatest concern when placing a crosswalk on US 26 is safety. A crossing alone does not provide drivers with visual cues necessary for them to recognize the need to slow and watch for pedestrians.

For this reason, a crossing of US 26 in Rhododendron would need to be developed in conjunction with other changes to the streetscape of US 26 to change driver cues and alert them that they are entering an area with pedestrians.

To this end, a crossing would be evaluated with sidewalks, curb and gutter, which formalize the pedestrian realm, provide opportunities for bulb-outs to narrow the roadway width, managed access points and a pedestrian refuge island for any crossing. Decorative illumination at a pedestrian scale, which is cast down to protect the night sky would also emphasize the presence of pedestrians.

Mt. Hood Express transit stops are also located in Rhododendron. The stop for eastbound riders is located on the south side of US 26 in a pull-off area onto a property leased by Skibowl. The stop for westbound travelers is located in the plaza parking lot across the street. There is a small sign for the eastbound stop but no signage exists for the westbound stop.

Improvement Description: A painted, continental style crosswalk on US 26 placed within Rhododendron, with enhancements such as a rapid flashing beacon to further emphasize the presence of a crossing.

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Considered but Not Recommended

An under or overcrossing was considered and ruled out for several reasons.

- Placement of the entrance and exit for both an under and overcrossing would be considerably setback from US 26, due to the clearances for each structure required.
- Pedestrians seek the shortest path, and under and overcrossings require out-of-direction travel.
- They also create points of isolation, and people can have concerns for their personal safety, especially at night or with low use.
- The cost for such structures is very high, and given the limited potential of crossing use, this cost would be difficult to justify in a competitive environment.

How will sidewalks and multiuse paths on US 26 be integrated?

1) Create a multiuse path using concrete, permeable pavement or other low maintenance material.

2) Install curbs and access management/consolidate driveways and add landscaped buffer.

3) Buildout full sidewalk. Priority areas for sidewalk buildout are in the vicinity of a US 26 crossing and more intense development.

A High-intensity Activated Crosswalk (HAWK) was considered, however pedestrian counts conducted for the traffic analysis showed that pedestrian volumes did not justify this level of improvement.

Benefits

A marked, continental style crosswalk would provide access across US 26 for users to access the transit stops on both sides. Transit riders, residents, lodging users and recreational users would all benefit from a marked crosswalk on US 26 in Rhododendron.

Public Feedback

The public strongly supported this improvement, and recognized the streetscape improvements to US 26 that would need to occur to emphasize the presence of pedestrians.

R3: Rhododendron Gateway Sign *High Priority* *$*

Potential Improvement Recommendation: Install gateway signs in advance of Rhododendron in both the eastbound and westbound direction of US 26.

The posted speed along US 26 through Rhododendron is 40 mph. However, actual speeds exceed that. US 26 is a major east-west route and traffic calming mechanisms such as speed bumps are not feasible. Currently, US 26 is enclosed with trees and forest both east and westbound on US 26 in advance of Rhododendron. It can seem like Rhododendron suddenly appears to drivers. Instead, this project recommends a gateway treatment leaving and entering Rhododendron to alert drivers that they are entering a developed area. A gateway treatment, along with pedestrian crossing signage and the access management improvements, would alert drivers and encourage them to slow down because they are entering a place with commercial uses and pedestrian and bicycle crossings.

Improvement Description: Install a gateway sign to provide drivers a visual cue and alert them that they are entering an area with commercial uses and pedestrian and bicycle crossings.

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Benefits: Gateway signage alerts drivers that they are entering a place and could help slow traffic speeds. This would benefit transit riders, residents and recreational users.

Public Feedback	Project Team Response
This improvement received strong support during the public workshop. Attendees suggested that each village have a gateway sign to enhance driver awareness of the communities and the presence of pedestrians.	A gateway sign in Rhododendron, alongside other streetscape improvements, is a high priority. Other locations for gateway signs are Brightwood and Welches. Gateway signs must meet local and state standards. The most likely source of funds for these improvements is grant funding.

R4: Pedestrian Accommodation along US 26 in Rhododendron High Priority $$

Potential Improvement Recommendation: Install curbs, sidewalk and gutter along US 26 in Rhododendron.

While no pedestrian facility exists within Rhododendron, the area has several commercial uses and transit stops that attract pedestrian use, which are not well accommodated. A pedestrian facility along US 26 through Rhododendron would provide access to the transit stops and the businesses along the highway. It would also cue drivers they are entering a location with increased pedestrian activity as well as facilitate access to the businesses along the highway.

Improvement Description

A crossing in conjunction with:

- Sidewalks, curbs and gutter
- Pedestrian-oriented illumination
- Pedestrian refuge island
- Managed access points (driveways)

Benefits: Safety, and drawing the attention of drivers to the presence of pedestrians -- Pedestrian sidewalk, curb and gutter provide visual cues to drivers that they are entering a place with pedestrians. Sidewalks can be ADA-accessible and compliant. Sidewalks provide an opportunity to construct bulb-outs, which narrow the roadway width and further emphasize the presence of pedestrians.

Public Feedback	Project Team Response
The public strongly supported this improvement, and recognized the streetscape improvements to US 26 would emphasize the presence of pedestrians and a pedestrian-oriented environment. Several business owners in Rhododendron began a conversation about how to grow support for the set of improvements among other stakeholders in the area.	A continental style crossing on US 26 with rapid flashing beacons can be part of a pedestrian-oriented environment that includes sidewalks, bulb-outs, gateways signs and lighting, which together create a stronger sense of a pedestrian-oriented environment.

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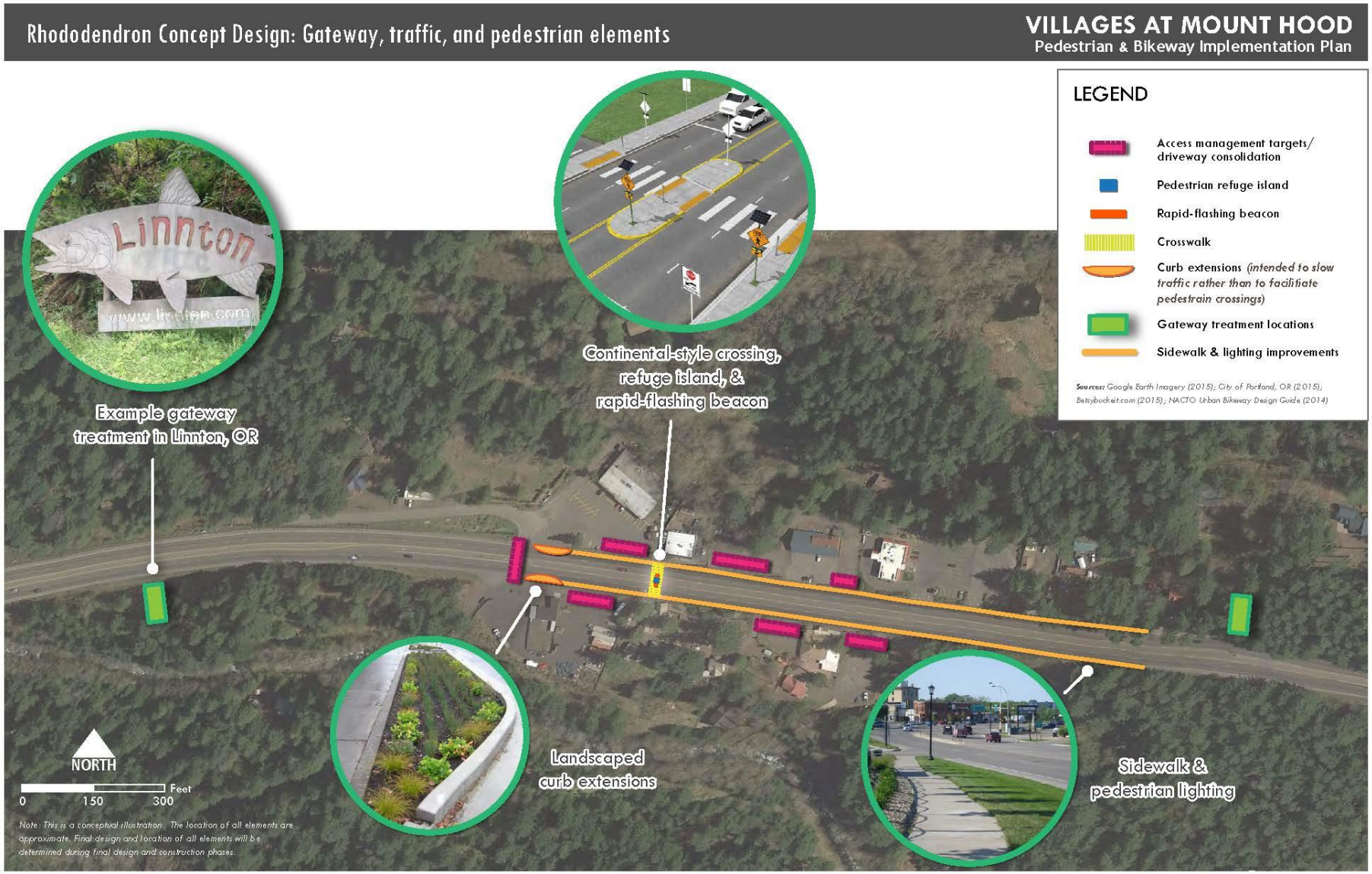
Figure 20: Combined set of streetscape and crossing improvements within Rhododendron to create a safe pedestrian environment



R5: Bicycle Facility for Trail Connection *High Priority* *$*

Potential Improvement Recommendation: Construct a bicycle facility (contraflow lane or multiuse path) to connect Pioneer Bridle Trailhead to Rhododendron, particularly at the Mt. Hood Express stop.

Currently, mountain bikers descend down the Pioneer Bridle Trail toward the Mt. Hood Express Transit Stop. The Mt. Hood Express acts as a shuttle for bicycle riders who loop between Skibowl and Rhododendron. At the trail's end, mountain bikers must either cross US 26 twice in a short distance or ride the wrong way westbound on the US 26 shoulder to access the stop. No direct connection exists between the trailhead and the Mt. Hood Express transit stop.

With the existing condition, cyclists are riding westbound along the eastbound shoulder of US 26. Existing right-of-way narrows from 90 feet to 80 feet as US 26 continues east out of Rhododendron; however, a path that provides room for two-way cyclists and pedestrians should be considered. Since right-of-way appears to be limited in this area, the available width for this facility is likely to be constrained. A typical shared facility is preferred to be 12 feet wide, but it is unlikely there is adequate space in this location. It may be worth considering a separated 4-foot lane for contraflow cyclists with eastbound cyclists and pedestrians sharing a 4-5-foot lane. An 8-foot facility has been assumed for cost estimating purposes. Note, posted speeds are reduced to 40mph in this area, which creates safer conditions for a contraflow bike lane.

A contraflow bike lane would be subject to ODOT approval and may require a design exception.

Figure 21: Example of a contraflow bike lane that allows bicycle riders to ride in the opposite direction of vehicular traffic

Improvement Description: A separated bicycle facility to provide for contra-flow cyclists on the south side of US 26 for approximately 300 feet.

Benefits: This would benefit recreational users, residents who wish to easily access the trail and transit users who are also recreational users.

Public Feedback and Discussion

This improvement received moderate support from attendees at the public workshop, with no discussion of modifications. Support stems from the growing practice of the contraflow riding by recreationalists accessing the Mt. Hood Express transit stop.

R6: Directional Signs and Bike Hub *High Priority* *$*

Potential Improvement Recommendation: Install directional signs to highlight the presence of the Mt. Hood Express transit stops and a bicycle hub.

Transit stops are located on both sides of US 26. Clear signage is needed to alert riders to the location of the stops.

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Businesses are also located along both sides of US 26 and this is an ideal stopping location for recreational bicyclists. A bike hub would encourage bicyclists to stop by providing amenities and a safe place to secure their bike. Directional signage would direct visitors and recreational users between Rhododendron businesses and recreational areas.

Improvement Description: Install directional signs to alert users to the presence of the Mt. Hood Express stops, and a bicycle hub to better accommodate recreational bicycle rider use in Rhododendron. Recreational bicycle rider use is significant in Rhododendron due to the proximity to mountain biking trails.

Benefits: This would benefit recreational users, particularly bicycle riders, and transit users who are also often recreational users at this location.

Public Feedback
The public were generally supportive of this improvement and provided no suggestions for modification.

R7 Multiuse Path between Lolo Pass Road and Rhododendron *Low Priority* *$*

Potential Improvement Recommendation: Further evaluate the feasibility of a multiuse path/bike route between Lolo Pass Road and Rhododendron.

US 26 is the only route that provides a continuous connection through The Villages at Mt. Hood. Presently, pedestrians and bicycle riders use US 26 to travel between Welches and Rhododendron, which can be uncomfortable to most pedestrians and bicycle riders due to the high volumes and high speed of traffic in adjacent lanes. A multiuse path offers increased comfort and protection.

Improvement Description: Construct a multiuse path along US 26 right-of-way that connects Lolo Pass Road to Rhododendron.

Benefits: An opportunity for pedestrians and bicycle riders to travel with separation from vehicles between Lolo Pass Road and the developed areas of Rhododendron.

Public Feedback and Discussion	**Project Team Response**
This improvement received strong support in the public workshop and from the PAC. Attendees recommended considering use of Road 19, which is currently unpaved and has deep ruts caused by the removal of culverts.	ODOT prefers the path to be set back from US 26; however, Road 19 is out-of-direction. Road 19 is owned by the Mt. Hood Forest Service, and would require further coordination and project evaluation. The project would provide a connection between the US 26 crossing at Salmon River Road, and points north and east.

3 Funding and Grant Opportunities

The recommended improvements do not have a funding source. A combination of agencies, such as ODOT, Clackamas County and BLM, or one agency may seek grant opportunities to implement improvement projects. Private entities alone or in partnership with agencies may also seek grant opportunities. Those improvement projects that are already programmed within the Transportation System Plan (TSP) and have funding are noted as part of the background description of each improvement.

3.1 Federal and State Grants

Highway Trust Fund

Revenues to the federal Highway Trust Fund (HTF) are comprised of motor vehicle fuel taxes, sales taxes on heavy trucks and trailers, tire taxes and annual heavy truck use fees. HTF funds are split into two accounts – the highway account and transit account. Funds are appropriated to the states annually based on allocation formulas in the adopted transportation authorization legislation.

Most federal grant monies are distributed by the Oregon Transportation Commission (OTC) through the Statewide Transportation Improvement Program (STIP). The application process for federal funds is described below. Funds are limited and the grants process is competitive.

State Highway Fund

State funds are distributed by the Oregon Transportation Commission (OTC). Revenues to the fund are comprised of fuel taxes, vehicle registration and title fees, driver's license fees and the truck weight-mile tax. State funds may be used for construction and maintenance of state and local highways, bridges and roadside rest areas. State law requires that a minimum of 1% of all highway funds be used for pedestrian and bicycle projects in any given fiscal year. However, cities and counties receiving state funds may "bank" their pedestrian and bicycle allotment for larger projects. Funds are limited and the grants process is competitive.

Statewide Transportation Improvement Program (STIP)

The STIP, the 4-year capital improvement program for transportation in Oregon, provides a schedule and identifies funding for projects throughout the state. Projects included are generally "regionally significant" and are prioritized by Metropolitan Planning Organizations and Area Commissions on Transportation (ACTs). All regionally significant state and local projects, as well as all federally-funded projects and programs, must be included in the STIP. About 80 percent of STIP projects use federal funds, most of which originate from federal programs. This includes the Surface Transportation Program (STP), Transportation Alternatives Program (TAP) and National Highway Performance Program (NHPP) funding for preservation and improvement of the National Highway System. In recent years Oregon has combined several types of available federal funds to create a statewide grant program called "Regional Flexible Funds." These competitive grants are awarded every two years towards bicycle, pedestrian, transit and Transportation Demand Management (TDM) projects proposed to be included in the STIP.

In previous STIPs, Oregon DOT organized available federal funds into six program categories: modernization, safety, preservation, bridge, operations and special programs. Starting with the 2015-2018 STIP, ODOT divided the funding pools into two broad categories: "Fix it" and "Enhance." "Fix it" projects are those that preserve and maintain the current transportation system; "Enhance" projects are those that enhance, expand or improve the transportation system. The main purpose behind this reorganization is to allow maximum flexibility to fund projects that reflect community and state values and needs, rather than those that fit best into prescriptive program definitions. More information on the STIP can be found at http://www.oregon.gov/ODOT/TD/STIP/Pages/default.aspx .

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Applicable "Fix-it" activities include:

- Bridges (state-owned)
- High risk rural roads
- Illumination, signs and signals
- Safety

Applicable "Enhance" activities include:

- Bicycle and/or pedestrian facilities on or off the highway right-of-way
- Most projects previously eligible for Transportation Enhancement funds, now called Transportation Alternatives Program (TAP)
- Bike/Ped, Transit, TDM projects eligible for federal STP and CMAQ funds
- Safe Routes to School (infrastructure projects)

The application process for projects for the 2018-2021 STIP is virtually complete as of this writing, but future STIPs will continue to use this new funding arrangement. There is now one application for "Enhance" projects, with ODOT making a determination of which funding mechanism is most appropriate for individual projects. "Fix it" projects will be selected through a collaborative process between ODOT and ACTs. It should be noted that this reorganization of funding programs does not represent a fundamental change in the types of projects that will be funded through the STIP.

Eligibility

Only certain roadways are eligible to receive federal funds – generally those with federal functional classification as "major collector" and higher. However, STIP projects are also funded by other sources, meaning many streets in The Villages are likely eligible under either the "Fix it" or "Enhance" categories described above.

The Safe Routes to School Action Plan details specific programmatic actions as well as capital improvements that improve the walking and cycling environment around and between schools. Completing an Action Plan helps those projects near or adjacent to schools receive "Enhance" funding. More information about the Safe Routes to School program and Action Plans can be found at http://oregonsaferoutes.org/.

Federal Lands Access Program Grants

The Villages at Mt. Hood are uniquely qualified to obtain Federal Lands Access Program grants because of their proximity to federal lands (Mt. Hood National Forest) and proven track record of creating partnerships. The Mt. Hood Express transit service was expanded using a Federal Lands Access Program grant. The Federal Lands Access Program (Access Program) was established in 23 U.S.C. 204 to improve transportation facilities that provide access to, are adjacent to or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.

Eligible activities are:

- Transportation planning, research, engineering, preventive maintenance, rehabilitation, restoration, construction and reconstruction of Federal lands access transportation facilities located on or adjacent to, or that provide access to, Federal land, and—
    - adjacent vehicular parking areas;
    - acquisition of necessary scenic easements and scenic or historic sites;
    - provisions for pedestrians and bicycles;
    - environmental mitigation in or adjacent to Federal land to improve public safety and reduce vehicle-caused wildlife mortality while maintaining habitat connectivity;

  - construction and reconstruction of roadside rest areas, including sanitary and water facilities; and
  - other appropriate public road facilities, as determined by the Secretary.
- Operation and maintenance of transit facilities.
- Any transportation project eligible for assistance under Title 23 of the United States Code that is within or adjacent to, or that provides access to, Federal land.

3.2 State Grants

Recreational Trails Program (RTP)

This federal funding program is administered by the Oregon Parks and Recreation Department. RTP funding is intended for recreational trail projects, and can be used for acquiring land and easement and building new trails. Grant funds pay up to 80% of project costs while project sponsors must match project costs by at least 20%. Funding varies greatly from year to year, with about $1.3 million awarded state-wide in 2011 and $2.1 million in 2010. Approximately $1.5 million in state-wide funds were available in 2014. Funds are limited and the grants process is competitive. More information can be found at http://www.oregon.gov/oprd/grants/Pages/trails.aspx.

ConnectOregon Program

ConnectOregon provides grants and loans for non-highway transportation projects, backed by bonds on state lottery proceeds. $43 million in bonds were authorized for the most recent biennium. The program funds rail, port/marine, aviation and transit projects. In addition, the Legislature made bicycle and pedestrian projects that are not eligible for State Highway Funds eligible to compete for ConnectOregon funding. Funds are limited and the grants process is competitive. More information on this program can be found at http://www.oregon.gov/ODOT/TD/TP/pages/connector.aspx.

Oregon Immediate Opportunity Fund

This fund supports economic development in Oregon through construction and improvements of streets and roads. Funds are discretionary and may only be used when other sources of financial support are unavailable or insufficient. The objectives of the Opportunity Fund are providing street or road improvements to influence the location, relocation or retention of a firm in Oregon, providing procedures and funds for the OTC to respond quickly to economic development opportunities, and providing criteria and procedures for the Oregon Economic and Community Development Department (OECDD), other agencies, local government and the private sector to work with ODOT in providing road improvements needed to ensure specific job development opportunities for Oregon, or to revitalize business or industrial centers. More information can be found at http://www.oregon.gov/ODOT/TD/TP/Plans/IOF.pdf.

Oregon Transportation Infrastructure Bank (OTIB)

OTIB is a statewide revolving loan fund available for highway projects on major collectors or higher classifications and bicycle or pedestrian access projects on highway right-of-way. Applications are accepted at any time. More information can be found at http://www.oregon.gov/ODOT/cs/fs/Pages/otib.aspx.

Transportation Alternatives-Oregon Bicycle and Pedestrian Program

The Transportation Alternatives-Oregon Bicycle and Pedestrian Program is a combined funding grant supported by federal TAP funds and state Bicycle/Pedestrian grant funds, and administered by ODOT on a 2-year funding cycle. ODOT combined these formerly separate solicitations in 2012 as part of the STIP Enhance process. Projects and activities that are eligible for this program include bicycle/pedestrian

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facilities, scenic beautification, historic preservation and environmental mitigation. For more information about these grants, see http://www.oregon.gov/ODOT/TD/AT/Pages/TE_OBPAC.aspx.

All Roads Transportation Safety Program (ARTS)

ARTS is a new funding program beginning in 2017 to reduce the instance of fatalities and serious injuries on all public roads statewide. ARTS grant funds are paid by Federal Highway Safety Improvement Program (HSIP) funds and will be awarded by ODOT on a 4-year cycle. At least half of the funding will be required to be spent on safety improvements to systemically reduce risks along a roadway or corridor. The ARTS program consists of three areas for systemic improvements: Roadway Departure, Intersection, and Pedestrian and Bicycle. Some funding may also be used on safety mitigation measures at locations where there are documented crash risks.

A total of $166 million is available statewide for the program during this time period, with regional allocations based on the proportion of fatalities and serious injuries that occurred within the ODOT region during the previous five years. A local match of 7.78% will be required for projects that spend HSIP funds. For more information about these grants, see http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/ARTS.aspx.

3.3 Tourism Grants

Cycle Oregon Community and Signature Grants

Cycle Oregon directs any proceeds from its events to the Cycle Oregon Fund to support projects and programs throughout Oregon in three key areas:

- Community projects
- Bicycle tourism and safety
- Environmental conservation and historic preservation

Eligibility

- Applicants must be a government agency or have 501(c)(3) tax-exempt status or have a qualified fiscal sponsor (i.e., a sponsoring and eligible tax-exempt organization).
- Applicants must have submitted required evaluation reports for all prior grants from the Oregon Community Foundation;
- The request must be at least $500;
- Projects must be scheduled for the current grant cycle year;
- Only complete proposals will be considered.

Cycle Oregon's signature grants are determined by Cycle Oregon's board of directors. Signature grants have provided important funding to catalyze or conclude an important project that has statewide impact. For more information about these grants, see http://cycleoregon.com/cycle-oregon-fund/granting-procedures/.

Travel Oregon Matching Grants

This program makes awards available to eligible applicants for projects that contribute to the development and improvement of local communities throughout the state, to support Travel Oregon's mission of 'a better life for Oregonians through strong, sustainable local economies'.

Communities, visitor associations and tourism-related organizations are invited to apply for funding. An applicant may apply for a grant of $2,500–100,000 per project and may apply for multiple projects during a cycle; however, each project requires its own application. Applicants must match the grant amount awarded, dollar for dollar. Up to 50% of the match may be in-kind.

Eligibility

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- Applicants must have a Federal Tax Identification Number
- Projects should target the development of tourism infrastructure or strategic collaborative marketing initiatives that align with local, regional or statewide efforts and increase the likelihood of visitation from outside the local area
- Partnerships with local, regional and statewide tourism organizations, economic development, government organizations and/or tourism-related businesses are encouraged

For more information, see http://industry.traveloregon.com/industry-resources/matching-grants-program/oregon-tourism-commission-matching-grants-program/eligibility/

Clackamas County Tourism & Cultural Affairs Grants

Tourism Development Grants are made possible through Transient Room Tax Collections within Clackamas County. Clackamas County Tourism & Cultural Affairs strives to increase overnight stays and encourage visitors to linger longer in Clackamas County by serving as the primary destination resource for trip planning resulting in destination visits and by working in partnership to develop and enhance local tourism assets.

Project Objectives and Eligibility

Funding is intended for infrastructure and capital projects that coincide with CCTCA's strategic priorities. Applications should reflect tourism best practices, innovation, collaboration and business ideas with strong commercial potential for the local economy. Grant recipients should be able to demonstrate enhanced experiences for visitors to Clackamas County through projects that build on the area's unique strengths and contribute to setting the region at the forefront of a competitive marketplace.

Funding Strategic Priorities

- Create and/or Enhance Tourism Assets
- Enhance Marketing and Promotion Efforts through New Technologies and Mediums
- Build and Strengthen Partnerships and Coalitions to Increase Collaboration
- Build and Strengthen Public and Private Partnerships
- Develop New Tourism Products, Markets and Packages
- Focus on at least one of the Three Pillars of Clackamas County Tourism:
    - Outdoor Recreation
    - Agri-tourism
    - Cultural/Heritage Tourism

Budget

$200,000 in total funds was available for in FY 2015-16. The minimum request considered per project is $5,000 with a maximum of $100,000 awarded for a single grant. A maximum of one grant project per organization per cycle will be awarded. For more information, see https://www.mthoodterritory.com/Scripts/tinymce/jscripts/tiny_mce/plugins/filemanager/files/Document_Center/devgrantover1516.pdf

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ATTACHMENT 6

Appendix Volume I

Appendix 1: Policy and project-related language for Chapters 5 and 10 of the Clackamas County Comprehensive Plan to Implement the Project.

Appendix 2: Public Workshop #1 results and public survey results.

Appendix 3: Additional comments from ODOT

Appendix 4: Stakeholder Interview Summary

Appendix 5: Welches Safe Routes to School Action Plan and Projects

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Appendix 1

Policy and project-related language for Chapters 5 and 10 of the Clackamas County Comprehensive Plan to Implement the Project.

WALK & BIKE
THE VILLAGES AT MT. HOOD

The Villages at Mount Hood Pedestrian and Bikeway Implementation Plan

Clackamas County Comprehensive Plan Amendments

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Clackamas County Comprehensive Plan Amendments

Clackamas County proposes to update the Clackamas County Comprehensive Plan to reflect the recommendations in The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan ("Villages Plan"). Amendments will be required to Comprehensive Plan Chapter 5 (Transportation System Plan) and Chapter 10 (Community Plans and Design Plans), under the Mount Hood Community Plan. Proposed Comprehensive Plan modifications include:

- *Updated project lists and project location maps;*
- *New general active transportation and transportation design policies to support proposed, non-motorized transportation improvements in the Highway 26 corridor;*
- *New policy statements associated with each of the villages addressed in the Villages Plan;*
- *New or modified policies needed to support specific recommended projects; and*
- *New "placemaking" policy section to address land use design features that can slow vehicular travel speeds and increase safety.*

While all of the design elements identified in the placemaking policies could be implemented through development code requirements, there are a few in particular that lend themselves to being required as a part of development review and approval. These elements include landscape strips, sidewalks, lighting, building set-to lines or setbacks, building entrance orientation, vehicle parking location, and driveway management. The next steps in implementation involve assessing how the existing County Zoning and Development Ordinance addresses these elements. If the ordinance is found to be insufficient, new or modified development requirements will be needed to create the strong pedestrian orientation and sense of place desired in the villages.

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Proposed Comprehensive Plan Amendments

Clackamas County Comprehensive Plan Chapter 5 (Transportation System Plan)

The Clackamas County Transportation System Plan (TSP) is Chapter 5 in the County's Comprehensive Plan. The TSP consists of policies, modal plans, and a financing and funding plan, as well as a 20-year Capital Improvement Plan (CIP), figures illustrating the planned transportation system, associated guidelines and standards, and supporting documents.[1]

Figures, Maps, and Tables

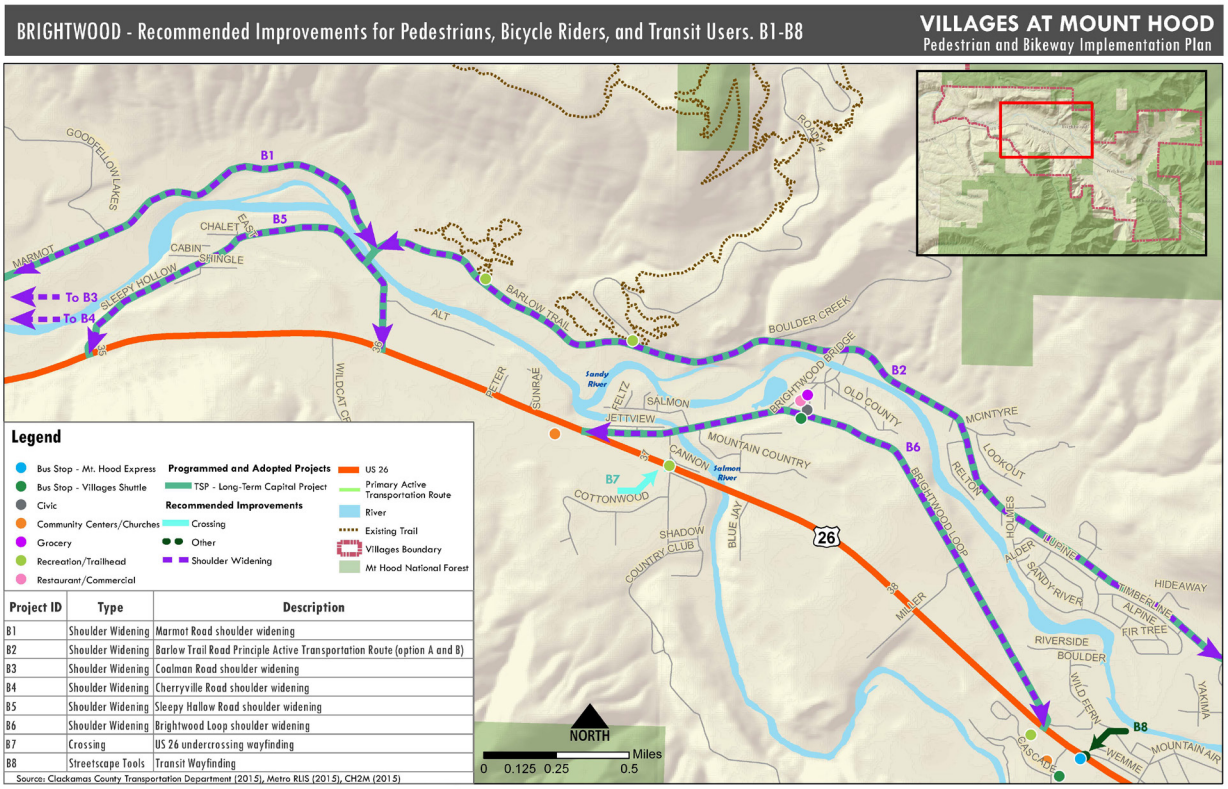
The TSP includes a series of figures, maps, and tables that provide illustrations and lists of planned improvements. Projects recommended in the Villages Plan will be integrated into the TSP by adding them to the existing TSP figures, maps, and tables. (Note: Full or partial lists of the existing TSP figures, maps, and tables are provided below. The names of new figures, maps, and tables are underlined in the following list.)

- Figures 5-1 a-f Urban Cross Sections
- Figures 5-2 a-f Rural Cross Sections
- Figure 5-3 Typical Multi-Use Path Cross Section
- Map 5-12b_Principal Active Transportation Routes Rural
- <u>Map 5-13a Brightwood/Wemme Area Improvements for Pedestrians, Bicycle Riders, and Transit Users</u> (Note: Figure 5 from the Implementation Plan)
- <u>Map 5-13b Welches Area Improvements for Pedestrians, Bicycle Riders, and Transit Users</u> (Note: Figure 11 from the Implementation Plan)
- <u>Map 5-13c Zig Zag/Rhododendron Area Improvements for Pedestrians, Bicycle Riders, and Transit Users</u> (Note: Figure 18 from the Implementation Plan)
- Table 5-3a 20 Year Capital Projects
- Table 5-3b Preferred Projects
- Table 5-3c Long Term Capital Projects
- Table 5-3d Regional Capital Projects
- <u>Table 5-3e The Villages at Mt. Hood Capital Projects: Brightwood/Wemme Area Improvements for Pedestrians, Bicycle Riders, and Transit Users</u>

[1] Pedestrian and bicycle modal elements were updated by the County's Active Transportation Plan, adopted in June 2015.

- Table 5-3f The Villages at Mt. Hood Capital Projects: Welches Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

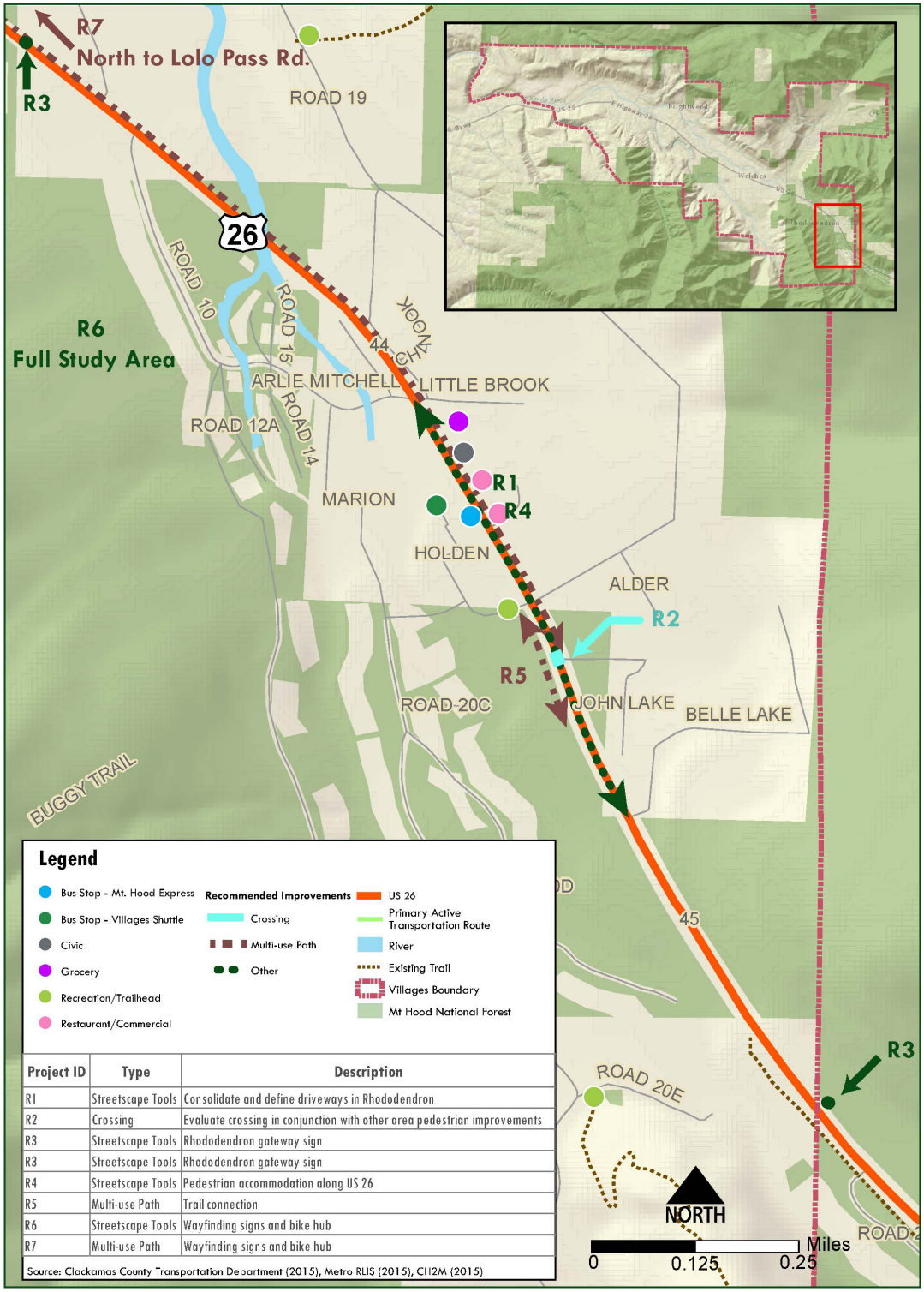
- Table 5-3g The Villages at Mt. Hood Capital Projects: Zig Zag/Rhododendron Area Improvements for Pedestrians, Bicycle Riders, and Transit Users



RHODODENDRON - Recommended Improvements for Pedestrians, Bicycle Riders, and Transit Users. R1-R7

VILLAGES AT MOUNT HOOD

Pedestrian and Bikeway Implementation Plan



Project ID	Type	Description
R1	Streetscape Tools	Consolidate and define driveways in Rhododendron
R2	Crossing	Evaluate crossing in conjunction with other area pedestrian improvements
R3	Streetscape Tools	Rhododendron gateway sign
R3	Streetscape Tools	Rhododendron gateway sign
R4	Streetscape Tools	Pedestrian accommodation along US 26
R5	Multi-use Path	Trail connection
R6	Streetscape Tools	Wayfinding signs and bike hub
R7	Multi-use Path	Wayfinding signs and bike hub

Source: Clackamas County Transportation Department (2015), Metro RLIS (2015), CH2M (2015)

List of Proposed Project Solutions from the Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

Project Identification Number	Villages Sub Area	Project Name
Brightwood/ Wemme		
B1	Brightwood/Wemme	Marmot Road Shoulder Widening
B2	Brightwood/Wemme	Barlow Trail Road Principal Active Transportation Route (Option A and B)
B3	Brightwood/Wemme	Coalman Road Shoulder Widening
B4	Brightwood/Wemme	Cherryville Road Shoulder Widening
B5	Brightwood/Wemme	Sleepy Hollow Road Shoulder Widening
B6	Brightwood/Wemme	Brightwood Loop Shoulder Widening
B7	Brightwood/Wemme	US 26 Undercrossing Directional Signs
B8	Brightwood/Wemme	Transit Park and Ride Direction Signage
Welches		
W1N	Welches	Multiuse Path along US 26 (North side)
W1S	Welches	Multiuse Path along US 26 (South side)
W2	Welches	Crossing Improvements on US 26 at Welches Road
W3	Welches	Arrah Wanna Boulevard Crossing of US 26
W4	Welches	Salmon River Road Crossing of US 26
W5	Welches	Arrah Wanna Shoulder Widening
W6	Welches	Welches Road Shoulder Widening and Multiuse Path
W7	Welches	Welches Road at The Resort at the Mountain Crossing Improvements
W8	Welches	Huckleberry Drive Path
W9	Welches	Woodsey Way and Learning Lane Path

W10	Welches	Salmon River Road Shoulder Widening
W11	Welches	Welches Road Park and Ride
W12	Welches	Salmon River Road Park and Ride
W13	Welches	Directional Signs and Bike Hubs
W14	Welches	Lolo Pass Road Paved Shoulders
W15	Welches	Driver Speed Feedback Signs
W16	Welches	Welches Road Crossing at Stage Stop Road
	Rhododendron	
R1	Rhododendron	Consolidate and Define Driveways in Rhododendron
R2	Rhododendron	Enhanced Crossing of US 26 in Rhododendron
R3	Rhododendron	Rhododendron Gateway Sign
R4	Rhododendron	Pedestrian Accommodation along US 26 in Rhododendron
R5	Rhododendron	Bicycle Facility for Trail Connection
R6	Rhododendron	Directional Signage and Bike Hub in Rhododendron
R7	Rhododendron	Multiuse Path between Lolo Pass Road and Rhododendron

Policies

The Comprehensive Plan policies help implement TSP recommendations, as well as provide support and guidance for future land use decisions that impact the transportation system. The Comprehensive Plan contains general policies regarding land use and transportation, active transportation, roadways, transit, other modes, and funding. The draft proposed language presented below reflects the active transportation focus of the Villages Plan.

New Comprehensive Plan policies are proposed under 5.J. General Active Transportation Policies and 5.K. Design Policies that support plan recommendations to accommodate bicyclists and pedestrians. The new rural policies reflect active transportation needs along high-speed and high-volume corridors, such as Highway 26. Proposed amendments are in an "adoption-ready" format; language proposed for addition is <u>underlined</u> and language proposed for deletion is ~~struck through~~.

5.J. General Active Transportation Policies

5.J.1 Coordinate the implementation of pedestrian facilities and bikeways with neighboring jurisdictions and jurisdictions within the county.

5.J.2 Ensure an opportunity for a diverse and representative citizen involvement in the county pedestrian and bicycle planning process by sponsoring the Clackamas County Pedestrian

and Bikeway Advisory Committee (CCPBAC) as a forum for public input. Recruit representatives of transportation disadvantaged populations as part of this process.

5.J.3 Monitor and update the Clackamas County Pedestrian Master Plan, Bicycle Master Plan, and Active Transportation Plan through data collection and evaluation, and review activities necessary to maintain and expand the programs established in these plans.

5.J.4 Support bicycle, pedestrian and transit projects that serve the needs of transportation disadvantaged populations.

5.J.5 Coordinate with pedestrian, bicycle, and trail master plans, and with special transportation plans of the County, Oregon Department of Transportation, the United States Forest Service, Metro, and parks providers to achieve safe and convenient off-road, multi-use path and trail systems connecting to on-road pedestrian facilities and the bikeway networks.

5.J.6 Support the continuation of the "Bikes on Transit" program on all public transit routes.

5.J.7 Inform property owners of their responsibilities for the maintenance of sidewalks and pedestrian pathways.

5.J.8 ~~Identify~~ Designate and post signage on low traffic volume streets that are appropriate for ~~signing as~~ bicycle routes in order to enhance safety and connectivity and to supplement the system of bikeways found on the major street system.

5.J.9 **Rural** Improve bikeways, pedestrian facilities, and crossings on major streets in order to provide a connected and safe system in rural communities where major streets are a significant part of the transportation system.

5.J.10 **Rural** Develop a connected and multimodal local and County transportation system to reduce reliance on state highways for local trips.

5.J.~~9~~11 **Rural** Support bicycle and pedestrian projects that improve access to public transit stops and provide connections to significant local destinations.

5.K. Design Policies

5.K.1 Require bikeways and pedestrian facilities for all new roadway construction or substantial reconstruction, allowing for flexibility to accommodate characteristics of terrain, scenic qualities, existing development, and environmental constraints.

5.K.2 Design and implement innovative bicycle and pedestrian facilities that improve the convenience and safety of these facilities. Use facility types described in the Active

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Transportation Plan as a reference.

5.K.3 Improve the safety and appeal of walking and biking by supporting the development of bikeways and pedestrian facilities and networks on low volume or local roads and off of existing street rights-of-way.

5.K.4 **Rural** Support the development of bikeways and pedestrian facilities, including multi-use paths, on major streets in order to provide a connected and safe system in rural communities where major streets constitute a significant part of the transportation system.

5.K.5 **Rural** Support connected and complete pedestrian and bicycle facilities on the County and local transportation system to reduce reliance on state highways.

5.K.6 **Rural** Support measures that complement and promote the active transportation system such as wayfinding signs and bike "hubs" that provide amenities such as secure and sheltered parking, seating, and tools.

5.K.~~4~~7 **Urban** Identify pedestrian facilities and bikeway improvements necessary to ensure direct and continuous networks of pedestrian facilities and bikeways on the county road system.

5.K.~~5~~8 **Urban** Identify locations where bicycle and pedestrian access is blocked by rivers and other natural barriers and encourage the creation of bicycle and pedestrian facilities to extend across these barriers.

5.K.~~6~~9 **Urban** Review development plans to ensure that they provide bicycle and pedestrian access.

5.K.~~7~~10 **Urban** Create a networked system of pedestrian facilities and bikeways connecting cities, neighborhoods, commercial areas, community centers, schools, recreational facilities, employment centers, other major destinations, regional and city bikeways and pedestrian facilities, and other transportation modes. Utilize separate accessways for pedestrian facilities and bikeways where street connections are impractical or unavailable.

Clackamas County Comprehensive Plan Chapter 10 (Community Plans and Design Plans)

Maps and Tables

Chapter 10 is proposed to be amended to include project lists and project maps from the Villages Plan. The following changes are recommended for the Mount Hood Community Plan. (Note: Full or partial lists of the existing maps and tables are provided below. New maps and tables are indicated by underlining.)

[…]

- Map 10-MH-06 Government Camp Village Plan Recreation Trails and Facilities
- Map 10-MH-07 Brightwood/Wemme Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (Note: Figure 5 from the Implementation Plan)
- Map 10-MH-08 Welches Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (Note: Figure 12 from the Implementation Plan)
- Map 10-MH-09 Zig Zag/Rhododendron Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (Note: Figure 21 from the Implementation Plan)

In addition, Tables 10-01 through 10-03 will be added to provide projects lists for each of the village areas.

Table 10-01 Brightwood/Wemme Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

Project Identification Number	Villages Sub Area	Project Name
Brightwood/ Wemme		
B1	Brightwood/Wemme	Marmot Road Shoulder Widening
B2	Brightwood/Wemme	Barlow Trail Road Principal Active Transportation Route (Option A and B)
B3	Brightwood/Wemme	Coalman Road Shoulder Widening
B4	Brightwood/Wemme	Cherryville Road Shoulder Widening
B5	Brightwood/Wemme	Sleepy Hollow Road Shoulder Widening
B6	Brightwood/Wemme	Brightwood Loop Shoulder Widening
B7	Brightwood/Wemme	US 26 Undercrossing Directional Signs
B8	Brightwood/Wemme	Transit Park and Ride Direction Signage

Table 10-02 Welches Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

Project Identification Number	Villages Sub Area	Project Name
Welches		
W1N	Welches	Multiuse Path along US 26 (North side)

W1S	Welches	Multiuse Path along US 26 (South side)
W2	Welches	Crossing Improvements on US 26 at Welches Road
W3	Welches	Arrah Wanna Boulevard Crossing of US 26
W4	Welches	Salmon River Road Crossing of US 26
W5	Welches	Arrah Wanna Shoulder Widening
W6	Welches	Welches Road Shoulder Widening and Multiuse Path
W7	Welches	Welches Road at The Resort at the Mountain Crossing Improvements
W8	Welches	Huckleberry Drive Path
W9	Welches	Woodsey Way and Learning Lane Path
W10	Welches	Salmon River Road Shoulder Widening
W11	Welches	Welches Road Park and Ride
W12	Welches	Salmon River Road Park and Ride
W13	Welches	Directional Signs and Bike Hubs
W14	Welches	Lolo Pass Road Paved Shoulders
W15	Welches	Driver Speed Feedback Signs
W16	Welches	Welches Road Crossing at Stage Stop Road

Table 10-03 Zig Zag/Rhododendron Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

Project Identification Number	Villages Sub Area	Project Name
	Rhododendron	
R1	Rhododendron	Consolidate and Define Driveways in Rhododendron
R2	Rhododendron	Enhanced Crossing of US 26 in Rhododendron
R3	Rhododendron	Rhododendron Gateway Sign
R4	Rhododendron	Pedestrian Accommodation along US 26 in Rhododendron
R5	Rhododendron	Bicycle Facility for Trail Connection
R6	Rhododendron	Directional Signage and Bike Hub in Rhododendron

R7	Rhododendron	Multiuse Path between Lolo Pass Road and Rhododendron

Policies

Policies in the Mt. Hood Community Plan, found in Comprehensive Plan Chapter 10, will need to be updated to reflect the Villages Plan. In particular, new and modified policy statements have been prepared for the Land Use and Transportation sections of the Community Plan. The desire for safer highway crossings prompted many of the recommendations in the Villages Plan; reducing motorist speeds will make safe highway crossings feasible in the future. Because the roadway design will not induce slower speeds, the County intends to pursue placemaking measures in the villages. "Placemaking" in this context refers to design elements that are intended to provide drivers with visual cues that they are entering and passing through a special place, one in which they should expect to see pedestrians, thereby encouraging slower speeds and improving safety.

Policy language proposed below includes a new section entitled Placemaking, as well as new policy related to placemaking in the Commercial section.

Language presented in the Land Use section below is grouped by village, and it is proposed that the villages be organized consistent with the Villages Plan. The proposed language builds upon transportation-related language already in this section. Proposed amendments are in an "adoption-ready" format; language proposed for addition is <u>underlined</u> and language proposed for deletion is ~~struck through~~.

LAND USE

In the Mt. Hood area, the Forest, Agriculture, Rural, Rural Commercial, Urban Low Density Residential, Community Commercial, and Open Space land use plan designations are applicable. Additionally, the Mountain Recreation designation may be applied. All land designated Urban in the Mt. Hood area is Immediate Urban. The ~~three~~ village districts of Government Camp, Rhododendron<u>/Zig Zag</u>, and <u>Brightwood/</u>Wemme~~/~~<u>, and</u> Welches are recognized for their separate character and individual environment.

VILLAGES

1.0 Government Camp

1.1 The Government Camp Village is identified as an Urban Unincorporated Community in compliance with Chapter 660, Division 22 of the Oregon Administrative Rules (OARs).

1.2 Provide for a high intensity development character.

1.3 Development of US Forest Service lands may occur only if it complies with the US Forest Service regulations. Upon completion of a land transfer to private ownership, development of these lands may occur only if it complies with the provisions of this

Plan.

1.4 Provide for pedestrian circulation and access within the business center.

1.5 Require new commercial or residential development of more than three units to provide a plan for snow removal and stockpiling.

1.6 Require one on-site parking space for each single-family residence developed on a lot of record existing prior to the adoption of this provision.

1.7 Require all new residential development of more than three units to provide covered parking.

2.0 Rhododendron/Zig Zag

2.1 Provide for a development character of low intensity.

2.2 Where determined to be needed, e~~E~~ncourage development of crosswalks~~,~~ enhanced with rapid flashing beacons or other safety measures and/or signals~~, or a pedestrian overpass or underpass~~ to facilitate movement across Highway 26.

2.3 Support development and installation of gateway signs that clearly identify the entrance of the village.

2.4 Define and consolidate driveways to clearly indicate access locations, reduce points of conflict, and improve safety.

2.5 Support development of a multi-use path adjacent to Highway 26 between Rhododendron and Zig Zag, including the provision of path lighting.

2.6 Build upon existing uses, such as existing trails, by providing improved and multimodal connections to them.

2.7 Support widening roadway shoulders in order to accommodate multimodal travel and in cases when a multi-use pathway adjacent to the roadway is not feasible or determined to be needed.

2.8 Provide wayfinding signs and "bike hubs" – areas of secure and sheltered parking, benches, bike tools, and/or other amenities – to maximize investment in existing and new transportation facilities that accommodate multimodal travel.

3.0 ~~Wemme/~~Welches

~~3.0~~3.1 Provide for a development character of medium intensity.

~~3.1~~3.2 Orient new non-residential development ~~away from~~ to Highway 26~~, which is designated a scenic highway~~ in order to facilitate pedestrian connections, create a sense of place,

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and encourage slower traffic speeds.

3.3 Support development and installation of gateway signs that clearly identify the entrance of the village.

~~3.2~~3.4 Encourage development of recreational-resort facilities to provide accommodations for the users of the area's recreational amenities.

~~3.33~~.5 Encourage development and funding of a shuttle bus system to provide access to the ski areas.

3.6 Support development of a multi-use path adjacent to Highway 26, including path lighting.

3.7 Enhance existing crossings of Highway 26 and support new crossings, where determined to be needed, to improve safety and accessibility between uses on the north and south sides of the highway.

3.8 Support widening roadway shoulders in order to accommodate multimodal travel.

3.9 Extend local roadways to improve the connectivity of the local roadway network and provide benefits like safe routes to schools.

3.10 Implement treatments to make efficient use of limited roadway right-of-way, such advisory bicycle lanes, where it is determined that traffic volumes and other roadway characteristics are appropriate for the treatment.

3.11 Provide wayfinding signs and "bike hubs" – areas of secure and sheltered parking, benches, bike tools, and/or other amenities – to maximize investment in existing and new transportation facilities that accommodate multimodal travel.

3.12 Enhance existing and planned transit facilities and services by providing supportive facilities and features such as park-and-ride facilities and wayfinding signs.

4.0 Brightwood/Wemme

4.1 Provide for a development character of low to medium intensity.

4.2 Orient new non-residential development to Highway 26 to facilitate pedestrian connections, create a sense of place, and encourage slower traffic speeds.

4.3 Support development and installation of gateway signs that clearly identify the entrance of the village.

4.4 Encourage development of recreational-resort facilities to provide accommodations for the users of the area's recreational amenities.

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4.5 Encourage development and funding of a shuttle bus system to provide access to the ski areas.

4.6 Enhance existing crossings of Highway 26 and support new crossings, where determined to be needed, to improve safety and accessibility between uses on the north and south sides of the highway.

4.7 Build upon existing transportation facilities, such as existing trails, by providing improved and multimodal connections to them.

4.8 Where determined to be needed, support widening roadway shoulders or construction of a multi-use path adjacent to the roadway, in order to accommodate multimodal travel.

4.9 Provide wayfinding signs, including signs to an existing underpass and existing transit stops, to encourage use and maximize investment in existing and new transportation facilities that accommodate multimodal travel.

4.10 Enhance existing and planned transit facilities and services by providing supportive facilities and features such as park-and-ride areas and wayfinding signs.

New policy proposed under the Commercial section addresses placemaking design characteristics intended to make long-term crossing improvements feasible.

COMMERCIAL

1.0 The Community Commercial land use plan designation may be applied in the Mt. Hood urban area, according to the criteria for designation stated in Chapter 4, *Land Use*.

1.1 Implement the Community Commercial designation by application of only the Rural Tourist Commercial (RTC) zoning district.

1.2 Apply the density standards of Policy 5.2 of the Residential section to resort accommodations in Community Commercial areas.

2.0 The Rural Commercial land use plan designation may be applied outside of the Mt. Hood urban area, according to the criteria for designation stated in Chapter 4.

3.0 The Neighborhood Commercial zone shall not be applied in the Mt. Hood area.

4.0 Implement dimensional and development standards to address compatibility, function, and aesthetics.

5.0 Develop, adopt, and implement design elements for commercial development adjacent to Highway 26 in order to provide pedestrian access, make local businesses attractive, encourage travelers

to stop and visit local businesses, and improve pedestrian safety.

Language proposed in the Transportation section addresses the types of improvements recommended in the plan.

TRANSPORTATION

The development of roads and pedestrian and bicycle facilities shall be in accordance with the following policies.

1.0 Encourage intersection improvements at the following intersections with Highway 26:

A. East Brightwood Loop

B. East Lolo Pass Road

C. East Welches Road

D. Highway 35

E. Entrance to Multorpor Ski Bowl facilities

F. Government Camp Loop

2.0 Provide local roadway network connectivity to reduce demand on Highway 26 and provide local benefits such as safe routes to schools.

3.0 Encourage development of a loop road south of Highway 26 in Government Camp. The loop would complete access from the west to the east side of Government Camp, and would improve access to the Multorpor/Ski Bowl facilities. Interchanges should be developed at the intersections with Highway 26.

4.0 Cooperate with the Oregon Department of Transportation (ODOT) to maintain a reasonable level of service and safety on Highway 26, in the Mt. Hood Corridor.

4.1 Limit access to Highway 26, and encourage shared access where access to Highway 26 is necessary. Focus access management strategies on areas where access points are not defined and where driveways can be consolidated with new development or redevelopment.

4.2 Encourage redesign of older platted areas along Highway 26, to reduce the number of access points.

4.3 Encourage the development of alternatives to automobile transportation to ski facilities, to reduce parking needs at ski areas and to reduce congestion on Highway 26.

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Individual developers and existing resort facilities should be encouraged to provide shuttle systems or other facilities such as an aerial tram between Government Camp and Timberline Lodge.

4.4 Coordinate with the community and ODOT to refine the design and location of safe and convenient pedestrian and bicycle crossings across Highway 26, as identified in the TSP. For cost-effectiveness and safety, primary consideration shall be given to at-grade crossings that include enhanced safety features such as rapid flashing beacons.

5.0 Cooperate with ODOT to provide a rest area and information center between Sleepy Hollow and Zigzag.

6.0 Encourage development of a community-wide network of pedestrian trails.

6.1 Ensure continued public access to recreation trails shown on Map ~~X~~10-MH-~~5~~06 and located within the Government Camp ~~U~~rban Unincorporated Community boundary. Provisions may be made through appropriate legal documents, and may include requirements such as retaining conservation easements on these lands.

6.2 Encourage the efficient connection of Forest Service trails located outside the Government Camp Urban Unincorporated Community Boundary to trail systems located within the boundary, to provide an integrated network of ~~walkways~~ pedestrian facilities, bikeways, and trails.

6.3 Support connections to Forest Service and Bureau of Land Management trails in and adjacent to Mt. Hood Villages, as part of the integrated network of pedestrian and bicycle facilities in each village, as applicable.

7.0 As an alternative to sidewalks and bike lanes, provide multimodal facilities roadways through shoulder widening or multi-use paths, consistent with the TSP.

7.1 Where multi-use paths have been identified as a long-term recommended solution, implement shoulder widening as an interim measure.

7.2 Provide lighting and other measures to increase the safety of multi-use paths.

7.3 Evaluate the feasibility of siting multi-use paths in river corridors.

8.0 Implement treatments that efficiently use roadway right-of-way and accommodate multimodal travel. Where roadway right-of-way is limited, employ innovative treatments, such as advisory bike lanes, as appropriate for these situations.

9.0 Provide or support measures such as park-and-ride lots and wayfinding signs that maximize investments in existing and new transportation facilities that accommodate multimodal travel.

10.0 Use speed monitors in targeted locations to aid in speed limit enforcement, encourage slower speeds, and improve safety.

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The new proposed Placemaking policy section addresses the relationship between the built environment, its attractiveness and accessibility, and speeds that drivers perceive to be appropriate traveling through the area. The relationship is addressed, in particular, through design elements, the implementation of which is the responsibility of a variety of parties, including the County, ODOT, developers, land and business owners, and business promotion organizations. Where private development is assumed to provide improvements, the County will need to assess the effectiveness of current development requirements to achieve these placemaking elements and consider modifications to the County Zoning and Development Ordinance accordingly. It is recommended that this new section be located between the Transportation and Planning Process sections in the Mt. Hood Community Plan.

PLACEMAKING

1.0 In the villages of Rhododendron/Zig Zag, Welches, and Brightwood/Wemme, the County shall support incorporation of placemaking elements adjacent to Highway 26. Implementation of design elements in this section will provide drivers with visual cues that they are entering and passing through communities where they should expect to see activity and, most importantly, pedestrians and cyclists. Implementation is expected to happen over time. Specific elements may be required at the time of development or redevelopment of properties adjacent to Highway 26 or modifications to the roadway itself, and may be the responsibility of one or more parties, including the County, ODOT, developers, land and business owners, and business organizations. Placemaking in the villages is expected to consist of the following design elements to encourage slower speeds and improve safety.

1.1 Gateways – Gateway treatments are recommended on the east and west end of Rhododendron on Highway 26 as well as generally for Welches and Brightwood/Wemme. Especially in combination with crossing treatments, access management, or other measures, gateways are an effective means to alert drivers and encourage them to slow down as they enter a developed place with commercial uses and pedestrian and bicycle traffic. Gateways in the villages may be implemented by a combination of developers, ODOT, Clackamas County, and other parties such as business promotion organizations.

1.2 Landscape strips – Landscape strips provide a buffer between the roadway and adjacent pedestrian facilities and properties. They can make the frontage of a property more attractive as well as increase the separation and safety of pedestrians traveling along the highway. Landscape strips may be required of a developer at the time of new development or redevelopment, pursuant to applicable roadway design standards or as part of a comprehensive County and/or ODOT project, where funding has been secured.

1.3 Sidewalks – Sidewalks are more feasible in the denser commercial centers of the villages. They are a familiar form of pedestrian facility that clearly signals where to walk and where to expect pedestrians. Like landscape strips, they may be provided by a

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developer at the time of new development or redevelopment, pursuant to applicable roadway design standards or as part of a County and/or ODOT project. Exceptions to requiring sidewalks may be allowed if a multi-use path is provided instead.

1.4 Lighting – Like other design elements, lighting serves both a safety and aesthetic purpose in placemaking. Lighting includes fixtures that illuminate sidewalks, crossings, or other pedestrian and multi-use facilities. Lighting may be implemented through a combination of private development improvements public funding, and other funding sources, such as business promotion organizations and grants.

1.5 Building set-to lines and setbacks – Buildings set on or close to the property line provide a sense of enclosure along the roadway. Building set-to lines or maximum setbacks can ensure that this illusion is created, over time and with development and redevelopment, in the village commercial centers adjacent to Highway 26. The County will consider adopting new development requirements related to building set-to lines, including allowances for increasing the maximum setback where desired pedestrian amenities such as a plaza or public seating are provided.

1.6 Building entrance orientation – The County will encourage building entrances to be oriented toward Highway 26 in order to provide clear, direct connections between the building and pedestrian and bicycle facilities associated with the highway. The County will consider adopting building entrance orientation requirements that would apply to new development or significant redevelopment.

1.7 Vehicle parking – Parking will be encouraged to be located to the side or rear of buildings. This provides greater accessibility and attractiveness to pedestrians moving between the building and the right-of-way. The County will consider adopted development requirements related to parking location that would apply to new development or significant redevelopment.

1.8 Unifying design elements (banners, planters, etc.) – These design elements, typically some of the easier and more cost-effective design elements to implement, can be an important part of creating a visual theme for the villages. The type and design of unified design elements should be decided upon through an open, public process prior to implementation. These elements would most likely be implemented by a group of land owners, business owners, and/or business promotion organizations.

1.9 Access management – Clearly defining and/or consolidating access points creates clear and more limited areas of potential conflict between transportation system users. This design element signals developed areas and can be related to implementation of sidewalks and landscape strips, which may be used as ways to help define driveways. The County will require that access management be implemented at the time of new development or redevelopment, pursuant to access management strategies established

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in adopted State and County plans.

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Appendix 2

Public Workshop #1 Results and Public Survey Results

MEMORANDUM

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan Public Workshop Summary

DATE: May 25, 2016

Overview

This memorandum summarizes the first public workshop for the Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan.

Where: The Resort at The Mountain (Lolo Pass Room)

When: Thursday, April 14, 2016, 6:00-8:00PM

The purpose of the workshop was for community members to learn about potential walking and biking projects in The Villages at Mt. Hood. County staff had the opportunity to hear from community members about how well the proposed list of bicycle and pedestrian improvements address walking and bicycling challenges within the area. Community members were provided the opportunity to voice opinion to add or drop potential improvements.

Approximately 39 people attended the workshop, which included seven project staff and three staff from Bureau of Land Management (BLM).

The workshop agenda included:

- Welcome and introductions of staff by Lori Mastrantonio
- Introduction of the workshop's purpose and attendee's role by Catherine Ciarlo
- Presentation of project status and overview including goals, planning time horizon, schedule, the case for walking and bicycling, and types of improvement proposed by Sumi Malik
- Small group discussions by sub-geography (Brightwood, Welches/Wemme, and Rhododendron) facilitated by Catherine Ciarlo, and staffed by Sharon Daleo (Brightwood), Kate Drennan (Welches/Wemme), and Sumi Malik (Rhododendron).
- Report back to the entire group facilitated by Catherine Ciarlo.
- Bureau of Land Management (BLM) staff had a table in the corner to provide the opportunity for the public to learn about their current planning efforts.

Announcing the Event and Online Questionnaire

The County provided written notice of the workshop and the questionnaire to the following entities:

Project Advisory Committee (PAC)
Technical Advisory Committee (TAC)
Mt. Hood Chamber
Stakeholders Interviewed
Clackamas County Pedestrian Bicycle Advisory Committee (PBAC)

PBAC Interested Parties
Sandy River Watershed Council
Welches Schools
Hoodland Fire Station
Dragon Fly Restaurant
Hoodland/Sandy Library
Senior Center
Bicycle Transportation Alliance
bikeportland.org
Mountain Times
Sandy Post
Community Planning Organizations (CPO)
Sandy Ridge Trail Group
Oregon Backpackers
Barlow Trail Association/Susan Corwin
Hoodland Fire
The Villages at Mt. Hood Pedestrian and Bicycle Coalition

Presentation Details

Doors opened at 6PM, and attendees were greeted and asked to place a dot on a study area map where they live, have a business or work, and recreate or visit. All who came were asked to place a dot(s) on a map.

At 6:15, Lori Mastrantonio welcomed attendees, and introduced project staff. Lori stated the project is a planning effort, and there are no dedicated funds for project improvements. A plan is necessary in order to apply for grants to pay for the project improvements. Lori also noted the planning time horizon of 20 years.

She noted that this is the first public workshop for the project, and that the team has been working with area residents and businesses over the last year to gain input on what has been done so far. This outreach included the involvement of:

- PAC (Project Advisory Committee); some of the members include area residents, Rhododendron CPO representative, Sandy River Watershed Council, Mt. Hood Chamber of Commerce, and the Senior Center, among other stakeholders.
- TAC (Technical Advisory Committee); some of the members include County staff from Social Services (Mt. Hood Express), Engineering and Planning, US Forest Service, Oregon Department of Transportation (ODOT), and BLM.

In addition to committee involvement, Lori noted the involvement of stakeholders through interviews:

Oregon Trucking Association	US Forest Service
Resort at the Mountain	BLM
Mt Hood Chamber	Mt Hood Express
Barlow Trail Association	Ski Bowl Resort

Lori referred attendees to Technical Memorandums that were completed to date:

- TM#1; Existing Conditions; Needs, Constraints and Opportunities
- TM#2; Review of State and County Plans and Policies; Creation of Evaluation and Prioritization Criteria for evaluating Proposed Projects
- TM#4; Design Tools, e.g. for crosswalks, paths, shoulder widening, wayfinding
- TM#5; Potential Improvement Projects for Pedestrian, Cyclists and Transit Users – focus for tonight

Lori directed attendees to the project website for this information and more.

Gail Curtis, Contract Manager and Transportation and Growth Management (TGM) representative with ODOT added ODOT's perspective. ODOT is interested in evaluating the possibility of enhancing existing crossings or adding another crossing of US 26, but wants to do so without giving pedestrians a false sense of security. To do so, visual cues within the area would need to reinforce to drivers they are passing through a village and place. This entails pedestrian scale lighting, gateway signs, sidewalks with plantings, and consolidated driveways. Aesthetic treatments such as hanging baskets could also provide a visual cue to drivers.

Catherine Ciarlo, CH2M, provided an overview of the workshop format and identified herself as the facilitator for the evening. She reiterated the purpose of the workshop. In conjunction with this workshop, Catherine reminded attendees the project has an online questionnaire, encouraged attendees to take it, and to encourage others to take it as well.

Catherine asked, by a show of hands, if attendees could indicate if they lived in The Villages, worked in The Villages, and recreated in The Villages. Most people raised their hands to all three questions.

Sumi Malik provided a presentation of the project status, including:

- Project goals, objectives, and planning time horizon
- Schedule
- Making the case for bicycling and walking
- Types of improvements (shoulder widening, multi-use path, safe routes to schools, and US 26 crossings)

Small Group Discussions

Catherine Ciarlo broke the approximately 40 attendees into three sub groups. Each group rotated between tables that were focused on a subarea: Brightwood, Welches/Wemme, and Rhododendron.

Attendees had 20 minutes at each subarea. They discussed the following questions for 15 minutes:

- Where are the biggest pedestrian and bike challenges located?
- What are the biggest opportunities?
- Are there things missing from the project list—i.e. hazard areas or improvement ideas?

Participants could give their feedback by marking maps or posting notes to them, and staff at each station recorded the discussion on flip charts.

Following the discussion, each individual was given a limited number of dots and asked to place dots next to the potential improvements they thought were most important. Attendees could decide how many dots they placed next to any improvement, including placing all dots next to one improvement.

Attendees rotated through each subarea. Appendix A contains photos of the dot exercise from each subarea.

Online Questionnaire

A 10-15 minute online questionnaire was posted to the project website between April 13th and May 8th.

Appendix B contains results of the online questionnaire.

Summary of Input

Following the small group discussions, all attendees and staff gathered and Catherine facilitated a report out. Catherine asked questions of individual audience members. The questions were:

- Did you change your mind about something after participating in the small group discussion?
    - One woman commented that coming into the meeting, she wanted overcrossings or under crossings of US 26 in Rhododendron. After hearing where entry points would need to be and the expense of such a treatment, she thought an at-grade crossing with multiple crossing enhancements and a pedestrian oriented environment would be acceptable.
    - Another person said gateway signage would be a good idea for all The Villages, not just Rhododendron.
- Is there an opportunity that the project team did not capture?
    - The project team should consider paths along rivers.
    - There are small, unimproved roads that connect to Rhododendron.
    - Call for maintenance of the swing bridge in Rhododendron. The community was afraid it may not be maintained in the future.
- What are your high level priorities for the area?
    - Addressing crossings on US 26.
    - Barlow Trail Road—supporting cycling tourism.
    - Working with property owners about liabilities with having a trail on their property. Work with them to minimize the liability.

The purpose of the following section is to summarize community input received by type of improvement or topic area through both the small group discussion and the report out. Improvements are ordered by priority, with improvements receiving the highest level of support and priority at the top of the list. Support and priority is determined by the number of dots an improvement received during the Public Workshop and the number of positive, high priority responses an improvement received through the online questionnaire.

This section details the feedback, including any issues or concern, and the project team's response that will be reflected in the draft Implementation Plan. Potential improvements that are not discussed below did not receive notable or only moderate support and did not generate discussion.

Topic (in order of priority based on feedback)	What we heard: feedback and discussion	Project Team Response
Multiuse Path along US 26 (South: Brightwood – Salmon River Road)	• South path received strongest support in the dot/prioritization exercise. • Concern for adjacent property owner's liability. • Attendees called for more lighting in the area. • Suggestion for some type of barrier from traffic.	• Ideal width is 12', with 2' shoulders for separation. • Determine if existing right-of-way (ROW) can accommodate a multiuse path. • Look into liability issues for adjacent property owners • Engagement of adjacent property owners during project development to discuss liability issues • Add pedestrian lighting to discussion and estimate for each subarea. • ODOT and Clackamas County to establish an agreement about maintenance responsibilities

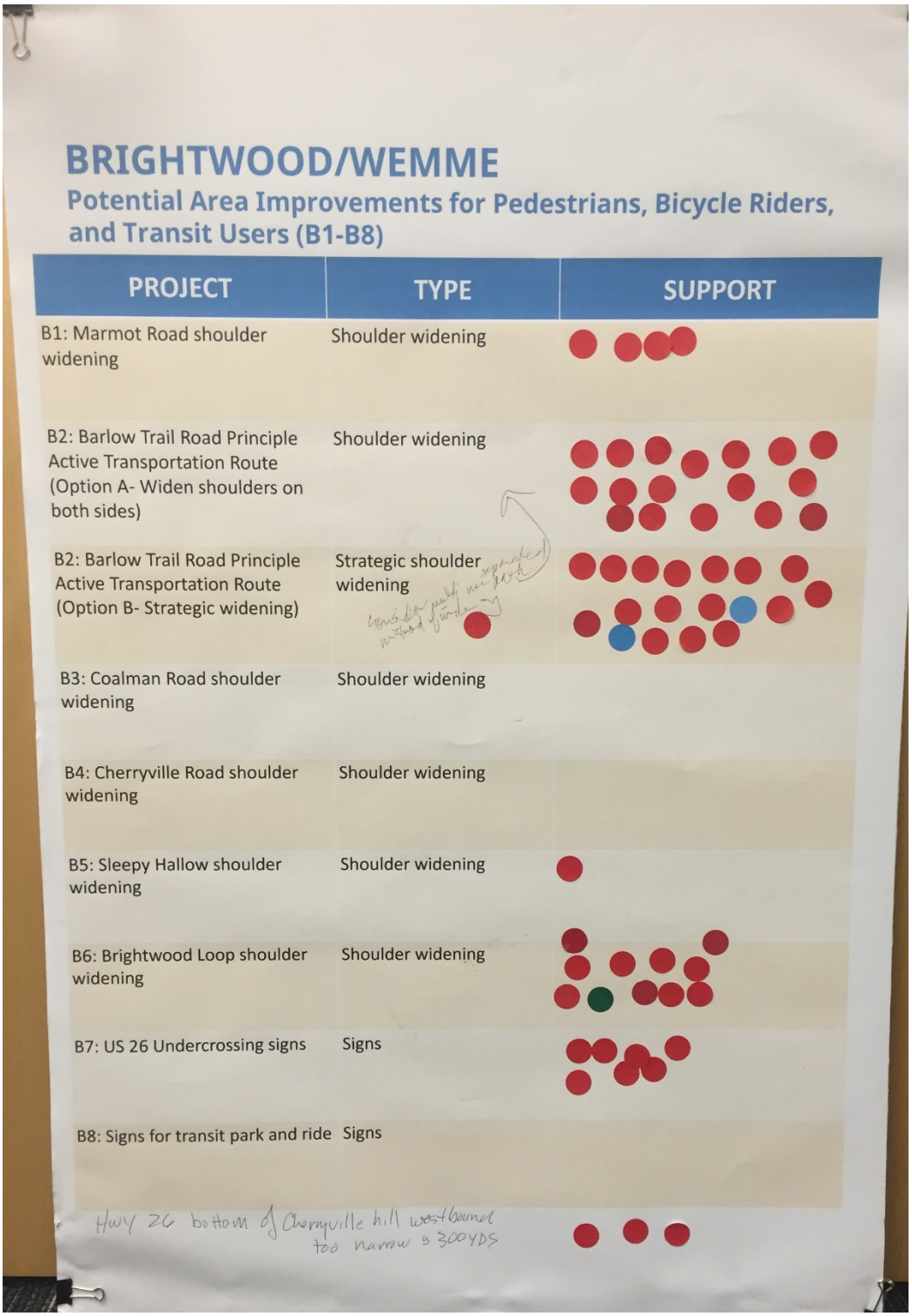
Topic (in order of priority based on feedback)	What we heard: feedback and discussion	Project Team Response
Multiuse Path along US 26 (North)	• North path received second highest support in the dot/prioritization exercise. • Concern for adjacent property owner's liability. • Attendees called for more lighting in the area. • Suggestion for some type of barrier from traffic.	• Ideal width is 12', with 2' shoulders for separation. • Determine if existing right-of-way (ROW) can accommodate a multiuse path. • Look into liability issues for adjacent property owners • Engagement of adjacent property owners during project development to discuss liability issues • Add pedestrian lighting to discussion and estimate for each subarea. • ODOT and Clackamas County to establish an agreement about maintenance responsibilities
Welches Road Shoulder Widening	• Received strong support in the dot/prioritization exercise, equal to multiuse path along US 26. • Feedback from community members to consider a multiuse path on one side of the roadway instead of expanded shoulders. • A new development constructed a multiuse path that meandered around trees and was very pleasant for walking. • Even during the day, Welches Road is extremely dark due to tree cover. Recommend lighting.	• Plan will recommend a multiuse path where feasible (ROW exists or an easement is obtainable), and widened shoulders elsewhere. All treatments should connect to one another for continuity. • Incorporate lighting that is down cast and in accordance to night sky ordinances. • Trails exist off of Welches Road. Place secured bike parking at trailheads to accommodate bicycle riding to trails.
Barlow Trail Road	• Barlow trail road too narrow for cars, bicycles, and pedestrians, but is currently is used by all. • It is a primary route for bicycle riders and provides access to Sandy Ridge Trail System. • Concerns with volumes and speeds of truck traffic in and out of the gravel pit off Barlow Trail Road. • Consider a multi-use, separated path instead of shoulder widening. • Full shoulder widening instead of spot treatment, but evaluate the feasibility.	• The Implementation Plan will recommend a phased approach where targeted shoulder widening in critical areas is built first (in places with sight distance issues or an uphill section). • Later phases will include full widening throughout the entirety of the corridor. • The improvement will meet shoulder standards of 4 feet.

Topic (in order of priority based on feedback)	What we heard: feedback and discussion	Project Team Response
Crossing of US 26 (in conjunction with the creation of a pedestrian-oriented environment to support a crossing)	• Concerns for pedestrian safety in Brightwood (in the vicinity of Arrah Wanna), Salmon River Road, and Rhododendron. Rhododendron received the highest support. • Preference for undercrossing or overcrossing but there was an understanding of such treatments being cost-prohibitive. • Concerns that at-grade crossings, even with rapid flashing beacons, would not be safe. • Project team led discussion that overcrossings and under-crossings create points of isolation and require entry points that may be far away from where pedestrians would like to cross). People often cross at-grade due to out-of-direction travel and a grade-separated crossing may not have high levels of adherence. Lastly, the high cost of construction will be a hurdle for implementation. • Rapid flashing beacons, in conjunction with a continental style (horizontal stripes), and sidewalks, pedestrian scale lighting, etc. alert drivers with cues that pedestrians are crossing. • Attendees called for more lighting in the area. • Attendees expressed concern about the compatibility of snowplowing with curbs and a pedestrian refuge island. • An attendee said she changed her mind about under/overcrossings, and realized at-grade crossing with flashing beacons is more feasible. Others agreed in support.	• Further detail how rapid flashing beacons, in conjunction with sidewalks, blub-outs, gateways signs, lighting, etc. can create a stronger sense that drivers are passing through a place with pedestrians crossing. • Further detail the considerations of under/overcrossings, and reasons for ultimate dismissal. • On this issue, ODOT's concern is safety over maintenance, and considers curbs to create safer conditions. Therefore, ODOT is willing to take on additional maintenance around curbs for safer conditions. • How do we integrate and implement multiuse paths and sidewalks? **1)** Create a multi-use path, using crushed gravel, with a landscape buffer. **2)** Install curbs and access management. **3)** Buildout full sidewalk. Priority areas for sidewalk buildout are in the vicinity of a US 26 crossing and more intense development. • In conjunction with design treatments, install temporary speed detectors to alert drivers how fast they are driving with the expectation that drivers are more likely to be compliant with the speed detector's presence.
Gateway Signs	• A gateway sign in Rhododendron received strong support during the dot/prioritization exercise. • During the report out, attendees suggested that each Village have a gateway sign to enhance driver's awareness of the communities and the presence of pedestrians.	• A gateway sign in Rhododendron is currently included in the projects and the project team will add gateway signs for Brightwood and Welches as well. • Gateway signs must meet local and state standards for roadway signs.

Topic (in order of priority based on feedback)	What we heard: feedback and discussion	Project Team Response
Lolo Pass Road Shoulder Widening	• Received strong support in the dot/prioritization exercise, equal to multiuse path along US 26. • Concern that this is a big ticket (expensive) item.	• Timeline would be as a long-term project. • Currently Lolo Pass Road is being evaluated as part of an Access Alternative Study, primarily due to the fact that it periodically becomes washed out. The entire roadway alignment is being evaluated. Tie this project to the outcomes of the Access Alternative Study. • Prioritize the section of Lolo Pass Road between US 26 and Barlow Trail Road.
Temporary Speed Monitors on Welches Road and Salmon River Road	• Received strong support in the dot/prioritization exercise. • Locations are: Welches Road, Salmon River Road, and US 26 in the vicinity of Rhododendron • Participants added a location: lower Lolo Pass Road.	• County has speed monitors and a waiting list exists to deploy them. • Highest priority is for US 26 in Rhododendron (ODOT may be able to place one on the highway).
Welches Road Crossing at Stage Stop Road	• New improvement location suggested by attendee. Pedestrians frequently cross at this location, and would like a safer facility. • The crossing should be in the vicinity of the post office, library, and the Hoodland Shopping Center. • Received strong support in the dot/prioritization exercise.	• A Safe Routes to School oriented crossing is proposed less than 400 feet south. However, the crossing proposed at Stage Stop Road is between two developments, and it is unlikely pedestrians would go 400 feet out of their way to cross. • The public process identified two crossing locations. During the next phase and project development, conduct pedestrian counts and evaluate standards to help define crossing locations, and perhaps narrow them.
Welches Road Advisory Bike Lanes	• Received strong support in the dot/prioritization exercise. • Some attendees said they could not see how these would work. • Others suggested considering these for low traffic portions of the roadway only.	• Define appropriate extents on Welches Road based on volumes and speeds. • Cite the threshold conditions for speed and volume for an advisory bike lane. • Use traffic analysis to evaluate appropriate locations.

Topic (in order of priority based on feedback)	What we heard: feedback and discussion	Project Team Response
Multiuse path between Lolo Pass Road and Rhododendron	• Received strong support in the dot/prioritization exercise. • Consider using Road 19.	• Road 19 is out-of-direction. • Road 19 is owned by Mt. Hood Forest Service, and work with them on developing a trail if appropriate. Culverts have been taken out and deep ruts exist in the roadway. • ODOT has a preference for locating pedestrian facilities off of US 26.
Consider paths along rivers	• Some of the most successful paths are those that run along rivers, and that the project should consider this. This can be particularly beneficial for promoting tourism in the area.	• The purpose of this project is to provide bicycle and pedestrian system made up of improvements that provide convenient access to daily needs. Paths along rivers are great recreational routes, and sometimes also serve transportation needs. • Add Plan language that future evaluation of paths along rivers could enhance and complement the proposed connected pedestrian and bicycle system.

Appendix A: Small Group Dot/Prioritization Exercise Results

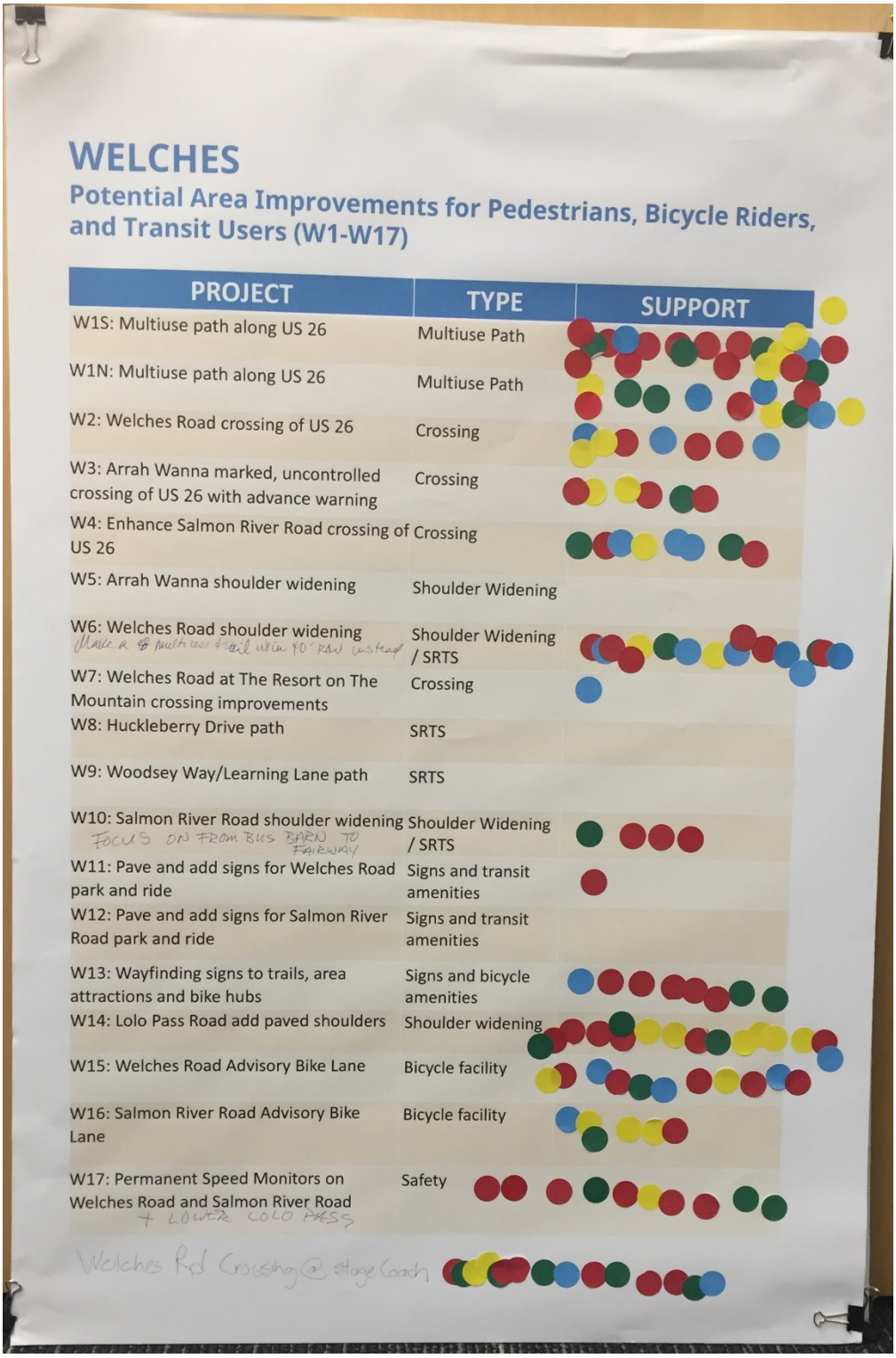


BRIGHTWOOD/WEMME

Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (B1-B8)

PROJECT	TYPE	SUPPORT
B1: Marmot Road shoulder widening	Shoulder widening	
B2: Barlow Trail Road Principle Active Transportation Route (Option A- Widen shoulders on both sides)	Shoulder widening	
B2: Barlow Trail Road Principle Active Transportation Route (Option B- Strategic widening)	Strategic shoulder widening	
B3: Coalman Road shoulder widening	Shoulder widening	
B4: Cherryville Road shoulder widening	Shoulder widening	
B5: Sleepy Hallow shoulder widening	Shoulder widening	
B6: Brightwood Loop shoulder widening	Shoulder widening	
B7: US 26 Undercrossing signs	Signs	
B8: Signs for transit park and ride	Signs	

Hwy 26 bottom of Cherryville hill westbound too narrow a 300YDS

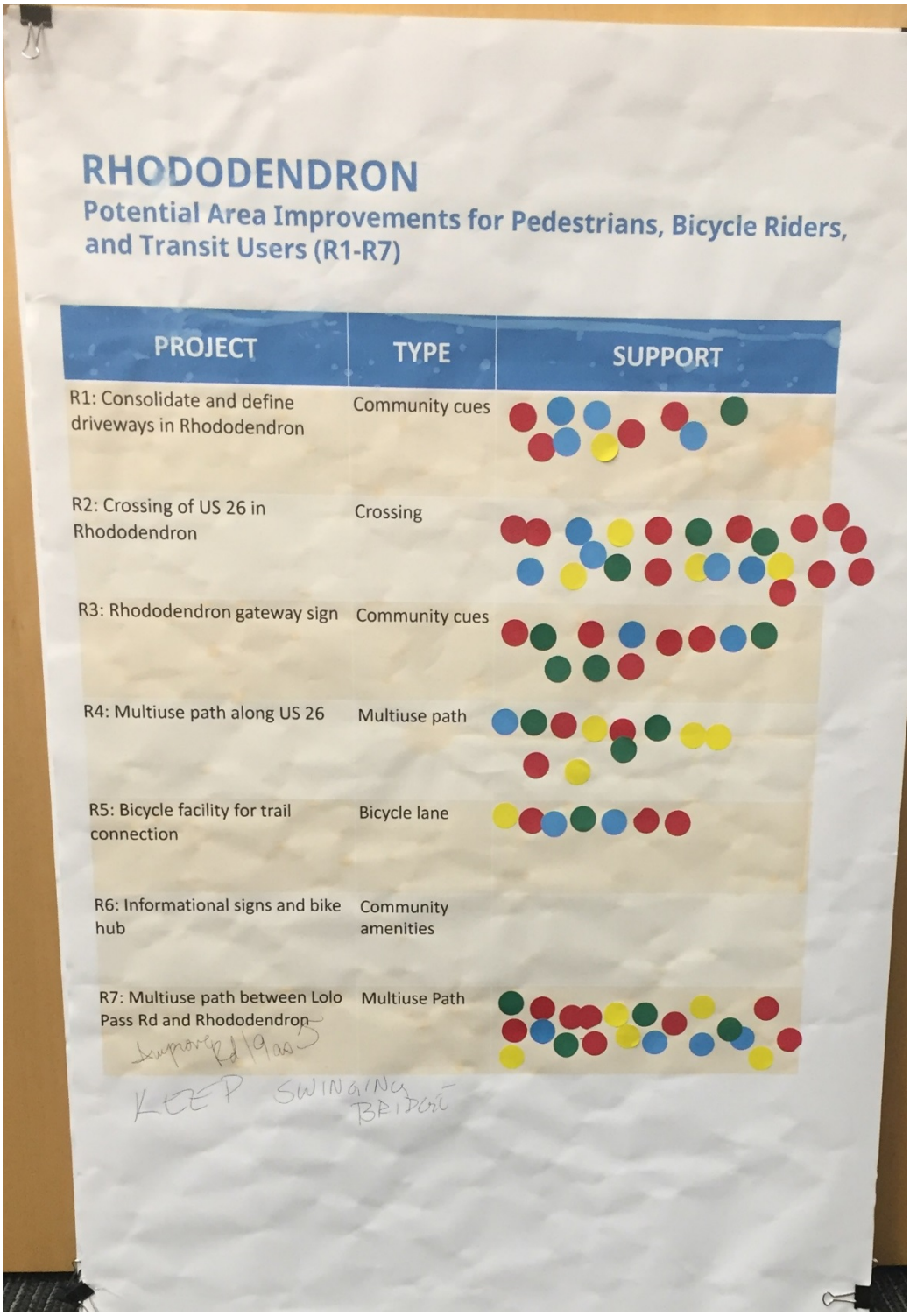


WELCHES

Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (W1-W17)

PROJECT	TYPE	SUPPORT
W1S: Multiuse path along US 26	Multiuse Path	
W1N: Multiuse path along US 26	Multiuse Path	
W2: Welches Road crossing of US 26	Crossing	
W3: Arrah Wanna marked, uncontrolled crossing of US 26 with advance warning	Crossing	
W4: Enhance Salmon River Road crossing of US 26	Crossing	
W5: Arrah Wanna shoulder widening	Shoulder Widening	
W6: Welches Road shoulder widening Make a $ multiuse trail with 40' ROW instead	Shoulder Widening / SRTS	
W7: Welches Road at The Resort on The Mountain crossing improvements	Crossing	
W8: Huckleberry Drive path	SRTS	
W9: Woodsey Way/Learning Lane path	SRTS	
W10: Salmon River Road shoulder widening FOCUS ON FROM BUS BARN TO FAIRWAY	Shoulder Widening / SRTS	
W11: Pave and add signs for Welches Road park and ride	Signs and transit amenities	
W12: Pave and add signs for Salmon River Road park and ride	Signs and transit amenities	
W13: Wayfinding signs to trails, area attractions and bike hubs	Signs and bicycle amenities	
W14: Lolo Pass Road add paved shoulders	Shoulder widening	
W15: Welches Road Advisory Bike Lane	Bicycle facility	
W16: Salmon River Road Advisory Bike Lane	Bicycle facility	
W17: Permanent Speed Monitors on Welches Road and Salmon River Road + LOWER COLO PASS	Safety	

Welches Rd Crossing @ stage Coach



RHODODENDRON

Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users (R1-R7)

PROJECT	TYPE	SUPPORT
R1: Consolidate and define driveways in Rhododendron	Community cues	
R2: Crossing of US 26 in Rhododendron	Crossing	
R3: Rhododendron gateway sign	Community cues	
R4: Multiuse path along US 26	Multiuse path	
R5: Bicycle facility for trail connection	Bicycle lane	
R6: Informational signs and bike hub	Community amenities	
R7: Multiuse path between Lolo Pass Rd and Rhododendron	Multiuse Path	

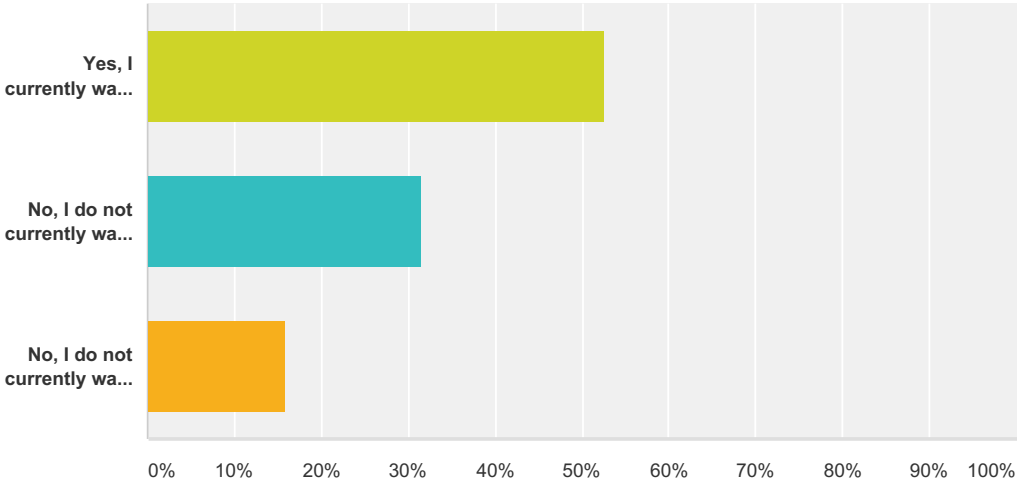
Improve Rd 19000

KEEP SWINGING BRIDGE

Appendix B: Online survey results summary

Q1 Do you walk or would you like to walk in this area?

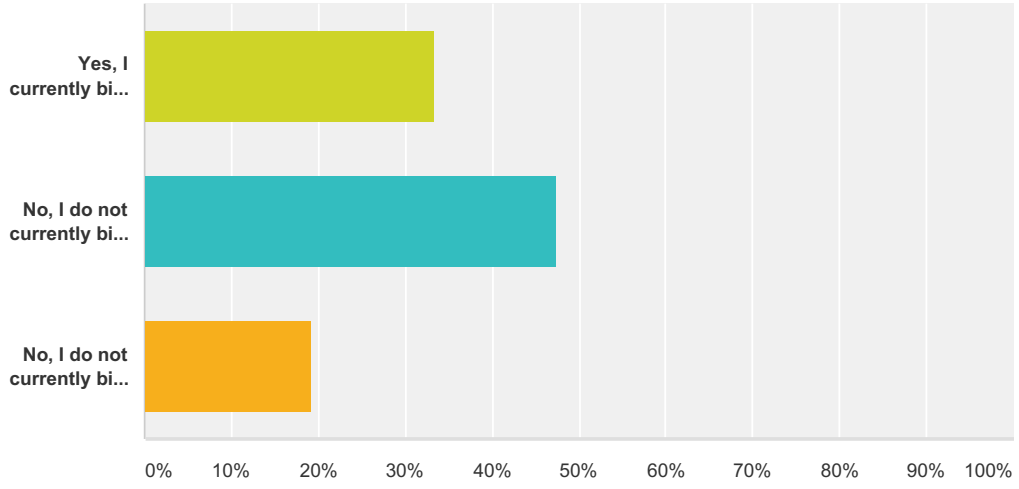
Answered: 57 Skipped: 2



Answer Choices	Responses	
Yes, I currently walk to places in this area.	**52.63%**	30
No, I do not currently walk to place in this area, but am interested in doing so.	**31.58%**	18
No, I do not currently walk to places in The Villages, and I have no interest in doing so.	**15.79%**	9
Total		**57**

Q2 Do you bike or would you like to bike in The Villages?

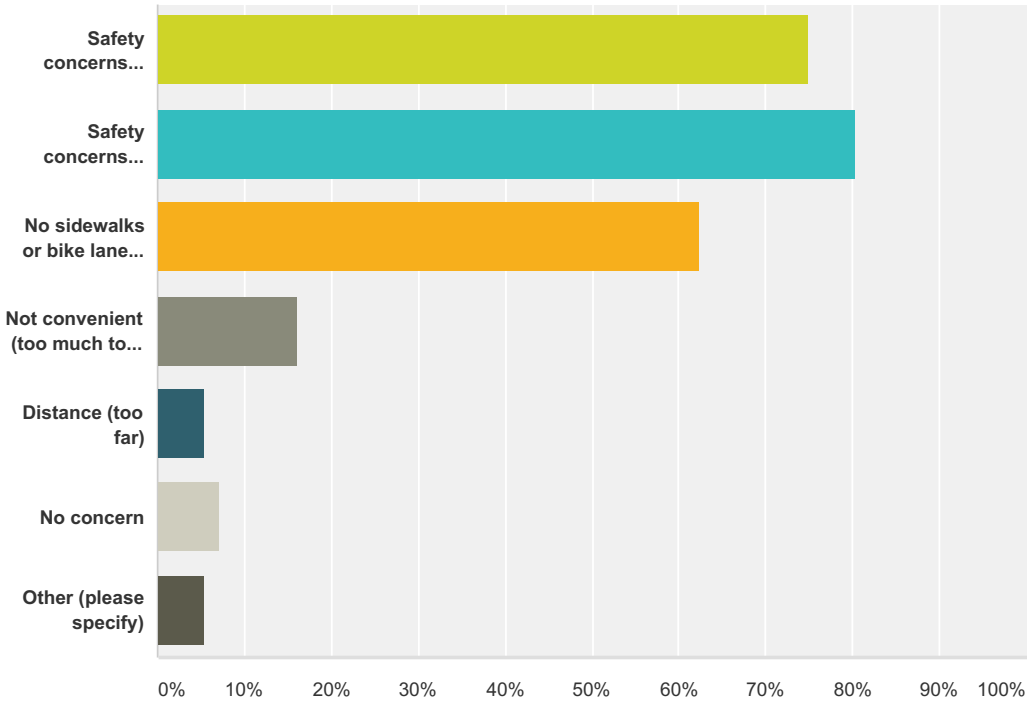
Answered: 57 Skipped: 2



Answer Choices	Responses	
Yes, I currently bike to places in this area.	**33.33%**	19
No, I do not currently bike to places in this area, but I am interested in doing so.	**47.37%**	27
No, I do not currently bike to places in this area and I have no interest in doing so.	**19.30%**	11
Total		**57**

Q3 What are your biggest concerns with walking/bicycling around this area? Select all that apply.

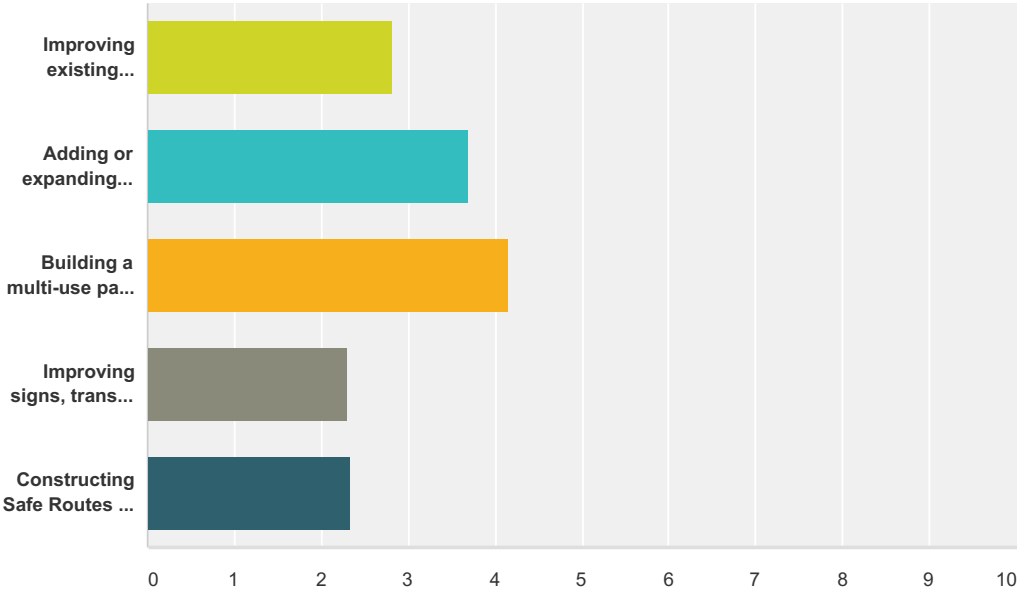
Answered: 56 Skipped: 3



Answer Choices	Responses	
Safety concerns related to a lack of walking/biking spaces, don't feel comfortable next to cars	**75.00%**	42
Safety concerns related to crossing US 26	**80.36%**	45
No sidewalks or bike lanes where I would like to go	**62.50%**	35
Not convenient (too much to carry, takes too long, don't know of a good route)	**16.07%**	9
Distance (too far)	**5.36%**	3
No concern	**7.14%**	4
Other (please specify)	**5.36%**	3
Total Respondents: 56		

Q4 What type of project is your highest priority for improving walking, bicycling, and access to transit within this area? (Rank in the order of 1 to 5. 1 is the most important, while 5 is the least important).

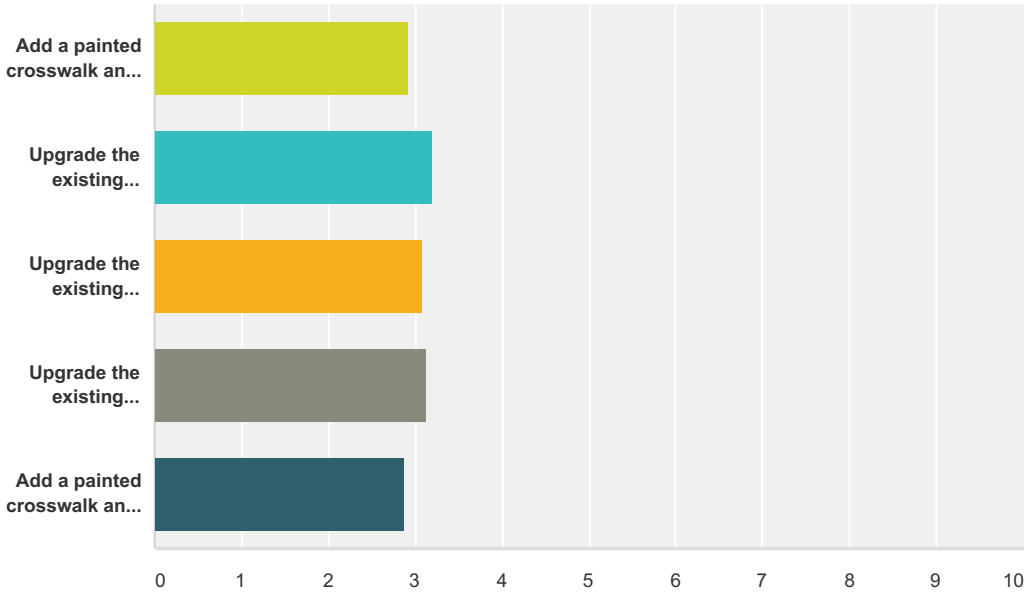
Answered: 54 Skipped: 5



	1	2	3	4	5	Total	Score
Improving existing crossings across US-26, or adding new crosswalks across US-26	**17.78%** 8	**13.33%** 6	**22.22%** 10	**26.67%** 12	**20.00%** 9	45	2.82
Adding or expanding shoulders on busy roadways (e.g. Welches Road, Barlow Trail Road)	**21.74%** 10	**39.13%** 18	**30.43%** 14	**4.35%** 2	**4.35%** 2	46	3.70
Building a multi-use path along US-26 to connect communities for walking and bicycling	**53.19%** 25	**23.40%** 11	**10.64%** 5	**10.64%** 5	**2.13%** 1	47	4.15
Improving signs, transit stops, and gateway signs that welcome people to the area	**6.25%** 3	**10.42%** 5	**22.92%** 11	**27.08%** 13	**33.33%** 16	48	2.29
Constructing Safe Routes to School projects that focus on improving walking and bicycling routes to Welches Elementary and Middle Schools.	**10.64%** 5	**12.77%** 6	**14.89%** 7	**23.40%** 11	**38.30%** 18	47	2.34

Q5 Several locations are being considered for added or upgraded roadway crossings. Please rank in the order of 1 to 5. (1 is the most important, while 5 is the least important).

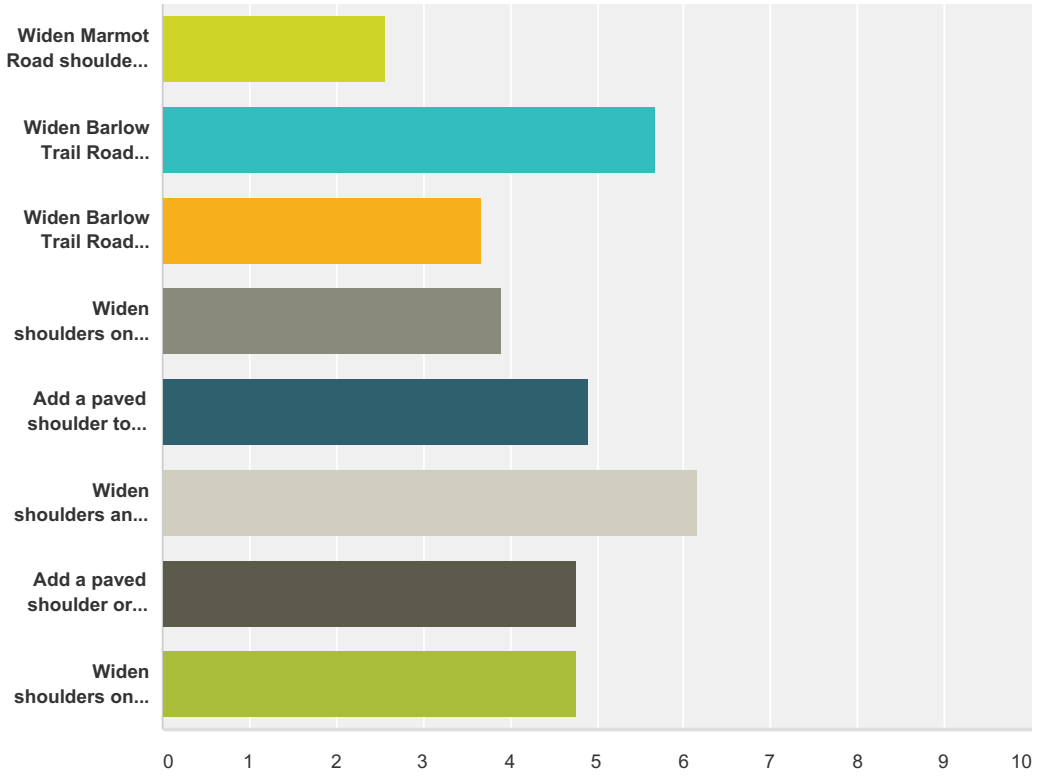
Answered: 41 Skipped: 18



	1	2	3	4	5	Total	Score
Add a painted crosswalk and a push-button activated flashing beacon across US-26 at Arrah Wanna Boulevard	**19.44%** 7	**13.89%** 5	**27.78%** 10	**16.67%** 6	**22.22%** 8	36	2.92
Upgrade the existing crossing on US-26 at Welches Road to comply with the Americans with Disabilities Act by relocating the crosswalk buttons to be accessible by wheelchair, and/or building sidewalks or curb-cuts for better access	**29.73%** 11	**18.92%** 7	**10.81%** 4	**21.62%** 8	**18.92%** 7	37	3.19
Upgrade the existing crossing of Welches Road at the Resort at the Mountain by adding advanced warning signs and a split beacon that warns drivers approaching from the south, where drivers have a limited view of the crossing	**21.62%** 8	**27.03%** 10	**13.51%** 5	**13.51%** 5	**24.32%** 9	37	3.08
Upgrade the existing crossing on US-26 at Salmon River Road by repainting the crosswalk and adding a push button activated flashing beacon	**21.05%** 8	**15.79%** 6	**28.95%** 11	**23.68%** 9	**10.53%** 4	38	3.13
Add a painted crosswalk and push-button activated flashing beacon across US 26 in Rhododendron next to Mt. Hood Express transit stops	**15.79%** 6	**23.68%** 9	**18.42%** 7	**18.42%** 7	**23.68%** 9	38	2.89

Q6 Several locations are proposed for potential improvements that add or expand shoulders on roadways for pedestrians and bicyclists. Please rank in the order of 1 to 8 as the most to least important. (Please note: Many of these roadway shoulder expansion projects are also included in the Clackamas County Transportation System Plan).

Answered: 35 Skipped: 24

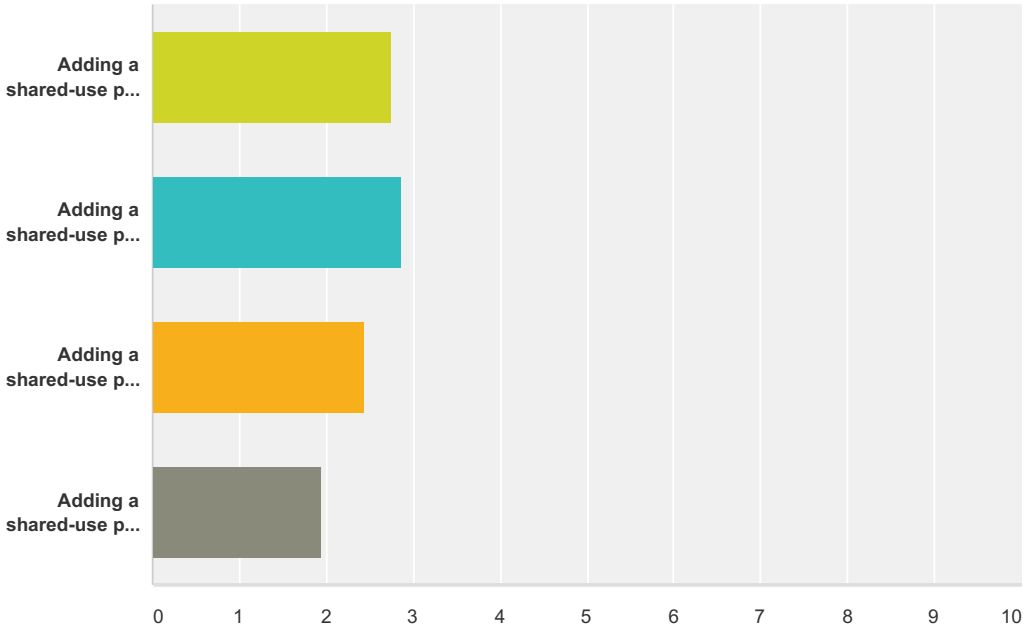


	1	2	3	4	5	6	7	8	Total	Score
Widen Marmot Road shoulders on each side from Big Sandy Dam Road to Barlow Trail Road	**3.57%** 1	**3.57%** 1	**3.57%** 1	**10.71%** 3	**7.14%** 2	**7.14%** 2	**14.29%** 4	**50.00%** 14	28	2.57
Widen Barlow Trail Road (designated as a principle active transportation route) shoulders on each side from Sleepy Hollow Road to Lolo Pass Road	**32.26%** 10	**12.90%** 4	**0.00%** 0	**19.35%** 6	**19.35%** 6	**12.90%** 4	**3.23%** 1	**0.00%** 0	31	5.68
Widen Barlow Trail Road (designated as a principle active transportation route) shoulders in key areas only (such as places where sight distance is limited, or where uphill climbs slow pedestrians and bicycles using the roadway)	**7.14%** 2	**3.57%** 1	**14.29%** 4	**3.57%** 1	**14.29%** 4	**25.00%** 7	**17.86%** 5	**14.29%** 4	28	3.68

Widen shoulders on smaller, local roads in Brightwood, including Coalman Road, Cherryville Road, and Brightwood Loop	**3.13%** 1	**15.63%** 5	**6.25%** 2	**12.50%** 4	**15.63%** 5	**9.38%** 3	**28.13%** 9	**9.38%** 3	32	3.91
Add a paved shoulder to each side of Arrah Wanna Boulevard from E Crystal Creek Road to US 26	**15.63%** 5	**15.63%** 5	**15.63%** 5	**6.25%** 2	**18.75%** 6	**9.38%** 3	**9.38%** 3	**9.38%** 3	32	4.91
Widen shoulders and/ or develop a shared use path on Welches Road between Fairway Avenue and Huckleberry Drive to US 26	**24.24%** 8	**27.27%** 9	**18.18%** 6	**15.15%** 5	**6.06%** 2	**3.03%** 1	**6.06%** 2	**0.00%** 0	33	6.15
Add a paved shoulder or path to Salmon River Road between US 26 and Fairway Avenue	**6.06%** 2	**12.12%** 4	**30.30%** 10	**15.15%** 5	**3.03%** 1	**15.15%** 5	**9.09%** 3	**9.09%** 3	33	4.76
Widen shoulders on Lolo Pass Road from US 26 to Muddy Fork Road	**16.13%** 5	**9.68%** 3	**12.90%** 4	**16.13%** 5	**16.13%** 5	**9.68%** 3	**9.68%** 3	**9.68%** 3	31	4.77

Q7 Shared use paths are proposed for several locations throughout the area. Please rank in the order of 1 to 4 as the most to least important.

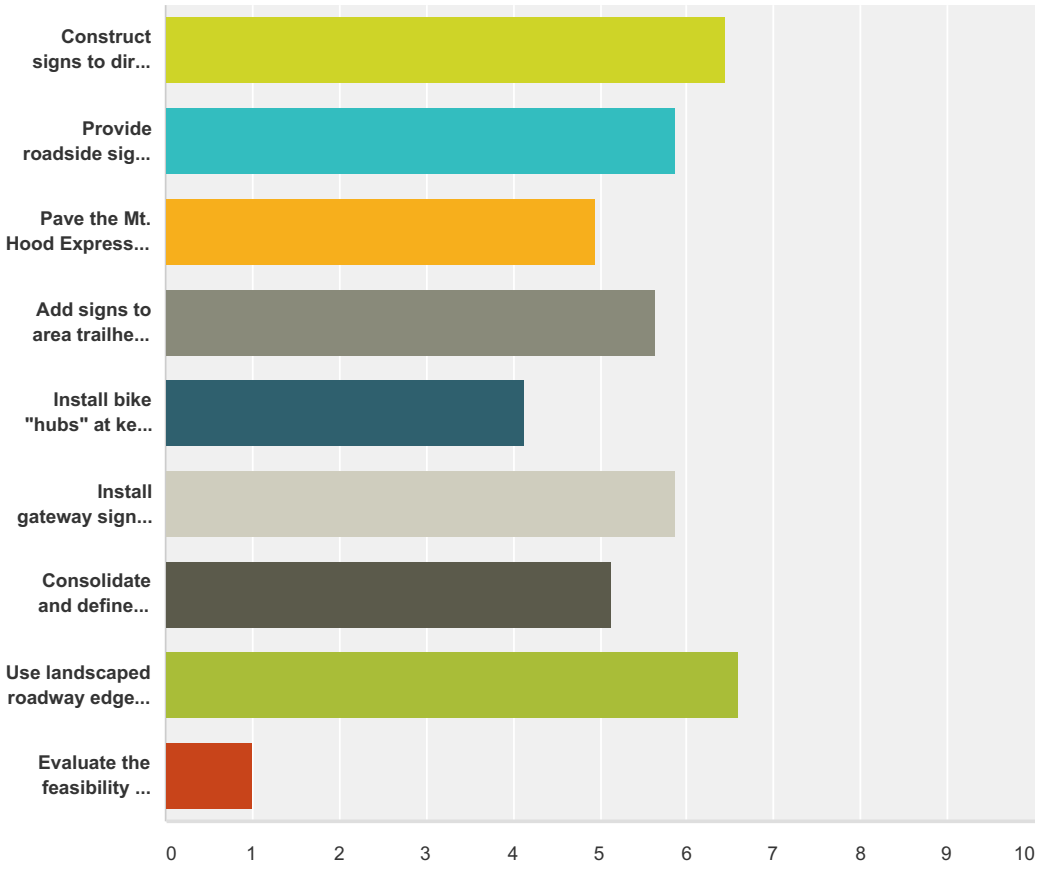
Answered: 34 Skipped: 25



	1	2	3	4	Total	Score
Adding a shared-use path on the north side of US-26 between Welches Road and Arrah Wanna Boulevard.	**24.24%** 8	**42.42%** 14	**18.18%** 6	**15.15%** 5	33	2.76
Adding a shared-use path on the south of US-26 between Salmon River Road and Wildwood Recreation Area.	**35.29%** 12	**26.47%** 9	**26.47%** 9	**11.76%** 4	34	2.85
Adding a shared-use path on the north side of US-26 between Salmon River Road and Lolo Pass Road.	**17.65%** 6	**23.53%** 8	**44.12%** 15	**14.71%** 5	34	2.44
Adding a shared-use path from the Mt. Hood Express transit stop in Rhododendron and the Pioneer Bridle Trailhead east of Rhododendron.	**21.21%** 7	**9.09%** 3	**12.12%** 4	**57.58%** 19	33	1.94

Q8 Area signs and improvements that provide information, facilities for transit riders, and traffic-calming features are proposed throughout the area. Please rank in the order of 1 to 8 according to what you think will provide the most safety and travel benefits for pedestrians and bicyclists.

Answered: 36 Skipped: 23

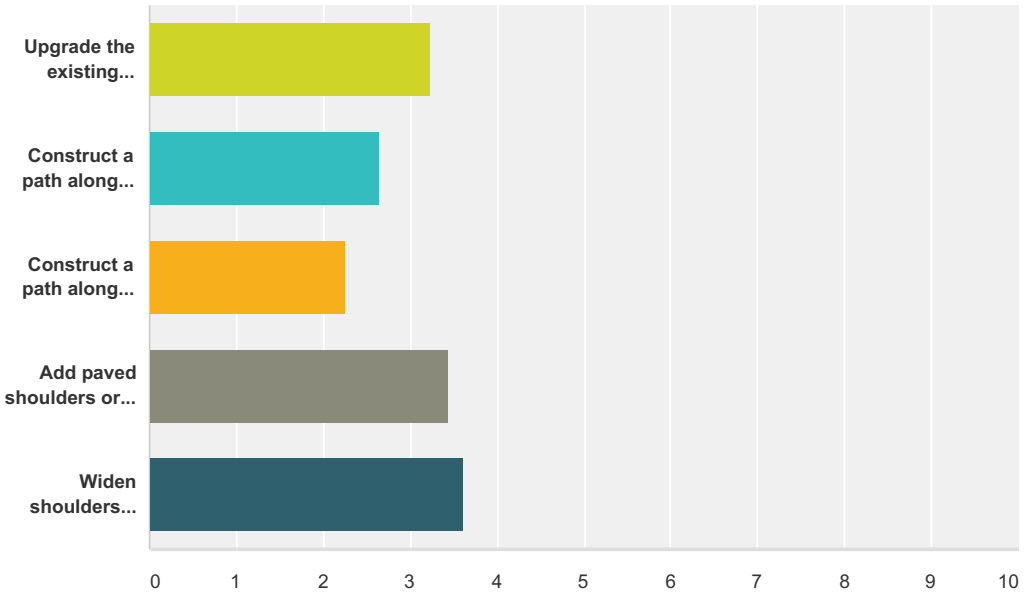


	1	2	3	4	5	6	7	8	9	Total	Score
Construct signs to direct bicycle riders and pedestrians to the existing undercrossing of US 26 in the vicinity of Country Club Road, off of Brightwood Loop Road	**25.81%** 8	**6.45%** 2	**19.35%** 6	**19.35%** 6	**9.68%** 3	**6.45%** 2	**9.68%** 3	**3.23%** 1	**0.00%** 0	31	6.45
Provide roadside signs to Mt. Hood Express Park and Ride locations	**3.23%** 1	**29.03%** 9	**12.90%** 4	**16.13%** 5	**9.68%** 3	**9.68%** 3	**12.90%** 4	**6.45%** 2	**0.00%** 0	31	5.87
Pave the Mt. Hood Express Park and Ride transit stops and parking at Welches Road and Salmon River Road	**12.90%** 4	**9.68%** 3	**9.68%** 3	**6.45%** 2	**6.45%** 2	**16.13%** 5	**19.35%** 6	**19.35%** 6	**0.00%** 0	31	4.94

Add signs to area trailheads and recreational opportunities	**12.50%** 4	**6.25%** 2	**15.63%** 5	**15.63%** 5	**21.88%** 7	**9.38%** 3	**12.50%** 4	**6.25%** 2	**0.00%** 0	32	5.63
Install bike "hubs" at key locations that provide recreation information, bike tools, and pump	**6.45%** 2	**3.23%** 1	**6.45%** 2	**6.45%** 2	**19.35%** 6	**12.90%** 4	**6.45%** 2	**38.71%** 12	**0.00%** 0	31	4.13
Install gateway signs in advance of Rhododendron in eastbound and westbound directions to alert drivers they are entering a community	**11.11%** 4	**16.67%** 6	**13.89%** 5	**16.67%** 6	**11.11%** 4	**16.67%** 6	**5.56%** 2	**8.33%** 3	**0.00%** 0	36	5.86
Consolidate and define driveways in Rhododendron to improve traffic safety	**6.25%** 2	**9.38%** 3	**15.63%** 5	**6.25%** 2	**15.63%** 5	**18.75%** 6	**25.00%** 8	**3.13%** 1	**0.00%** 0	32	5.13
Use landscaped roadway edges, decorative lighting, curb extensions, and other street beautification to define areas around roadway crossings so drivers are aware of pedestrians or bicyclists crossing	**29.41%** 10	**20.59%** 7	**8.82%** 3	**14.71%** 5	**2.94%** 1	**5.88%** 2	**5.88%** 2	**11.76%** 4	**0.00%** 0	34	6.59
Evaluate the feasibility of a fully paved shared-use path/ bike route between Rhododendron and Government Camp	**0.00%** 0	**0.00%** 0	**0.00%** 0	**0.00%** 0	**0.00%** 0	**0.00%** 0	**0.00%** 0	**0.00%** 0	**100.00%** 1	1	1.00

Q9 There are several proposed projects to increase the safety of children walking or bicycling to Welches Elementary and Middle Schools. Please rank in the order of 1 to 5 as the most to least important (Note: Some projects may have appeared in other categories).

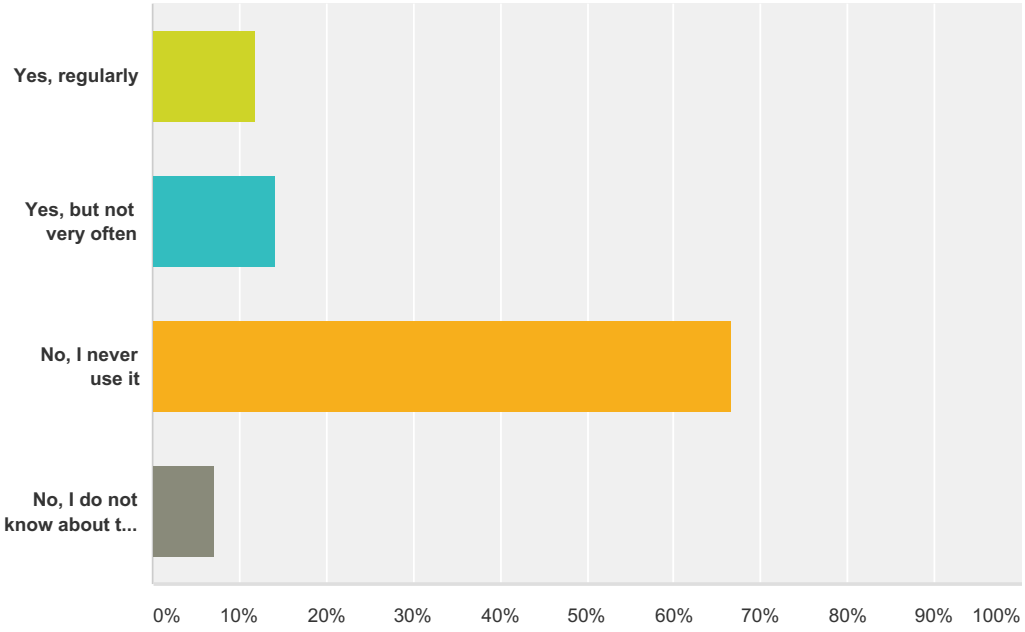
Answered: 35 Skipped: 24



	1	2	3	4	5	Total	Score
Upgrade the existing crossing on US 26 at Salmon River Road by repainting the crosswalk and adding a push-button activated rapid flashing beacon	**36.67%** 11	**6.67%** 2	**23.33%** 7	**10.00%** 3	**23.33%** 7	30	3.23
Construct a path along Huckleberry Drive to connect Welches Road to Woodsey Way	**13.79%** 4	**10.34%** 3	**24.14%** 7	**31.03%** 9	**20.69%** 6	29	2.66
Construct a path along Woodsey Way that connects to the sidewalk on Cedar Hill Terrace and add a crosswalk across Woodsey Way	**3.13%** 1	**15.63%** 5	**12.50%** 4	**40.63%** 13	**28.13%** 9	32	2.25
Add paved shoulders or a path to Salmon River Road between US 26 and Fairway Avenue	**20.59%** 7	**38.24%** 13	**14.71%** 5	**17.65%** 6	**8.82%** 3	34	3.44
Widen shoulders and/or develop a shared use path on Welches Road between Fairway Avenue and US 26	**29.41%** 10	**29.41%** 10	**26.47%** 9	**2.94%** 1	**11.76%** 4	34	3.62

Q10 Do you ride Mt. Hood Express transit service?

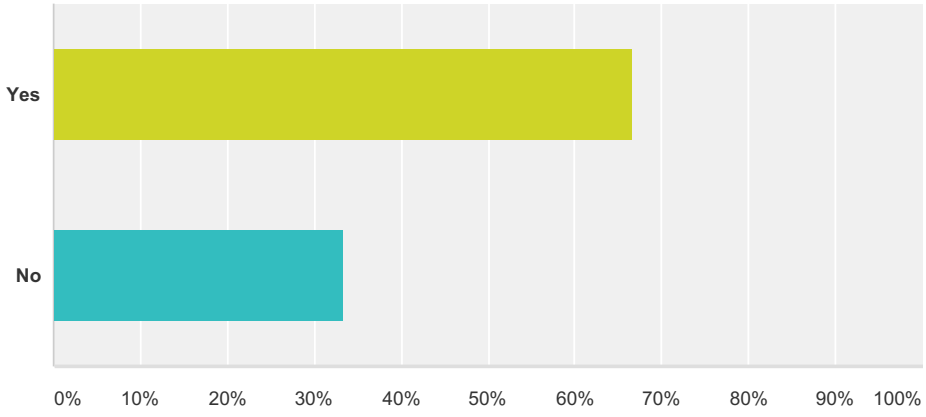
Answered: 42 Skipped: 17



Answer Choices	Responses	
Yes, regularly	**11.90%**	5
Yes, but not very often	**14.29%**	6
No, I never use it	**66.67%**	28
No, I do not know about the Mt. Hood Express Service	**7.14%**	3
Total		**42**

Q11 Would you walk or bicycle to a transit stop if you felt safer doing so?

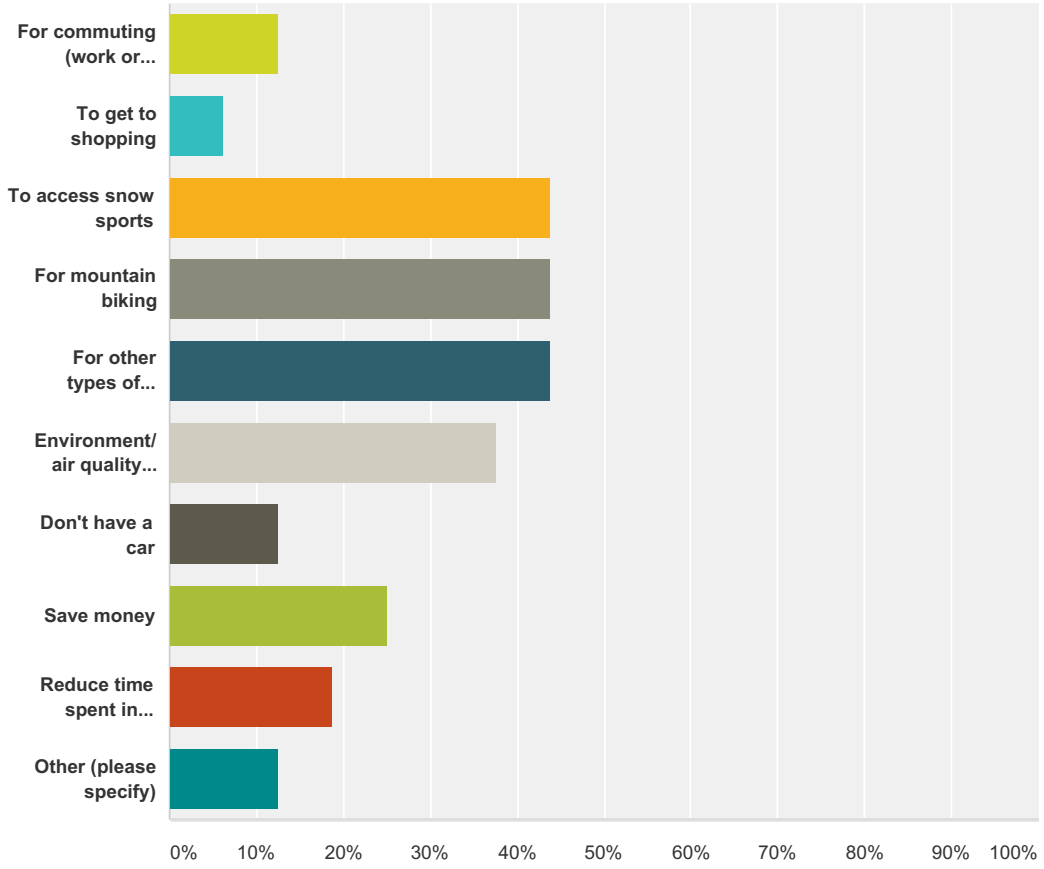
Answered: 42 Skipped: 17



Answer Choices	Responses	
Yes	**66.67%**	28
No	**33.33%**	14
Total		**42**

Q12 If you ride Mt. Hood express, please tell us why. Select all that apply.

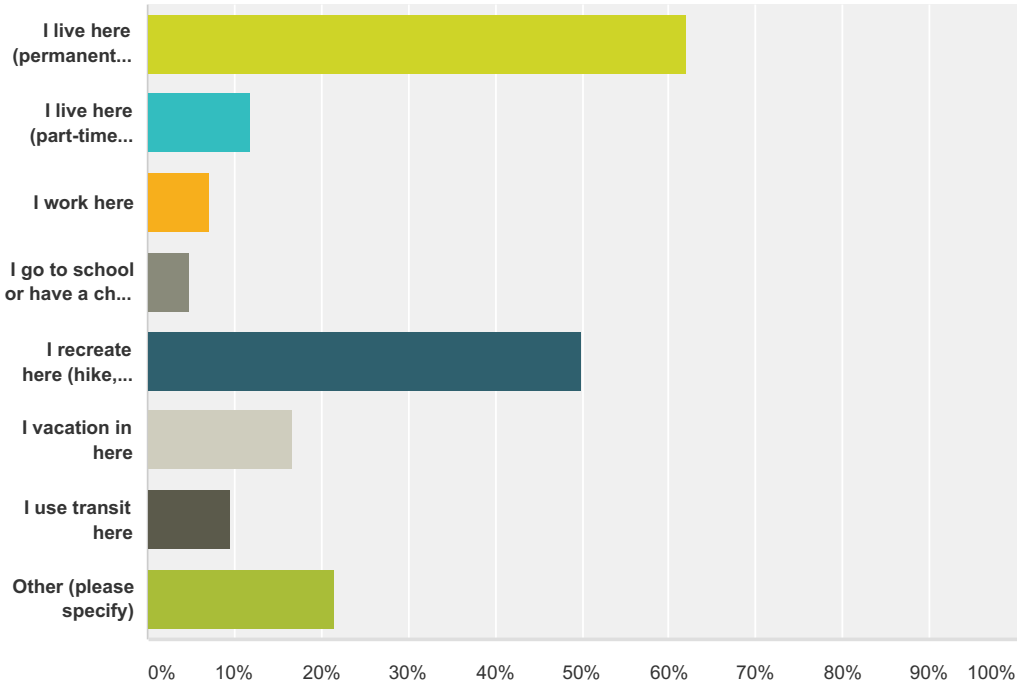
Answered: 16 Skipped: 43



Answer Choices	Responses	
For commuting (work or school)	**12.50%**	2
To get to shopping	**6.25%**	1
To access snow sports	**43.75%**	7
For mountain biking	**43.75%**	7
For other types of recreation	**43.75%**	7
Environment/ air quality benefits	**37.50%**	6
Don't have a car	**12.50%**	2
Save money	**25.00%**	4
Reduce time spent in traffic/car/finding parking	**18.75%**	3
Other (please specify)	**12.50%**	2
Total Respondents: 16		

Q13 Why are you interested in walking, bicycling, and transit improvements in this area? Select all that apply.

Answered: 42 Skipped: 17



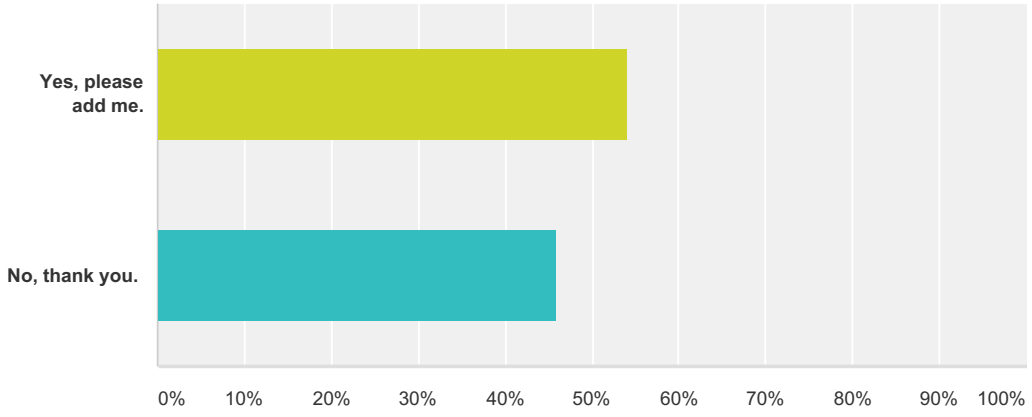
Answer Choices	Responses	
I live here (permanent resident)	**61.90%**	26
I live here (part-time resident)	**11.90%**	5
I work here	**7.14%**	3
I go to school or have a child who goes to school here	**4.76%**	2
I recreate here (hike, bike, ski, etc.)	**50.00%**	21
I vacation in here	**16.67%**	7
I use transit here	**9.52%**	4
Other (please specify)	**21.43%**	9
Total Respondents: 42		

Q14 Is there anything else the project team should know about walking and biking in this area?

Answered: 12 Skipped: 47

Q15 Do you want to be added to our mailing list?

Answered: 37 Skipped: 22



Answer Choices	Responses	
Yes, please add me.	**54.05%**	20
No, thank you.	**45.95%**	17
Total		**37**

Q16 Please enter your email address here. We will only contact you if you said 'Yes' to question 15.

Answered: 22 Skipped: 37

Answer Choices	Responses	
Name	**0.00%**	0
Company	**0.00%**	0
Address	**0.00%**	0
Address 2	**0.00%**	0
City/Town	**0.00%**	0
State/Province	**0.00%**	0
ZIP/Postal Code	**0.00%**	0
Country	**0.00%**	0
Email Address	**100.00%**	22
Phone Number	**0.00%**	0

DRAFT

Appendix 3

Additional comments from ODOT

DRAFT

Kate Brown, Governor

Department of Transportation
Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8531

June 14, 2016

MEMORANDUM File: TGM 1F-14

To: Lori Mastrantonio, Project Manager, Clackamas County
Sumi Malik, Project Manager, CH2Mhill

From: Gail Curtis, Senior Planner and TGM Contract Administrator

Subject: **The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, Recommended Plan Version**

The purpose of this letter is to document ODOT's involvement and response to "The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, Recommended Plan Version." The majority of plan concepts are supported by ODOT but additional analysis during implementation will be needed to determine the exact treatments. Outlined below are key considerations for the US26 related projects as they move from concept to implementation.

Background: The need for the plan, including determining if and where pedestrian crossings should occur on US 26 within The Villages was identified as part of the Mt Hood Multi-Modal Plan with Clackamas County as the appropriate lead agency. With state, Transportation Growth Management program funding support the plan was developed in 2015-16. I served as the ODOT planner and TGM contract manager responsible for coordination with the ODOT Region 1 Traffic Unit represented by Kate Freitag, ODOT PE; Region 1 Mobility Unit represented by Tony Coleman; and Region 1, Region Maintenance District 2C represented by Michael Keyes.

Key Considerations: Below is a summary of the key considerations in which ODOT expects to be addressed as part of implementation. See also the attached memo from Kate Freitag, ODOT PE which outlines additional considerations.

- **Safety:** Safety is of paramount importance to ODOT. The area conditions where new, US 26 pedestrian crossing are intended will need to change considerably before ODOT will grant approval of new crossings. Expected area conditions include improvements such as sidewalks, curbs, decorative lighting, a reduction in parking between US26 and the buildings they serve. These measures are needed to help cue drivers that pedestrians can be expected and improve safety for all users.

- **Transit:** The plan area is served by the Mt. Hood Express transit and a local shuttle. Mt. Hood Express transit's short history is proving that the transit service is both popular and effective in providing an alternative to driving between Mt. Hood and the Portland metro area. The transit serves both those wanting to recreate and work on the mountain. There are four Mt. Hood Express transit stops along the US26 corridor with one of the four transit stops located on US 26 in Rhododendron. The Bend Breeze transit has one stop on Mt. Hood and it too is located in Rhododendron allowing a potential ride connection between the two services. The Mt. Hood Express transit stop in Rhododendron is located on the south side of US26 with the majority of

services, including a grocery store on the north side of US26. In order to better serve the transit service and existing village-like features we recommend the implementation of the proposed Rhododendron pedestrian crossing have priority over the potential, Arrah Wanna/US26 ped. crossing. Once implemented, it can serve as a model for the potential, Arrah Wanna crossing.

- **ORS 366.215:** It will be necessary to maintain 26' of horizontal clearance through the US 26 corridor per Tony Coleman, ODOT Region 1 Mobility Coordinator. This consideration applies to the potential pedestrian medians. Maintaining 26' of clearance will allow a 22-foot wide load with 2 feet of buffer on each side. The 26' clear area should be free of sign posts, trees or other obstacles. If less is that 26' is desired, a meeting with the Freight Mobility group can occur to determine if less would be acceptable. If 26' is maintained, no Freight Mobility group meeting would be necessary.

- **New US 26 pedestrian crossings**: In order for ODOT to support the proposed (non-signalized) pedestrian crossings, the character of the intended locations will need to change considerable. The existing character of the proposed crossing locations is insufficient to cue drivers that they have entered a pedestrian-active place. The plan addresses this need in Rhododendron (projects R1 and R3) and the recommended, community plan policy language includes a policy that calls for the existing commercial areas to become more pedestrian in character. Specific county development code changes will be needed to change the private development patterns (over time) to a pedestrian-supportive environment and scale.

- **Snow removal:** ODOT District 2C maintenance staff advises that the proposed pedestrian features, including the pedestrian refuge medians (that ODOT will require) for new US 26 crossings present snow removal challenges. The District 2C staff said the assumption is that the snowplow driver will be familiar with the US26 corridor such that the location of the future, potential pedestrian refuge medians and pedestrian buld-outs can be avoided by the snowplow driver. They also advise that the addition of curbs is desirable to help guide the snowplow blade and avoid roadside damage.

- **Intergovernmental Agreement(s):** Clackamas County (or applicable, public agency) will need to enter into maintenance agreements with ODOT regarding the ongoing maintenance of proposed, project features such as multiuse paths; lighting and replacement of features damaged by snow removal.

- **Additional analysis as part of ODOT State Traffic Engineer approval**: The treatments being proposed require the ODOT State Traffic Engineer approval; and the treatment type/level may change based on the outcome of the traffic investigation/analysis and the approval process. The proposed treatments must either meet ODOT standards or design exceptions be approved.

- **No commitment to funding projects:** There presently is no identified ODOT funding for any of the recommended projects. There are a few state grant programs for which the Clackamas County may wish to seek funding for project development and construction.

Thank you for the opportunity to comment.

c: Tony Coleman, ODOT Region 1 Mobility Coordinator
Kate Freitag, PE, Region 1, ODOT Traffic Unit
Michael Keyes, ODOT Region 1, District 2C
Jon Makler, ODOT Region 1, Planning Manager

Attachment: Kate Freitag, May 25, 2016 Memo (revised June 9, 2016)

Department of Transportation
Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8531

Kate Brown, Governor

May 25, 2016 (revised June 9, 2016)

MEMORANDUM

To: Gail Curtis, TGM Contract Administrator

From: Kate Freitag, PE, ODOT Region 1 Traffic

Subject: **Recommended Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan" draft**

Please find my comments regarding the "Recommended Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan" draft for Clackamas County's, the consultant team and interested citizens.

General Comments

- Language should be added to the final plan to indicate that "*The proposed treatments affecting US 26 require ODOT State Traffic Engineer approval. The treatment types and level of improvements may change based on the outcome of the traffic investigation/analysis and approval process.*

- In general, features for any element whether it is signing, striping, pedestrian crossing treatments, multi-use paths, other bicycle facilities, etc. on ODOT right-of-way would need to comply with ODOT Bicycle and Pedestrian Design Guide, MUTCD, ODOT Traffic Manual, and ODOT Signing and Striping manuals as well as any other design requirements not listed here.

- Any pedestrian treatments will require a traffic engineering investigation/analysis to determine what treatments are appropriate based on the existing conditions. ODOT currently uses NCHRP562 to analyze and quantify treatment type. This is based on existing vehicular and pedestrian volumes as well as some other factors, although other factors such as planned use of the facilities can also be taken into account if appropriate. Depending on the treatment type, ODOT Region 1 Traffic Engineer and/or State Traffic Engineer (STE) approval would likely be required (STE approval is required to mark a crosswalk and install a rectangle rapid flashing beacon, (RRFB).

- ODOT's preference would be to have the terminology be "enhanced pedestrian crossing treatments" in the report rather than specify installing RRFBs since the treatment type indicated by the engineering analysis may not be an RRFB. Specifying an RRFB in the plan may imply to local citizens and local agency staff that ODOT has approved the treatment proposed, which is not the case.

Specific Comments

Project R2, New Rhododendron ped. crossing: This project proposes a new, marked crosswalk with an RRFB. The posted speed in Rhododendron is 40 mph, which is within the guidance given for RRFB consideration in the ODOT Traffic Manual. Similar concerns exist here in regards to the maintenance issues with the raised medians and snowplowing activities. The roadway and roadside character in Rhododendron already provides visual cues to drivers that they may see pedestrians (more than at E. Salmon Creek Road). Further improvements should be made such as sidewalk and access management to improve pedestrian walkability and indicate to motorists that they should expect to see pedestrians.

Project W4, E. Salmon River ped. crossing of US 26 – This location has a posted speed of 45 mph, the maximum at which the proposed, rectangular rapid flashing beacon (RRFB) will be considered for approval. A raised pedestrian refuge island with an RRFB sign assembly would be required based on best practices if an RRFB was to be installed at this location. Median islands may be a concern for maintenance, particularly snow plowing. In addition, RRFBs may be problematic along the side of the roadway due to the force of the snow being thrown off the side of the highway during plowing activities. A traffic analysis/investigation including pedestrian volumes, turning movement and highway through volumes, and NCHRP 562 analysis will be required as part of the request to the State Traffic Engineer. Approval for pedestrian crossing treatments such as marked crosswalks and RRFBs require State Traffic Engineer approval.

Project W3, Arrah Wanna crossing of US26: This location has a posted speed of 45 mph, the maximum at which a rectangular rapid flashing beacon (RRFB) will be considered for approval. A raised pedestrian refuge island with an RRFB sign assembly would be required if an RRFB was to be installed at this location. Due to this being a 4-legged intersection, installation of a median island would likely necessitate eliminating left-turn movements into either the driveway or the side street, necessitating prohibition of the affected left-turn movement. Median islands would likely be a concern for maintenance, particularly snow plowing. In addition, RRFBs may be problematic along the side of the roadway due to the force of the snow being thrown off the side of the highway during plowing activities. A traffic analysis/investigation including pedestrian volumes, turning movement and highway through volumes, and NCHRP 562 analysis will be required as part of the request to the State Traffic Engineer. Approval for pedestrian crossing treatments such as marked crosswalks and RRFBs require State Traffic Engineer approval.

ODOT has concerns with specifying an exact treatment type for a pedestrian crossing without having a completed engineering analysis that documents why a certain treatment is preferred over another. Those details are typically worked through the State Traffic Engineer approval process, which includes the engineering analysis of a specific location. Indicating in a plan what treatment "should be" installed without having the State Traffic Engineer approval for that installation could be problematic at the time when a project is undertaken. *This same comment applies to all proposed pedestrian crossings of US26.*

US26 is a ORS366 reduction route which may require specific assessment of the design of any features that would restrict the width of US26. Tony Coleman, Region 1 Mobility Coordinator, would need to provide guidance regarding the allowable minimum width of the traversable roadway that would need to be retained. That is true for this location as well as any other location within the study area where bulbouts, curb & sidewalk, and median islands are proposed that would reduce the existing width of the roadway.

Project W1S & W1N, multiuse path along US26: A multiuse path along US26 would need to meet ODOT standards or obtain a design exception. Consideration for safety concerns should be made where

there are driveways or local streets that cross the proposed path before accessing US26. On page 2-22, pedestrian lighting is brought up as an element of the improvement. That may be appropriate in certain isolated areas where there are ped crossings or moderate/high volume roadways or driveways crossing the path, but linear illumination is unlikely in a rural area. An IGA assigning responsibility for the maintenance and operation (including cost) of the illumination would likely be required between ODOT and Clackamas County.

The same comments apply to the proposed path on both sides of the highway.

Projects B7 & B8, Wayfinding and transit stop signs: Wayfinding and transit stop signs in ODOT right-of-way will require approval from ODOT Region 1 Traffic Section for sign type, size, location, etc. Permits or an IGA may also be required for these types of signing.

Project W11, Welches Road Park and Ride: The access into the park & ride parking lot should be located as far south on Welches Road from US26 as possible to reduce potential operational or safety impacts on US26 due to vehicles turning into/out of the parking lot. In general, ODOT Traffic is supportive of improving this park & ride lot since it is at a signalized access with US26.

Project R2, Crossing of US26 in Rhododendron with Rapid Flash Beacons: As proposed, this would be a new marked crosswalk with an RRFB. The posted speed in Rhododendron is 40 mph, which is within the guidance given for RRFB consideration in the ODOT Traffic Manual. Similar concerns exist here in regards to the maintenance issues with the raised medians and snowplowing activities. The roadway and roadside character in Rhododendron has some existing visual cues to drivers that they may see pedestrians (more than at E. Salmon Creek Road). Further area improvements prior to the crosswalk should be made such as sidewalk and access management to improve pedestrian walkability and indicate to motorists that they should expect to see pedestrians.

This section of the plan speaks to the need for developing a pedestrian-oriented streetscape that would provide better cues to drivers that they are entering an area where they should expect to see pedestrians crossing. Providing those cues would likely improve stopping compliance at an enhanced crosswalk and driver compliance with the posted speeds.

Project R3, Rhododendron Gateway Sign: Installation of gateway signs (similar to the Linnton sign shown in Figure 14) would have to be outside ODOT right-of-way and would be subject to any rules and conditions of the Oregon Outdoor Advertising Sign Program. Here is a link to the website with information regarding that program:

http://www.oregon.gov/ODOT/HWY/SIGNPROGRAM/pages/index.aspx

Project R4, Ped. Accommodation along US26 in Rhododendron: Similar to comments for Project R1, ODOT Traffic is generally in favor of the improvements proposed in this section. Medians and bulbouts will need to be reviewed and considered as they relate to any requirements for US26 related to the OR366 reduction route which may impact the ability to install features that would restrict the width available for freight vehicles.

Consideration also needs to be made for snowplowing and other maintenance activities, since the introduction of medians and curbs also introduces potential issues with snow removal and the ability of maintenance vehicles to work around those raised features. This is true for any feature such as a median or curbs within the study area, not just those included in this potential recommended improvement.

Project R1, Consolidate and Define Driveways in Rhododendron: In general, ODOT is in favor of consolidating and defining driveways in Rhododendron, particularly if those improvements were in conjunction with installing curb and sidewalk improvements for pedestrian safety/comfort. Driveway locations, widths, etc. should be designed using a full access management plan that takes into consideration use of the property, design vehicle, and potential conflicts with adjacent driveways and local streets. Project R1, access management should be combined with Project R4 pedestrian accommodation such as curbs, sidewalk, etc. in order to most effectively achieve access management goals.

Project R5, Bicycle Facility for trail connection: An 8' wide shared lane that includes contra-flow cycling facilities (approximately 4' wide for each direction) does not meet ODOT minimum standards and would not likely be approved even with a design exception. Additional right-of-way should be obtained to meet ODOT minimum standards, which are based on best safety practices and nationally accepted design parameters. ODOT's Bicycle and Pedestrian Design Guide provides appropriate guidance for designs on ODOT facilities and should be followed and ODOT Roadway Design engineers should be consulted for issues regarding roadway widths, including bike features and multiuse paths. The minimum standard is 10' with 2' of total of compacted shoulders. Wider may be appropriate due to levels of use.

Project R7, Multiuse Path between Lolo Pass Road and Rhododendron: The design of a multi-use path will need to consider potential conflicts with accesses and local street connections to US26. There is some concern that having the path set back from US26 may introduce a safety issue with drivers destined for US26 conflicting with pedestrians and cyclists due to them being set far back from the highway and drivers being focused on accessing the highway. Designs will need to take into account sight distance and sight triangles, including potential issues with vegetation that can grow up and obscure visibility of cyclists/pedestrians for vehicles approaching the multi-use path crossing. Special signing or striping may be necessary to mitigate for safety concerns.

A multi-use path located in ODOT right-of-way will need to meet ODOT standards for path widths, signing, striping, etc.

Other Comments

Project W17: It is unclear what "Temporary Speed Monitors" refer to. I assume that these are the radar-activated driver feedback ("Your Speed Is") signs. Those signs are currently under design by ODOT.

Project W2: ODOT has no concerns with proposal to modify push buttons for ADA compliance, add sidewalk, and install pedestrian countdown heads.

Project W17: Temporary Speed Monitors: This section of the draft plan goes back and forth between referring to permanently mounted speed monitors (technical term is "driver feedback signs"). ODOT has already approved and designed two driver feedback signs in the vicinity of Rhododendron. The eastbound sign will be installed at/near MP 38.6 and the westbound sign will be installed at/near MP 44.39.

Please let me know if you have any questions or need clarification of anything I have stated here.

Kate Freitag, P.E., ODOT Region 1 Traffic, 123 NW Flanders, Portland, OR 97209 (503) 731-8220

DRAFT

Appendix 4

Stakeholder Interview Summary

WALK & BIKE
THE VILLAGES AT MT. HOOD

The Villages at Mount Hood Pedestrian and Bikeway Implementation Plan

Stakeholder Interview Summary

December 4, 2015

ch2m

Stakeholder Input

To better understand stakeholders' desires for the study area and the project, the project team interviewed selected stakeholders. The project team selected stakeholders because they represent an agency or organization with a connection to the project area and/or project objectives. Stakeholder input has been used to develop the policy framework and evaluation criteria for this plan. In addition to stakeholder input, the Project Advisory Committee (PAC) and Technical Advisory Committee (TAC) provide input, and their input is summarized in meeting minutes of the first meeting and field trip.

Stakeholders interviewed are listed below. Clackamas County Project Manager/Senior Planner, Lori Mastrantonio-Meuser and consultant Project Manager/Planner, Sumi Malik conducted all interviews either in person or by phone. This memorandum summarizes stakeholder input within commonly cited concerns and opportunities. In the case that an agency had input specific to their agency's authority, that input is attributed to a specific person.

Stakeholder Name	Agency or Organization Affiliation	Date and Form of Meeting
Jason Miller	Ski Bowl and Mt. Hood Adventures	Sept. 10, 2015 in person
Petre Kakes	Hurricane Racing	Sept. 10, 2015 in person
Coni Scott	Mt. Hood Chamber	Sept. 10, 2015 in person
George Wilson	Villages at Mt. Hood Board of Director Mt. Hood Bicycle and Pedestrian Coalition	Sept. 10, 2015 in person
Nate Seifert	Resort at the Mountain	Sept. 10, 2015 in person
Teresa Christopherson	Mt. Hood Express	October 22, 2015 by phone
Jeff McCusker David Moore Dan Davis	Bureau of Land Management (BLM)	September 16, 2015 by phone
Kristin Austin, PE Jen Wade Vicki Peterson Greg Warner	US Forest Service (USFS) Mt. Hood	September 14, 2015 by phone
Susan Corwin	Barlow Trail Association	September 14, 2015 by phone
Jana Jarvis	Oregon Trucking Association	September 18, 2015 by phone

Desired Outcomes

Stakeholder input is organized by their desired outcomes (numbered). Several major themes emerged as shared desired outcomes between stakeholders. This input becomes part of the basis for the policy framework and evaluation criteria (Tech. Memo #2 Policy Framework and Alternatives Evaluation and Prioritization Criteria), which will be used to develop and prioritize projects.

#1 Safe Pedestrian and Bicycle Access to Major Destinations including Schools and Transit

All stakeholders expressed interest in safer and more comfortable bicycle and pedestrian facilities on at least minor arterials and collectors within the project area. Several stakeholders emphasized proposed bicycle and pedestrian facilities should take into consideration limitations of right-of-way, relative

bicycle and pedestrian demand, and the rural character of the area. Stakeholders also emphasized considering snow conditions when planning proposed improvements, which is important from a maintenance and operations point of view. Snow typically falls in areas east of Rhododendron, at higher elevations. Typically, snow fall in The Villages at Mt. Hood melts after a snow event and does not accumulate on shoulders over the course of the winter.

Stakeholders expressed that facilities or connections are critically needed on E. Welches Road, E. Salmon River Road, and E. Barlow Trail Road, and to access Mt. Hood Express transit stops, the Sandy Ridge Trail System, and the Wildwood Recreation Site. These major destinations and the transit service are described in more detail in Tech. Memo #1: Existing Conditions: Needs, Constraints, and Opportunities Memo.

E. Welches Road

E. Welches Road is a north-south collector in Welches that provides access to many area destinations. The Resort on the Mountain is bisected by E. Welches Road, with a golf course, spa and event facilities on one side and hotel rooms, residences, tennis courts and additional golf greens on the other. The Resort on the Mountain's representative stated that staff and visitors frequently cross E. Welches Road at to access resort facilities. Here, site distance northbound for cars is limited because of a large hill. The Resort, Chamber of Commerce, and the Mt. Hood Bicycle and Pedestrian Coalition representatives stated that pedestrians, when looking to the south, have limited sight distance and often fail to see approaching vehicles that were exceeding the speed limit. The number of pedestrians crossing, the collector volumes on the roadway, and the limited site distance, all contribute to stakeholder's safety concerns for pedestrians in this area. A marked crosswalk exists within the area with advisory warning signs for pedestrians, which provides some minimal advance warning for drivers.

The Resort, Chamber of Commerce, and the Mt. Hood Bicycle and Pedestrian Coalition stakeholders said presently, pedestrians including children walk on E. Welches Road, using inconsistent shoulders. The roadway in the primary connection between the resort, residential neighborhoods, and the Hoodland Shopping Center, leading to large volumes of pedestrian traffic. As a consequence of inadequate shoulders, pedestrians cross E. Welches Road, sometimes mid-block, at various points on the roadway to reach the shoulder when one exists. For example, pedestrians cross an unmarked intersection at Fairway Road to use shoulder on the opposite side of the road, as it is not continuous along E. Welches Road. Shoulders on E. Welches Road do not adequately and safely accommodate pedestrians. This issue is further exacerbated in the event of snow. Snow can be plowed into the already narrow shoulders of E. Welches Road causing pedestrians to walk in travel lanes.

E. Salmon River Road

E. Salmon River Road is a collector. Welches Elementary and Middle Schools are located on E. Salmon River Road, near its intersection with US 26. E. Salmon River Road has a wide shoulder for pedestrian access on the west side of the roadway for only a very short section, approximately 100 feet along the frontage of Welches Middle School. The rest of the roadway has very narrow shoulders to accommodate pedestrians and travel lanes are used by bicycle riders. E. Salmon River Road has few commercial destinations, but does link to the popular Old Salmon River Trail, Green Canyon campground, and dispersed camping and hiking in the Mt. Hood National Forest. Fewer pedestrians are observed walking the road, in contrast to E. Welches Road. Stakeholders representing the Chamber of Commerce and Mt. Hood Bicycle and Pedestrian Coalition expressed some concern for safety on this roadway, but less so than E. Welches Road.

E. Barlow Trail Road

E. Barlow Trail Road is a minor arterial. Stakeholders, particularly those representing the Mt. Hood Bicycle and Pedestrian Coalition, state that E. Barlow Trail Road is an important pedestrian and bicycle connection that has neither pedestrian nor bicycle facilities. Pedestrians and bicycle riders from the

neighborhood, road cyclists traveling through The Villages at Mt. Hood, and mountain bikers who are accessing the Sandy Ridge Trail System (discussed in more detail below), all travel on E. Barlow Trail Road, and consequently walk or ride in the travel lane. As a result, car traffic can be slowed behind pedestrians and bicycle riders, and potential conflicts are greater.

Access to Transit

Mt. Hood Express serves commuters and recreational users. Operators of the Mt. Hood Express, state approximately 40 percent of riders use the service to access work and 40 percent of riders use the service for access to mountain biking trails or snow sports within the US 26 corridor. The remaining riders have a mix of travel purposes. The expanded service through The Villages at Mt. Hood to Government Camp is entering its second year of operation. The service is express, commuter service, meaning service must have a limited number of stops at locations with population centers and/or park-and-rides. Deviations are allowed within 3/4 mile of the mainline route. Current bus stops locations are permanent and were negotiated with ODOT. All stops are off of US 26, within a parking lot with one exception of the stops at SE Alder Creek Road and SE Kirkwood Drive, where the transit stops are highway pullouts. From the perspective of Mt. Hood Express operators, the transit stops are working well, with the exception of the two locations that use highway pull-outs and the need for bicycle and pedestrian access listed below. The two bus stop locations that use highway pull-outs are at SE Alder Creek Road and SE Kirkwood Drive. Mt. Hood Express has not identified alternative locations for bus stops to the highway pullouts at SE Alder Creek Road and SE Kirkwood Drive.

Mt. Hood Express is in the midst of a long-range planning project to evaluate the current governance structure of the transit, funding mechanisms, and to evaluate the feasibility of expanding service to Warm Springs Tribe and Hood River.

Within the two years of operation, Mt. Hood has had poor snow seasons; and therefore demand for ridership during the winter with good snow sport conditions is unknown. Technical Memo 1: Existing Conditions has a summary of ridership.

Bike Access to/from Pioneer Bridle Trail

Stakeholders representing the mountain biking community/Hurricane Racing and Mt. Hood Express service, stated that mountain bikers board the Mt. Hood Express bus at the stop in Rhododendron and alight in Government Camp. They ride their bikes down Pioneer Bridle Trail, which ends in the vicinity of Rhododendron. To connect back to the bus stop, mountain bike riders ride their bikes along US 26 on the narrow shoulder to the eastbound bus stop in Rhododendron. Clackamas County Transit and mountain biking businesses report that mountain bikers will often purchase a day pass, and ride down the Pioneer Bridle Trail multiple times during the day, using Mt. Hood Express transit service to go back up to Government Camp. Mountain bikers would like to see a safer bicycle and pedestrian connection between the Pioneer Bridle Trail head and the Mt. Hood Express eastbound transit stop in Rhododendron. The stop is located in the parking lot of Mt. Hood Adventures.

E. Salmon River Road and US 26 Crossing

A ladder-marked crosswalk exists on US 26 at E. Salmon River Road. Advance warning signs on US 26 help alert drivers to the presence of pedestrians crossing, but no other protection for pedestrians is provided. The crosswalk is in the vicinity of the Welches Elementary and Middle Schools. The school district does not allow school children to cross US 26 to get to school, but nonetheless, the schools are major destinations for the entire community. Mt. Hood Express has a bus stops at the intersection of US 26 and E. Salmon River Road. Representatives of Mt. Hood Express have received reports that riders often must cross US 26 to get to the bus stop. Traffic often does not slow or stop for pedestrians at the crosswalk, and the crosswalk offers no refuge for pedestrians and minimal visibility to drivers. Mt. Hood Express operators would like to see better protection for pedestrians here.

Sandy Ridge Trail System

The Sandy Ridge Trail System, a mountain bike trail system, is within the study area and attracts approximately 120,000 visitors, predominantly mountain bikers a year. Bureau of Land Management (BLM) representatives report that demand has skyrocketed in recent years. The trail system attracts bicycle riders, mountain bike manufactures (doing bike demonstrations), and mountain bike promoters (various events) from around the state and beyond. The trail system also attracts touring road bicycle riders who know of it as a bike-friendly place they can stop to use the restroom. BLM representatives state the trail system is a year-round destination because it is designed for maximum trail drainage and the low enough elevation does not typically experience snow. Hurricane Racing/mountain biking representative states the "fat bike" trend also makes trail riding a year-round activity, even in snow.

The trail system is owned and maintained by the BLM. Mountain biking and Mt. Hood Pedestrian and Bicycle Coalition representatives report that Travel Oregon has promoted the area as a summer destination site as far as Germany, tying into flights between Germany and Portland International Airport.

BLM will be undertaking a planning effort for the trail system, exploring expansion of the parking area. Parking demand exceeds the supply during weekends and other popular summer days. Based on parking counts, most use is during the mornings. Increasingly, people gather in the parking lot where events or demonstrations are held. For this reason, BLM will include a gathering place in the parking lot. BLM is also willing to consider park-and-rides by shuttle or bicycle connection to the Sandy Ridge Trail system. The trail system head could be a good place for a bicycle hub as well.

BLM also plans to expand the trail system by adding three more trails in the coming years. A larger expansion will take place in 3-4 years.

Sandy Ridge Trail System is accessible by Barlow Trail Road and Sleepy Hallow Road. Currently, Barlow Trail Road is part of Clackamas County's Active Transportation Plan's Principal Active Transportation Route. Clackamas County Tourism promotes Barlow Trail Road as a roadway for bicycle riding, both for access by mountain bikers and a route for touring riders who wish to avoid US 26. Barlow Trail Road is narrow, with many curves, and one travel lane in each direction. Drivers can become caught behind a bicycle rider, and bicycle riders can feel pressure from drivers. Both road and mountain bicycle riders use Barlow Trail Road. BLM and other stakeholders representing bicycle riding would like to see some provision for bicycle riders on Barlow Trail Road.

A quarry off of Barlow Trail Road generates truck traffic that can conflict with pedestrians and bicycle riders.

Wildwood Recreational Site

BLM representatives state the Wildwood Recreation Site was used in the past for outdoor education programs, but since school funding has been cut, these programs have shrunk and the site is underutilized. Currently the site is for seasonal, day-use only, though community members note that is a popular walking destination even when closed in the off-season. The site has extensive amenities, such as trails, gathering places, an underwater viewing window, a boardwalk along wetlands, and a heated pavilion. The area has extensive, underutilized parking and could serve as a park and ride site for other places.

Recreations in the area, including Sandy Ridge Trail users, would like to use the site for overnight camping. BLM would like Mt. Hood Express to consider a stop there.

#2 Improve Pedestrian and Bicycle Connectivity on US 26

Presently, US 26 provides pedestrian and bicycle access through the corridor. Stakeholders representing the Mt. Hood Bicycle and Pedestrian Coalition and the Chamber of Commerce state that pedestrians and

bicycle riders have safety concerns using highway shoulders on US 26 for access. The present shoulders on US 26 provide minimal separation between pedestrians/bicycle riders and high-speed, high-volume traffic. As a result, pedestrians have worn demand paths that indicate pedestrians' desire lines for access. During Project Advisory Committee Meeting #2, the project management team will ask the committee to mark maps with the extents of demand paths along US 26. In some areas, such as Welches, these demand paths are easier to see; however, in some areas, such as Rhododendron, the demand paths are difficult to find, set off the highway in tree cover, and are best known by locals. Stakeholders report property owners help clear brush and maintain the paths along their property. Stakeholders speculated that property owners may have some liability for the demand paths, but did not know for certain. Demand paths are most continuous along the south side of US 26. Highway shoulders serve as a bicycle facility for the length of US 26.

Existing Bicycle Underpass of US 26

One stakeholder pointed out the existence of a relatively unknown and unmaintained undercrossing of US 26, along the Salmon River off of Country Club Loop. Subsequent to the stakeholder interview, the team met with the stakeholder who showed them the path from the north leading to the undercrossing. The facility is relatively unmarked. The undercrossing itself is well-lit with a wide asphalt path that runs along the river. The path is a scenic connection and suffers from buckling in the asphalt due to root growth. South of US 26, the undercrossing does not connect to a through street and only connects to local roads that dead-end, but a connection back up to the eastbound bike lane on US 26 can be made. At the south end of the underpass, a bike route sign does exist. The ownership of the route will need to be investigated, but is thought to be Oregon Department of Transportation (ODOT).

Rhododendron

Either side of US 26 has commercial destinations, such as a supermarket, restaurants (Dairy Queen, Still Creek Inn), Mt. Hood Adventures, a recreational outfitter that offers tours and rentals, and transit stops. Stakeholders and the project team have observed residents and visitors cross US 26 to get to destinations on the other side. Stakeholders would like to see a safe crossing accommodated here and are skeptical of the safety of simply a laddered crosswalk. Presently, advisory signs on US 26 in both directions warn drivers of the presence of pedestrians.

#3 Maintain Mobility of US 26 for Through Traffic

A representative of the freight community stated that truck drivers would feel safer if pedestrians and especially bicycle riders had a separated facility instead of bike lanes or a shoulder on US 26.

Preserving the function of US 26 as a national freight route, over-dimensional route, and serving high-volume, high-speed through traffic is important. The need for through movement needs to be balanced carefully with the need for crossing US 26.

If crossings are added to US 26, they should be for the most key locations with demonstrated demand, and it would be helpful if the crossing can be timed to the existing signal to limit stop-and-go travel and travel time delays. If an on-demand crossing is provided, be sure to provide a provision for traffic to get through in the event of heavy pedestrian crossings.

#4 Bicycle Route through The Villages at Mt. Hood

Petr Kakes of Hurricane Racing, based on his years of biking, hiking, and walking in the area, has identified a bicycle route through the area. The walking and bike route would provide a potentially paved, parallel route to US 26 for pedestrians and road and mountain bike riders between Zig Zag and Government Camp/Timberline Lodge. The route follows existing, paved forest service roads; gravel, forest service roads; existing roadways; and connects them with Bonneville Power Administration (BPA) corridors that have no existing path connection. The route parallels US 26, and could serve both daily

transportation needs, such as getting to/from origins and destinations within The Villages at Mt. Hood, and recreational needs, such as road cycling through the area to Government Camp. A topographic map marked with the bicycle route is in Appendix A. The bicycle route is partially contained within the study area, starting at Lolo Pass Road.

The project team shared the bicycle route map with the Mt. Hood Forest Service. They agreed to evaluate the potential for the route with the following thoughts.

- Trails on federal lands trigger the National Environmental Policy Act (NEPA) process, which requires public scoping and an environmental assessment, which is usually a two year process and would cost the agency approximately $100,000.
- In the past, the agency has had limited success coordinating with BPA. BPA would have to be a partner.
- Federal restrictions exist on land and what can be built alongside streams and riparian areas. The corridor does follow a stream for sections.
- The forest service promised to look at the map and ask their staff to do a very high-level, red-flag environmental scan for any fatal flaws.

#5 Support the Development of Tourism including Bicycle Tourism

The Chamber of Commerce reports that 2015 has been the largest year for tourism thus far, using tax revenue generated from area businesses as a measure. The Chamber has partnered with a local television station, KATU, to develop a commercial promoting recreation and tourism of the Mt. Hood area, including The Villages at Mt. Hood. Visitors to the area would like better pedestrian and bicycle connectivity throughout the study area so they may go car-free to a restaurant, on a run, or on a bike ride. Several visitors come to the area car-free, and are surprised at the lack of pedestrian and bicycle connectivity. Visitors also use the Mt. Hood Express service and desire better access to transit stops.

Several tourism organizations, including Clackamas County Tourism, would like to see an eventual connection between the Springwater Corridor trail, which is ridable by road bike and terminates in Boring, through Sandy and The Villages at Mt. Hood and to Government Camp. On the north side of Mt. Hood, communities have supported the development of the Columbia Historic Highway State Trail, another trail accessible by road bike. State and local level travel boards see cycling tourism as having great potential for economic development in scenic areas such as The Villages at Mt. Hood. The fat bike trend enables trail riding even in snow conditions.

Travel Oregon has a campaign around cycling tourism, and promotes Marmot Road, Barlow Trail Road, and Lolo Pass Road through The Villages at Mt. Hood as a way to ride road bikes through the US 26 corridor. Stakeholders interested promoting cycling tourism for the area would like to see businesses within The Villages at Mt. Hood that are friendly to bicycle riders and provide adequate bicycle parking. Parking could be in the form of bicycle hubs that have other amenities for bicycle riders, such as wayfinding and maintenance tools (bicycle pump, Alan keys, etc.). Stakeholders would like to see cost-effective solutions to bike hubs and ways to capture bicycle riders recreating in the area.

Stakeholders would like to see area businesses participate in Travel Oregon's Bike Friendly Business Program, which provides tips and tools on how businesses can be bike friendly, and highlight businesses who commit to enhancing the Oregon biking experience for visitors and Oregonians.

To promote walking and biking in the area by visitors, wayfinding and branding of routes is important. Facilities must be well-marked and safe, considering visitors who are new to the area will be unfamiliar with the facilities.

#6 Develop Cost-effective Solutions that Keep with the Character of The Villages at Mt. Hood

Both government stakeholders and residents emphasize developing solutions that are appropriate for the level of existing and future pedestrian and bicycle demand, which is much lower than the level of demand in urban areas. This means facilities may be adequate now or solutions need to be cost-effective and scaled to the area and level of need, such as wide outside shoulders instead of curbs and sidewalks. The project management team can respond to this desire by using lower-cost solutions, such as permeable pavement and the use of swales, or solutions that require low maintenance, such as crushed rock trails.

Many people move to the area to "get away," and some do not agree with economic development goals for the area that would bring more people.

#7 Coordinate Effectively with Concurrent Planning Efforts

Representatives of Mt. Hood Express and Bureau of Land Management expressed a desire for this project to coordinate with their planning efforts. Mt. Hood Express is evaluating the potential to expand service beyond Government Camp and evaluating their governance structure to better sustain funding for service in the future. The Bureau of Land Management will be undertaking a planning effort to develop a new vision for the Wildwood Recreation site, and is developing a parking and expansion plan for Sandy Ridge Trail System.

Safe Routes to School: Creating an Action Plan

Instructions

Please read these instructions before completing the Action Plan.

Creating the Action Plan is the first step in the application process for Oregon Safe Routes to School funding, for both Infrastructure (engineering) and Non-Infrastructure (education and outreach, enforcement and evaluation) projects and activities for schools serving any grades from kindergarten up to 8th grade.

Who develops the Action Plan?

The Action Plan is created through a team-based process. With the conclusions drawn from the collected information, the team will be able to recommend priority projects and activities that the school, municipality and community can advance to promote safe walking and bicycling to school.

The template begins on Page 8.

SECTION 1: School information (for schools K-8)

The Plan is site-specific for your project. This section includes basic information about the school, including location, enrollment, and contact information for the Safe Routes to School Action Plan.

SECTION 2: Forming the School Team

The team is made up of a minimum of *three key partners*: the school principal; a parent who represents or has the endorsement of the school parent organization; and city, county or state staff representing the local road authority. An additional member should be a member of the local traffic safety committee, if one exists.

Additional community partners, whose backgrounds and affiliations represent a wide range of interests and expertise related to SRTS, should be included later in the planning process:

> School representatives – PTA/PTO/site council member; principal and/or other school staff such as nurse and/or PE teacher; students; district transportation coordinator; district facilities management *especially* if school property/buildings/maintenance will be an issue; school board member; safety patrol coordinator; bus driver; school crossing guard; etc.
>
> Local government -- Council or commission member; transportation or traffic engineer; public works representative; traffic safety committee member; local planner; law enforcement, emergency medical services or fire department; bicycle/pedestrian advisory committee; municipal or regional transit agency if applicable; etc.
>
> Community representatives -- neighborhood or community association members; chamber of commerce or business associations; bicycle/pedestrian advocates; public health professionals; local stakeholder community groups and non-profit organizations; rail, trucking industry representatives, if applicable; media or marketing representative; etc.

SECTION 3: Assessing the modes of student travel

There are a variety of possible activities that have provided past grant recipients with valuable information about the ability of students to walk and bike to and from school. These are the assessments required for the Oregon process:

- Mapping
- Walking and biking the routes within 1 mile of the elementary school (1.5 miles of the middle school)
- Surveying students and parents

Note: additional support information may be needed to support the projects proposed in your Infrastructure Application (e.g., traffic counts, crash data, speed studies, etc.). The team should rely upon the recommendations of local experts to determine what information may be needed.

Mapping

To understand the conditions around or on the school property, bring the team together to a mapping and brainstorming session where they can give input on conditions and possible solutions, in addition to helping to determine the best current and/or future routes (within one mile walking distance from residential neighborhoods to the elementary school, 1.5 miles of the middle school).

In preparation for the session, work with your school district and/or the local public works department to create **scatter maps** that indicate concentrations of where students live. Scatter maps provide useful information about the numbers of students living within the quarter-mile, half-mile, one-mile, and two-mile distances from the school site. They also bring forward where students live in relation to physical barriers (e.g., state highway, local roads, bridges, train tracks), shopping and food outlets, playing fields and community centers.

You may wish to include others who understand the travel habits of the students, such as the school crossing guards, law enforcement, school bus drivers, and other parents and students.

City maps may be found at: http://egov.oregon.gov/ODOT/TD/TDATA/gis/CityMaps.shtml

Maps may also be found at your school district website; Google.com; earth.google.com; Yahoo.com; Mapquest.com; or from your local public works department. **Please include copies of the maps as a supplement to this Plan.**

Walk and Bike Assessment

Once the team completes the mapping exercise, the team should walk and/or bike the routes to identify physical barriers. The team may want to follow their own format in assessing the "walkability" and the "bikeability" of the immediate school neighborhoods, or they may wish to use the linked checklists on the National SRTS Program website, under "Education:" http://www.saferoutesinfo.org/sites/default/files/walkabilitychecklist.pdf and http://www.saferoutesinfo.org/sites/default/files/bikabilitychecklist.pdf . Concentrate on streets you believe are critical to walking or bicycling to school, including parks, bike lanes, walkways or trails, and other public right-of-way facilities if they are or could be used by students to travel to and from school.

Walkability questions to consider: Are the sidewalks, paths and/or trails on school property connected to logical residential neighborhood access points? Is there room to walk? Are there sidewalks, or shoulders where there were no sidewalks? Are you able to cross safely where you can see and be seen by drivers? Does it feel safe to walk? Can students safely and conveniently reach unlocked school entry doors from these locations?

SECTION 3: Assessing the modes of student travel, continued

Pedestrian safety questions to consider: Does the school provide safety information and/or participate in events that promote safe walking and physical activity such as International Walk and Bike to School Day or walk-a-thons? Is there pedestrian safety guidance given to students who cross with the School Patrol or Adult Crossing Guard?

Bikeability questions to consider: Do you have safe bicycle routes? Are there paths, trails, wide sidewalks, low-traffic streets, bike lanes or good shoulders to ride safely with traffic? Does it feel safe riding with traffic? How was the surface that you rode on? How were the intersections that you rode through?

Bike safety and security questions to consider: Are visibly-placed bicycle racks available to students at the school? Are there enough to accommodate an increase in bicycles? Can students easily and safely access them? Are they sheltered from the weather? Are bikes in a secure location? Are there opportunities for students to learn about bicycle safety? Are students involved in after-school bike clubs or teams? Is helmet use encouraged?

Data Collection

It is vital to understand the travel patterns of the students at the school. An initial step in the assessment process will be to query the students and their parents about how their students arrive and depart from school. In order to collect consistent data, the Oregon SRTS Program has adopted two forms from the National Center for Safe Routes to School, the Student Travel Tally and the Parent Survey.

Detailed information and instructions for using the forms are found at http://www.saferoutesinfo.org/data-central/data-collection-forms

Student Tally

Teachers or volunteers will use this form to record specific information about how children arrive and depart from school. It is a hand-raise tally, conducted in each classroom (takes about 5-7 minutes to complete) for two days within one week (not on a Monday or Friday). The form for the tally can be downloaded from the National SRTS Program website: http://www.saferoutesinfo.org/program-tools/evaluation-student-class-travel-tally

If you need assistance in setting up an account, contact Julie Yip, Oregon SRTS Manager, 503-986-4196. Once data is entered, a downloadable summary report is immediately available at the same site.

Parent Survey

The Parent Survey collects information about factors, beliefs and attitudes that affect parents' decisions about their children walking and bicycling to school. The survey results will help your Team determine how to improve opportunities for children to walk or bike to school. Not only will the collected information allow comparison with the student tally results, but parent comments and identified concerns can lead to more involved discussion (potentially through focus groups) and evaluation (utilizing school team members such as from public works, health department, neighborhood associations, law enforcement).

For online and downloadable options of the Parent Survey, visit http://www.saferoutesinfo.org/program-tools/evaluation-parent-survey . If you need assistance in setting up an account, contact Julie Yip, Oregon SRTS Manager, 503-986-4196. Once data is entered, a downloadable summary report is immediately available at the same site.

SECTION 3: Assessing the modes of student travel, continued

Optional work to Section 3:

Additional Data Collection Activities

The following list includes other activities that have provided past grant recipients with valuable information about the ability of students to walk and bike to and from school. Please provide the results of any optional assessments conducted for the Plan.

Photographs and / or videos – tell the story that students do walk and/or bike to and from school. Take pictures or footage during BOTH arrival and departure times at the school. Decide in advance where the best vantage points will be to shoot the pictures to capture the representative images. Record locations and street directions, time of day, date. Present the pictures in an order that confirms your narrative and tells the story.

Interviews

School patrol or adult crossing guards; pupil transportation providers (school bus drivers, bus dispatchers); local law enforcement; local traffic or roadway engineers' familiar with the transportation system around the school

Observational survey

The School Team may wish to confirm the results of the Student Tally or may wish to do actual on-site observations of how students arrive and leave school.

This is a simple "tick mark" tally done by volunteer observers with clipboard and survey sheet at these areas:

- the school's bike rack area, if one exists
- at the crosswalks or pathways adjacent to the school
- at the bus and/or auto pick-up/drop-off area.

It is recommended that observations be made at least 15 minutes before the start of school until ten minutes after the bell rings. Reverse the process for after school. The observers record tick marks for each student observed as a Walker, Bicyclist, Other (for scooter, skateboard, in-line skates, wheelchairs), school or public bus rider, or motor vehicle rider. This should be repeated the same day at the end of school when children are leaving. Make sure the survey is dated, location noted, weather conditions noted, and the time periods of the survey.

This could be conducted for at least two days during a single week, not on Monday or Friday. The street assessments may bring up questions about the motoring environment on certain streets.

Traffic volume counts, posted speeds and actual speeds may be obtained from law enforcement or the local public works department to track motorist speeds and monitor traffic volume counts.

Traffic crash data may be obtained from your local public works department or the ODOT Transportation Safety Division Traffic Records Program. Crash data may also be available from your local law enforcement agency.

Crosswalk information may also be obtained from the School Safety Supervisor, school patrol members or adult crossing guards.

SECTION 4: Summarizing the findings

Using the information gathered in Section 3, it is now time for the School Team to analyze the collected maps, walking and biking audits and survey evaluation results to identify the barriers and hazards to children walking and bicycling to the school. Include:

- A list of physical barriers and hazards. (Examples: broken and uneven sidewalks; overgrown vegetation; narrow gravel shoulders and no bike lane or sidewalk on approach to school; in crosswalk from school, left or right-turn conflicts when pedestrians have the signal; school parking lot needs better pedestrian flow; bike racks in bad shape, not enough…)
- Evidence that there are households with students enrolled at the school who live within the mile walking distance for elementary school, or the 1.5 mile distance for middle school, who will benefit from proposed infrastructure enhancements. (Examples: printed scatter map, a map with hand-applied stickers showing enrolled students, correspondence from Pupil Transportation regarding households within the catchment area of school, etc.)
- A list of education/encouragement/enforcement barriers and hazards. (Examples: no crossing guard or school patrol at crosswalk across busy street; traffic exceeds 20 mph of school zone; walkable neighborhoods but parents prefer to drive students to school; no pedestrian safety information provided at school; no local enforcement.)

SECTION 5: Identifying the solutions and creating the Action Plan

Now that the issues have been identified, the School Team is ready to recommend solutions that make up the Action Plan. The expertise of the different School Team members and other interested parties and stakeholders will be especially valuable.

Careful consideration must be given for each SRTS component:

- *Engineering* – Creating operational and physical improvements to the infrastructure surrounding schools that reduce speeds and potential conflicts with motor vehicle traffic, and establish safer and fully accessible crossings, walkways, trails and bikeways. Engineering strategies are best used in conjunction with the remaining E's. Engineers typically like problem statements, not solutions. Your team identifies the problems; let the professionals suggest operational fixes.
  (Resource: National Center for Safe Routes to School website, http://www.saferoutesinfo.org/program-tools/search-resources *; search the keyword, "engineering."*
- *Education* – Teaching children about the broad range of transportation choices, instructing them in important lifelong bicycling and walking safety skills, proper walking and bicycling behaviors, and launching driver safety campaigns in the vicinity of schools.
  (Resource: the Oregon Safe Routes to School website, http://www.oregonsaferoutes.org/ *and the National Center for Safe Routes to School website,* http://www.saferoutesinfo.org/.
- *Encouragement* – Creating events, activities and ongoing programs to promote walking and bicycling and providing safe opportunities for parents and students to travel together and inspire each other.
  (Resource: the Oregon SRTS webpage, www.oregonsaferoutes.org ; at the national level, the National Center for Safe Routes to School website, http://www.saferoutesinfo.org/program-tools/search-resources and search under the keyword, "encouragement.")

- *Enforcement* – Partnering with local law enforcement to ensure traffic laws are obeyed within the 2-mile vicinity of schools (this includes enforcement of speeds, yielding to pedestrians and bicyclists on the road and in crossings) and initiating community enforcement such as crossing guard programs.
  (Resource: visit the Oregon Safe Routes to School website, http://www.oregonsaferoutes.org/ for local examples; visit the National Center for Safe Routes to School webpage, http://apps.saferoutesinfo.org/lawenforcement/ .
- *Evaluation* – Monitoring and documenting outcomes and trends through the collection of data, including the collection of data before and after the intervention(s).
  (Resource: visit the National Center for Safe Routes to School website, http://www.saferoutesinfo.org/program-tools/search-resources and type in keyword "evaluation.")

Guidance on the 5 E's is available online from the National Center for Safe Routes to School, http://www.saferoutesinfo.org/guide/index.cfm

SECTION 6: Submitting the Action Plan

Submit this completed document and all supplemental materials along with the Application for the Oregon Safe Routes to School Funding.

Implementation

Now that the School Team has completed and submitted the Action Plan, it is time to take action.

The process through which the Action Plan was created has given your new Safe Routes to School Task Force a chance to find out what resources and stakeholders are available to help achieve success. Even before your application is reviewed and possibly funded, there are undoubtedly activities that can begin immediately using existing staff, volunteers and resources.

In addition, the Safe Routes to School funds currently available from the federal government are most likely not enough by themselves to solve all of the needs of every Oregon community. They are intended to be a catalyst to build relationships, complete demonstration projects and show success, which will then inspire communities to find other resources.

Below are some of the tactics other communities have used to start a program without a large budget, or before acquiring dedicated Safe Routes to School funding:

Engineering

While there may be large projects that need to be funded, there are certainly smaller projects and activities that can be done without major funding. In fact, Safe Routes to School practitioners have found that it is often the smaller projects that can lead to early success, since they do not require lengthy planning and design phases, and can be integrated into a short program timeline.

Examples include: curb and crosswalk striping, minor repairs, pruning, signage, walking/biking route maps, arrival/departure improvements, bike racks, advanced limit lines, school zone changes, etc.

Various resources may already be accessible through local and state agencies. If agency staff are members of the School Team, they may have already offered help with certain projects.

Sometimes it is a matter of the "squeaky wheel getting the grease." Some projects may have already been planned, but just need to be fast-tracked.

(Resource: visit the National Center for Safe Routes to School website, http://www.saferoutesinfo.org/program-tools/search-resources and search the keyword, "engineering.")

Encouragement

If physical improvements are needed before children can safely walk or bike to school on a particular route, promote and/or organize fun walking and biking activities before, during or after school right on the school grounds or to/from an area nearby. These events and activities will help build excitement for walking and biking, so that when physical improvements are completed, there will be a ready audience of users.

Encouragement events will provide opportunities for students, parents and others to better understand local conditions, and to experiment with route options. This information can be used to develop a system of routes which can help define where engineering and enforcement work should take place. Maps can be created and made public when improvements are made.

Many parent barriers to walking and biking are based on personal safety, convenience and time. Also, with the rise in childhood obesity, walking and biking to school can be promoted as a solution to an inactive lifestyle. Encouragement activities are ideal for addressing these issues, in addition to creating community cohesiveness by bringing parents and neighbors together to help walk or bike kids to and from school. There is safety in numbers, especially when kids are accompanied by a trusted parent or other adult volunteer.

(Resource: for examples of local encouragement, visit the Oregon SRTS webpage, www.oregonsaferoutes.org , and at the national level, visit the National Center for Safe Routes to School website, http://www.saferoutesinfo.org/program-tools/search-resources and search under the keyword, "encouragement.")

Education

Classes or safety events such as bike rodeos, Safety Town, etc. are relatively inexpensive, and can be provided by school teachers, local volunteers or community groups such as bike clubs or university students, and by agencies such as police, health and fire departments.

Education events can also encourage students and parents to walk and bike to school.

(Resource: Oregon Safe Routes to School website, http://www.oregonsaferoutes.org/ ; National Center for Safe Routes to School website, http://www.saferoutesinfo.org/.)

Enforcement

Local police officials who are members of the School Team may be able to provide police services, or even additional services to help the Safe Routes to School effort. They may also be able to tell you how to get services from their department, or may advocate for services on behalf of the School Team.

Police services may not need to be funded through the Oregon Safe Routes to School program, since they may already have a local dedicated funding source.

More information on the Safe Routes to School and the 5E's of Education, Encouragement, Engineering, Enforcement and Evaluation can be found on the National Safe Routes to School website: *http://apps.saferoutesinfo.org/lawenforcement/*

Safe Routes to School: Creating an Action Plan

Template

Note: This document can be protected to prevent unintended changes to the form. If you wish to protect the template, go to the Forms toolbar (under VIEW, Toolbars, check the Forms toolbar). On the Forms toolbar, click on the LOCK symbol to enable protection. Click on the LOCK symbol to remove the protection.

SECTION 1: School information

School name:	**Welches School; K-8 and includes two school buildings**				
Street address:	**24901 E. Salmon River Rd**				
City:	**Welches**	State:	**OR**	ZIP:	**97067**
County:	**Clackamas County**	School district:	**Oregon Trail**		
Type of school:	☒ Public school ☐ Private school ☐ Charter school				
School Web site (if any):	http://oregontrailschools.com/welches/				
Total student enrollment:	**311**	Grades served:	**K-5; 6-8**		
Percentage of total enrollment for each grade:					
Contact for Action Plan:	**Lori Mastrantonio**	Phone:	**503 742-4511**		
E-mail:	**LoriM@clackamas.us**				

SECTION 2: Forming the School Team

1. The key partners of the School Team are (Instructions, Page 1):

• School principal or designated school staff representative endorsed by the school district:	**Kendra Payne, Principal** **Merrily Simoni, School Secretary**
• A parent who represents or has the endorsement of a recognized school/parent organization or site council:	**N/A**
• City or county staff or representative endorsed by the local road authority: public works, planner, roadway engineer, etc.	**Christian Snuffin, Civil Engineer** **Scott Hoelscher, Transportation Planner**
• Member of the local traffic safety committee (if one exists):	**N/A**

2. Identify all other participants of the School Team (Instructions, Page 1):

• School or district representation: facilities, maintenance, pupil transportation, etc.	N/A
• Local government representation: council, commission, planner, law enforcement, EMS or fire department, bike/pedestrian advisory committee, transit agency, etc.	N/A
• Community representation: neighborhood association, chamber of commerce or business association, pedestrian/bicycle advocates, public health, community groups, non-profit organizations, rail, trucking industry, media, marketing, etc.	Mt. Hood Chamber of Commerce

SECTION 3: Assessing the modes of student travel

1. Briefly describe the school attendance area. Boundary maps may be available from the school district or can be downloaded and printed from the school website. If available, please include as supplemental information:

Welches school has a large attendance area. The boundary stretches from the west along both sides of US 26 at SE Kirkwood Drive and continues along both sides of US 26 east just beyond Government Camp.

2. What is the school or the school district policy regarding students' mode of travel to school? Is there a "preferred method of travel" recommended by the school or the district's pupil transportation office? Are there any travel modes not allowed? Why?

The school district policy is for students to be bused to school. The Oregon Trail School District buses Welches students including most of those who live within a mile from their school buildings as there are few connecting streets and infrastructure (sidewalks and paths) improvements. In addition, the population is spread out over a large area that includes US Forest Service and Bureau of Land Management lands. Walking and/or biking are discouraged to these schools as US 26 is a major barrier and safety concern and there are few infrastructure improvements and streets that connect to the school buildings. Some students walk and/or bike to school.

3. Does the school have a Supplemental Plan in place that allows students to be bused to school who live within the mile walking distance of the elementary school, or 1.5 miles for the middle school? If so, what are the health or safety reasons for the Plan?

Students within 1 to 1.5 miles of school are allowed to be bused to school. The preference is for students to be bused to school. Busing is preferred as there are few connecting streets and infrastructure (sidewalks and paths) improvements. In addition, the population is spread out over a large area that includes US Forest Service and Bureau of Land Management lands. Walking and/or biking are discouraged to these schools as US 26 is a major barrier and safety concern and there are few infrastructure improvements and streets that connect to the school.

4. Mapping and brainstorming session held. Include copies of maps, including Scatter Maps, with Action Plan write-up.

We identified (check the statements that apply):

- ☒ the residential areas where students are known to walk and/or bike, within the one mile walking distance for elementary students or 1.5 mile distance for middle school students.
- ☒ the routes taken by students to and from school.
- ☒ the difficult street crossings and discussed possible alternate routes.
- ☒ off-road paths that are available for walking/biking to school.
- ☒ areas where School Patrol or Adult Crossing Guard assistance occurs or where it could be beneficial if provided.
- ☐ streets where heavy traffic congestion may be hazardous to walking and/or biking.
- ☒ the areas where School Bus transportation is available.
- ☐ the areas where Supplemental Busing for hazardous busing is available.
- ☒ the arrival/departure zone (for bus, staff and parent vehicles) and how the flow of traffic influenced the safety and convenience of students walking and biking to school.

5. We walked (or biked) around the routes students take to and from school (see Instructions, Page 3.):

a. What generalizations may be drawn from the information gathered on the "walkability" of the area around the school site?

The neighborhood around Welches school has a number of residential developments, some commercial development and includes US Forest Service lands. This area also has few sidewalks and/or paths. It includes narrow and winding rural roads as well and therefore there are limited safe routes to school available for students.

b. In what ways does the school promote pedestrian safety?

There is a designated area for parents to pick up and drop off students. There is a designated area for buses to pick up and drop off students. Typically, there is an adult safety guard present during student drop-off and pick-up in the parking lot to help ensure that students can safely maneuver their way to the school entrance from the parking area.

c. What generalizations may be drawn from the information gathered on the "bikeability" of the area around the school site?

Most of the streets around Welches schools are designated as local or collector streets. These streets are generally fairly low traffic streets which serve mostly residential and some commercial neighborhoods; they do not have separated bike facilities. Some of the other streets in the neighborhood are designated as collector streets. Most do not have bike lanes or shoulders. E. Salmon River Road has some shoulders off of US 26 along the school frontage.

d. Evaluate the bicycle facilities provided for the students' use:

There is an older bicycle rack on the school property.

e. In what ways does the school promote bicycle safety?

County staff is not aware of any bicycle safety programs at the Welches school as riding bikes to school is not encouraged.

6. We conducted the In-Class Student Tally (see page 3 of Instructions) and this is how our students travel to and from school:

Travel Mode	Walk	Bike	School Bus	Family Vehicle	Carpool	Public Transit	Other
% of Students	2% am 2% pm	1% am 1% pm	61% 67%	33% 27%	2% 3%	0% 0%	0%

7. We conducted the Parent Survey (see page 3 of Instructions).

Of the surveys that were returned, these are the TOP 5 Issues of parents whose students do NOT walk/bike to school:

- ☒ Distance
- ☐ Convenience of driving
- ☐ Time
- ☐ Before / after-school activities
- ☒ Traffic speed along route to school
- ☒ Traffic volume along route
- ☐ Adults to walk / bike with
- ☐ Sidewalks or pathways
- ☒ Safety of intersections & crossings
- ☐ Crossing guards
- Violence or crime

x Weather or climate

Section 4: Summarizing the findings

1. List the physical environmental barriers and hazards. (See Instructions, Page 5.)

Barriers and Hazards

US 26

US 26 is a barrier for students crossing to the school. Students are discouraged from crossing US 26 for safety reasons. The only signalized crossing of US 26 within the school neighborhood is at Welches Road.

Lack of sidewalks, shoulders, bikeways and/or pathways along streets connecting to the school.

There are some sidewalks on the school site adjacent to the parking area and shoulders along E. Salmon River Road along the school frontage.

Limited street network to the school.

Crossings

Safe crossings are lacking along streets connecting to the school. There is a crossing on Welches Road that needs improvements to make it safer as there are sight distance issues.

Traffic speeds

On almost all of the roads leading to the school speeds above the speed limits were observed.

2. List the education/encouragement/enforcement barriers and hazards. (See Instructions, Page 5.)

The lack of a strategy for encouraging students to walk and/or bike school might be considered a barrier, however, the hazards to safe walking and/or biking to the school are significant. If improvements were made to increase safety for students, e.g. construction of sidewalks, pathways, shoulder widening, etc. then consideration could be given to these types of strategies.

Section 5: Identifying the solutions and making the Action Plan

See Instructions, Pages 5-6, for details on how to complete this section, and consider the “Five E’s” in your response.

A. List the physical improvements and possible strategies for implementation. Provide evidence that there are students who live within the proposed project area who will benefit from proposed improvements

Crosswalks

- Safety improvements to crosswalk on US 26 at E. Salmon River Road, e.g. RRFB, enhanced signing, etc.
- Improvements to crosswalk on Welches Road between Woodruff Way and Fairway Estates Road, e.g., improved crosswalk painting/alignment, enhanced signage including improving sight distance for northbound travelers, etc.

- New crosswalk on Welches Road between Twinberry Loop (north) and Huckleberry Drive

Pedestrian facilities along the west side of Welches Road from Fairway Avenue north to a new crosswalk (see above) connecting to new and existing pedestrian facilities on the east side of Welches Road connecting to US 26.

A path connecting Huckleberry Drive to Woodsey Way

Pedestrian and/or bicycle facilities on the north side of Learning Lane separate from the road; includes a crossing to the south side potentially continuing with a pedestrian facility on school property to the school

Pedestrian and/or bicycle facilities on the west side of E. Salmon River Road from US 26 along the school frontage

Evaluation of school signs

Student education about safe street crossings, walking, riding school buses, bicycles, etc.

Improved bicycle parking facilities for the school

For more information on the recommended projects see the attached document titled; Welches Safe Routes to School Infrastructure Projects

B. List the needed safety enforcement/educational/encouragement programs and possible strategies for improvement:

There is potential to increase walking and biking to Welches school through various educational and encouragement strategies especially if some of the recommended pedestrian and bikeway improvements are able to be constructed which will help to make walking and biking to school safer. Future and potential strategies and programs might include informational brochures documenting the benefits of walking and biking to school which could be distributed at the beginning of a school year. Providing a map showing the safe walking and biking routes to school which could also be distributed at the beginning of a school year.

C. Prioritize the strategies. Assign a time schedule for implementing these strategies. If there are areas earmarked for improvements, include maps identifying those areas:

Clackamas County has completed a recommended project improvement list in order to provide safer routes to the Welches school. For more information on the recommended projects see the attached document titled; Welches Safe Routes to School Infrastructure Projects. See the Villages at Mt. Hood Implementation Plan (the Plan) for a complete list and detailed description of recommended pedestrian and bicycle project improvements that include the Welches community and school. A map that includes the location and brief description of the recommended projects in the Welches area is included in the Plan as well.

Section 6: Submitting the Action Plan

Submit this completed Action Plan Template and all supplemental materials including any optional collected information, along with the Safe Routes to School Application.

TR0509161111SAC

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan
Appendix Volume II

PREPARED FOR

Clackamas County
with support from Oregon
Department of Transportation

JUNE 2016

RECOMMENDED DRAFT PLAN

Appendix Volume II

Technical Memorandum #1: Existing Conditions: Needs, Constraints, and Opportunities Memo

Technical Memorandum #2: Policy Framework and Alternatives Evaluation and Prioritization Criteria (DRAFT)

Technical Memorandum #3: Welches Safe Routes to School: Infrastructure Projects

Technical Memorandum #4: Design Tools

Technical Memorandum #5: Draft Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

DRAFT

DRAFT

Technical Memo 1

Existing Conditions: Needs, Constraints, and Opportunities Memo

DRAFT

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

Technical Memorandum #1: Existing Conditions: Needs, Constraints, and Opportunities Memo

December 2015

WALK & BIKE
THE VILLAGES AT MT. HOOD

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This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Moving Ahead for Progress in the 21st Century (MAP-21), local government, and the State of Oregon funds.

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

Introduction

This memorandum summarizes the existing conditions of roadways, transit service, walking, and bicycling facilities within The Villages at Mt. Hood. The document provides an overview of the area, the types of transportation users, and what places people choose to visit in The Villages at Mt. Hood. It provides an analysis of vacant parcel land available and level of development allowed to better understand future growth. It also provides a discussion of walking, bicycling, and transit facilities in the area, including gaps and opportunities to improve safety and connectivity.

The memorandum provides a foundation for The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan project by cataloguing the needs and opportunities of the study area. By identifying what exists today, this memorandum will inform future documents that identify potential solutions and opportunities to address needs and gaps in the existing network. Those proposed solutions will be evaluated through the projects' prioritization criteria and will undergo comment and discussion from the project technical and public advisory committees.

Study Area

The project area includes communities along the US 26 corridor in Clackamas County, Oregon in the vicinity of Mt. Hood. The major populated areas include the communities of Brightwood, Welches/Wemme, Zig Zag, and Rhododendron. Together, these areas are recognized as The Villages at Mt. Hood.

US 26 is the primary travel route connecting the communities, and arterial and collector roads fulfill important circulation needs for the population of 5,000 permanent residents. The area also experiences significant visitor travel, with average daily traffic between 15,800 vehicles at the western end of the project area (near Hoodland Senior Center in Welches) and 8,500 vehicles at the eastern end (near Rhododendron). Mt. Hood is a popular recreation and tourism destination with skiing and snowboarding attractions in the winter, and hiking, bicycling, fishing, camping, and other spring, summer and fall attractions.

Recreation destinations such as Wildwood Recreation Site and Sandy Ridge Trail System (a mountain biking trail system), are managed by the Bureau of Land Management (BLM) and experience high levels of visitors in summer and fall months. Several trailheads for camping and hiking in the Mt. Hood National Forest contribute to higher traffic volumes on US 26 as well increased traffic on collector and arterial roads in The Villages at Mt. Hood, particularly during weekends and summer months. In the winter, snow sports enthusiasts contribute to increased weekend through traffic while visiting snow parks further east of the project area.

Population Characteristics

The permanent and seasonal population in The Villages at Mt. Hood is concentrated within Brightwood, Welches/ Wemme, Zig Zag, and Rhododendron. In Brightwood, the residential neighborhoods are primarily located north of US 26, along Sleepy Hollow Drive, Brightwood Loop Road, and Barlow Trail Road. There are also some neighborhoods in the Brightwood area, the area south of US 26, and west of the Salmon River.

In Welches/Wemme, residential neighborhoods north of US 26 are located between the highway and the Sandy River and off of Barlow Trail Road. South of Highway 26, homes are located near the Salmon River, east of Arrah Wanna Boulevard, and west of Salmon River Road. There are several subdivisions off of E. Welches Road in the vicinity of Resort at the Mountain. The areas of Welches and Wemme are the densest in the project area (Figure 3). In Zag Zag, most residences are located off of Lolo Pass Road, with

one cluster located between US 26 and the Zig Zag River, east of the Zig Zag ranger station. In Rhododendron, the population center is located north and south of US 26, in the vicinity of the Rhododendron commercial area.

Based on local fire station estimates, The Villages at Mt. Hood hosts approximately 15,000 seasonal residents annually. Clackamas County tourism roughly estimates 85,760 visitors to the mountain area annually staying in non-vacation rentals, most of whom stay in The Villages at Mt. Hood for approximately 2.3 days. Vacation rentals equate to longer stays and are not tracked.

Types of Transportation System Users

Within The Villages at Mt. Hood, there are several types of users who will benefit from improvements to the walking, bicycling, and transit facilities. Different groups of users will use the facilities to access various locations and can help to prioritize where projects can provide the most benefit.

Residents: Low-income and zero-car households may have less access to auto travel and rely on transit, walking or riding a bicycle to meet their daily needs. Regardless of car ownership, residents have a desire to walk and bicycle safely within their own community for their daily needs. Important destinations for residents include food markets, schools, medical offices, and community centers or churches. Crossings and improvements along US 26 would be most heavily used by residents.

Transit Users: Mt. Hood Express and The Villages at Mt. Hood Shuttle serve both commuters and recreational users. Bus stops in The Villages at Mt. Hood lack access oriented toward pedestrians. Pedestrians and bicycle riders rely on roadway shoulders and desire paths on US 26 to access bus stops. Two bus stops (at Welches Road and E Salmon River Road) are located near crosswalks on US 26.

Lodging Users: Visitors staying at local area inns, resorts, and vacation rentals may drive up to The Villages at Mt. Hood, but prefer to walk or bicycle during their stay. Many guests like to park their vehicles and enjoy the scenery by walking to area restaurants, stores, or recreation attractions. These users may benefit from improved facilities and wayfinding that link lodgings and commercial areas.

School Children/ Older Adults: These groups of travelers are particularly vulnerable as they may have slower reflexes, use mobility devices and need more time to cross roadways. The Welches Elementary School, Middle School, area parks and the Hoodland Senior Center are common destinations for these users. Sidewalks, separated paths, and crossings would particularly benefit these user groups.

Recreational Users: Mt. Hood is a common destination for both road cyclists and mountain bikers. Many recreational users ride through The Villages at Mt. Hood while traveling recreational routes advertised by Travel Oregon, Clackamas County Tourism offices, and other local cycling groups. These users often prefer to ride roads away from US 26 to avoid heavy and fast-moving vehicles. Improvements to shoulders on roadways, particularly those designated by the Clackamas County Transportation Plan would improve the experience of this user group. Hood to Coast is a running event that goes through the area, and runners and hikers also have a preference for lower volume and speed roadways.

Figure 1 The Villages at Mt. Hood Pedestrian and Bikeway Implementation Project Area Map

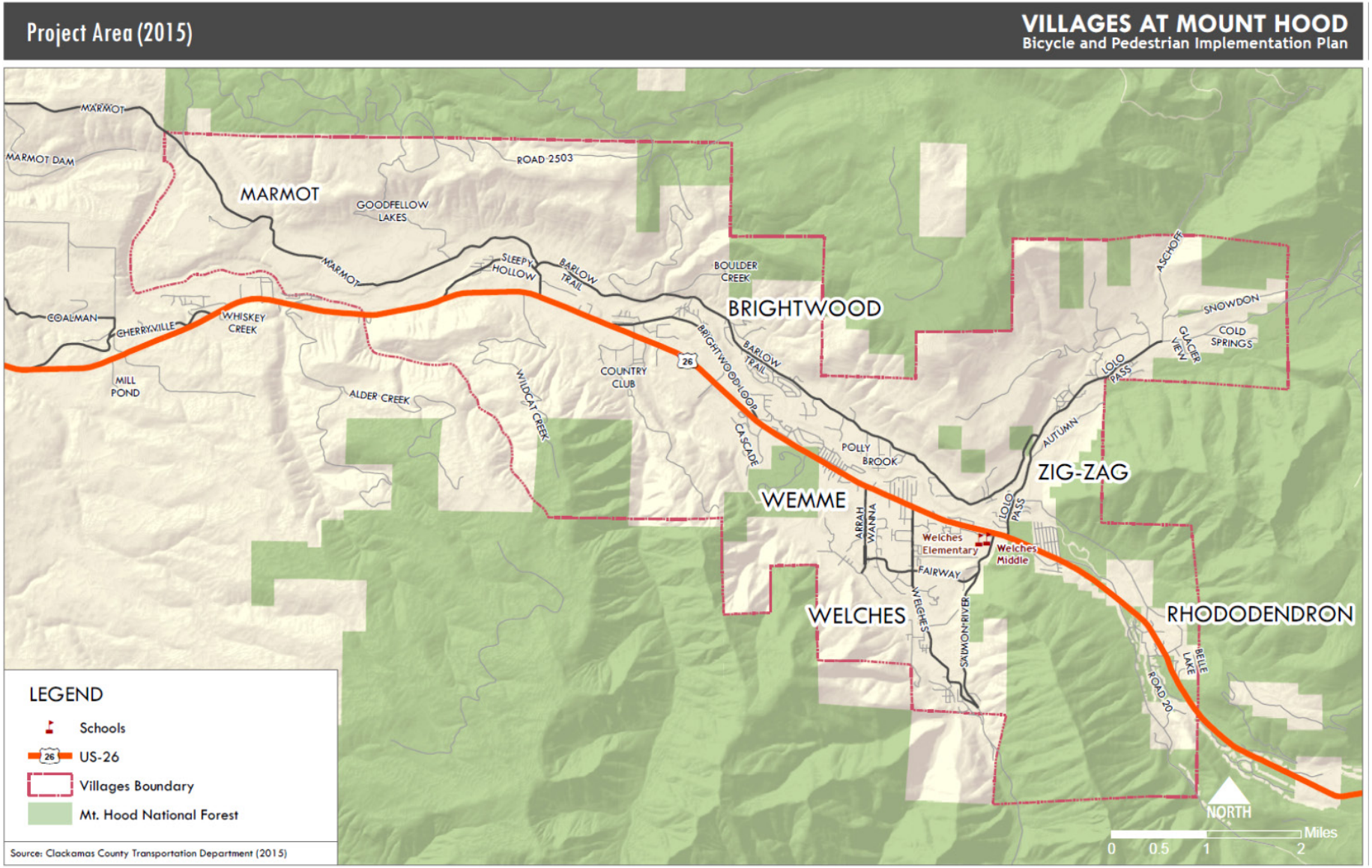


Figure 2 Total Population in The Villages at Mt. Hood

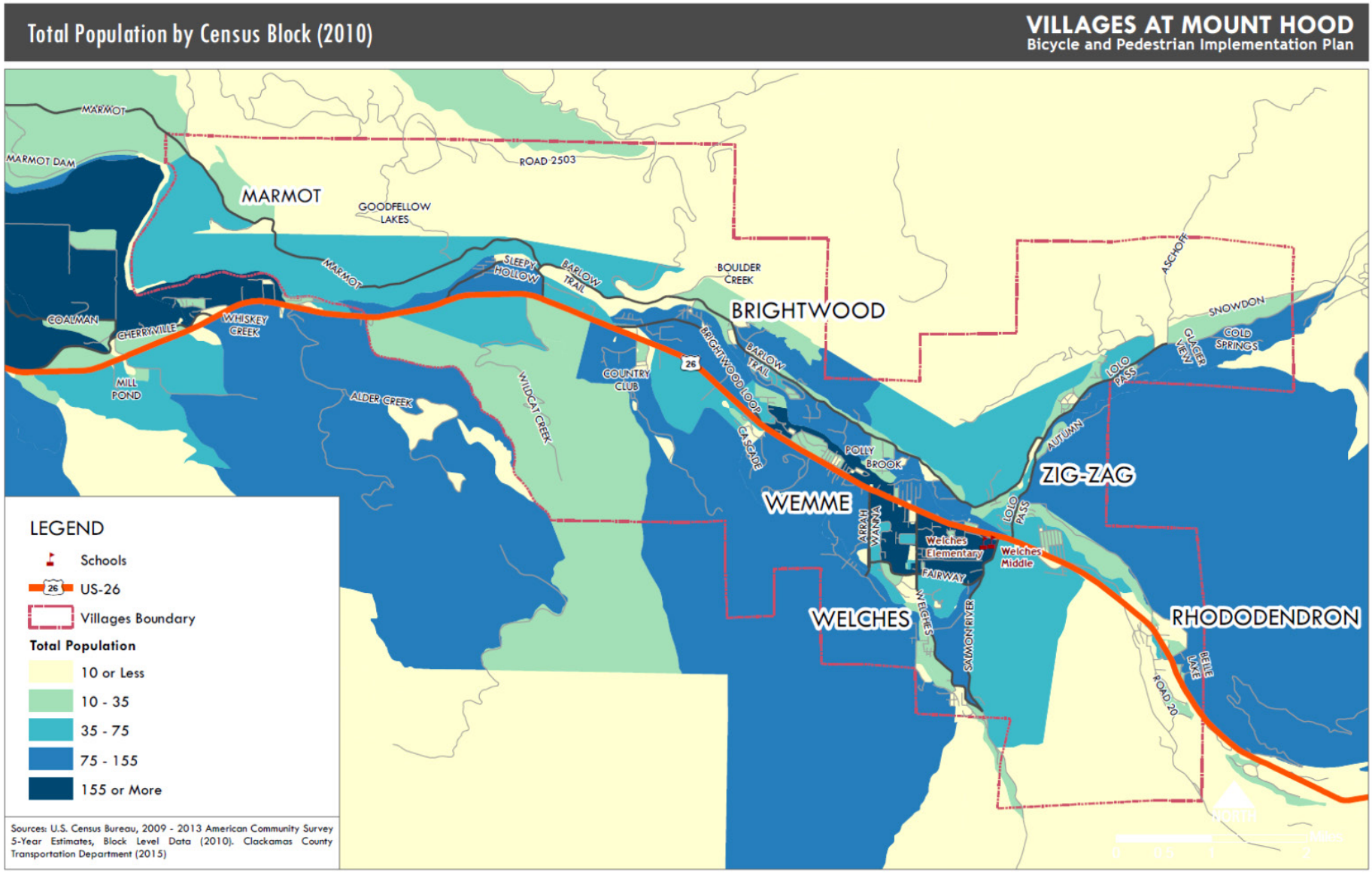
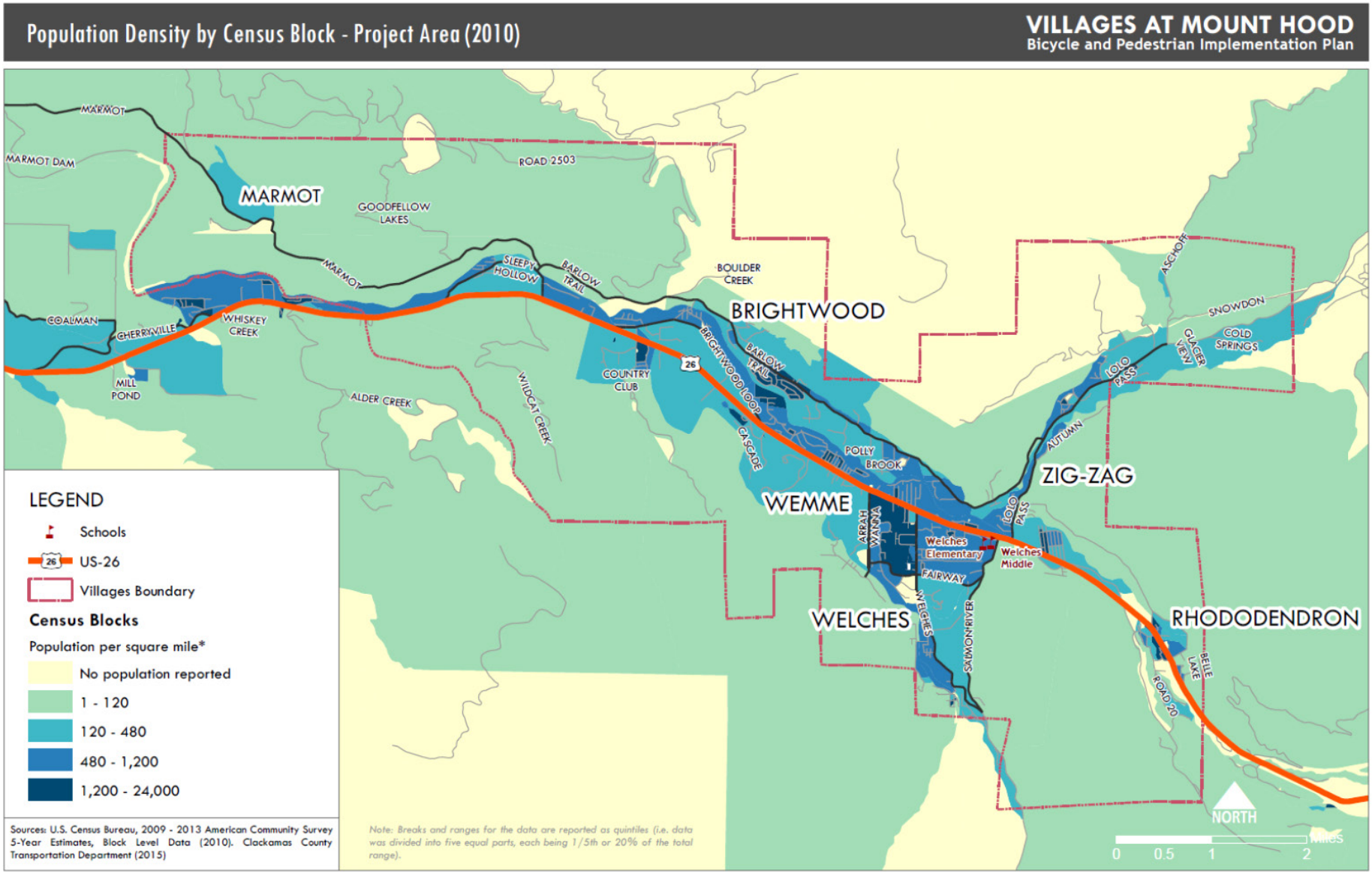


Figure 3 Population Density in the Project Area



Trip Attractors/Destinations

Many of the destinations for residents and visitors to The Villages at Mt. Hood are located on US 26. They include supermarkets, restaurants, schools, and commercial services. In the village of Brightwood (Figure 5), destinations such as the Brightwood Tavern and Brightwood Post Office are clustered at the intersection of E. Brightwood Loop Road and E. Brightwood Bridge Road, north of US 26. East of Brightwood, a cluster of destinations including the Mt. Hood Senior Center, Mt. Hood RV Resort and Campground, and two cafes are located on Camino Rio Road just south of US 26.

In Wemme, commercial shops are located near the intersections of E. Arrah Wanna Boulevard/US 26, and several restaurants are located across the highway at the intersection of E. Greenwood Drive. On the north side of US 26 there is a demand foot path located in landscaped property frontage. The path is used by pedestrians accessing destinations located in the commercial cluster. On the south side of US 26, there is also an informal footpath adjacent to the highway that is used by pedestrians accessing establishments between E. Arrah Wanna Boulevard and E. Welches Road. The footpath also serves the Wildwood Recreation Area, a popular recreational destination for residents and visitors.

The Hoodland Shopping Center in Welches hosts many popular destinations, including the area's largest supermarket, as well as a bakery, pizzeria, coffee shop, liquor store, and nearby commercial buildings (Figure 6). The shopping center is also home to a busy rental facility for winter and summer sport equipment. Further south on E. Welches Road, the Resort at the Mountain is a destination for tourists and local residents who visit the 36-hole golf course, spa, and event facilities.

East on US 26, Welches Elementary School and Middle School are located in close proximity to the highway, accessible via E. Woodsey Way and E. Salmon River Road. In the village of Zig Zag, a small cluster of destinations is located near the intersection of US 26 and E. Lolo Pass Road. In Rhododendron, a supermarket, restaurants, shops, and transit stop are clustered on US 26 between E. Arlie Mitchell Road and E. Henry Creek Road (Figure 7).

Popular recreational destinations include the Sandy Ridge Mountain Bicycle Trail System off E Barlow Trail Road, a trail system heavily used by mountain bikers that is growing as an event destination for bicycle demonstrations and distributors. Other popular campgrounds and hiking trailheads are located near the terminus of E. Salmon River Road. Lolo Pass Road connects to many popular hiking trails in the Mt. Hood National Forest. These areas, along with many vacation rentals in the area experience more use during the summer months and contribute to increased vehicular, bicycle, and pedestrian traffic on local roadways. In the winter, snow sport destinations further east on Mt. Hood contribute to increased levels of vehicular through traffic on US 26.

Figure 4 Destinations for Residents and Visitors in Brightwood/ Wemme

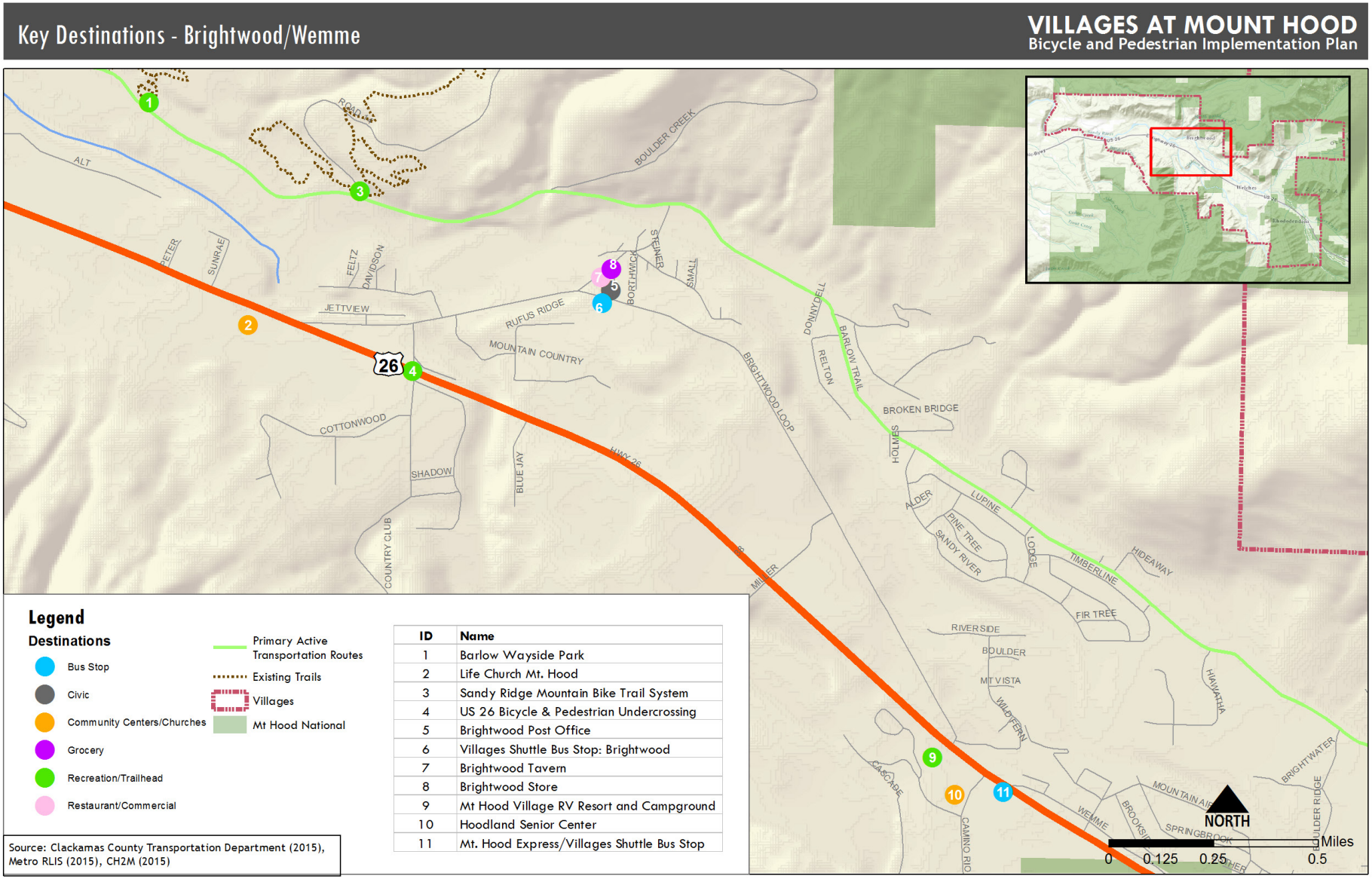


Figure 5 Destinations for Residents and Visitors in Wemme/ Welches

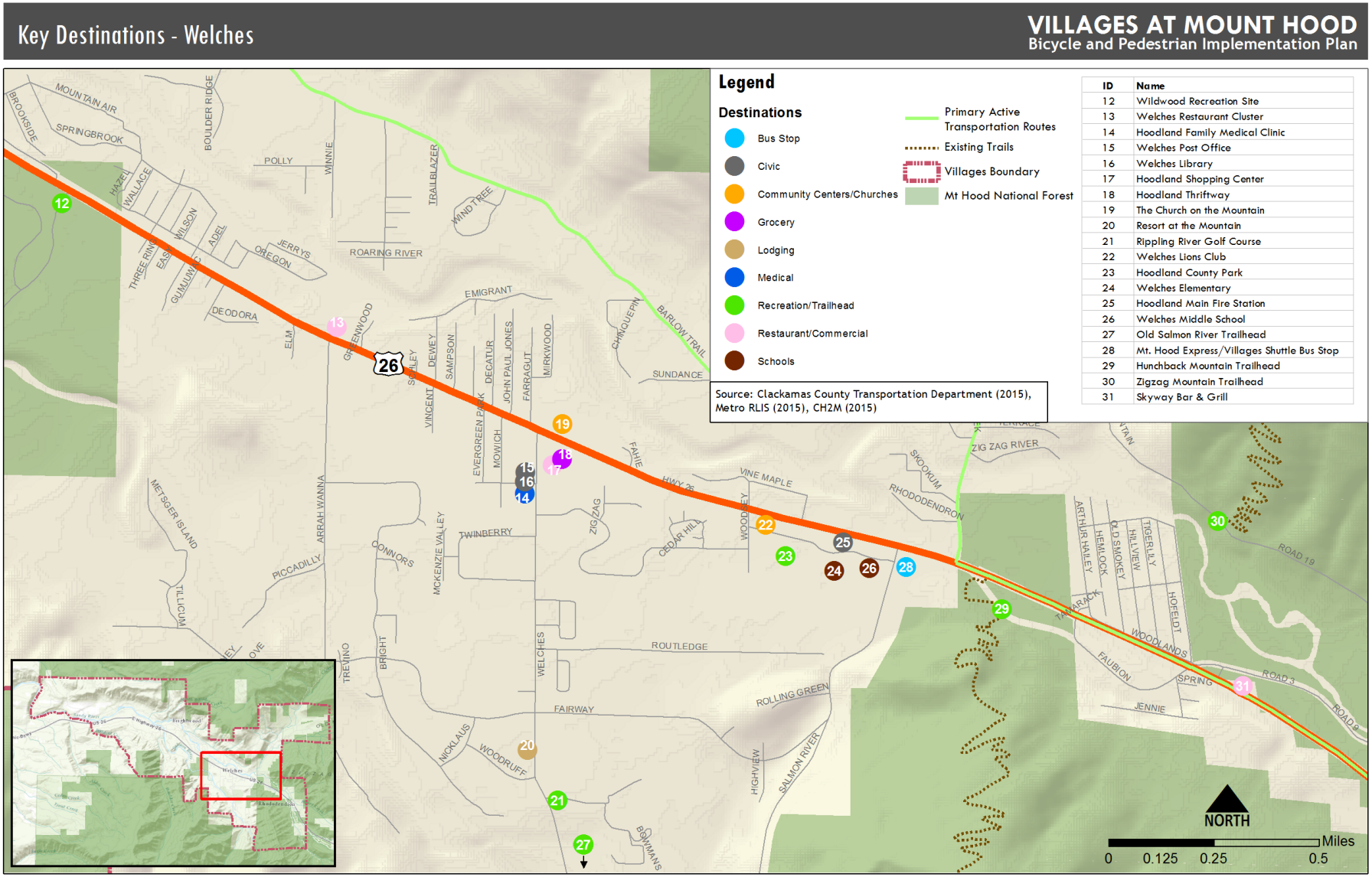
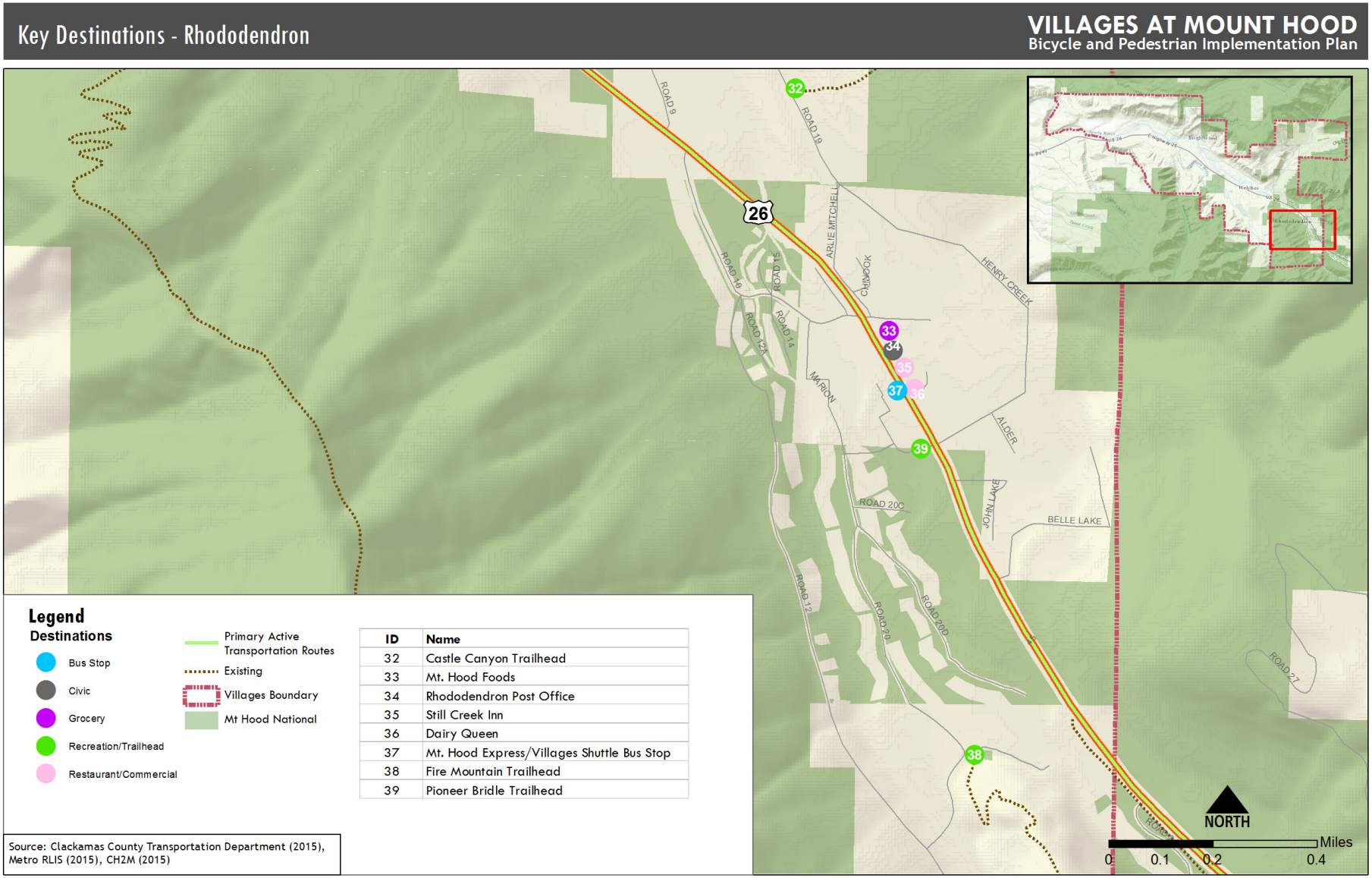


Figure 6 Destinations for Residents and Visitors in Rhododendron



ID	Name
32	Castle Canyon Trailhead
33	Mt. Hood Foods
34	Rhododendron Post Office
35	Still Creek Inn
36	Dairy Queen
37	Mt. Hood Express/Villages Shuttle Bus Stop
38	Fire Mountain Trailhead
39	Pioneer Bridle Trailhead

Zoning

The zoning and comprehensive plan designations reflect where residences, commercial zones, and recreational opportunities currently exist. The residential neighborhoods within The Villages at Mt. Hood are largely in areas zoned for Hoodland Residential, Rural Residential Farm Forest, and Recreational Residential. Destinations described in Figure 4 and Figure 5 are zoned rural tourist commercial. Outside of the hamlets and The Villages at Mt. Hood, the land uses is primarily Timber District. The Comprehensive Plan and other long-range planning documents demonstrate that growth is continued to be planned within existing commercial and residential nodes.

Development Potential Analysis

A full developable land inventory is not part of this project; however, it is helpful to understand the development potential within the Study Area, which informs what transportation facilities would be needed to provide safe pedestrian and bicycle access to accommodate existing and future potential development.

To gauge the level of potential development, this memorandum uses parcel level information from Clackamas County to clarify the presence of developed land and vacant land in the area, and by Clackamas County Zoning and Development Code designation. A positive building value is used as a proxy to determine developed land and the absence of any building value has been used as a proxy for vacant land. Vacant land does not equate to developable land because various constraints could further restrict development, but this level of analysis provides a general idea of the level of potential development.

Analysis has also been conducted for parcels adjacent to US 26 to better understand development potential along the US 26 corridor. The study area has been divided into three subareas: Subarea #1 contains the Marmot area and part of Brightwood; Subarea #2 contains Brightwood and part of Wemme and Welches; and Subarea #3 contains Welches, Wemme, and Rhododendron; and Subarea #4 contains Rhododendron and ZigZag. Each subarea contains a unique set of parcels and there is no parcel analysis overlap between subareas.

Zoning and Development Code designations within The Villages at Mt. Hood study area are listed below:

- Rural Residential Farm/Forest 5-Acre District (RRFF-5)
- Recreational Residential District (RR)
- Hoodland Residential District (HR)
- Mountain Recreational Resort District (MRR)
- Rural Tourist Commercial District (RTC)
- Rural Commercial District (RC)
- Open Space Management
- Timber District (Agriculture/Forestry)
- Exclusive Farm Use District

For this analysis, Open Space Management, Timber District, and Exclusive Farm Use District parcels were eliminated because, by definition, very little development is allowed on these lands, and they generate relatively low levels of travel. For all other zoning and development code designations, the table below provides parcel dimensional standards to add to the understanding of development potential in the study area.

Figure 7 Dimensional Standards for Zoning and Development Code Designations within The Villages at Mt. Hood Study Area

Standard	*RRFF-5*	*RR*	*HR*	*MRR*	*RTC*	*RC*
Minimum Lot Size	*5 acres*	*2 acres*	-	-	*None*	*None*
Minimum Front Yard Depth	*30 feet*	*15 feet, except 20 feet to garage and carport motor vehicle entries*	*15 feet, except 20 feet to garage and carport motor vehicle entries*	*15 feet, except 20 feet to garage and carport motor vehicle entries*	*25 feet*	*30 feet*
Minimum Rear Yard Depth	*30 feet (10 feet for accessory building)*	*15 feet*	*15 feet*	*10 feet*	*10 feet*	*10 feet*
Minimum Side Yard Depth	*10 feet*	*5 feet*	*5 feet*	*10 feet*	*10 feet*	*10 feet*
Maximum Lot Coverage	*None*	*40 percent*	-	-	-	-
Maximum Building Height	-	-	*40 feet*	*40 feet*	-	-
Maximum Building Floor Space per Commercial Use	-	-	*N/A*	*4,000 square feet*	*4,000 square feet (in an unincorporated community)*	*4,000 square feet (in an unincorporated community)*
Source: Clackamas County Zoning and Development Ordinance						

The study area has been divided into three subareas to provide detail within the accompanying maps, Figures 12 through 15. Parcel acreage for the parcels adjacent to US 26 and parcels not adjacent to US 26 are provided separately to help understand what development may occur adjacent to the highway versus the entire study area subarea. Parcels are also highlighted by zoning and development code type. Parcels adjacent to US 26 and parcels not adjacent to US 26 are unique with no overlap.

Figure 8 Vacant and Developed Parcels by Zoning and Development Code

Parcels	Residential						Recreational and Commercial						Total (acres)		Total Acres	% Vacant of Total Acres*
	RRFF-5 (acres)		RR (acres)		HR (acres)		MRR (acres)		RTC (acres)		RC (acres)					
	V	D	V	D	V	D	V	D	V	D	V	D	V	D		
Subarea #1																
Adjacent to US 26	91	116	-	-	-	-	-	-	-	-	-	-	91	116	207	44%
Not-adjacent to US 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subarea #2																
Adjacent to US 26	19	88	16	49	115	476	-	-	-	-	-	-	150	613	763	19%
Not-adjacent to US 26	-	-	92	108	5	9	-	-	-	-	-	-	97	117	214	45%
Subarea #3																
Adjacent to US 26	-	-	127	69	8	417	-	-	-	1	-	-	135	486	621	22%
Not-adjacent to US 26	-	-	547	157	295	210	53	34	-	1	-	-	895	402	1,297	69%
Subarea #4																
Adjacent to US 26	-	-	4	22	7	5	-	-	1	7	-	-	12	34	46	16%
Not-adjacent to US 26	-	-	-	-	1	4	-	-	-	-	-	-	1	4	5	20%
Totals	110	204	786	405	431	1,121	53	34	1	9			1,381	1,772	3,153	44%

V = Vacant D = Developed

**Total acres is a sum of all zoning codes listed within this table and excludes Open Space Management, Timber District (Agriculture/Forestry), and Exclusive Farm Use District*

Source: Clackamas County GIS Parcels Data (2015)

Subarea #1

Within Subarea #1, Marmot area and Brightwood, much of the developable area is vacant (44 percent), adjacent to US 26, and is zoned Rural Residential Farm/Forest 5-Acre District (RRFF-5), which allows for a low level of development. Ninety-one acres are vacant.

Subarea #2

Within Subarea #2, Brightwood and the west portion of Welches and Wemme, 19 percent of the parcels adjacent to US 26 are vacant and zoned RRFF-5, Recreational Residential District (RR), and Hoodland Residential District (HR). With 115 acres that are vacant, adjacent to US 26, and zoned HR, allowing for a relatively, moderate level of development. Overall, this subarea has the greatest acres of vacant parcels (150 acres) adjacent to US 26.

Subarea #3

Within Subarea #3, Welches, Wemme, and Rhododendron, parcels adjacent to US 26 are 22 percent vacant, and zoned HR and RR. This subarea has the second greatest acres of vacant parcels (135 acres) adjacent to US 26. Most of these vacant acres are zoned RR (127 acres). Sixty-nine percent of parcels not adjacent to US 26 are vacant. This area has the greatest amount of vacant land and is mostly in the Welches and Wemme area.

Subarea #4

Within Subarea #3, Zig Zag and Rhododendron, adjacent to US 26, only 12 acres are vacant, representing 16 percent. This subarea has the least amount of vacant land that is zoned to allow development.

Figure 9 Comprehensive Plan Designations in Marmot and Brightwood

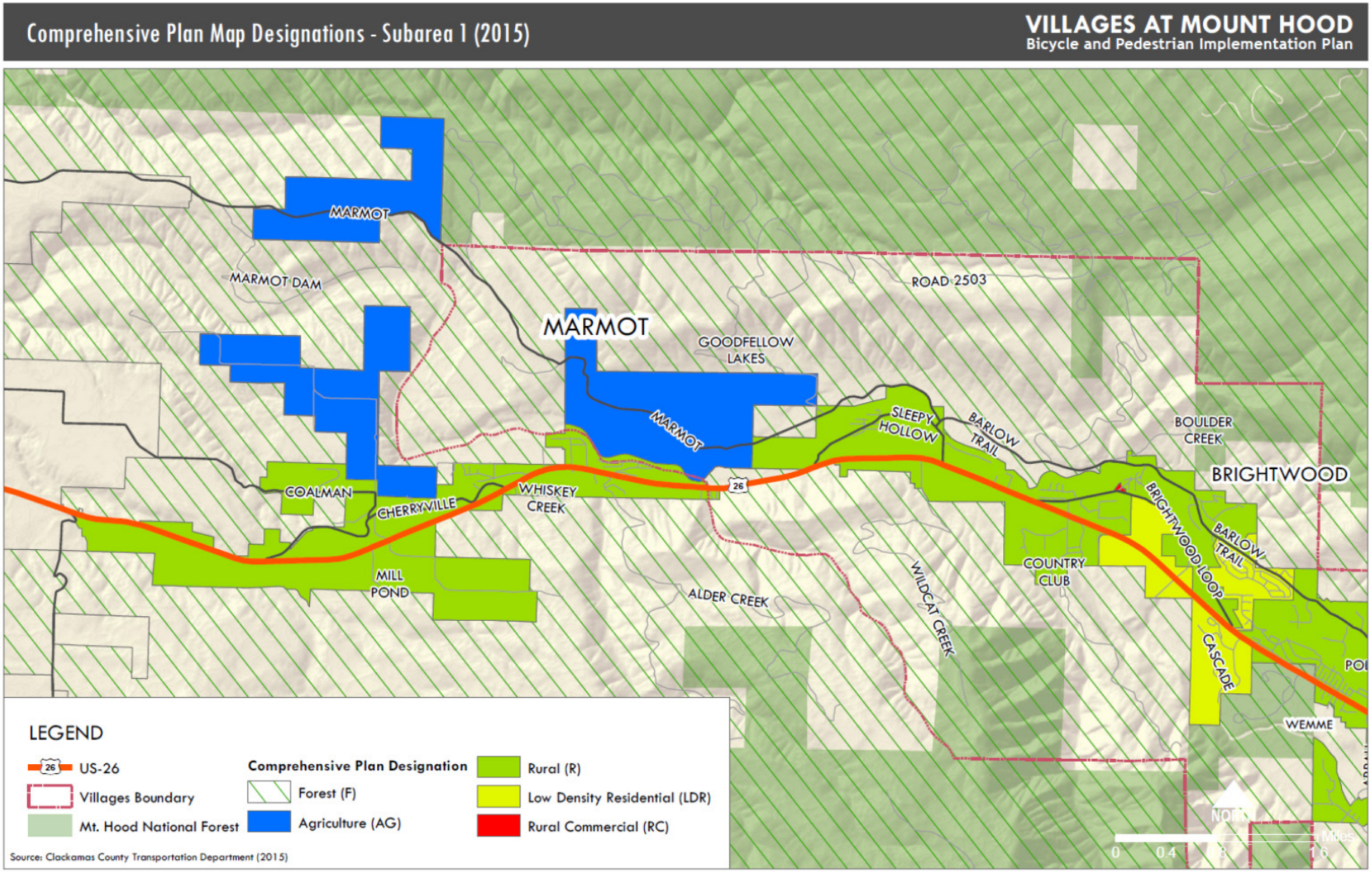


Figure 10 Comprehensive Plan Designations in Wemme, Welches and Zig Zag

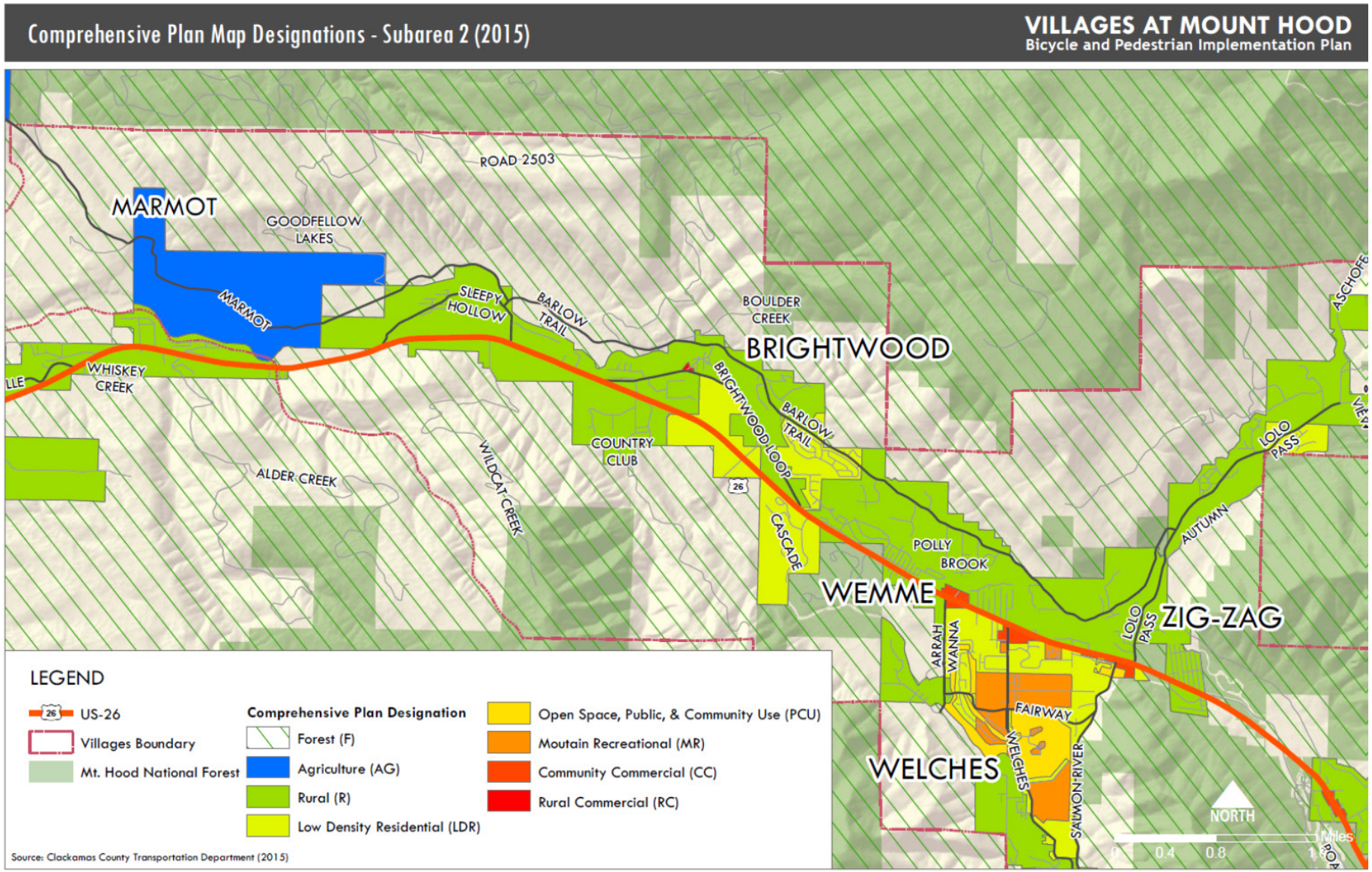


Figure 11 Comprehensive Plan Designations in Zig Zag and Rhododendron

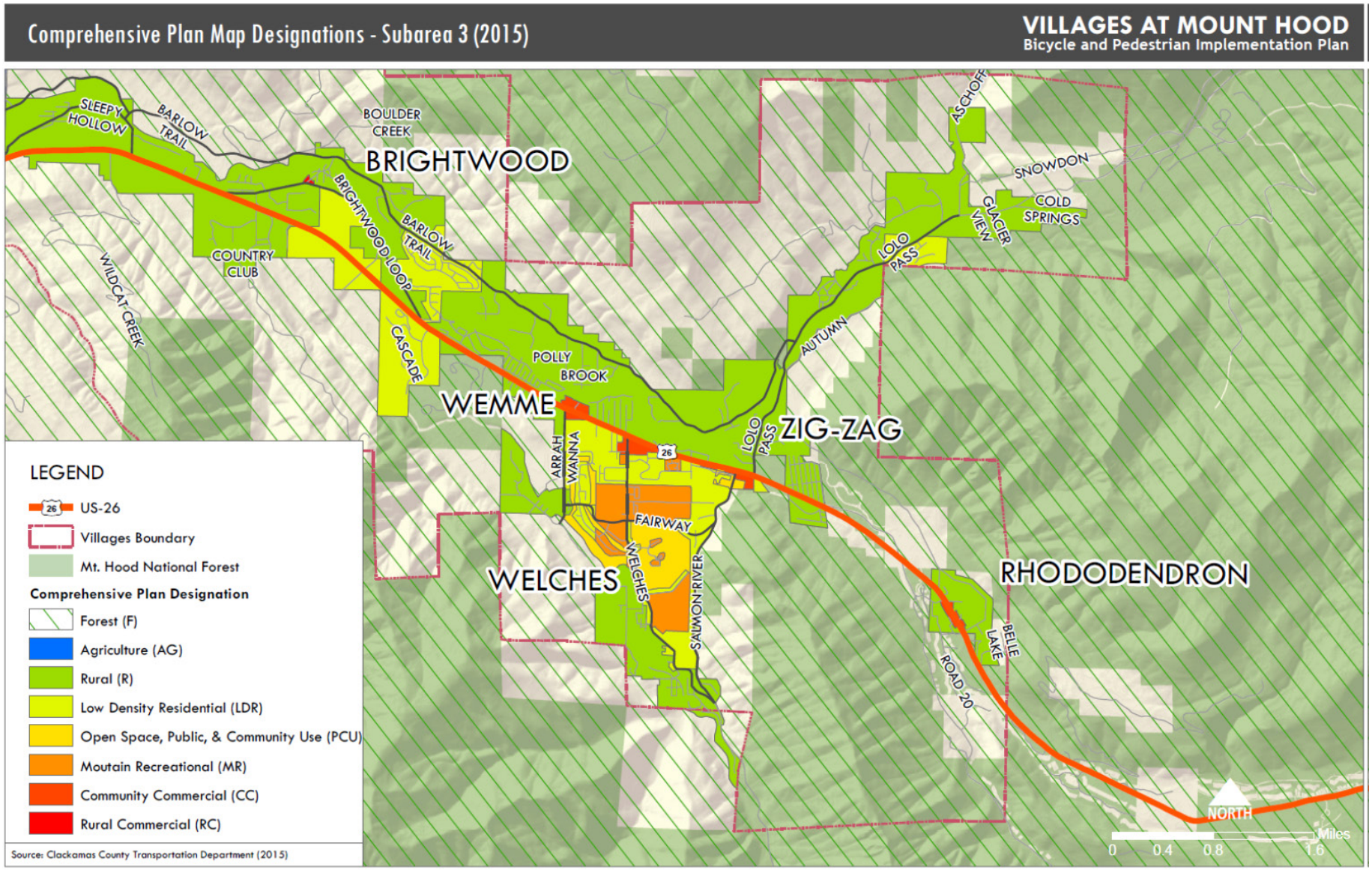
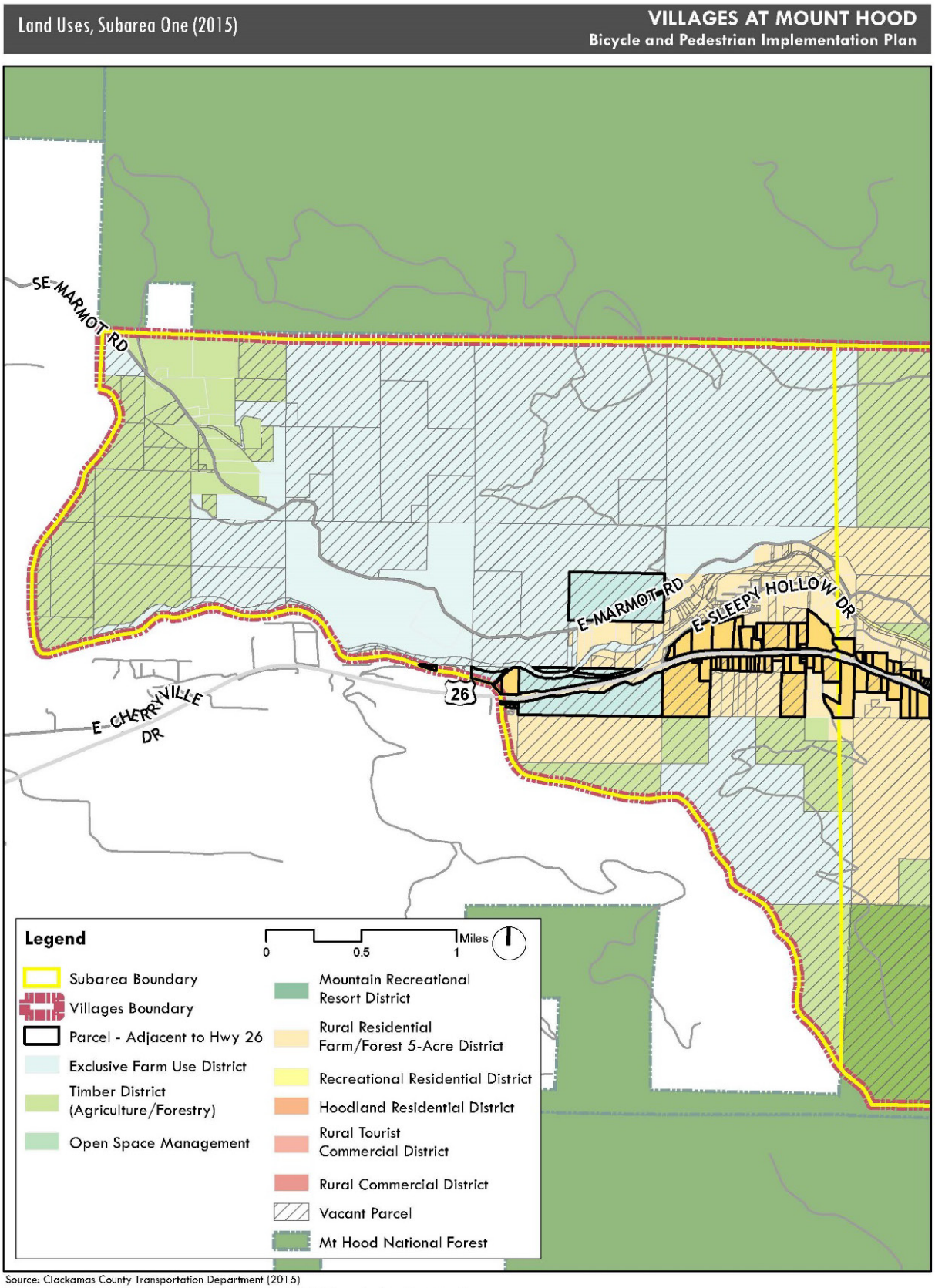


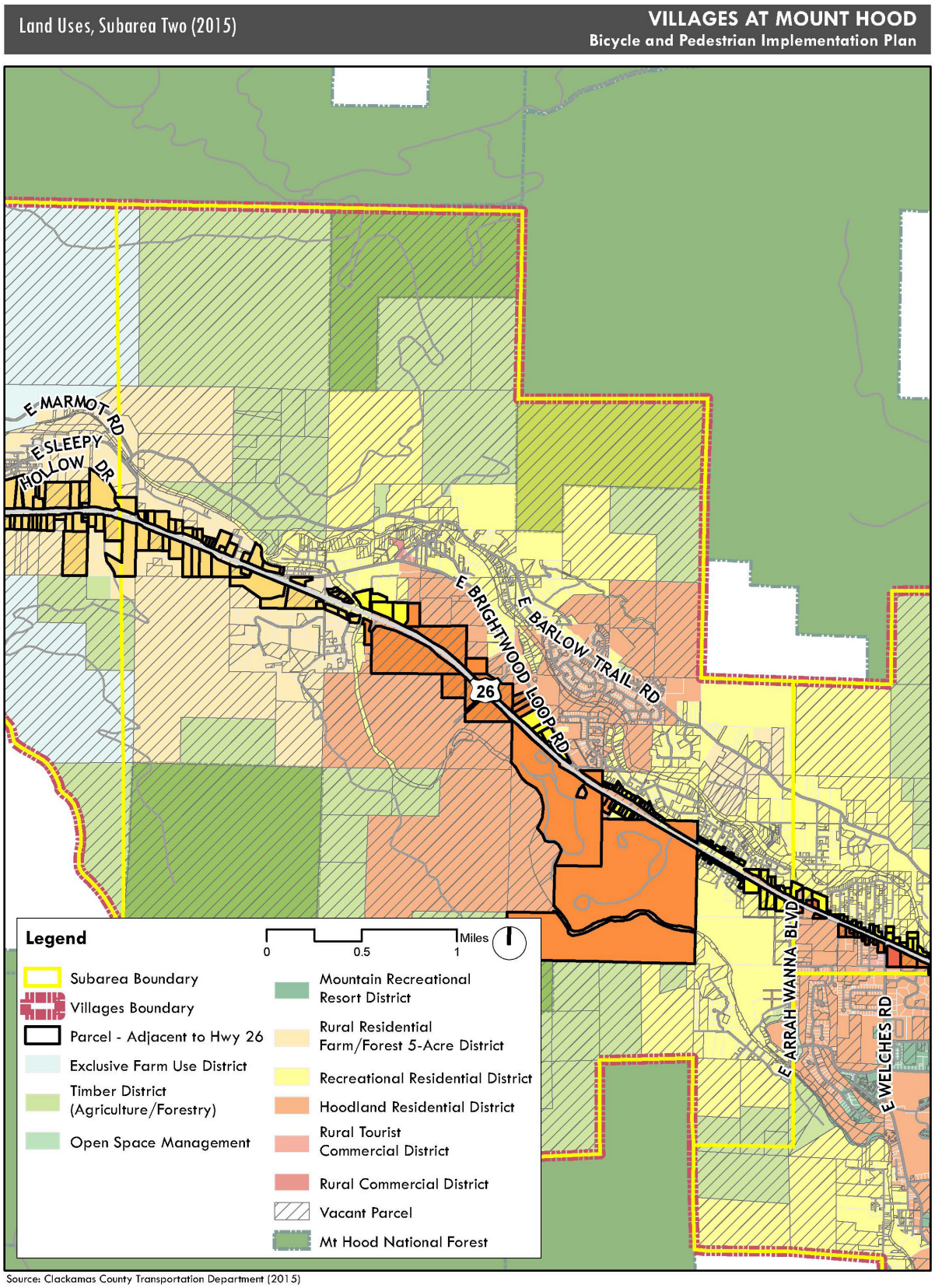
Figure 12 Zoning Designations in Brightwood



Source: Clackamas County Transportation Department (2015)

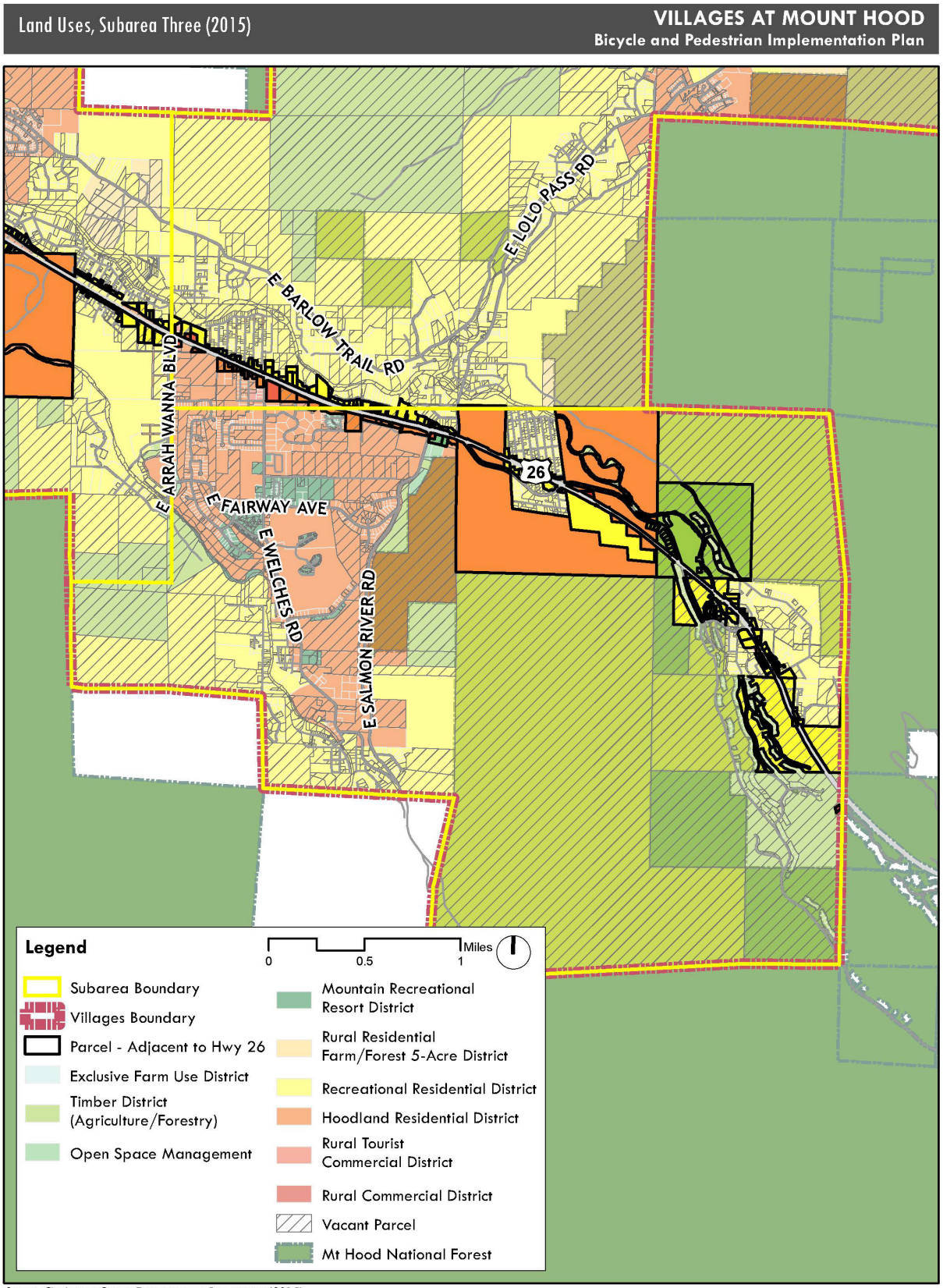
Document Path: \\PDXFPP01\Proj\ODOT\664182MtHood\GIS\Villages_Landuse_Portrait.mxd

Figure 13 Zoning Designations in Brightwood, Welches and Wemme



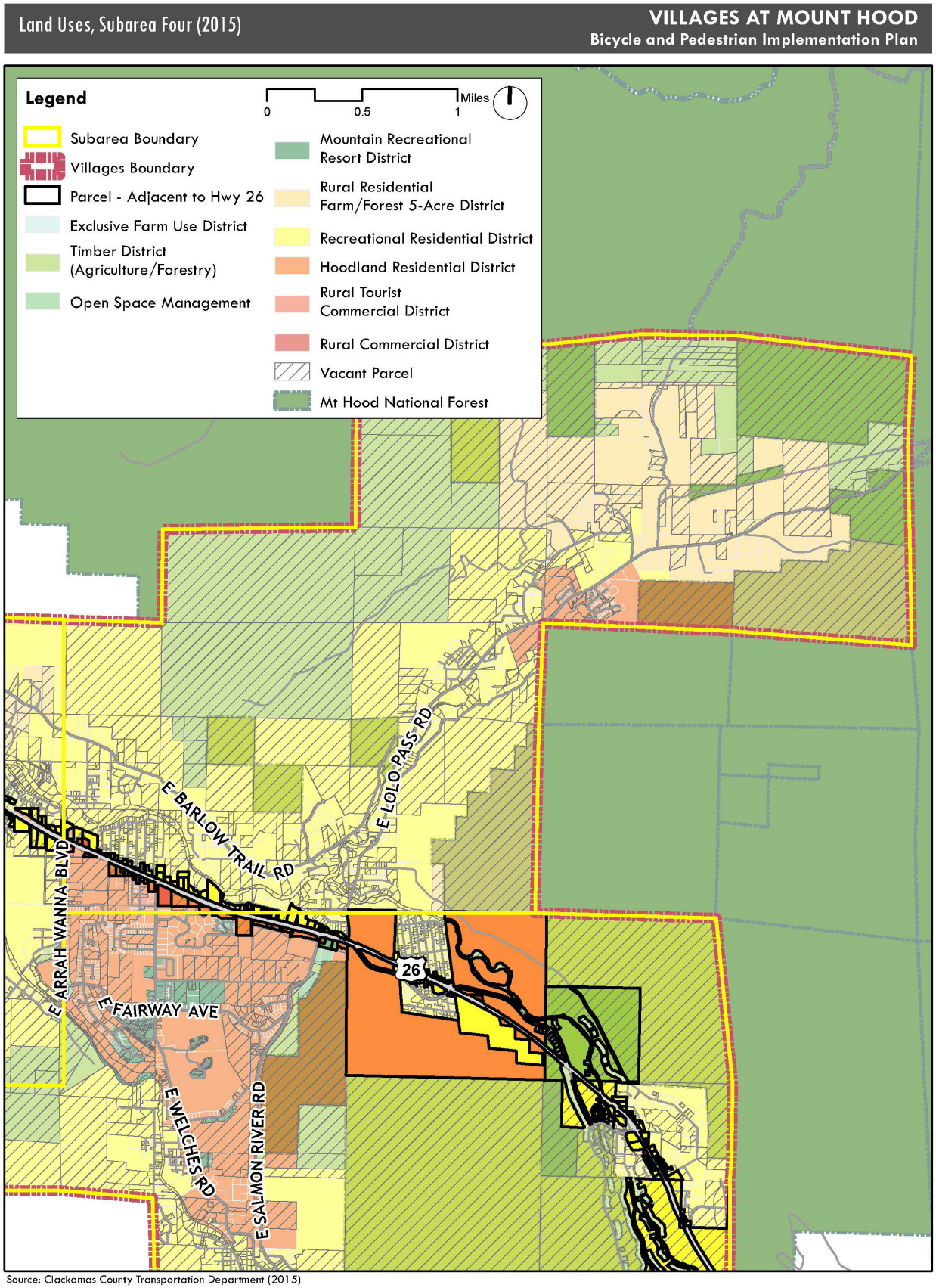
Source: Clackamas County Transportation Department (2015)

Figure 14 Zoning Designations in Welches and Wemme



Source: Clackamas County Transportation Department (2015)

Figure 15 Zoning Designations in Zig Zag and Rhododendron



Source: Clackamas County Transportation Department (2015)

Health Impact for The Villages at Mt. Hood

Opportunities for Physical Activity

Residents in The Villages at Mt. Hood have access to high quality trails and recreational opportunities in their communities, but most are only accessible by vehicle or transit. The exception is the Wildwood Recreation Area, which is located directly off US 26 and has demand footpaths leading to the park entrance. Other trailheads in the area (Sandy Ridge Trail System, Old Salmon River Trail, and Pioneer Bridle Trail) require walking or bicycling on roadway shoulder to access (Figure 15).

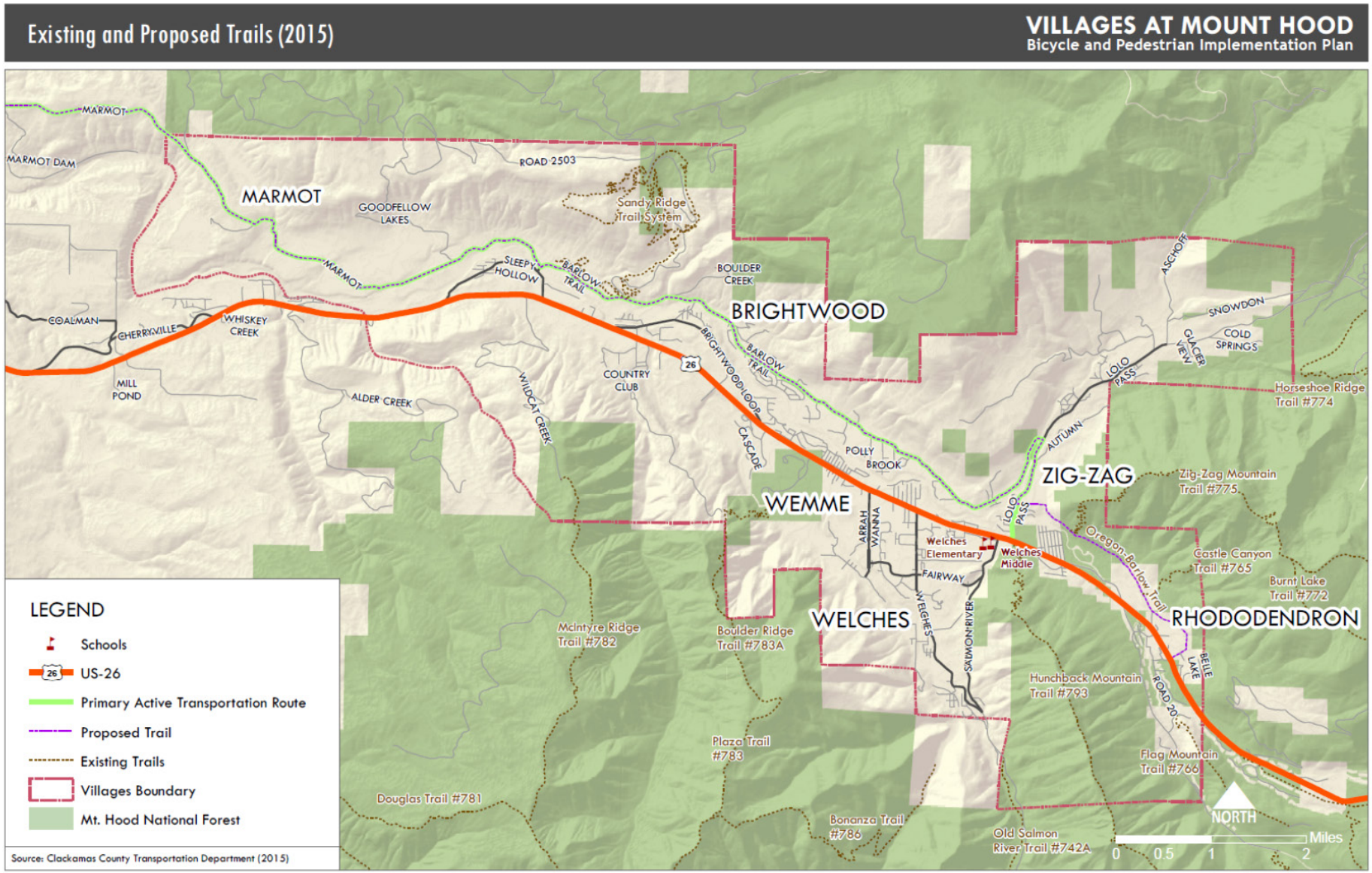
Access to Goods and Services

Both supermarkets in The Villages at Mt. Hood are accessible via transit, with stops located across the road from the markets. In Welches, the Thriftway has demand footpaths on the south side of US 26 both east and west of the shopping center for shoppers who wish to walk or ride their bicycle. The commercial strip where Mt. Hood Foods is located in Rhododendron does not have a sidewalk, but there is excess space in the right-of-way in front of establishments for pedestrians walking on the north side of the roadway. Residents have access to post offices and other commercial services via transit, but do not have separated walking or bicycling facilities to reach the areas. In Rhododendron, as in the other The Villages at Mt. Hood outside of Welches, pedestrians or bicycle riders wishing to cross US 26 to access destinations must do so without any marked crossings.

Impacts to Vulnerable Communities

Due to the rural, low density nature of The Villages at Mt. Hood, census tracks are geographically large. The data is not fine grained enough to determine on which particular roadways or in which neighborhoods vulnerable populations (such as the elderly, children, low-income people, or persons with disabilities) live. The data only reflects the generalized areas where population density exists. It is not possible to determine at an intersection level where projects would most impact these populations except to infer that destinations for these populations (such as the Hoodland Senior Center, Welches Elementary and Middle School, community churches) should be a high priority. Projects that improve access by walking or bicycling to these destinations would provide greater impact to vulnerable populations than projects serving areas where these populations are less likely to go. Proposed projects are outlined in the Opportunities Section, and presented in Figure 53, Figure 54, and Figure 55 at the end of the document.

Figure 15 Existing and Proposed Recreation Trails and Active Transportation Routes



Roadway Characteristics

The primary roadways in the project area include a state highway and major arterial (US 26), minor arterials (such as Barlow Trail Road) and local roads (such as Chinook Lane) (Figure 19). There are also many Forest Service roads that are named by road numbers (e.g. Road 9 or FS 34). The Clackamas County Transportation System Plan (TSP) establishes characteristics of a typical rural cross sections for incorporated and unincorporated communities. The existing characteristics of roadways within the project area are reported here by classification, and compared to the standards outlined in the TSP. Major and minor arterials will be the primary focus for assessing gaps, as they are the most vital links in the circulation of residents and visitors. Roadway volumes and intersections movements will be documented in greater detail in *Technical Memorandum 5-Project Alternatives and Traffic Analysis.*

Figure 16 US 26 in Rhododendron

Figure 17 US 26 at E. Salmon River Road

Major Arterials

US 26 is a state highway and classified by Clackamas County as a major arterial. Clackamas County defines state highways as "roads that provide the primary connections to larger urban areas, ports and major recreational areas that are not directly served by interstate highways. Maintenance responsibilities belong to the Oregon Department of Transportation."[1] US 26 bisects the project area, serving The Villages at Mt. Hood residents and visitors for circulation needs and also acting as an important thoroughfare for people traveling to Mt. Hood recreation areas and freight serving Hood River, Wasco, and Deschutes counties and beyond.

The width of the highway varies throughout the project area, but the cross section typically has two travel lanes in each direction with a shared center turn lane. In some areas, the center turn lane has a protected turn pocket, such as the intersection of E. Welches Road. The widest surface road width on US 26 within the project area is between Brightwood and Wemme, spanning between 81 - 91 feet (Figure 20). The most narrow section of surface road width on US 26 east of Rhododendron where the roadway narrows to one travel lane in each direction, with alternating climbing lanes where roadway width allows. In this span the surface road width is 30 feet or less. Throughout the project area the highway has a wide shoulder that acts as a bicycle lane and varies between 5 - 11 feet on each side (Figure 52).

[1] Clackamas County, *Glossary of Transportation Terms: Road Classifications*. http://www.clackamas.us/engineering/glossary.html

Figure 18 Gaps and Opportunities for Major Arterials in the Project Area

Roadway	*TSP Typical Cross Section*	*Existing Cross Section*	*Gaps & Opportunities*	*Destinations*
US 26	▪ 11'-12' travel lanes ▪ Optional left turn lane or raised medians ▪ 6' bikeway on both side of roadway ▪ Landscaping strips ▪ 6' pedestrian facilities	▪ 1-2 travel lanes in each direction ▪ Shared center turn lane, some turn pockets ▪ 5-11' shoulder acting as bikeway and pedestrian facility ▪ Some desire path foot trails exist on each side of US 26 in the areas of Wemme, Welches and Zig Zag	**Gaps:** ▪ Bikeway and pedestrian facility are shared and do not have any physical separation from travel lanes ▪ Only one signalized crossing in the study area. Pedestrians and bicycle riders must navigate 2-5 lanes of traffic to cross. **Opportunities** ▪ Formalize existing desire-made foot trails into a shared use path separated from the highway ▪ Investigate roadway designs to improve continental crossing at US 26 and E Salmon River Road ▪ Investigate crossing treatment or roadway design to improve crossing opportunity in Rhododendron ▪ Investigate crossing treatment or roadway design to improve crossing opportunities near transit stops ▪ Provide connections to and wayfinding for the current bicycle and pedestrian undercrossing of US 26 (in the vicinity of the Salmon River) ▪ Evaluate the feasibility of a path/bicycle route parallel to US 26	Communities of Brightwood, Wemme, Welches, Zig Zag and Rhododendron. Destinations along US 26 include community centers, recreational opportunities, grocers, schools restaurants, and commercial clusters. Major through access to the Portland region and west, Mt. Hood, and points east of Mt. Hood.

Figure 19 Functional Classifications of Roadways in The Villages at Mt. Hood

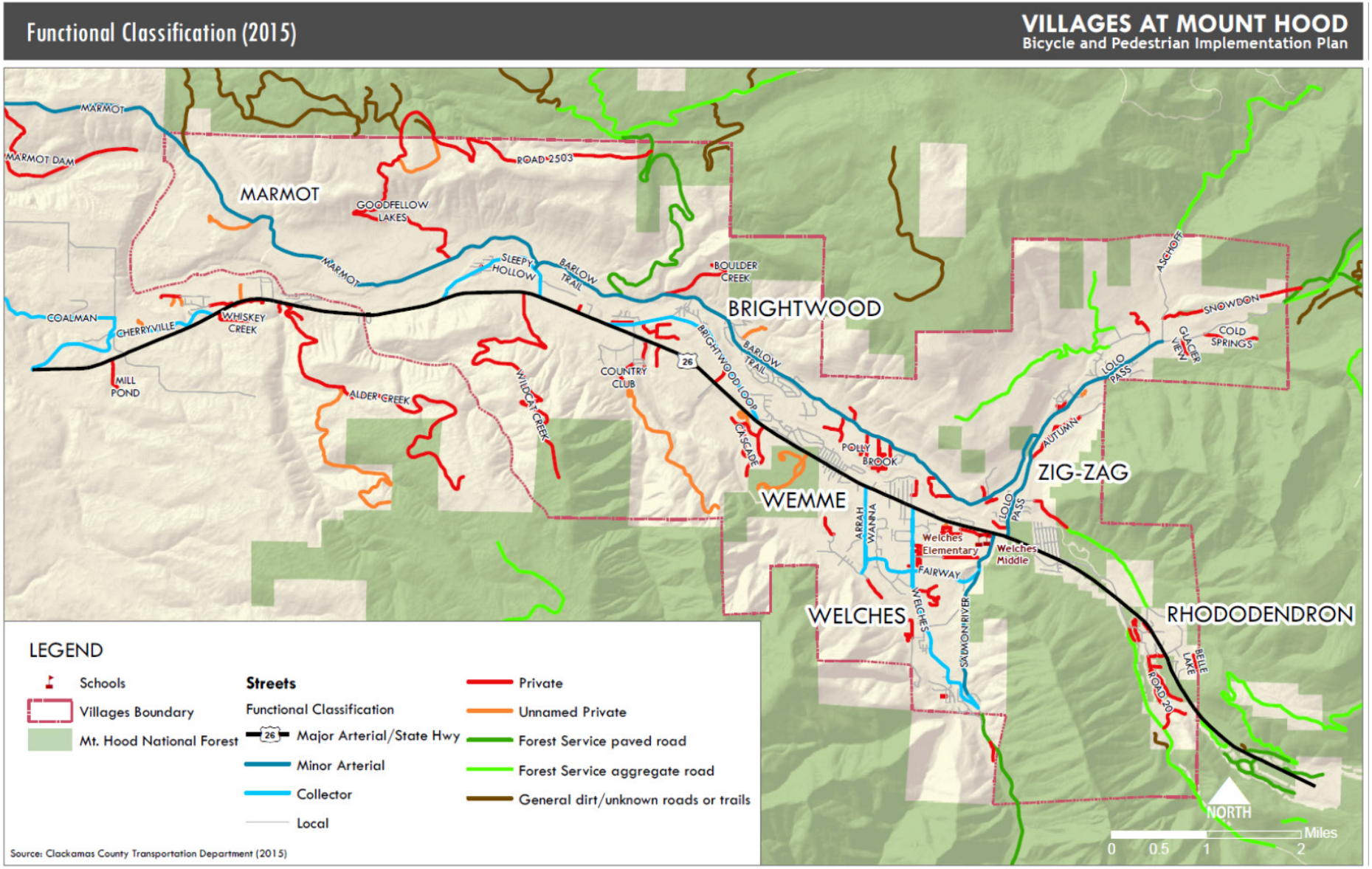


Figure 20 Width of US 26 throughout Project Area

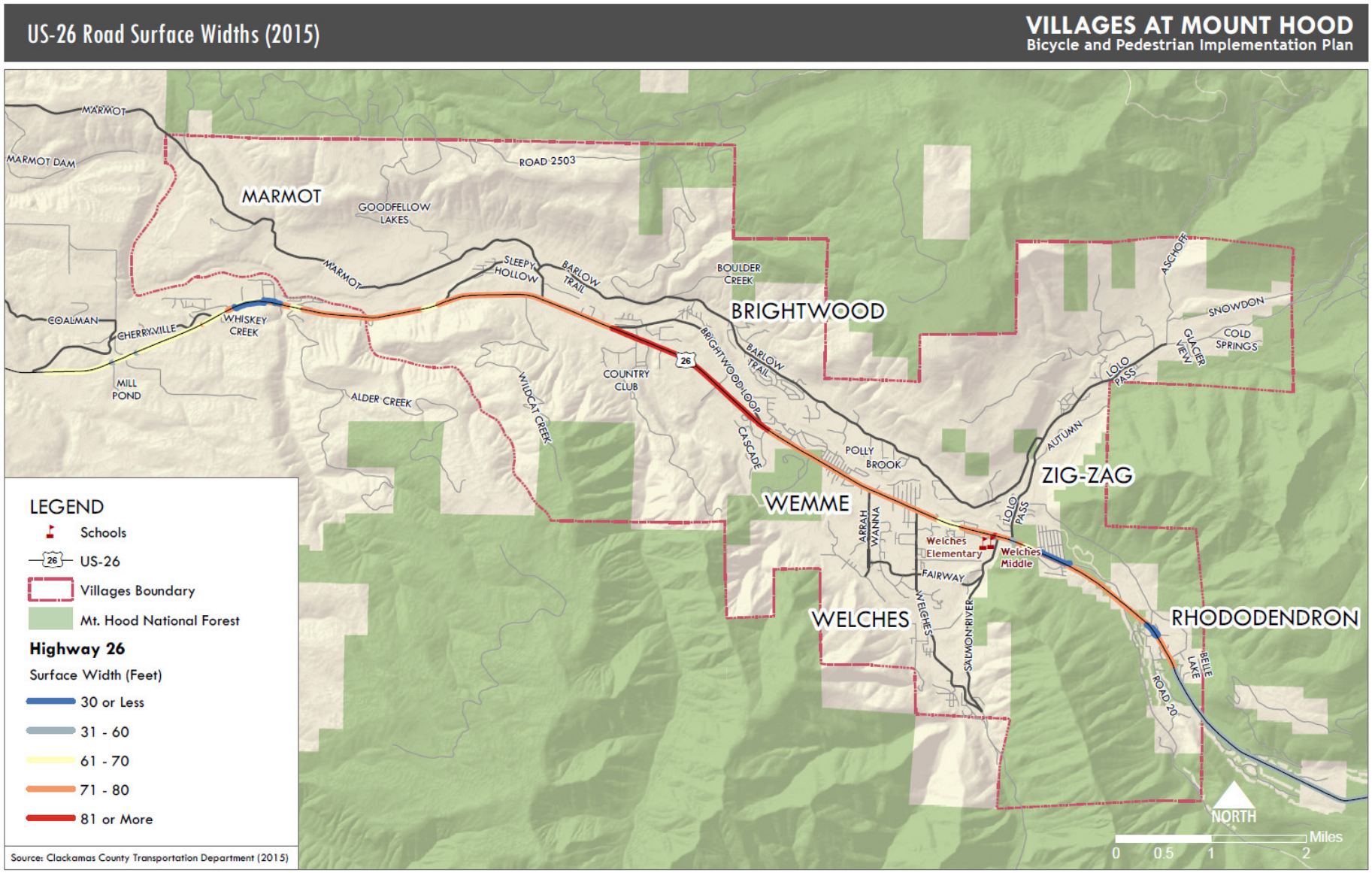
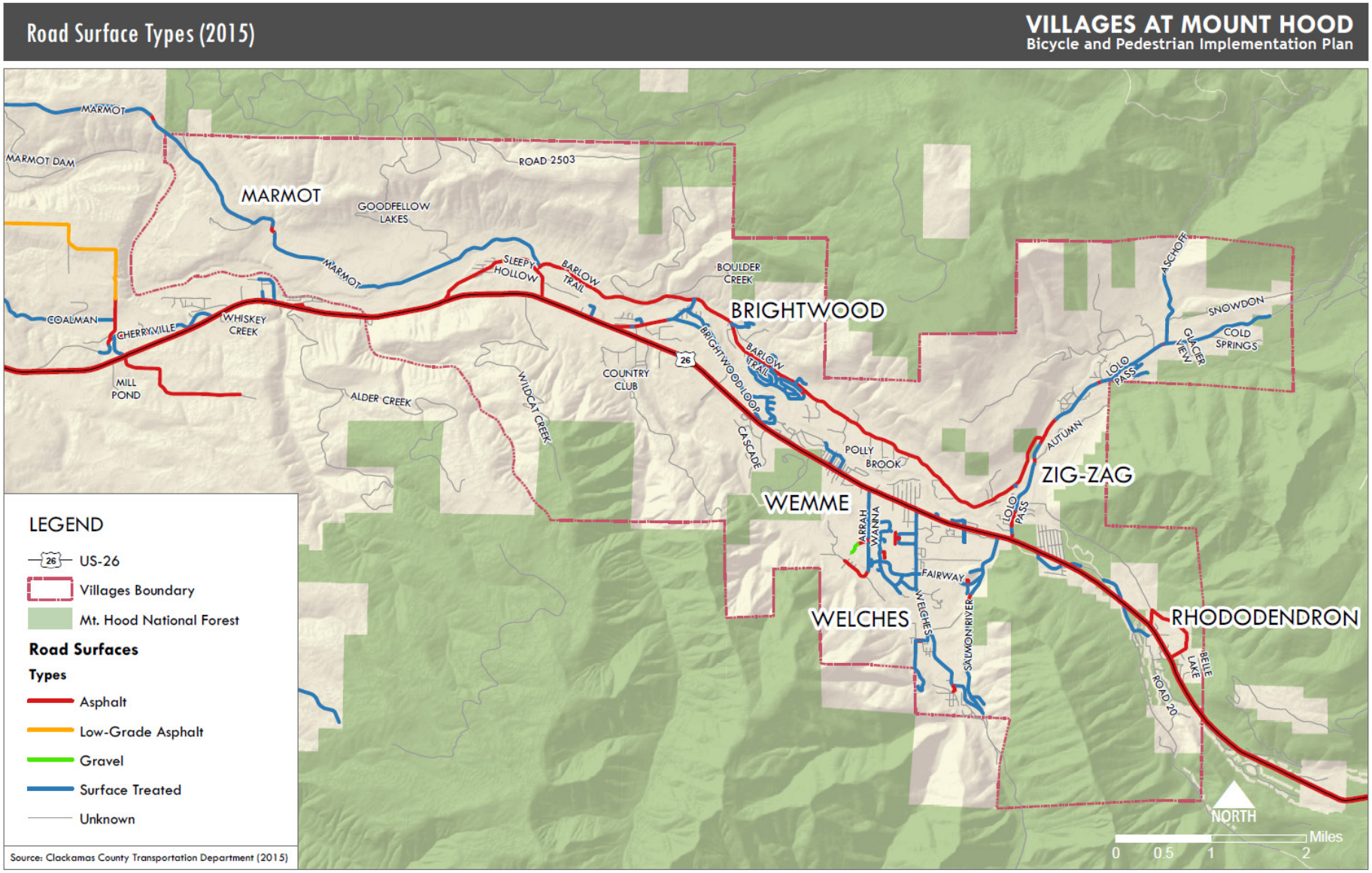


Figure 21 Road Surface Types in The Villages at Mt. Hood



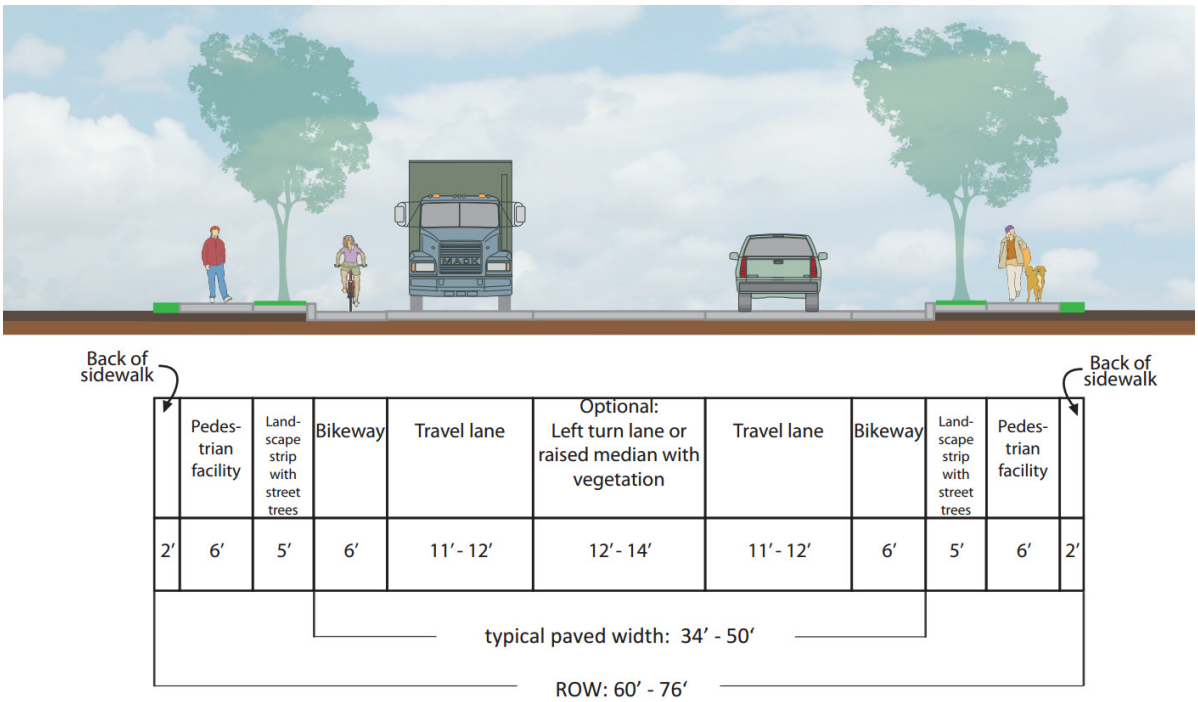
Arterials

The study area has five minor arterials. Some serve as parallel circulation facilities to US 26 (Barlow Trail Road, and Marmot Road), while others connect to recreation destination (Lolo Pass Road and E. Salmon River Road). E. Welches road is classified as both a minor arterial in one segment and as a collector further south. The minor arterials are the primary connectors for residents accessing US 26. Clackamas County defines minor arterials as "a road that primarily connects collectors to higher order roadways, and carries moderate volumes of traffic at moderate speeds."[2]

Figure 22 E Welches Road near the Resort at the Mountain

Within The Villages at Mt. Hood, the minor arterials typically have a striped center line and fog lines that mark the outside of the travel lane. In most cases within the study area, if a shoulder is present on the arterial, it is narrow and made of gravel or dirt. Many arterials, such as E. Welches Road, have constrained sight lines due to hills, winding turns, and dense forest and foliage. This can contribute to safety issues for pedestrians and bicycle riders who may be in the roadway due to narrow or non-existent shoulders.

Figure 23 Typical Rural Arterial Cross Section for Unincorporated Communities



[2] Ibid.

Figure 24 Characteristics of Minor Arterials in The Villages at Mt. Hood

Roadway	*TSP Typical Cross Section*	*Existing Cross Section*	*Gaps & Opportunities*	*Destinations*
Marmot Road	▪ 11'-12' travel lanes ▪ Optional left turn lane or raised medians ▪ 6' bikeway on both side of roadway ▪ Landscaping strips ▪ 6' pedestrian facilities	▪ Single 10 - 11' travel lane in each direction ▪ No center lane or shared turn lanes ▪ Missing fog lines denoting shoulder ▪ 0-1' shoulder for bikeway and pedestrian travel	**Gaps:** ▪ Marmot Road is classified as an active transportation but lacks an adequate shoulder for bicycling ▪ Pedestrians must share a narrow shoulder with bicycles or walk in the road where shoulders do not exist	▪ Sandy Ridge Trail System ▪ Brightwood Post Office ▪ Brightwood Store ▪ Brightwood Tavern ▪ Brightwood The Villages at Mt. Hood Shuttle Stop
Barlow Trail Road	▪ Same standards as listed above	▪ Single 11 - 12' travel lane in each direction ▪ No center lane or shared turn lanes ▪ 3' shoulders for bikeway and pedestrian travel	**Gaps:** ▪ Barlow Trail Road is classified as an active transportation but lacks an adequate shoulder for bicycling ▪ Pedestrians must share a narrow shoulder with bicycles or walk in the road where shoulders do not exist **Opportunities** ▪ Principle Active Transportation Route ▪ STRAVA data show it is the most heavily used roadway by bicycle riders	▪ Sandy Ridge Trail System ▪ Brightwood Post Office
Welches Road	▪ Same standards as listed above	▪ Single 11 - 12' travel lane in each direction ▪ No center lane or shared turn lanes ▪ Short segment of sidewalk fronting the Hoodland Shopping Center ▪ Short segments of hard surface walking paths in the vicinity of E Huckleberry Drive and at the Resort at the Mountain ▪ Some missing fog lines denoting shoulder ▪ 0-1' shoulder for bikeway and pedestrian travel ▪ Continental painted crossing near Resort at the Mountain	**Gaps:** ▪ Pedestrians must share a narrow shoulder with bicycles or walk in the road where shoulders do not exist ▪ Bicycles must ride in roadway with vehicles on narrow road with limited sight lines ▪ Limited sight distance for pedestrians crossing at the Resort at the Mountain **Opportunities** ▪ Extending existing off-street paths where space allows would increase safety. May require coordination with property owners who have built and maintain the paths ▪ Improve pedestrian and facilities accessing Welches Road bus stop	▪ Hoodland Shopping Center ▪ Welches Road Bus Stop ▪ Hood Medical Group ▪ Welches Post Office ▪ Resort at the Mountain Spa, Golf Course and event facilities

E Salmon River Road	▪ (Same standard as listed above)	▪ 1 travel lane in each direction ▪ No center lane or shared turn lanes ▪ 0-1' shoulder for bikeway and pedestrian travel with exception of the frontage of Welches Middle School which has a wide shoulder to accommodate pedestrians and bicycles ▪ Some missing fog lines denoting shoulder	**Gaps:** ▪ Pedestrians must share a narrow shoulder with bicycles or walk in the road where shoulders do not exist ▪ Bicycles must ride in roadway with vehicles on narrow road ▪ Pedestrians and bicycles accessing schools, the bus stop, and other destinations on E Salmon River Road from north of US 26 use a painted crosswalk at an uncontrolled intersection **Opportunities** ▪ Investigate ways to improve the crosswalk on US 26 at E Salmon River Road to improve access to Welches Elementary and Middle Schools and the Mt. hood Express bus stop	▪ Welches Elementary School ▪ Welches Middle School ▪ Mt. Hood Express Stop ▪ Rolling River Campground ▪ Old Salmon River Trail ▪ Mt. Hood National Forest trails
Lolo Pass Road	▪ (Same standard as listed above)	▪ 1 travel lane in each direction ▪ No center lane or shared turn lanes ▪ 2' shoulder for bikeway and pedestrian travel ▪ Some guardrail along the road	**Gaps:** ▪ Pedestrians must share a shoulder with bicycles or walk in the road where shoulders do not exist ▪ Bicycles must ride in roadway with vehicles on narrow road where shoulder is inadequate **Opportunities** ▪ Building or widening existing shoulders could increase safety to all roadway users	▪ Recreational trailheads and camping in the Mt. Hood National Forest ▪ Skyway Bar and Grill

Collector Roads

A collector road is "a principle carrier within neighborhoods or single land use areas. Collectors link neighborhoods with major activity centers, other neighborhoods and arterials and are generally not for through traffic. They carry low-to-moderate volumes of traffic at low-to-moderate speeds". Collector Roads within the study area include Coalman Road, Cherryville Road, Sleepy Hollow Road, Brightwood Loop, Arrah Wanna Road and the southern segment of E Welches Road. The roads may not have a centerline or fog lines. Most of the collector roadways in The Villages at Mt. Hood have a shoulder between 0-1', although Brightwood Loop Road has a shoulder width of 4'.

Figure 25 Typical Rural Collector Cross Section in Unincorporated Communities[3]

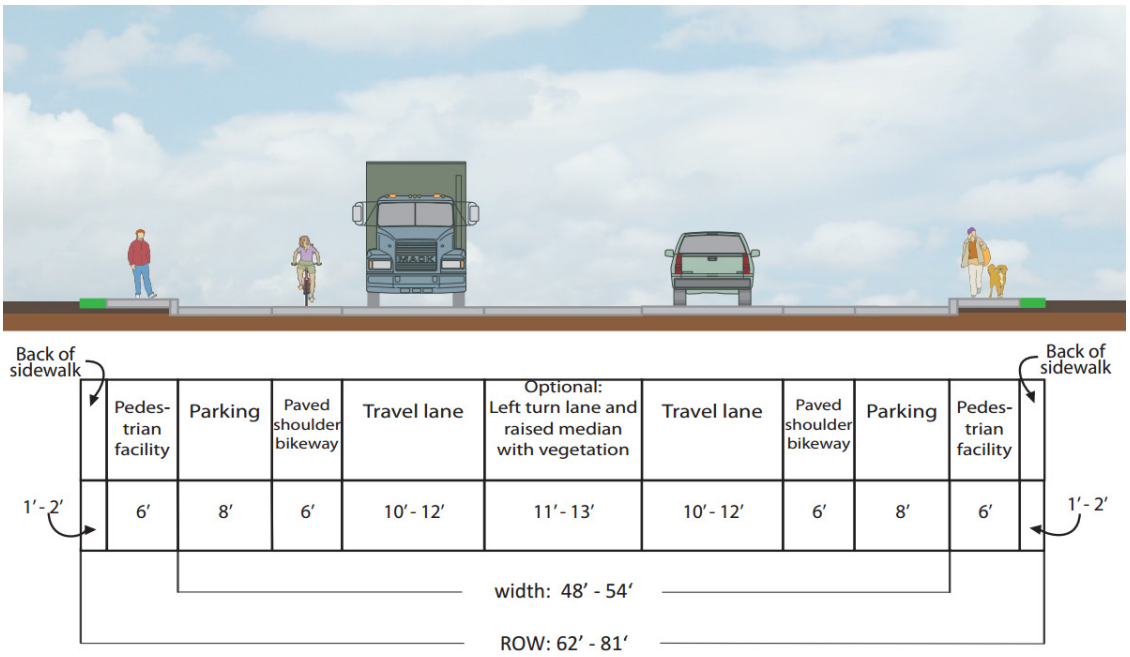


Figure 26 Characteristics of Collector Roadways in The Villages at Mt. Hood

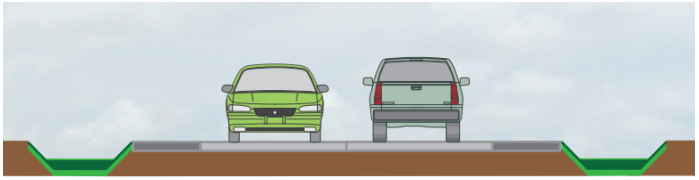
Roadways	*TSP Typical Cross Section*	*Existing Cross Section*	*Gaps & Opportunities*	*Destinations*
Coalman Road, Cherryville Road, Sleepy Hollow Road, Brightwood Loop, Arrah Wanna Road	▪ 10'-12' travel lanes ▪ Optional left turn lane or raised medians ▪ 6' paved shoulder bikeway on both side of roadway ▪ 8' parking lanes ▪ 6' pedestrian facilities	▪ 1 travel lane in each direction ▪ No center lane or shared turn lanes ▪ 0-1' shoulder for bikeway and pedestrian travel, with exception of Brightwood Loop Road which has 4' shoulders	**Gaps:** ▪ Pedestrians and bicycle riders must share a narrow shoulder or walk or ride in the road where shoulders do not exist	From Sleepy Hollow Road and Brightwood Loop Road: Brightwood Post Office, Store and Tavern From Arrah Wanna: Wemme restaurant cluster

[3] Image Source: Clackamas County Transportation System Plan file:///E:/ODOT/664182MtHood/Existing%20Conditions/TM%201Existing%20Conditions/Resources/Fig%205-2_a-f%20RuralCrossSections.pdf

Local Roads

Per the County TSP, a local road is "designed to provide access to abutting property to connect to higher order roads. Local roads are inappropriate for through traffic."[4] Local roads within the project area may not be striped with a center line or fog lines. They may be narrower than arterials or collectors and can require drivers to yield to each other at pinch points in the roadway. Many local roads in the project area do not have shoulders, but where they do exist they are gravel or dirt. A few local roads serving more newly developed residential neighborhoods, such as those off E Welches Road have segments of sidewalk that were built at the time of the residential development.

Figure 27 Typical Rural Local Cross Section



Ditch	Gravel shoul-der	Travel lane	Travel lane	Gravel shoul-der	Ditch
6′ - 8′	2′ - 5′	10′ - 11′	10′ - 11′	2′ - 5′	6′ - 8′

paved width: 24′ - 32′

ROW: 36′ - 48′

Crash History

All county-owned roadways and US 26 were examined for crashes. Between January 1, 2009 and December 31, 2014 there were a total of 142 crashes within the study area (Figure 30), including five crashes involving either a pedestrian or bicycle. The vehicle crashes and trends will be profiled in more detail in *Technical Memorandum 5-Project Alternatives and Traffic Analysis.* All five of these crashes occurred on US 26 and three incidents resulted in personal injury and one crash resulted in a single fatality (Figure 31).

The fatality incident occurred on November 11, 2010 on a clear evening at dusk at milepost 39.65, which is directly adjacent to the Hoodland Senior Center and Mt. Hood RV Park. It involved two individuals; the pedestrian crossing US 26 was killed while the individual driving a vehicle westbound was not injured.

The injury crashes each involved a single pedestrian, crossing US 26 between intersections, colliding with a single vehicle traveling on the highway.

Resident Highlighted Safety Concerns

Local residents have identified the intersection of US 26 and E. Arrah Wanna Boulevard as an ongoing safety issue for the community. Several businesses are located on the north and south side of US 26, leading pedestrians to cross the five lane section of highway. There are no crossing facilities at this location. The posted speed is 45 mph, but residents note that vehicles regularly exceed the speed limit in this area. One pedestrian fatality was documented at this location, and residents report that a pedestrian was hit in the fall of 2015. Rear-end collisions also occur at this location due to vehicles slowing to make right turns. ODOT is investigating this section of roadway.

[4] Clackamas County, *Glossary of Transportation Terms: Road Classifications*. http://www.clackamas.us/engineering/glossary.html

One injury crash involving two bicyclists and one motorist occurred on August 5, 2011 under cloudy, dry, daylight conditions. The crash occurred when a northbound vehicle (approaching from a driveway) turned left towards westbound US 26 and failed to yield the right-of-way to two bicyclists heading eastbound on US 26. Both bicyclists were reported to have non-incapacitating injuries.

Figure 28 Historical Intersection Crash Data within the Project Area 2009-2013

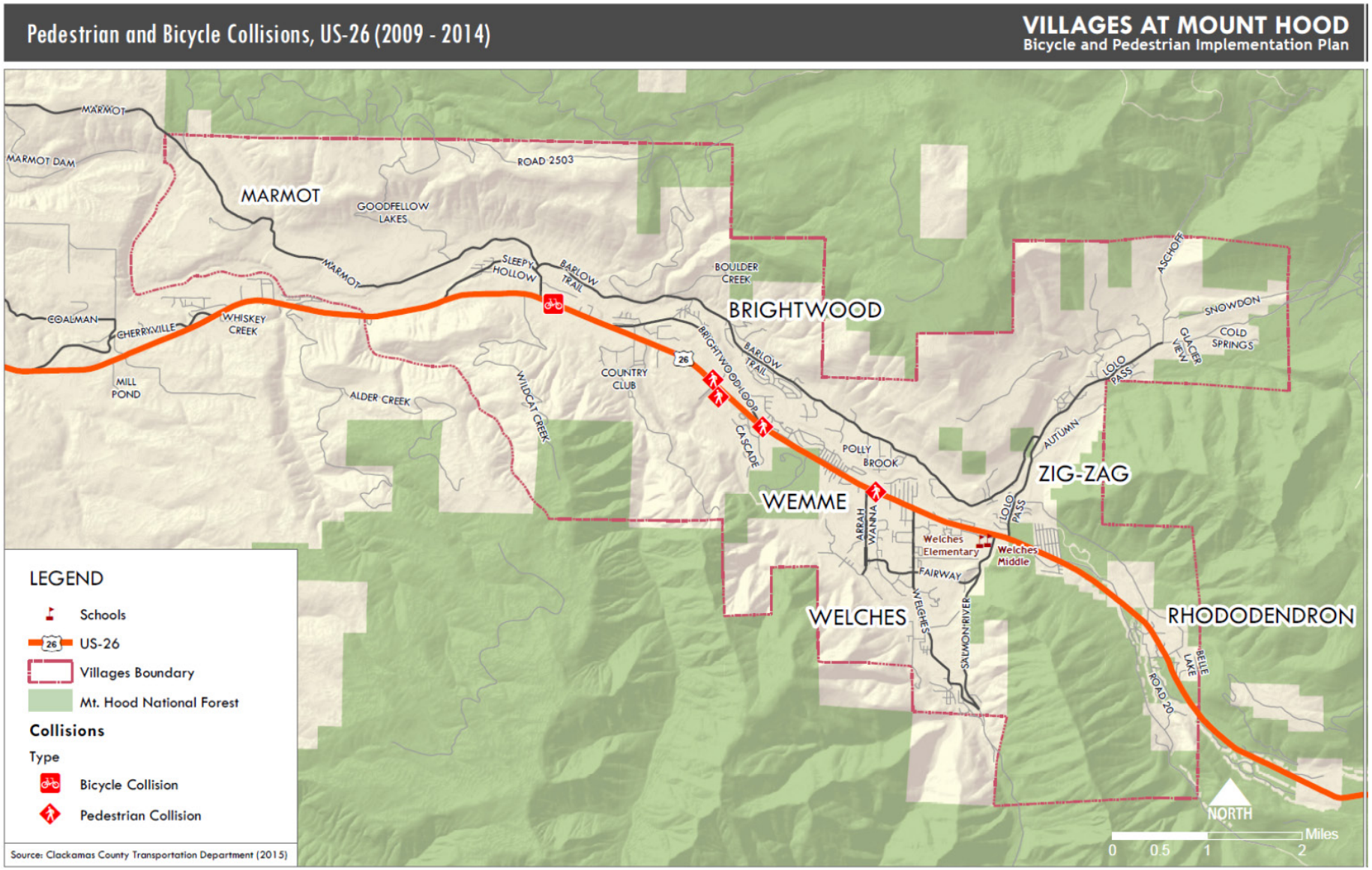
Historical Intersection Crash Data 2009-2013
Traffic Analysis Study, The Villages at Mt. Hood

	Number of Crashes (by Severity)				Number of Crashes (by Type)						
Road Segment	**PDO**	**Injury**	**Fatality**	**Total Crashes**	**Angle**	**Fixed Object**	**Rear End**	**Side- swipe**	**Turning**	**Pedestrian**	**Other**
E Arrah Wanna Blvd (MP 0 to 0.89)	0	1	0	**1**	0	1	0	0	0	0	0
E Barlow Trail Rd (MP 0 to 6.74)	4	11	1	**16**	0	12	0	0	4	0	0
E Brightwood Loop Rd (MP 0 to 2.13)	2	4	0	**6**	0	3	0	2	0	0	1
E Fairway Ave (MP 0 to 0.59) West of E Welches Rd	0	1	0	**1**	0	0	0	0	1	0	0
E Fairway Ave (MP 0 to 0.77) East of E Welches Rd	0	0	0	**0**	0	0	0	0	0	0	0
E Lolo Pass Rd (MP 0 to 4.0)	2	3	0	**5**	0	3	0	1	1	0	0
E Salmon River Rd (MP 0 to 2.02)	1	1	0	**2**	0	1	0	0	1	0	0
E Sleepy Hollow Dr (MP 0 to 1.49)	2	0	0	**2**	0	1	0	1	0	0	0
E Welches Rd (MP 0 to 2.45)	6	3	1	**10**	1	3	1	1	4	0	0
SE Marmot Rd (MP 5.74 to 11.22)	0	0	0	**0**	0	0	0	0	0	0	0
US Route 26 (MP 39.0 to 41.01)	47	50	2	**99**	8	34	5	13	9	4	26
Total =	**64**	**74**	**4**	**142**	**9**	**58**	**6**	**18**	**20**	**4**	**27**

Source: Crash Analysis and Reporting Unit, ODOT.

PDO = property damage only

Figure 29 Fatal or Serious Injury Collisions involving Bicycles or Pedestrians



Transit Service and Accessibility

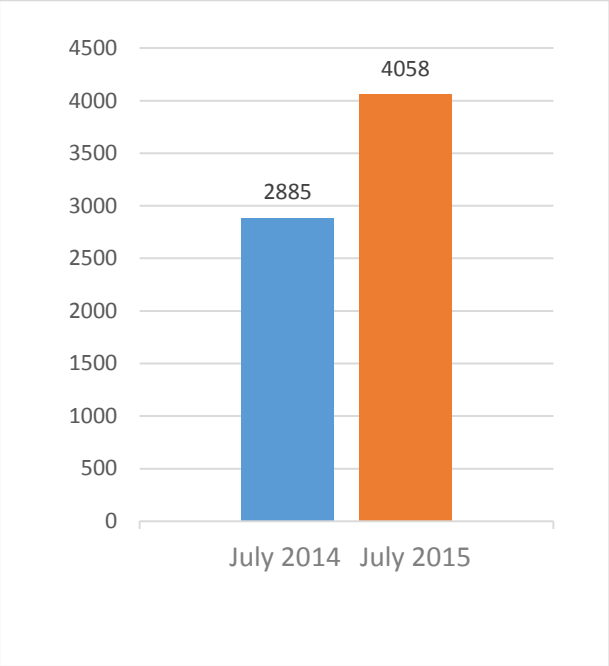
Services & Schedules

The Mt. Hood Express and The Villages at Mt. Hood Shuttle offers transit service operated by Clackamas County, serving the corridor spanning Sandy to Timberline Lodge, including the project area. Two primary goals of the service are to:

- Expand year-round travel options and enhance mobility and access to recreation areas and rural communities.
- Improve public transit service to relieve traffic and parking congestion and enhance safety in the Mt. Hood corridors.

The Express operates seven days a week as a limited stop commuter service between the cities of Sandy and Timberline, designed to primarily serve commuters and recreationalists. Service operates from 5:15 AM until 9:30 PM. Seasonal service features are geared to recreationalists, with bike trailers and ski boxes for the convenience of riders to stow their equipment. During winter months, the Express operates additional late-night runs to accommodate night-skiers, with the latest run ending at 11:30 PM. All day passes include a transfer onto the Sandy Area Metro bus, which further connects to the Gresham Central MAX station. A one-way fare is $2.

Figure 30 Difference in total monthly ridership from Mt. Hood Express and The Villages at Mt. Hood Shuttle from July 2014 to July 2015



The Villages at Mt. Hood Shuttle operates Monday through Friday as a deviated fixed route for local, circulation service between Sandy and Rhododendron. The Villages at Mt. Hood Shuttle services the same stops at the Mt. Hood express, with the addition of Shorty's Corner and Brightwood Store. On The Villages at Mt. Hood Shuttle riders can also use flag stops, offering greater flexibility for commuters accessing jobs and destinations between designated bus stops. Bus stop names and times are listed in Figure 34 and Figure 35.

Figure 31 Mt. Hood Express The Villages at Mt. Hood Shuttle Routes and Stops

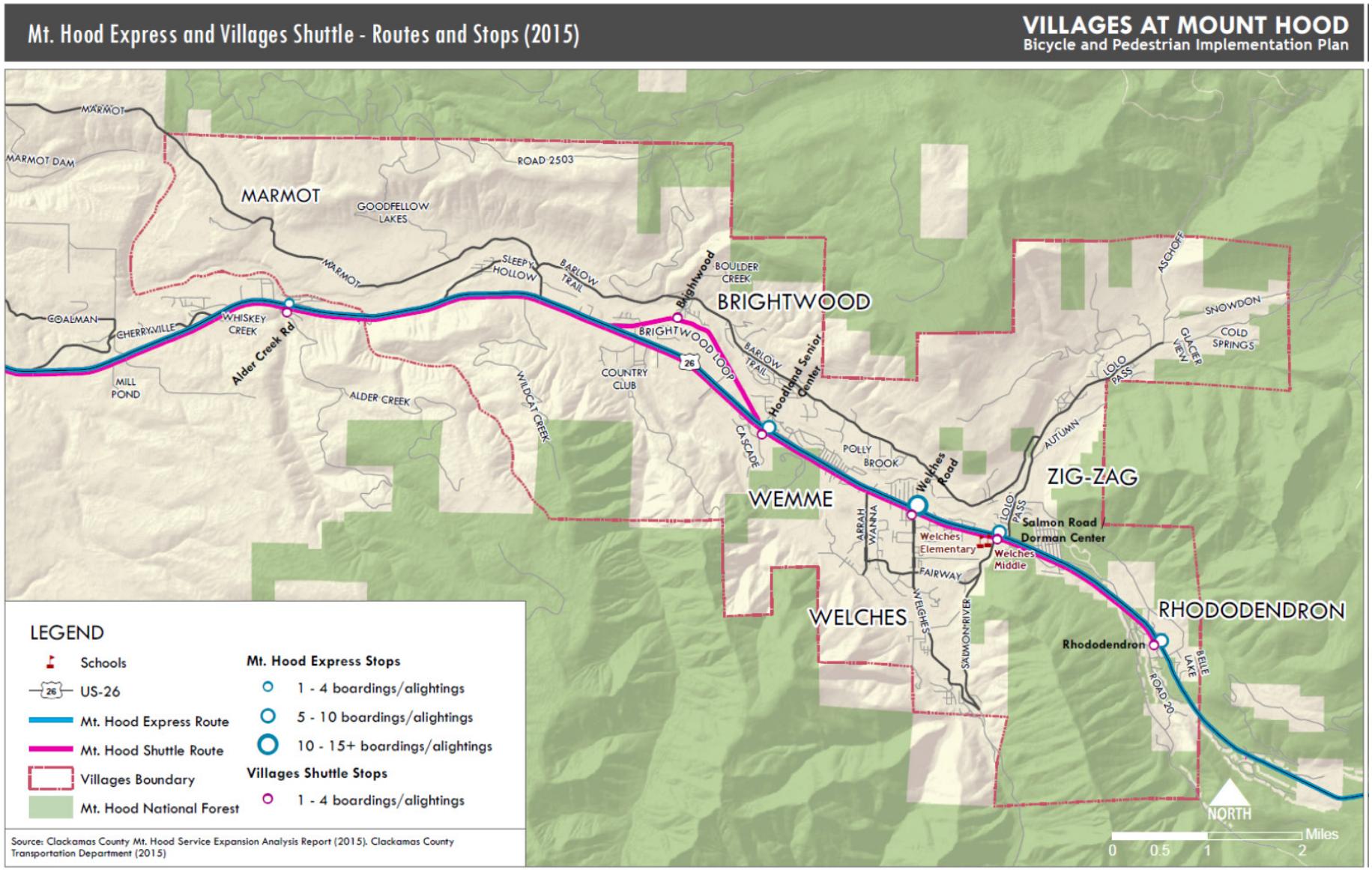


Figure 32 Eastbound Schedule for the Mt. Hood Express and The Villages at Mt. Hood Shuttle

The Express (Eastbound to Timberline)

	Mt. Hood National Forest Center	Sandy Transit Center	Shorty's Corner	Alder Creek Rd.	Hoodland Senior Center	Welches Road	Dorman Center/ Salmon Road	Rhodo-dendron	Ski Bowl West	Collins Lake	Govt. Camp East	Timberline Lodge
	5:15 AM	5:25 AM		5:35 AM	5:44 AM	5:47 AM	5:51 AM	5:54 AM	6:02 AM	6:10 AM	6:13 AM	6:30 AM
	7:45 AM	7:55 AM		8:05 AM	8:14 AM	8:17 AM	8:21 AM	8:24 AM	8:32 AM	8:40 AM	8:43 AM	9:00 AM
	9:15 AM	9:25 AM		9:35 AM	9:44 AM	9:47 AM	9:51 AM	9:54 AM	10:02 AM	10:10 AM	10:13 AM	10:30 AM
	1:15 PM	1:25 PM		1:35 PM	1:44 PM	1:47 PM	1:51 PM	1:54 PM	2:02 PM	2:10 PM	2:13 PM	2:30 PM
	3:15 PM	3:25 PM		3:35 PM	3:44 PM	3:47 PM	3:51 PM	3:54 PM	4:02 PM	4:10 PM	4:14 PM	4:30 PM
	6:15 PM	6:25 PM		6:35 PM	6:44 PM	6:47 PM	6:51 PM	6:54 PM	7:02 PM	7:10 PM	7:13 PM	7:30 PM
Additional Winter Late Run (Dec. 1st - March 31st only)												
Fri/ Sat	8:45 PM	8:55 PM		9:05 PM	9:14	9:17 PM	9:21 PM	9:24 PM	9:30 PM	9:40 PM	9:43 PM	10:00 PM
Sun-Thurs	9:25 PM	9:35 PM		9:43 PM	9:54 PM	9:57 PM	10:01 PM	10:04 PM	10:12 PM	10:20 PM	10:23 PM	
The Villages at Mt. Hood Shuttle (Eastbound to Rhododendron) - Flag Stops Available												
	5:47 AM	5:54 AM	6:00 AM	6:10 AM	6:17 AM	6:20 AM		6:26 AM				
	11:17 AM	11:24 AM	11:30 AM	11:40 AM	11:47 AM	11:50 AM		11:56 AM				
	4:17 PM	4:24 PM	4:30 PM	4:40 PM	4:47 PM	4:50 PM		4:56 PM				

Figure 33 Westbound Schedule for the Mt. Hood Express and The Villages at Mt. Hood Shuttle

The Express (Westbound to Sandy)

	Timberline Lodge	Govt. Camp East	Collins Lake	Ski Bowl West	Rhodo-dendron	Dorman Center/ Salmon Road	Welches Road	Brightwood Store	Hoodland Senior Center	Kirkwood Road	Shorty's Corner	Sandy Transit Center	Champion Way & Industrial Way
	6:45 AM	6:57 AM	7:00 AM	7:05 AM	7:19 AM	7:22 AM	7:25 AM		7:29 AM	7:33 AM		7:50 AM	7:58 AM
	9:15 AM	9:27 AM	9:30 AM	9:35 AM	9:49 AM	9:52 AM	9:55 AM		9:59 AM	10:03 AM		10:20 AM	10:28 AM
	10:45 AM	10:57 AM	11:00 AM	11:05 AM	11:19 AM	11:22 AM	11:25 AM		11:29 AM	11:33 AM		11:50 AM	11:58 AM
	2:45 PM	2:57 PM	3:00 PM	3:05 PM	3:19 PM	3:22 PM	3:25 PM		3:29 PM	3:33 PM		3:50 PM	3:58 PM
	4:45 PM	4:57 PM	5:00 PM	5:05 PM	5:19 PM	5:22 PM	5:25 PM		5:29 PM	5:33 PM		5:50 PM	5:58 PM
	7:45 PM	7:57 PM	8:00 PM	8:05 PM	8:19 PM	8:22 PM	8:25 PM		8:29 PM	8:33 PM		8:50 PM	8:58 PM
Additional Winter Late Run (December 1st to March 31st only)													
Fri/ Sat	10:15 PM	10:27 PM	10:30 PM	10:35 PM	10:49 PM	10:52 PM	10:55 PM		10:59 PM	11:03 PM		11:20 PM	11:28 PM
Sun-Thurs		10:27 PM	10:30 PM	10:35 PM	10:49 PM	10:52 PM	10:55 PM		10:59 PM	11:03 PM		11:20 PM	11:28 PM
The Villages at Mt. Hood Shuttle (Westbound to Sandy)- Flag Stops Available													
					6:27 AM		6:30 AM	6:35 AM		6:43 AM	6:52 AM	6:58 AM	7:07 AM
					11:57 AM		12:00 PM	12:05 PM		12:13 PM	12:22 PM	12:28 PM	12:37 PM
					4:57 PM		5:00 PM	5:05 PM			5:23 PM	5:28 PM	5:37 PM

Transit Ridership and Accessibility

The Mt. Hood Express operates primarily on US 26, with stops within each village and other priority destinations. The Villages at Mt. Hood Shuttle stops at the same transit stops as the Express (Figure 40), but deviates from US 26 to serve the Brightwood Store. It also has a stop at Shorty's Corner, which is not currently served by the Mt. Hood Express. The Mt. Hood Express Stops are often located just off US 26 in a parking lot or other space where the bus can dwell outside of traffic. Stops are denoted by signs, but do not have amenities such as benches or shelters. Clackamas County is currently undertaking a study of the Mt. Hood Express service and will be releasing recommendations for bus stop improvements and amenities in early 2016.

The transit stops are highly accessible by car and feature parking spaces. Only the Welches Road stop has a sidewalk in the vicinity of the stop, though some bus stops served by roadway shoulders or demand foot-paths adjacent to the highway (Salmon Road stop, Hoodland Senior Center Stop). Two transit stops are located near a marked crossing on US 26. They are located at E Welches Road across from the Hoodland Shopping Center, and at E Salmon River Road near the elementary and middle school. Bus stop characteristics and access facilities are presented in Figure 39.

All transit vehicles are wheelchair lift equipped, although the stops themselves may not meet the standards of the Americans with Disabilities Act.

Both The Villages at Mt. Hood Shuttle and Mt. Hood Express have seen growth between 2014 and 2015 (Figure 41) due to increased awareness of the services. Figure 41 shows that ridership is stronger on the Mt. Hood Express than the Shuttle (Figure 40), but both have grown over the past year. The boardings and alightings on The Villages at Mt. Hood Shuttle are evenly distributed, averaging 1-4 persons at each stop. For the Mt. Hood Express, the most heavily used stops in the project area are at Welches Road and Rhododendron (Figure 40).

Figure 34 Mt. Hood Express Stop in Rhododendron is located in the Mt. Hood Adventures Parking Lot

Figure 35 Mt. Hood Express Stop in east of Welches in Community Parking Lot near the Welches Elementary and Middle School

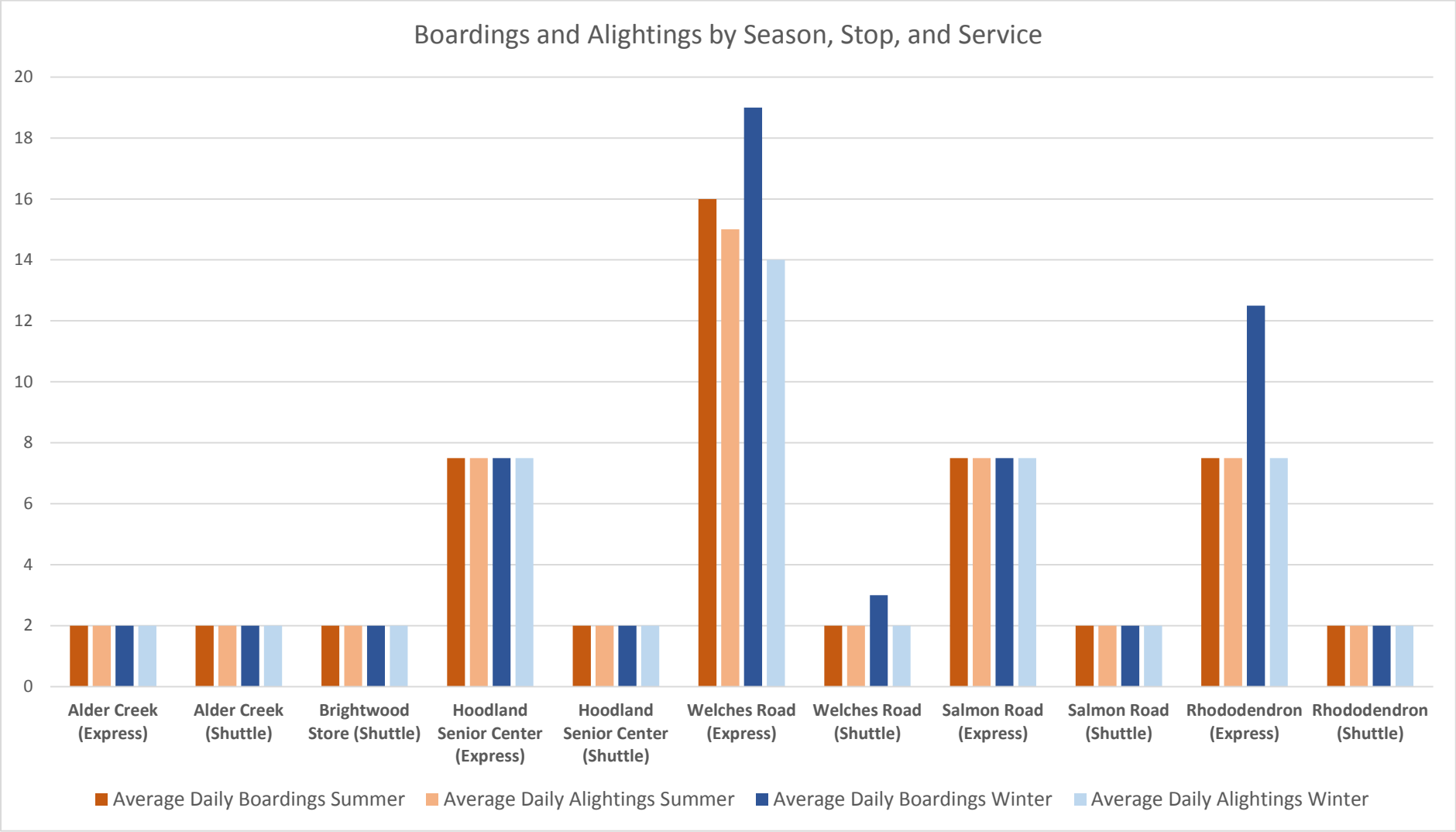
Figure 36 The Mt. Hood Express Stop on Welches Road is located in a gravel parking lot near the signalized crossing of US 26.

Ridership is also consistently strong throughout the day, with the highest numbers of riders on Express Run 3 (starting at 9:15 PM) and Express Run 4 (starting at 1:15 PM). The Mt. Hood Express has become particularly popular with recreational mountain bicycle riders who use the service as a shuttle between Rhododendron and Ski Bowl. The number of bicycles transported on the Mt. Hood Express (Figure 42) has grown rapidly, particularly during warmer months. In June 2015, the most recent available data, 748 bicycles were transported compared to 248 the previous September. The service does not have data on bicycle transport prior to September 2014.

Figure 37 Mt. Hood Express and The Villages at Mt. Hood Shuttle Bus Stop Characteristics

Bus Stop Name	Location	Stop Characteristics	Access Facilities
Alder Creek Road	Located on US 26 and Alder Creek Road	▪ Bus stop sign post ▪ Gravel bus pullout	▪ Highway shoulder serves as bikeway and pedestrian facility
Hoodland Senior Center	Located on Camino Rio Road south of US 26	▪ Park and Ride ▪ Bus stop sign post ▪ Waiting area located away from US 26	▪ Highway shoulder serves as bikeway and pedestrian facility ▪ Nearby community center and café may have overhangs offering shelter to passengers waiting
Welches Road	Located in gravel parking lot near intersection of US 26 and Welches Road	▪ Park and Ride ▪ Bus stop sign post	▪ Full painted and signalized crosswalks on US 26 serving the bus stop ▪ Desire foot paths and shoulders on US 26 east and west and Welches road for bicycles and pedestrians ▪ Sidewalk on west side of Welches Road across from stop ▪ Segment of off-street path on Welches Road south of bus stop
Brightwood Store (The Villages at Mt. Hood Shuttle only)	Located on E Brightwood Loop Road near intersection of E Brightwood Br. Road	▪ Bus stop sign post	▪ Access is via a wide roadway shoulder on E Brightwood Loop Road
Dorman Center/ Salmon Road (Express only)	Located in paved parking lot of community center near intersection of US 26 and E Salmon River Road	▪ Park and Ride ▪ Bus stop sign post ▪ Waiting area located away from US 26	▪ Continental crosswalk on US 26 at intersection with E Salmon River Road ▪ Desire foot paths and shoulders on US 26 east of Salmon River Road for bicycle and pedestrians ▪ Wide shoulder on west side Salmon River Road from US 26 to bus stop
Rhododendron	Located near Mt. Hood Adventures parking lot in Rhododendron	▪ Bus stop sign post ▪ Parking area acts as bus pullout	▪ Highway shoulder serves as bikeway and pedestrian facility

Figure 38 Boardings and Alightings on Mt. Hood Express and The Villages at Mt. Hood Shuttle



Source: Mount Hood Service Expansion Analysis Report, 201

Figure 39 Changes in Ridership between 2014 and 2015

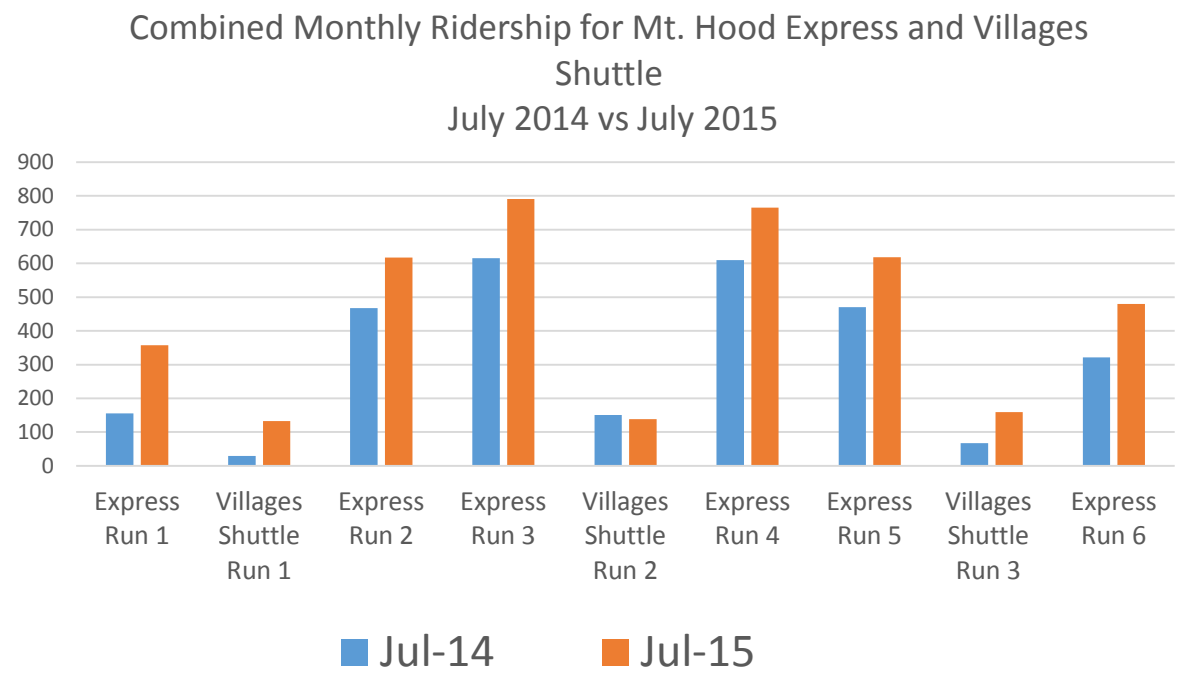
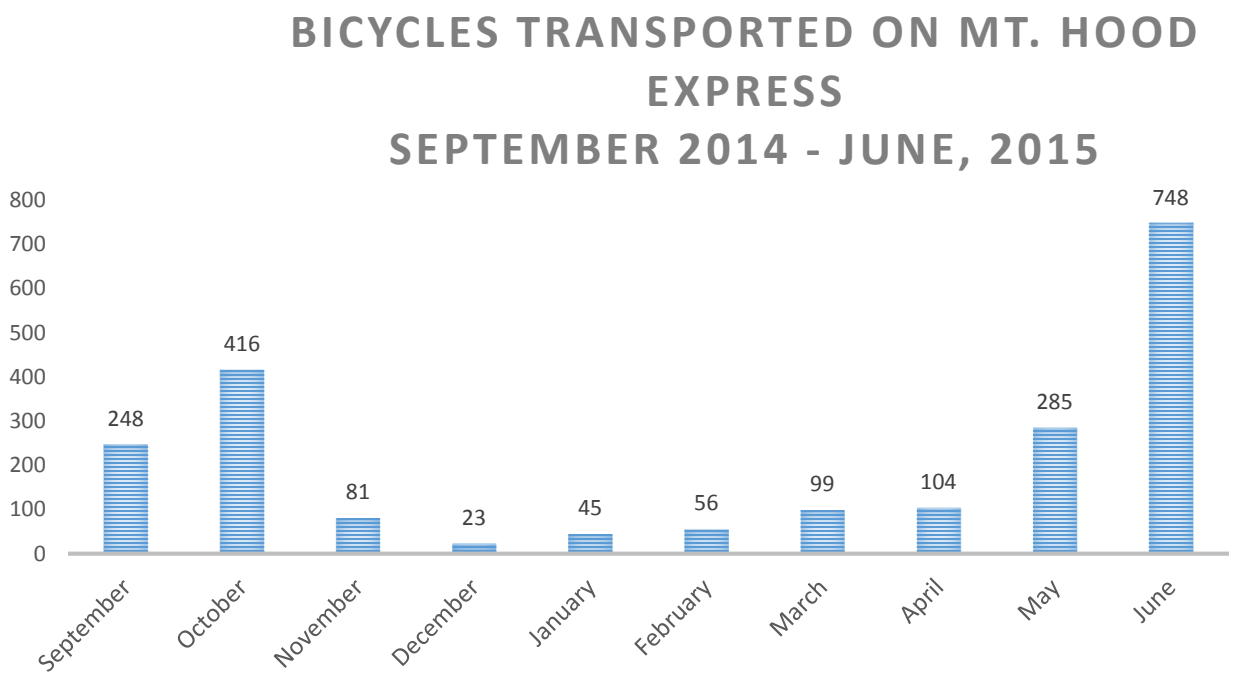


Figure 40 Number of Bicycles Transported over Ten Month Period



Pedestrian & Bicycle Network

The pedestrian and bicycle network within The Villages at Mt. Hood largely consists of roadway shoulder, but also includes discontinuous sidewalks, off-street paths, and demand-foot paths. The project area includes some shared use paths primarily used for recreational purposes, such as the Sandy Ridge Trail System near Brightwood.

Figure 41 Hoodland Shopping Center is one of the few destinations in the project area with a sidewalk serving the businesses

Pedestrians Facilities

Facilities on US 26

Sidewalks in the project area can be found in in the area of the Hoodland Shopping Center (Figure 41) at E Welches Road and US 26 and in some newer housing subdivisions where newer development code requires the construction of sidewalks.

Sidewalks around the shopping center provide the only formal sidewalk on US 26 within the project area. Elsewhere in the corridor, informal footpaths have been worn by pedestrians adjacent to the US 26 shoulder where space permits (Figure 43). These are typically on the south side of the road, though a stretch of footpath accesses the commercial cluster of restaurants across from Arrah Wanna Boulevard in the vicinity of Wemme.

Figure 42 The crosswalk on US 26 at E Salmon River Road has paint and motorist advisory signs, but no signal control

There are two formal crosswalks spanning US 26 in the project area. The first is at the signalized intersection at US 26 and E. Welches Road. The crosswalks have painted white lines and pedestrian crossing signals are timed with the traffic signal for pedestrians to cross on the west side of the intersection. Further east, a continental-style crosswalk spans US 26 at E Salmon River Road. The roadway has warning signs to alert motorists to the presence of pedestrians crossing, but does not have any stop control (Figure 42). The crosswalk located at this intersection provides access to Welches Elementary and Middle Schools, although school administrators do not recommend that children cross the highway on foot. The crosswalk also serves transit riders accessing the bus stop on Salmon Road. In Rhododendron, there are advisory signs to alert motorists to the presence of pedestrians in the roadway, but no formal or painted crossing exists in the area.

Figure 43 Demand footpaths, or 'desire lines' are formed over time by repeated pedestrian use where a formal path does not exist. There are several segments of desire paths on the north and south side of US 26 in the project area

Facilities on Arterial and Local Roads

At the Resort at the Mountain, visitors and staff often walk between the hotel on the west side of E. Welches Road to the spa, golf course, and restaurant buildings on the east side of the road. With 160

rooms and event facilities, E. Welches Road roadway experiences high pedestrian volumes from visitors and guests crossing between resort facilities, and walking to the Hoodland Shopping Center and nearby restaurants. The resort has built a short walking path to accommodate the travel, and to direct pedestrians to a mid-road crossing point on E. Welches Road (Figure 46). The crossing point is a continental-style crosswalk, with pedestrian warning signs to alert drivers (Figure 47).

Figure 44 Walking and bicycling path at Resort on the Mountain adjacent to E. Welches Road

Figure 45 High visibility pedestrian crossing at Resort at the Mountain

Figure 48 Pedestrians walking in dirt and gravel shoulder on E Welches Road

Figure 46 The signal at Welches Road provides the only controlled crossing of US 26 within the project area

Figure 47 A short segment of a private off-street path on E Welches Road

The minor arterial, collector, and local roads in the project area have very narrow shoulders, or none at all (Figure 53). The exception is Brightwood Loop Road which features 4 foot shoulders, and US 26 which features wide shoulders and some desire footpaths. On minor arterials and collectors where most pedestrians walk to access destinations, pedestrians must either walk in the roadway or cross the road mid-block to access shoulder if it is present on the opposite side of the road. This behavior was observed on E. Welches Road, a popular pedestrian walking route. Between the resort and Fairway Avenue, a shoulder is present for a short distance until the shoulder becomes a drainage ditch. At Fairway Avenue pedestrians must cross at unmarked intersections to maintain a walking space. Further north on Welches Road, pedestrian must cross yet again if they want to use the short segment of off street path located along the west side of the road.

On local roadways, the narrow streets lack shoulders for pedestrians and bicycle riders. Low traffic volumes and slower operating speeds, however, lead to relatively safe and comfortable travel for pedestrians, bicycles, and motorists sharing the road.

Bicycle Facilities

Similar to pedestrians, bicycle riders have little separated space within The Villages at Mt. Hood. US 26 has bicycle lanes by way of a wide shoulders on the north and south sides of the roadway. The shoulders widths on US 26 within the project area meet state standards of 8 feet for bikeways on highways. Most other roadways in the project areas do not have shoulders wide enough to qualify as a bicycle lane (minimum of four feet), but bicycle riders can use shoulders where available (Figure 53). This is particularly problematic on E. Barlow Trail Road, where the road has been designated in the Clackamas County Transportation Plan as an Active Transportation Corridor. The intention for the designation is to provide a parallel route and alternative for bicycle riders moving through The Villages at Mt. Hood, connecting to Marmot Road. E. Barlow Trail Road also connects to the Sandy Ridge Trail System, a popular and growing mountain biking destination.

In its current condition, E. Barlow Trail Road has very narrow, or no shoulders on much of the roadway. This requires bicycle riders to ride in the travel lane. The road is also winding and can have poor sight lines when traveling at high speeds. There is no posted speed on E. Barlow Trail, meaning that speeds are governed by the statutory “basic rule” (see sidebar). The maximum speed on rural roadways is 55 mph, though some roadways are modified through speed zones, or feature curve advisory speeds. Clackamas County has applied for funding under the ODOT All Roads Transportation Safety (ARTS) program to pay for updated curve warning signs on both E. Barlow Trail Road and Lolo Pass Road. While Barlow Trail Road does not feature any speed zones, it does have signs warning motorists to expect the presence of bicycle riders, and advising drivers that bicycles will be in the roadway.

Basic Speed Rule

The Basic Speed Rule states that a motorist must drive at a speed that is reasonable and prudent at all times by considering other traffic, road and weather conditions, dangers at intersections and any other conditions that affect safety and speed. In other words, drivers are expected to use good judgment in selecting their speed. On rural roadways within the project area, the maximum speed is 55 mph unless otherwise noted by speed zone signs.

STRAVA data, information voluntarily shared and uploaded to a website via GPS from a rider’s cell phone for the purpose of recording riding performance, shows that E Barlow Trail System is the most heavily used roadway in The Villages at Mt. Hood project area for bicycle riding (Figure 54). The data, however, represents a subset of riders who use the STRAVA app for recreational rides, rather than using bicycles as a means of daily transportation.

Figure 49 Entrance to the US 26 underpass for bicycle riders and pedestrians

Figure 50 The underpass is in good condition but not widely known by recreational riders

Another off-street trail commonly used by bicycle riders is the Pioneer Bridle Trail, connecting Rhododendron to Ski Bowl West and Government Camp. This trail acts as a final link for riders descending Mt. Hood on a series of trails. At the end of the trail, riders rejoin US 26 for approximately 200 feet to access the Mt. Hood Express bus stop in Rhododendron. On that small gap, bicycle riders are forced to ride against traffic in the shoulder/bicycle lane to remain on the south side of the highway where the transit stop is located.

At the intersection of Country Club Road and US 26, there is also a paved underpass for bicycle riders and pedestrians who desire to cross US 26 in a grade-separated manner. The underpass has markings at each end of the path denoting that it is a public path, but does not have wayfinding signs directing users to the existence of the path. The path itself is well lit and open alongside the Salmon River. The undercrossing allows for a way back onto eastbound US 26 bike lanes, and on the south side, has other connections to dead-end, local streets.

Local stakeholders have identified an opportunity for a multi-use path/bicycle route, starting east of E. Lolo Pass Road, comprised of existing gravel access roads, powerline corridors, and existing roadway. The multi-use path/bicycle route could be a parallel route to US 26, providing a connection to Government Camp. Ideally, the multi-use path/bicycle route would be paved and useable by all types of bicycle riders and pedestrians.

Figure 51 Shoulder Widths within The Villages at Mt. Hood Project Area

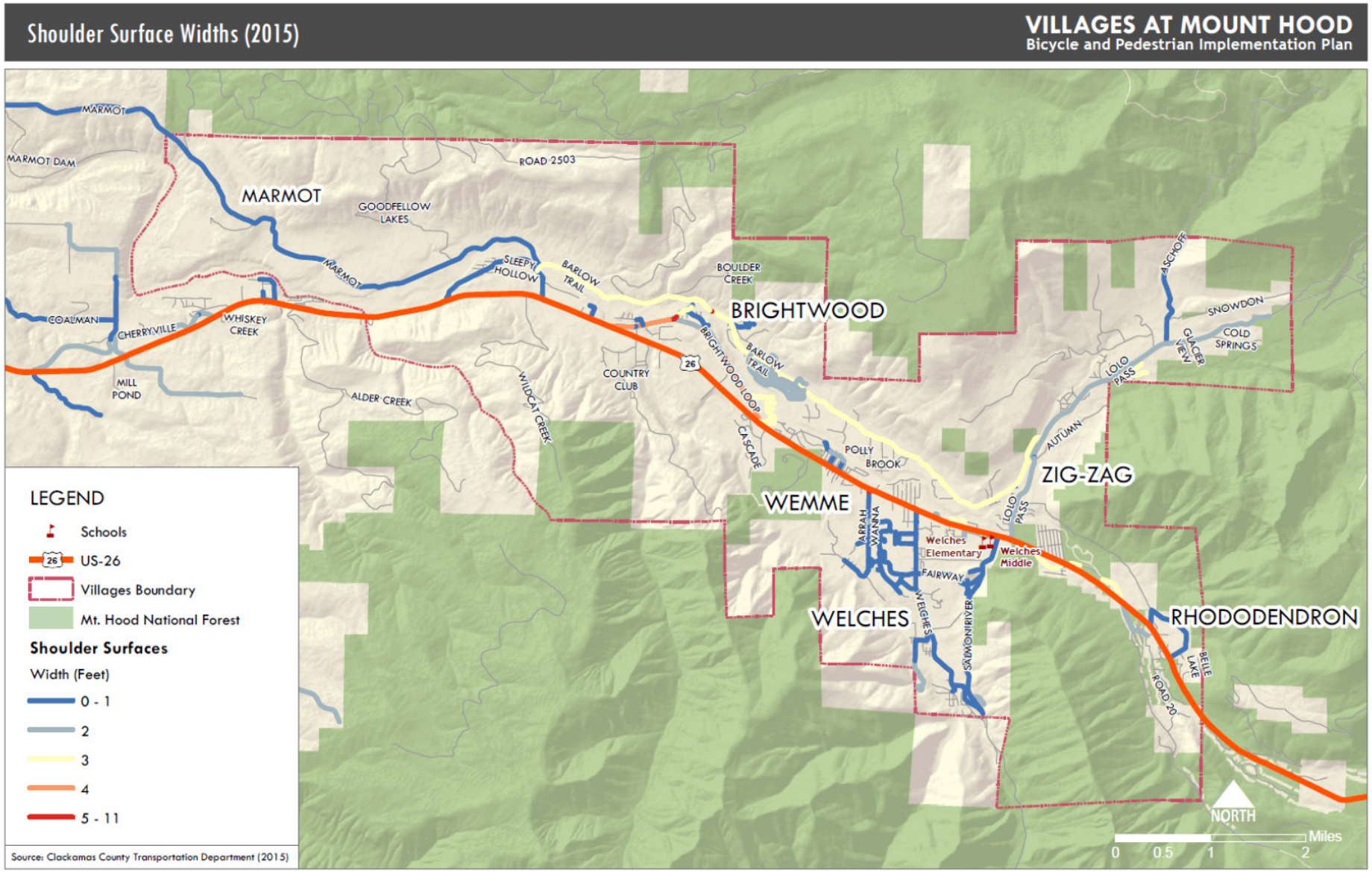
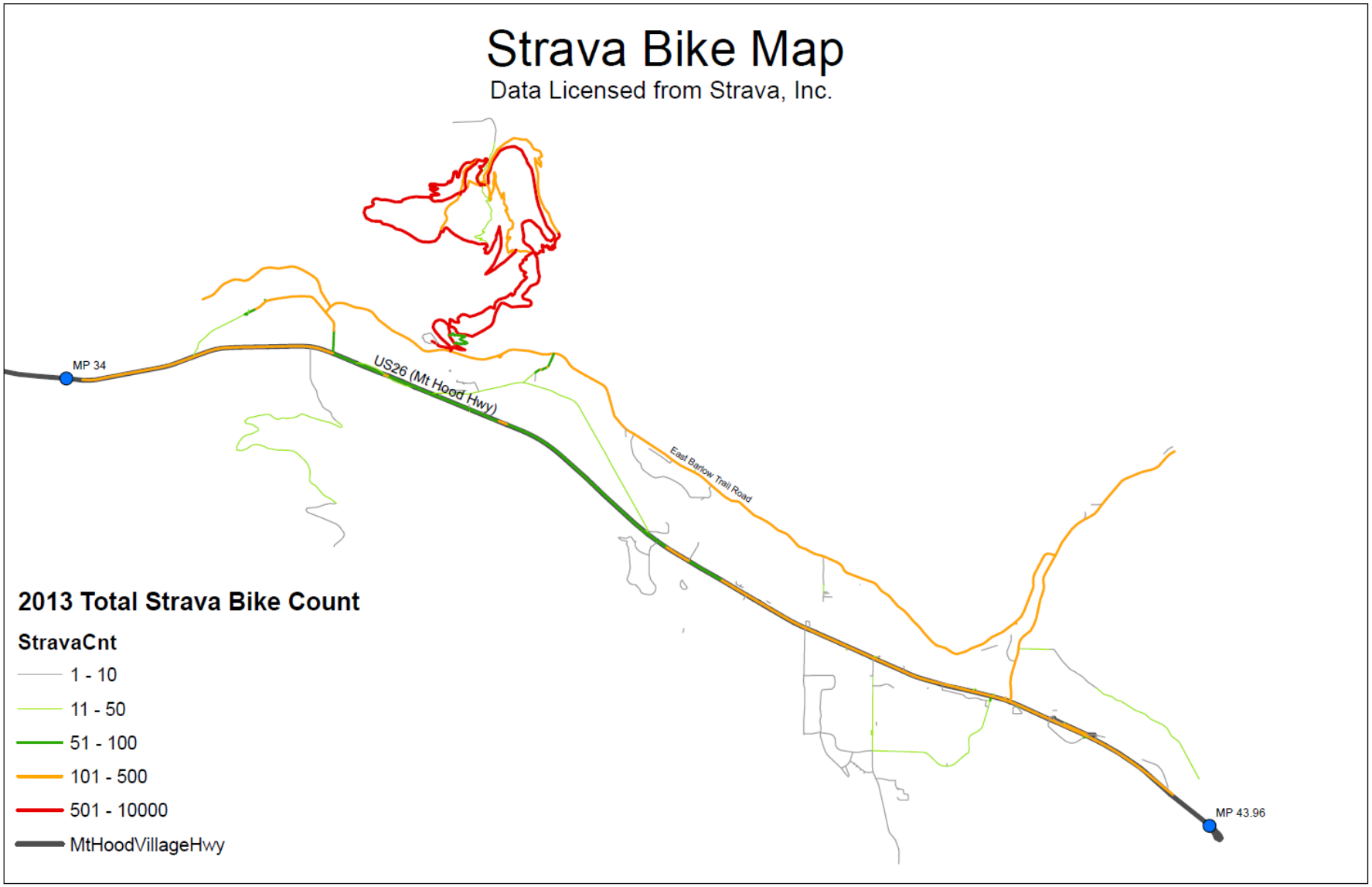


Figure 52 Bicycle Counts on the Roadways and Trails within The Villages at Mt. Hood using Strava Data

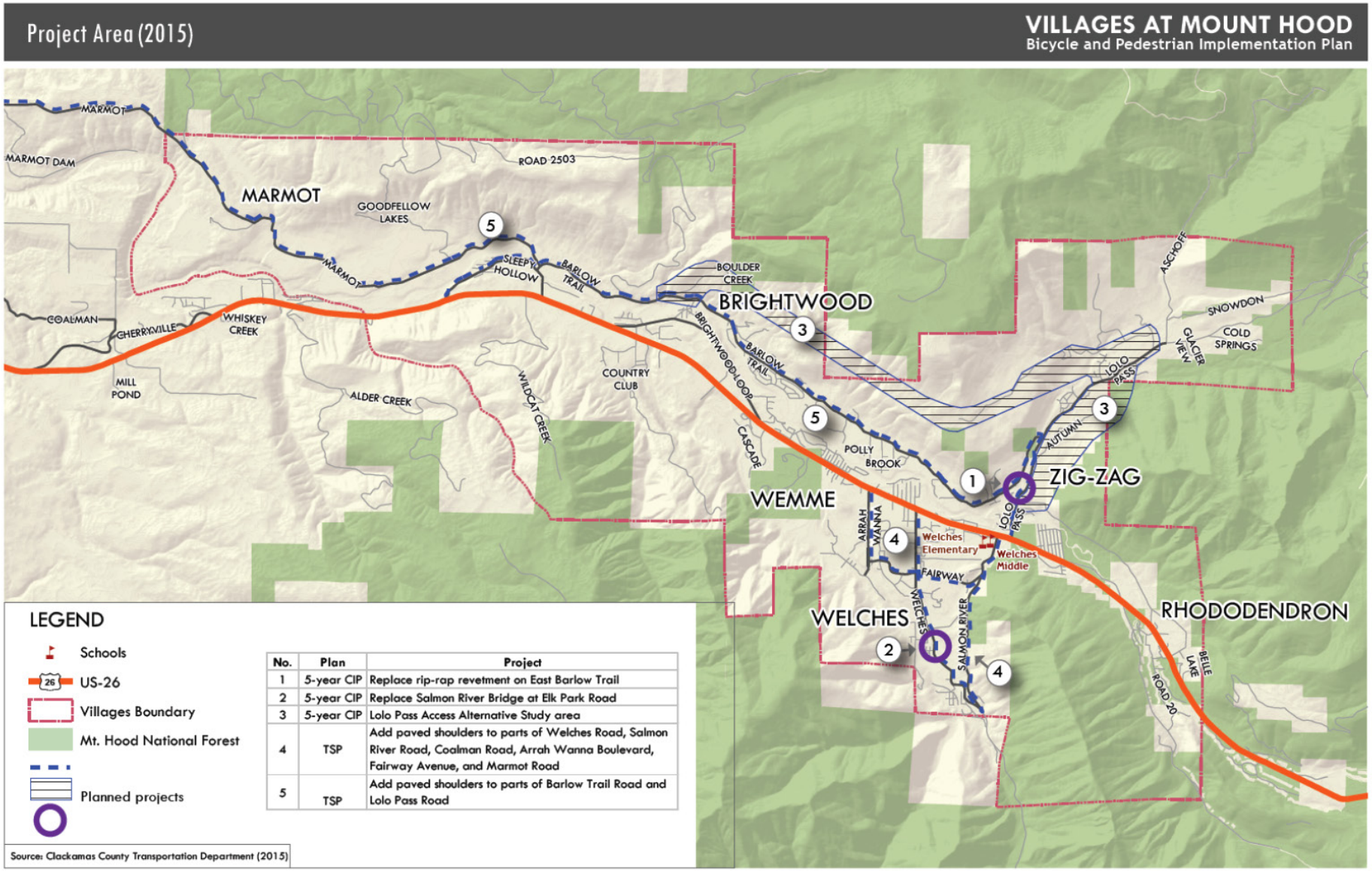


Opportunities in The Villages at Mt. Hood

As discussed throughout the report, there are many identified needs and opportunities throughout the Project Area. The needs range from safe walking and bicycling facilities on minor arterials, to increasing visibility for existing crossings on US 26 and exploring the potential for new marked crossing. There are opportunities to formalize existing footpaths formed by desire lines adjacent to US 26, and to increase awareness of an existing grade-separated underpass.

The needs within The Villages at Mt. Hood are great and potential funding is scarce. Prioritization of potential projects will be an important next step within the project. Clackamas County has identified projects in their Transportation System Plan that reflect many of the same priorities identified by the Project Technical and Public Advisory Committees. These include adding paved shoulders to part of Welches Road, Salmon River Road, Coalman Road, Arrah Wanna Boulevard, Fairway Avenue, Marmot Road, Barlow Trail Road, and Lolo Pass Road (Figure 55). Potential projects identified during the Pedestrian and Bikeway Implementation Project, and the destinations they serve, are presented in Figure 56, Figure 57, and Figure 58.

Figure 53 Current Transportation System Plan (TSP) and Capital Improvement Plan (CIP) Projects



No.	Plan	Project
1	5-year CIP	Replace rip-rap revetment on East Barlow Trail
2	5-year CIP	Replace Salmon River Bridge at Elk Park Road
3	5-year CIP	Lolo Pass Access Alternative Study area
4	TSP	Add paved shoulders to parts of Welches Road, Salmon River Road, Coalman Road, Arrah Wanna Boulevard, Fairway Avenue, and Marmot Road
5	TSP	Add paved shoulders to parts of Barlow Trail Road and Lolo Pass Road

Figure 54 Opportunities and Needs in Brightwood and Wemme

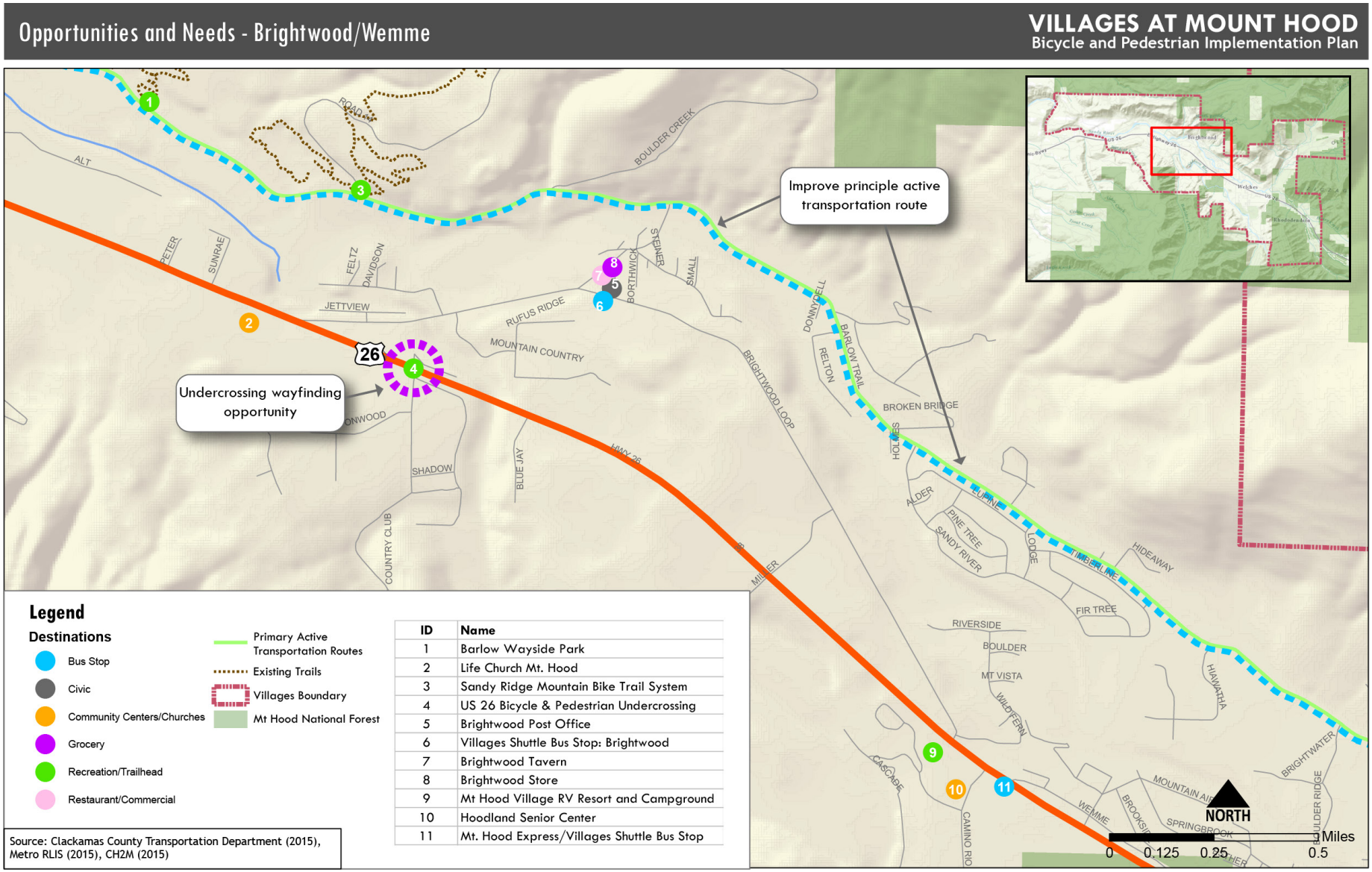


Figure 55 Opportunities and Needs in Welches

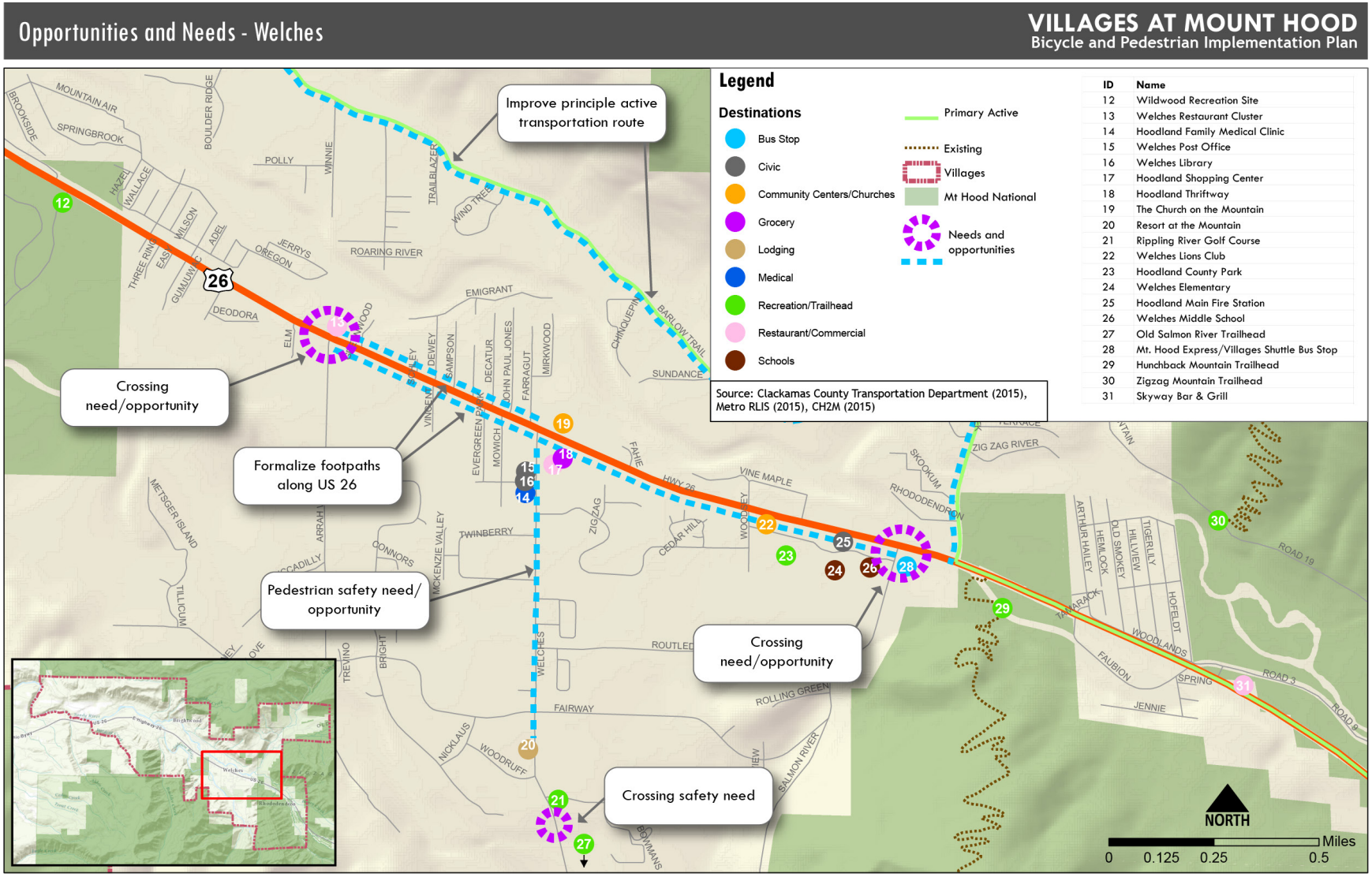
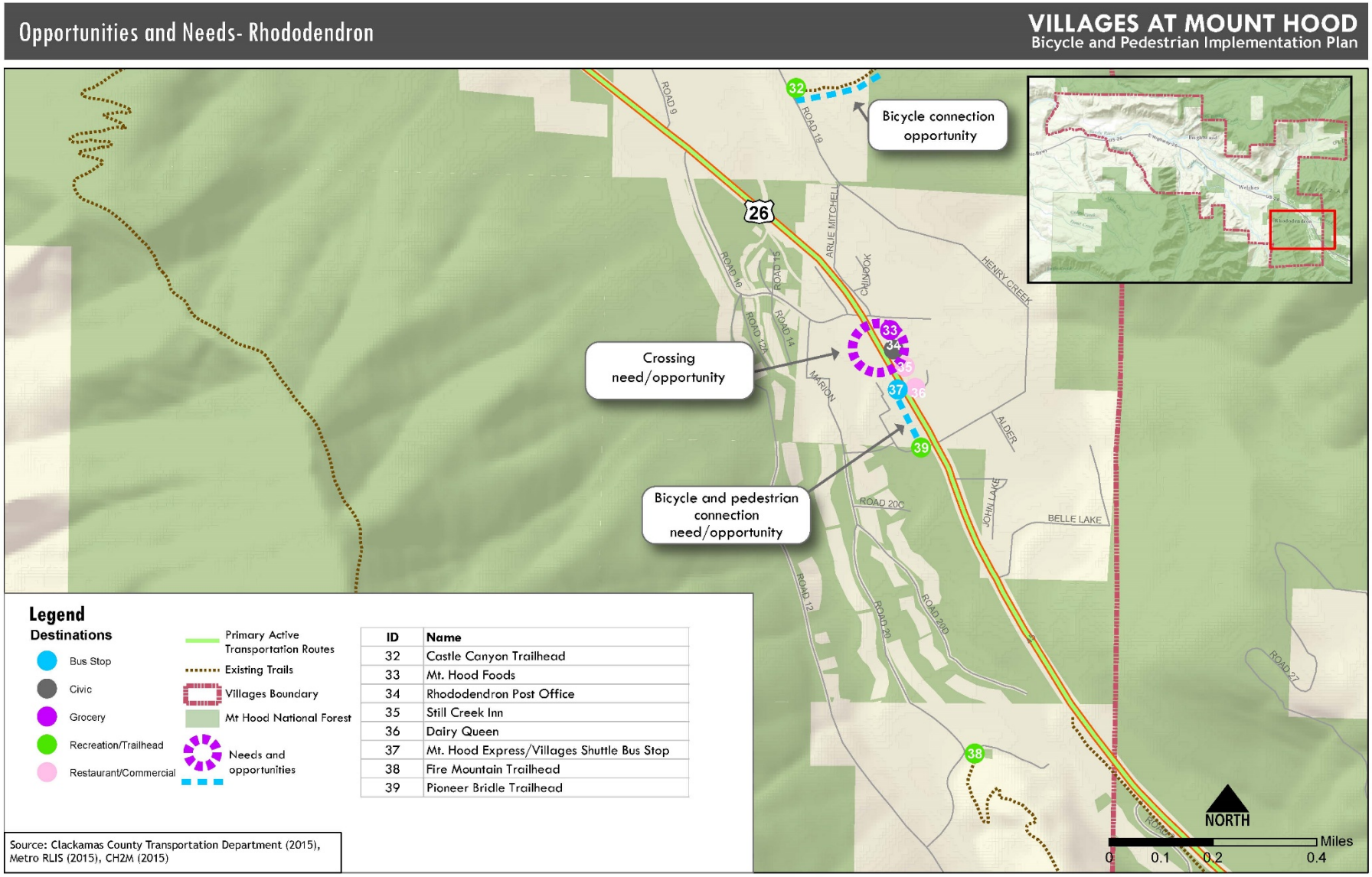


Figure 56 Opportunities and Needs in Rhododendron



DRAFT

Technical Memo 2

Policy Framework and Alternatives Evaluation and Prioritization Criteria (DRAFT)

WALK & BIKE
THE VILLAGES AT MT. HOOD

The Villages at Mount Hood Pedestrian and Bikeway Implementation Plan

Technical Memorandum#2

Policy Framework and Alternatives

Evaluation and Prioritization Criteria (DRAFT)

November 9, 2015

ch2m

Introduction

This memorandum establishes a policy framework for The Villages at Mt Hood Pedestrian and Bikeway Implementation Plan project and a set of criteria that will be used to evaluate how potential projects and their alternatives perform against Project Objectives. The draft Evaluation Criteria will also be used to prioritize projects in the plan. These draft Evaluation Criteria will be reviewed by the Technical Advisory Committee (TAC) and Project Advisory Committee (PAC) for their input before becoming final and used to evaluate projects.

The Policy Framework and Evaluation Criteria are based on relevant State and County policies and plans and stakeholder input. This memorandum presents the Policy Framework, Evaluation Criteria, and a summary of relevant State and County policies. The full description of relevant State and County policies can be found in Appendix A.

Project objectives

Several key objectives will inform decisions on this project and help drive the development and application of criteria to evaluate proposed projects and design alternatives in the study area. Stakeholders interviewed had common desired outcomes, which are detailed in the Stakeholder Interview Summary. Desired Outcomes are listed below the Project Objectives they help achieve in *italics.* The Stakeholder Desired Outcomes do not relate exclusively to one Project Objective, but have been listed beneath the objectives they best help achieve.

Project Objectives and
Stakeholder Desired Outcomes:

- Identify bicycle and pedestrian needs within The Villages at Mt. Hood
- Develop a Safe Routes to School Plan for Welches Elementary and Middle School
  - *Safe Pedestrian and Bicycle Access to Major Destinations including Schools and Transit*
  - *Support the Development of Tourism including Bicycle Tourism*
  - *Develop Cost-effective Solutions that Keep with the Character of The Villages at Mt. Hood*
- Identify potential locations for additional or enhanced US 26 pedestrian crossings. The project team will consider at-grade and grade-separated solutions, or enhancements to the current crossings
  - *Improve Pedestrian and Bicycle Connectivity on US 26*
  - *Maintain Mobility of US 26 for Through Traffic*
- Evaluate the feasibility of a multi-use path in the area
  - *Bicycle Route through The Villages at Mt. Hood*
  - *Coordinate Effectively with Concurrent Planning Efforts*

In addition to these substantive project objectives, the project seeks to achieve a number of process objectives that ensure community engagement and support:

- Include criteria that measure impacts on both safety and health
- Identify the walking and biking destinations within and near the Project Area
- Provide outreach to disadvantaged populations in accordance with the requirements of Title VI and involve the public and stakeholders in developing the Safe Routes to School Plan and proposed projects and project alternatives
- Seek to provide connections to transit

- Assess the potential impacts to other modes resulting from proposed projects and alternatives
- Consider the through mobility role of US 26, including the high-speed, high volume traffic that includes freight movement.
- Identify options to address stormwater runoff from impervious surface in the right-of-way, considering green street treatments as well as more conventional measures
- Support economic development and cycling tourism goals
- Consider cost-effective solutions that keep with the rural character of the community
- Coordinate with relevant agency partners, such as Oregon Department of Transportation (ODOT), Bureau of Land Management (BLM), and US Forest Service Mt. Hood National Forest

Evaluation and Prioritization Criteria

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan builds on all relevant regional, county, and local policies and plans summarized in a later section of this memorandum. The Evaluation and Prioritization Criteria are draft and reflect stakeholder and Project Advisory Committee (PAC) input. Stakeholder input can be found in the Stakeholder Interview Summary. The PAC will review the draft criteria and will provide input, including potential weighting of criteria. These criteria will be used to assess benefits and tradeoffs of proposed projects and project alternatives, and for recommended projects, they will be used to help determine implementation priority.

DRAFT Policy Area	DRAFT Evaluation Criteria	DRAFT Performance Measure
Improve safety for all modes, with emphasis on bicycle/pedestrian safety	Reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings	Qualitative assessment based on potential to reduce the number of difficult intersection crossings (quantify existing conflict points as a baseline for existing conditions)
	Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations	Potential to connect bicycle and pedestrian system gaps in areas with known demand to major destinations (quantify the increased number of destinations that can be accessed with the proposed improvement/system connection)
	Reduce conflicts among all modes	Degree to which improvement provides physical separation between modes (including at intersections), and includes signage/markings to guide user behavior
Support healthy and active communities	Increase physical activity	Qualitative assessment of potential to increase physical activity (determined by completing network gaps, traffic levels, and user comfort)
	Supports recreational opportunities in the area	Potential to support and reinforce recreational demands in the area by improving bicycling and walking conditions to recreational areas, such as parks and trailheads, and along recreational routes (quantify the increased number of recreational areas that can be accessed with the proposed improvement/system connection)
	Links to transit	Links bicycle/pedestrian facilities to transit stops within the study area
Provide safe routes to school	Slows traffic adjacent to Welches Elementary and Middle School	Potential of improvement to reduce traffic speeds on streets within a quarter mile of Welches Elementary and Middle School
	Provide safe opportunities for children to bicycle and walk to school safely	The number of school children and the potential for children to safely walk or bicycle to school.
Provide benefits to residents, businesses, and visitors, while minimizing negative impacts	Keeps with the character of The Villages at Mt. Hood with designs that are appropriate for a rural setting	Builds upon informal connections already in place, increases safety of existing bicycling and walking conditions with a level of intervention that matches demand in a rural setting
	Supports economic development and tourism	Better allows residents and visitors to access restaurants, commercial services, and other destinations through walking, bicycling or transit use
	Minimizes delays to motor vehicle system	Seeks to increase pedestrian and bicycle safety and access, while minimizing delays to motor vehicle traffic
Create an implementable project plan	Determine feasibility	Extent of right-of-way (ROW) purchases, natural barriers, ownership issues, interagency support required
	Determine capital cost	Alternative aligns well with current or potential future funding and financing sources
	Determine maintenance cost (ongoing and seasonal)	Alternative aligns well with current or potential future funding and financing sources

Relevant State and County Plans and Policies

The following plans, policies, and studies were reviewed and their relevance to the project is highlighted in this memorandum. This memorandum states the relevance of each plan, policy, and study to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan. Full descriptions of the plans, policies, and studies can be found in Appendix A.

Clackamas County plans

- Clackamas County Comprehensive Plan, Chapter 5: Transportation System Plan
- Clackamas County Comprehensive Plan, Chapter 10: Community Plans and Design Plans/ Clackamas County Mt. Hood Community Plan
- Clackamas County Active Transportation Plan

Other relevant plans

- Mt. Hood Multimodal Transportation Plan
- Transportation Planning Rule (Oregon Administrative Rule Chapter 660, Division 12)
- Oregon State Transportation Improvement Program
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Bicycle and Pedestrian Plan
- Oregon Transportation Safety Action Plan

Clackamas County Transportation System Plan, Chapter 5 of the Clackamas County Comprehensive Plan

The Clackamas County Transportation System Plan (TSP), adopted in 2013, reflects applicable national, state, and regional transportation and planning requirements and provides policies, guidelines, and projects to meet transportation needs for residents, businesses, and visitors in unincorporated Clackamas County. The TSP envisions a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for all modes of travel.

The Clackamas County TSP is relevant to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan because policy recommendations and prioritized projects from this planning effort will update the Clackamas County TSP.

The Clackamas County TSP has policies related to Active Transportation and Functional Classification and Design. Proposed and prioritized projects within The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan must be consistent with these policies.

TSP 20-year Capital Projects that are within The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan Study Area.

Project ID	Project Name/Street Name	Segment/Location	Project Description
1050	Arrah Wanna Blvd	US 26 to Fairway Ave	Add paved shoulders
1059	Welches Rd	US 26 to Birdie Ln	Add paved shoulders; add pedestrian facilities in Welches rural center

Clackamas County Transportation System Plan, Chapter 10 of the Clackamas County Comprehensive Plan/Clackamas County Mt. Hood Community Plan

The three village districts of Government Camp, Rhododendron, and Wemme/Welches are recognized for their separate character and individual environment.

Project Relevance

The Mt. Hood Community Plan calls out specific transportation outcomes. In Rhododendron, facilitating pedestrian movement across US 26 is encouraged. Within Wemme/Welches, the plan calls for a shuttle bus system to provide access to ski areas; pedestrian and bicycle access to these facilities would increase the service's usefulness.

Clackamas County Active Transportation Plan

The Clackamas County Active Transportation Plan (ATP) identifies key active transportation routes that connect destinations and communities in urban and rural Clackamas County. It complements the County's Bicycle and Pedestrian Master Plans by providing an assessment of policies and plans for the principal active transportation system in unincorporated Clackamas County. Chapter 5 of the ATP contains the County's Facility Design Toolkit, a catalog of pedestrian and bicycle facility types for a range of rural and urban settings as well as varying roadway speeds and traffic volumes.

Project Relevance

All of the goals of the ATP apply directly to The Villages at Mt. Hood study area and The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has potential to further implement the ATP goals of active transportation infrastructure, connectivity, tourism development, and accessibility and safety. The ATP process identified twelve principal active transportation corridors (geographic areas between destinations for active transportation connectivity). Within The Villages at Mt. Hood, Marmot Rd., Barlow Trail Road, Lolo Pass Road, east of Lolo Pass Road, and US 26 are identified as a Principal Active Transportation Route. The plan identifies The Barlow Trail Route as a popular ride for recreational bicycle riders that also serves as a scenic and low traffic alternative to riding on Highway 26. The facility type is envisioned to be a shoulder bikeway or shared lane marking.

Clackamas County Community Health Improvement Plan

In 2012 Clackamas County conducted its first community health improvement planning process to identify priority goals and strategies aimed at addressing the health needs of county residents. The resulting Community Health Improvement Plan (CHIP) includes a series of specific actions to be addressed by community partners and is intended to help the community address significant issues that can improve the overall health of the County.

Project Relevance

The improvement strategies and performance measures applicable to The Villages at Mt Hood Pedestrian and Bikeway Implementation Plan include the following:

- **Improvement Strategy**: Promote physical activity before, during and after school
    - **Performance Measure**: Increase number of Safe Routes to School programs implemented at Clackamas County schools
- **Improvement Strategy**: Enhance environment to facilitate ability to be physically active

- **Performance Measure**: Expand the availability of walking trails and bike paths

Clackamas County Transportation Safety Action Plan

The Clackamas County Transportation Safety Action Plan (TSAP) outlines a strategy for the County to build and implement a County-wide Safety Culture. The Plan's ultimate goal is to reduce transportation-related fatalities and serious injuries for all modes by 50% over the next ten years.

Project Relevance

A primary project objective of The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan is to develop a pedestrian and bicycle system within The Villages at Mt. Hood that improves safety for all modes, particularly pedestrians and bicycle riders because they are the most vulnerable users. This planning process would further implement the TSAP.

Mt. Hood Multimodal Transportation Plan

The Mt. Hood Multimodal Transportation Plan calls out Mt. Hood as a destination. It states that visitors come to Mt. Hood from around the world to enjoy the beauty of our mountains and forest. The mountain is a popular year-round destination for Oregon and Washington residents for its many recreation opportunities – hiking, camping, birding, cycling, golfing, swimming and boating, skiing and snow play. Mt Hood is an economic driver in the state; there are between two and five million visitors annually to the Mt. Hood National Forest. Vibrant rural communities welcome travelers and residents along the Mt. Hood Highway in both Clackamas and Hood River counties.

The Mt. Hood Multi-Modal Plan is a rolling 15-year plan, a living document that prioritizes action and is focused on getting projects accomplished.

Project Relevance

The Villages at Mt. Hood are within the Mt. Hood Multi-Modal Plan study area. No specific projects relate to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, with the exception of the expansion of Mt. Hood Express to Government Camp, which has been implemented as of 2013. The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has potential to further support this transit investment by providing pedestrian and bicycle last-mile connections between transit stops and origins and destinations.

Oregon Transportation Planning Rule

Transportation system planning in Oregon is required by state law pursuant to Goal 12, *Transportation*, one of the 19 statewide planning goals. Oregon Revised Statute (ORS) 660-012, the Transportation Planning Rule (TPR) defines how to implement Goal 12. The TPR requires that the state prepare a TSP (the Oregon Transportation Plan or "OTP"), that metropolitan planning organizations prepare regional transportation plans, and that cities prepare a TSP that is consistent with both. As a part of Clackamas County, policies and projects established in The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan have the potential to become a part of future Clackamas County Transportation System Plan (TSP) updates. Requirements relevant to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan are found in Appendix A.

Project Relevance

The TPR guides the development of Transportation System Plans, and The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan will become a part of the Clackamas County TSP in some

form. To that end, the planning process and proposed projects will comply with the relevant policies cited above, such as providing a bicycle and pedestrian network, considering facility performance consistent with a roadway's function, meet identified needs with safe manner at a reasonable cost, consider access management, and bicycle parking facilities.

Oregon Statewide Transportation Improvement Program (STIP) 2015-2018

Reviewing the Clackamas County projects, the following are within The Villages at Mt. Hood study area.

- Mt. Hood Scenic Byway Interpretation Project (16622): Develop and install wayfinding, signage, and interpretive facilities.
- E. Barlow Trail Road (16638): Emergency relief project to repair riprap.
- US26 and OR35 Intelligent Transportation System (ITS) Program (18219): Install variable speed limit and variable message signs.
- E. Salmon River Road (19498): US26 to MP 2.03, pavement overlay, restriping, and guard rails

Project Relevance

All of these projects are within The Villages at Mt. Hood study area and are relevant to a multimodal system in the area. Repaving projects represent opportunities to stripe new facilities if timing can be coordinated.

Oregon Transportation Plan

The 2006 Oregon Transportation Plan (OTP) is the state's long-range multimodal transportation plan. The OTP is the overarching policy document among a series of plans that together form the state transportation system plan (TSP). The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation and railroads through 2030. It assesses state, regional, and local public and private transportation facilities. The OTP establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing Oregon. The Plan provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

Project Relevance

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan must be consistent with the OTP—both with policies and projects.

Oregon Highway Plan

The Oregon Highway Plan (OHP) is a functional element of the Oregon Transportation Plan. The OHP identifies US 26 as an interstate and state highways within the project area. It is also a designated freight route. The OHP states that states highways are intended for high-speed travel in rural areas and moderate to high-speed travel in urban areas.

The OHP establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the Oregon Transportation Plan. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. Policies relevant to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan are listed in Appendix A.

Project Relevance

US 26 is an Interstate Highway that is within the Study Area, and these policies are relevant to its function. Proposed projects and policies within The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan must comply with these policies or seek exceptions from the owning agency, ODOT.

Oregon Bicycle and Pedestrian Plan

The Oregon Bicycle and Pedestrian Plan (OBPP) is a modal element of the OTP and provides guidance for planning, design, and operation of facilities for bicycle and pedestrian travel. The plan contains standards and designs used on state highway projects for bicycle and pedestrian facilities.

The plan states how bikeway and walkway systems will be established on rural highways, which is detailed in Appendix A.

Project Relevance

US 26 through The Villages at Mt. Hood is a state highway in a rural context, and currently shoulders are greater than 4 feet in most places. The plan recommends a shoulder bikeway of at least 6 feet, with a minimum acceptable width of 4 feet.

Oregon Transportation Safety Action Plan

The 2011 Transportation Safety Action Plan (TSAP) is the adopted safety element of the Oregon Transportation Plan. It contains a comprehensive list of strategies and 112 corresponding actions that support safety improvements to Oregon's transportation system. Strategies include enhancing communication and education, supporting timely medical assistance to transportation-related incidents, reducing DUI and other impaired driving, and ensure that laws and regulations support multimodal safety goals.

Project Relevance

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has a focus on multimodal safety and will implement the goals of this plan.

Appendix A: Full Description of Relevant State and County Plans, Policies, and Studies

Clackamas County Transportation System Plan, Chapter 5 of the Clackamas County Comprehensive Plan

The Clackamas County Transportation System Plan (TSP), adopted in 2013, reflects applicable national, state, and regional transportation and planning requirements and provides policies, guidelines, and projects to meet transportation needs for residents, businesses, and visitors in unincorporated Clackamas County. The TSP envisions a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for all modes of travel. It is tailored to Clackamas County's diverse geographies and supports future needs and land use plans in the region for the next 20 years. The TSP contains six goals to guide plan implementation:

- Goal 1: Provide a transportation system that optimizes benefits to the environment, the economy and the community
- Goal 2: Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of business and residents of the County
- Goal 3: Tailor transportation solutions to suit the diversity of local communities
- Goal 4: Promote a transportation system that maintains or improves our safety, health and security
- Goal 5: Provide an equitable transportation system
- Goal 6: Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs

Project Relevance

Active Transportation Policies

The TSP states that new facilities should improve safety and connectivity for active transportation users in the County. The active transportation policies in the TSP also include the Clackamas County Pedestrian Master Plan and the Clackamas County Bicycle Master Plan. The policies support the development and implementation of walking and biking infrastructure that encourage direct, continuous routes on low-volume, local streets where possible. Policies relevant to the The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan project include:

5.J. General Active Transportation Policies

> **5.J.8:** Identify low traffic volume streets that are appropriate for signing as bicycle routes to enhance safety and connectivity and to supplement the system of bikeways found on the major street system.

5.K. Design Policies

> **5.K.3:** Improve the safety and appeal of walking and biking by supporting the development of bikeways and pedestrian facilities and networks on low volume or local roads and off of existing street rights-of-way.

5.K.4: (**Urban) –** Identify pedestrian facilities and bikeway improvements necessary to ensure direct and continuous networks of pedestrian facilities and bikeways on the county road system.

5.C. Equity, Health and Sustainability Policies

5.C.1: Support programs and projects, such as pedestrian and bicycle connections to transit stops, that expand and improve transportation options for residents in areas with identified transportation-disadvantaged populations.

5.C.2: Protect neighborhoods, recreation areas, pedestrian facilities, bikeways and sensitive land uses (such as schools, daycare centers and senior centers whose users are more vulnerable to pollution) from transportation-related environmental degradation. Coordinate transportation and land use planning and use mitigation strategies, such as physical barriers and design features, to minimize transmission of air, noise and water pollution from roads to neighboring land uses.

5.C.4: Ensure that programs to encourage and educate people about bicycle, pedestrian, and transit transportation options are appropriate for all County residents, particularly transportation disadvantages populations.

5.C.5: Build working partnerships between the County's Public Health and Transportation Divisions and utilize tools, such as health impact assessments, to better connect the effects of transportation projects with the health of communities.

Other TSP policies relevant to the plan specify that the County should seek out and implement innovative active transportation treatments to address/meet user needs, and work with neighboring jurisdictions to coordinate facility improvements. The TSP also contains roadway policies that support the bicycle, pedestrian, and safe routes to schools improvements identified as Project goals.

5.O. Functional Classification and Design Policies

5.O.5: Develop and implement traffic calming strategies, appropriate for the road functional classification, that will improve the safety and convenience of travel by all modes, particularly in areas with high crash rates or high rates of bicycle and/or pedestrian activity.

TSP 20-year Capital Projects that are within The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan Study Area.

Project ID	Project Name/Street Name	Segment/Location	Project Description
1050	Arrah Wanna Blvd	US 26 to Fairway Ave	Add paved shoulders
1059	Welches Rd	US 26 to Birdie Ln	Add paved shoulders; add pedestrian facilities in Welches rural center

Clackamas County Transportation System Plan, Chapter 10 of the Clackamas County Comprehensive Plan/Clackamas County Mt. Hood Community Plan

The three village districts of Government Camp, Rhododendron, and Wemme/Welches are recognized for their separate character and individual environment.

Rhododendron:

2.1 Provide for a development character of low intensity.

2.2 Encourage development of crosswalks, signals, or a pedestrian overpass or underpass to facilitate movement across Highway 26.

Wemme/Welches:

3.0 Provide for a development character of medium intensity.

3.1 Orient new development away from Highway 26, which is designated a scenic highway.

3.2 Encourage development of recreational-resort facilities to provide accommodations for the users of the area's recreational amenities.

3.3 Encourage development of a shuttle bus system to provide access to the ski areas.

Project Relevance

The Mt. Hood Community Plan calls out specific transportation outcomes. In Rhododendron, facilitating pedestrian movement across US 26 is encouraged. Within Wemme/Welches, the plan calls a shuttle bus system to provide access to ski areas, and pedestrian and bicycle access to these facilities would increase the service's usefulness.

Clackamas County Active Transportation Plan

The Clackamas County Active Transportation Plan (ATP) identifies key active transportation routes that connect destinations and communities in urban and rural Clackamas County. It complements the county's Bicycle and Pedestrian Master Plans by providing an assessment of policies and plans for the principal active transportation system in unincorporated Clackamas County.

The ATP establishes goals to guide the development of active transportation within Clackamas County.

Active Transportation Infrastructure: Plan a comprehensive active transportation network consisting of multi-use paths, bikeways and walkways in Clackamas County to encourage more residents to bicycle or walk for recreation and transportation.

Connectivity: Develop routes that provide connection to parks, town centers, businesses and other significant destinations in Clackamas County.

Tourism Development: Create an active transportation system that will be a draw for tourists and an opportunity to promote Clackamas County as one of the premier cycling destinations in Oregon.

Accessibility and Safety: Build an active transportation network that is accessible and safe for all ages, abilities and incomes.

Chapter 5 of the ATP contains the County's Facility Design Toolkit, a catalog of pedestrian and bicycle facility types for a range of rural and urban settings as well as varying roadway speeds and traffic volumes. Each facility type includes a photo illustration, general description, preferred and minimum dimensions and special design considerations unique to that facility. The Facility Design Toolkit provides guidance to planners and engineers during the planning and design of new roads and roadway improvements throughout Clackamas County.

Project Relevance

All of the goals of the ATP apply directly to The Villages at Mt. Hood study area and The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has potential to further implement the ATP goals of active transportation infrastructure, connectivity, tourism development, and accessibility and safety.

The general goal for connectivity to major destinations is relevant for local circulation by walking and biking within The Villages at Mt. Hood.

The ATP lays out a vision for the Mt. Hood Corridor, of which The Villages at Mt. Hood is a part. ATP states the area has numerous bicycle tourism and trail opportunities. It has the potential to connect to the Springwater and Cazadro trails which would enable people to bicycle from downtown Portland to Mt. Hood. Of note are the Mt. Hood to Rose City Trail corridors and the Tickle Creek Trail.

The ATP process identified twelve principal active transportation corridors (geographic areas between destinations for active transportation connectivity). The Villages at Mt. Hood are within the Sandy to Mt. Hood (Government Camp) corridor. Within The Villages at Mt. Hood, Marmot Rd., Barlow Trail Road, Lolo Pass Road, and east of Lolo Pass Road, and US 26 are identified as a Principal Active Transportation Route. The plan identifies The Barlow Trail Route as a popular ride for recreational bicycle riders that also serves as a scenic and low traffic alternative to riding on Highway 26. The facility type is envisioned to be a shoulder bikeway or shared lane marking.

Clackamas County Community Health Improvement Plan

In 2012 Clackamas County conducted its first community health improvement planning process to identify priority goals and strategies aimed at addressing the health needs of county residents. The resulting Community Health Improvement Plan (CHIP) includes a series of specific actions to be addressed by community partners and is intended to help the community address significant issues that can improve the overall health of the county. The following mission of the CHIP Planning Committee helped guide plan development:

> *The mission of the committee was to determine how the collective community's health could be improved. Specifically, this committee agreed to create a CHIP that describes how organizations and individuals throughout Clackamas County will work together to improve the health and population of the county's residents.*

Project Relevance

The Clackamas County CHIP includes four strategic directions and 11 measurable objectives. Each of the measurable objectives includes a listing of improvement strategies, names of potential organizations that could be involved and a set of performance measures. The improvement strategies and performance measures applicable to The Villages at Mt Hood Pedestrian and Bikeway Implementation Plan include the following:

- **Improvement Strategy**: Promote physical activity before, during and after school
  - **Performance Measure**: Increase number of Safe Routes to School programs implemented at Clackamas County schools
- **Improvement Strategy**: Enhance environment to facilitate ability to be physically active
  - **Performance Measure**: Expand the availability of walking trails and bike paths

Clackamas County Transportation Safety Action Plan

The Clackamas County Transportation Safety Action Plan (TSAP) outlines a strategy for the County to build and implement a County-wide Safety Culture. The Plan's ultimate goal is to reduce transportation-related fatalities and serious injuries for all modes by 50% over the next ten years. In order to create this culture and effectively meet the stated goal, the TSAP employs a "5E's" approach, with action items related to engineering, education, enforcement, emergency medical services and evaluation activities. Using a data-driven approach based on a detailed review of County-wide crash data, a number of emphasis areas have been identified with specific detail and actions for three primary focus areas –

aggressive driving, young drivers (ages 15-25) and roadway departure crashes. For each focus area, a description of the issue and countermeasures are discussed incorporating the 5E approach.

Project Relevance

A primary project objective of The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan is to develop a pedestrian and bicycle system within The Villages at Mt. Hood that improves safety for all modes, particularly pedestrians and bicycle riders because they are the most vulnerable users. This planning process would further implement the TSAP. The County has a strong desire to improve the safety of its transportation system for all users and reduce the number and severity of crashes. Improving safety is a multimodal concern that affects each and every resident of the County. Developing a pedestrian and bicycle system for The Villages at Mt. Hood, when implemented, will create the needed space for pedestrians and bicycle riders to safely travel within and through The Villages at Mt. Hood. This plan aligns with the goal of creating a "County-wide Safety Culture" envisioned in the TSAP.

Mt. Hood Multimodal Transportation Plan

The Mt. Hood Multimodal Transportation Plan calls out Mt. Hood as a destination. It states that visitors come to Mt. Hood from around the world to enjoy the beauty of our mountains and forest. The mountain is a popular year-round destination for Oregon and Washington residents for its many recreation opportunities – hiking, camping, birding, cycling, golfing, swimming and boating, skiing and snow play. Mt Hood is an economic driver in the state; there are between two and five million visitors annually to the Mt. Hood National Forest. Vibrant rural communities welcome travelers and residents along the Mt. Hood Highway in both Clackamas and Hood River counties.

The plan cites the area's stunning views that greet the traveler along the Mt. Hood Highway (US 26-OR 35), a designated National Scenic Byway. The road provides access to an abundance of natural, cultural and historic resources. The highway provides access to recreational area and rural communities in the northern portion of the Mt. Hood National Forest. The highway is an important freight route for local as well as statewide trucking, and also serves as a primary connection between Portland Metro, Central Oregon, and the Columbia River Gorge. Visitors, residents and employees primarily travel to the mountain by car, although there is some private and public transit serving the area.

The Mt. Hood Multi-Modal Plan is a rolling 15-year plan, a living document that prioritizes action and is focused on getting projects accomplished.

Project Relevance

The Villages at Mt. Hood are within the Mt. Hood Multi-Modal Plan study area. No specific projects relate to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan, with the exception of the expansion of Mt. Hood Express to Government Camp, which has been implemented as of 2013. The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has potential to further support this transit investment by providing pedestrian and bicycle last-mile connections between transit stops and origins and destinations.

Oregon Transportation Planning Rule

Transportation system planning in Oregon is required by state law pursuant to Goal 12, *Transportation*, one of the 19 statewide planning goals. Oregon Revised Statute (ORS) 660-012, the Transportation Planning Rule (TPR) defines how to implement Goal 12. The TPR requires that the state prepare a TSP (the Oregon Transportation Plan or "OTP"), that metropolitan planning organizations prepare regional

transportation plans, and that cities prepare a TSP that is consistent with both. As a part of Clackamas County, policies and projects established in The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan have the potential to become a part of future Clackamas County Transportation System Plan (TSP) updates. Those requirements relevant to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan are listed in the following table:

TPR Section
660-012-0015 **Preparation and Coordination of Transportation System Plans**
3(a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP;
660-012-0020 Elements of Transportation System Plans
2(a) A determination of transportation needs as provided in OAR 660-012-0030
(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area.
(3) Each element identified in subsections (2)(b)-(d) of this rule shall contain:
(a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition
(B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency
660-012-0035 Evaluation and Selection Transportation System Alternatives
(1) The TSP shall be based upon evaluation of potential impacts of system alternatives that can reasonably be expected to meet the identified transportation needs in a safe manner and at a reasonable cost with available technology. The following shall be evaluated as components of system alternatives:
(a) Improvements to existing facilities or services;
(b) New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
660-012-0045 Implementation of the Transportation System Plan
(1) Each local government shall amend its land use regulations to implement the TSP.
(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-012-0050.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:
(a) Access control measures;
(b) Standards to protect future operation of roads, transitways and major transit corridors;
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.

TPR Section
(B) Bikeways shall be required along arterials and major collectors.
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors;

Project Relevance

The TPR guides the development of Transportation System Plans, and The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan will become a part of the Clackamas County TSP in some form. To that end, the planning process and proposed projects will comply with the relevant policies cited above, such as providing a bicycle and pedestrian network, considering facility performance consistent with a roadway's function, meet identified needs with safe manner at a reasonable cost, consider access management, and bicycle parking facilities.

Oregon Statewide Transportation Improvement Program (STIP) 2015-2018

Reviewing the Clackamas County projects, the following are within The Villages at Mt. Hood study area.

- Mt. Hood Scenic Byway Interpretation Project (16622): Develop and install wayfinding, signage, and interpretive facilities.
- E. Barlow Trail Road (16638): Emergency relief project to repair riprap.
- US26 and OR35 Intelligent Transportation System (ITS) Program (18219): Install variable speed limit and variable message signs.
- E. Salmon River Road (19498): US26 to MP 2.03, pavement overlay, restriping, and guard rails

Project Relevance

All of these projects are within The Villages at Mt. Hood study area and are relevant to a multimodal system in the area. Repaving projects represent opportunities to stripe new facilities if timing can be coordinated.

Oregon Transportation Plan

The 2006 Oregon Transportation Plan (OTP) is the state's long-range multimodal transportation plan. The OTP is the overarching policy document among a series of plans that together form the state transportation system plan (TSP). The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation and railroads through 2030. It assesses state, regional, and local public and private transportation facilities. The OTP establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing Oregon. The Plan provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

Goal 1 – Mobility and Accessibility

To enhance Oregon's quality of life and economic vitality by providing a balanced, efficient, cost-effective and integrated multimodal transportation system that ensures appropriate access to all areas of the state, the nation and the world, with connectivity among modes and places.

Goal 2 – Management of the System

To improve the efficiency of the transportation system by optimizing the existing transportation infrastructure capacity with improved operations and management.

Goal 3 – Economic Vitality

To promote the expansion and diversification of Oregon's economy through the efficient and effective movement of people, goods, services and information in a safe, energy-efficient and environmentally sound manner.

Goal 4 – Sustainability

To provide a transportation system that meets present needs without compromising the ability of future generations to meet their needs from the joint perspective of environmental, economic and community objectives. This system is consistent with, yet recognizes differences in, local and regional land use and economic development plans. It is efficient and offers choices among transportation modes. It distributes benefits and burdens fairly and is operated, maintained and improved to be sensitive to both the natural and built environments.

Goal 5 – Safety and Security

To plan, build, operate and maintain the transportation system so that it is safe and secure.

Goal 6 – Funding the Transportation System

To create a transportation funding structure that will support a viable transportation system to achieve state and local goals today and in the future.

Goal 7 – Coordination, Communication and Cooperation

To pursue coordination, communication and cooperation among transportation users, providers and those most affected by transportation activities to align interests, remove barriers and bring innovative solutions so the transportation system functions as one system.

Project Relevance

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan must be consistent with the OTP—both with policies and projects.

Oregon Highway Plan

The Oregon Highway Plan (OHP) is a functional element of the Oregon Transportation Plan. The OHP identifies US 26 as an interstate and state highway within the project area. It is also a designated freight route. The OHP states that state highways are intended for high-speed travel in rural areas and moderate to high-speed travel in urban areas.

The OHP establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the Oregon Transportation Plan. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. Policies relevant to The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan include:

Policy 1A: State Highway Classification System – as discussed above, US 26 is an interstate and state highway within the project area.

Policy 1B: Land Use and Transportation – this policy recognizes that that both the State and local government must coordinate in land use and transportation planning.

Policy 1C: State Highway Freight System – US 26 is a designated Freight Route. This policy calls for balancing the needs of freight with other uses.

Policy 1F: Highway Mobility Standards - the performance and mobility standards in the OHP vary by location and adjacent land use type, with a higher level of service expectation in the more rural areas and a lower level of service in urbanized areas.

Policy 2D: Public Involvement – this policy requires that affected jurisdictions and the general public be involved in decision-making that affects the state highway system.

Policy 3A: Classification and Spacing Standards – access management on state highways is addressed by this policy. In general, accesses to interstate highways, US 26, are intended to be as few as possible.

Policy 4B: Alternative Passenger Modes – this policy expresses the State's support for alternative travel modes where feasible.

Project Relevance

US 26 is an Interstate Highway that is within the Study Area, and these policies are relevant to its function. Proposed projects and policies within The Villages Pedestrian and Bikeway Implementation Plan must comply with these policies or seek exceptions from the owning agency, ODOT.

Oregon Bicycle and Pedestrian Plan

The Oregon Bicycle and Pedestrian Plan (OBPP) is a modal element of the OTP and provides guidance for planning, design, and operation of facilities for bicycle and pedestrian travel. The plan contains standards and designs used on state highway projects for bicycle and pedestrian facilities.

The plan states that bikeway and walkway systems will be established on rural highways, as follows:

- As part of modernization projects, paved shoulders will be included in accordance to adopted standards.
- As part of preservation projects, when roadway conditions do not warrant reconstruction, a preservation project is programmed to maintain surface in unusable condition. Where warranted and feasible, ODOT strives to provide wider shoulders on preservation projects.
- Sections of rural highways that link schools, parks, residential areas and other trip generators to the nearest urban area, will receive high consideration. Some sections may warrant a path for pedestrian use.
- Special consideration will be given to rural highways near urban areas (where traffic volumes are relatively high) to facilitate bicycle commuting—wide shoulders will increase safety and encourage more riders. Recreational riders who start their ride from the city will also benefit from wider shoulders.

The second section of the OBPP is the technical element of the plan that guides the design and management of bicycle and pedestrian facilities on state-owned facilities. It underwent updates in 2011. Many new pedestrian and bicycle treatments have been developed and included in the update of the Oregon Bicycle and Pedestrian Design Guide.

Project Relevance

US 26 through The Villages at Mt. Hood is a state highway in a rural context, and currently shoulders are greater than 4 feet in most places. The plan recommends a shoulder bikeway of at least 6 feet, with a minimum acceptable width of 4 feet.

Oregon Transportation Safety Action Plan

The 2011 Transportation Safety Action Plan (TSAP) is the adopted safety element of the Oregon Transportation Plan. It contains a comprehensive list of strategies and 112 corresponding actions that support safety improvements to Oregon's transportation system. Strategies include enhancing communication and education, supporting timely medical assistance to transportation-related incidents, reducing DUI and other impaired driving, and ensure that laws and regulations support multimodal safety goals.

Project Relevance

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan has a focus on multimodal safety and will implement the goals of this plan.

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Technical Memo 3

Welches Safe Routes to School: Infrastructure Projects

Welches Safe Routes to School: Infrastructure Projects

Welches Safe Routes to School Plan		
ID #	***Project Recommendation & Location***	***Notes***
1	Pedestrian facilities along the west side of Welches Road from Fairway Avenue north to a new crosswalk (see #6 below) connecting to new and existing pedestrian facilities on the east side of Welches Road connecting to US 26. This is part of the County's Transportation System Plan project 1059.	
2	Evaluation of school signs.	The school sign on US 26 has been relocated to just before Woodsey Way as requested by Welches school. County staff will also evaluate the type and location of existing on-site signs.
3	A path connecting from Huckleberry Drive to Woodsey Way.	This route is either on private roads or right-of-way is not maintained by the County. It is important that access be maintained for students.
4	Pedestrian and/or bicycle facilities on the north side of Learning Lane separate from the road including a crossing to the south side potentially continuing with a pedestrian facility on school district property to the school.	Learning Lane is a private road on school district property. In general, County investments cannot be made on private property. A partnership of local interests would be needed to pursue a pedestrian and/or bicycle facility in this area.
5	Pedestrian and/or bicycle facilities on the west side of Salmon River Road from US 26 along the school frontage.	This project may include shoulder widening or a separate path. Engineering to perform evaluation of potential right-of-way issues.
6	Potential and existing crosswalk locations • Safety improvements to existing crosswalk on US 26 at Salmon River Road, e.g. RRFB, enhanced signing, etc. • Improvements to existing crosswalk on Welches Road between Woodruff Way and Fairway Estates Road, e.g. improved crosswalk painting/alignment, enhanced signage including improving sight distance regarding northbound sign, etc. • New crosswalk on Welches Road between Twinberry Loop (north) and Huckleberry Drive.	
7	Provide bicycle parking facilities for the schools.	Work with school staff regarding location(s).
8	Student education regarding safe street crossings, walking school bus, bike train etc.	In order for infrastructure investments to be effective, student education and encouragement about these potential improvements is important. This is typically done in conjunction with PTOs

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		and other school parent volunteer groups.

Note: Proposed infrastructure project list based on the following: Parent Survey; Mapping Exercise; meetings with school officials; walking/driving tour of the area and staff observations during morning and afternoon drop off and pick up. County staff will collaborate with the school district regarding all projects and recommendations related to the SRTS Action Plan.

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Technical Memo 4

Design Tools

WALK & BIKE
THE VILLAGES AT MT. HOOD

THE VILLAGES AT MT. HOOD PEDESTRIAN AND BIKEWAY IMPLEMENTATION PLAN

DRAFT TECHNICAL MEMORANDUM #4: DESIGN TOOLS

December 9, 2015

ch2m

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Overview of Conditions

The Villages at Mt. Hood are Brightwood, Wemme, Welches, Zigzag, and Rhododendron. These unincorporated townships each contain characteristics that provide opportunities and challenges for multimodal transportation. The expanse of the Villages at Mt. Hood covers 26 square miles. US Highway 26 (US 26) cuts bisects the Villages at Mt. Hood, creating a discontinuity within the transportation network of the community. Each unincorporated community has elements of a town grid, with local roads leading to collectors that contain limited pedestrian and bicycle accommodations. These elements are interspersed with dense forest, and the Sandy, Zigzag, and Salmon Rivers.

Policy Context

This technical memorandum describes the design tools available to address the needs of the residents and visitors in the Villages at Mt. Hood. The purpose of this memorandum is not to select an alternative, but to provide a toolkit of design treatments with which specific, proposed projects will be developed. This toolkit gives stakeholders an opportunity to comment on potential design treatments before projects are developed. The next step will be to develop alternative solutions for the project area. Currently, funding does not exist to implement projects that will be prioritized as part of this planning process; however, having projects prioritized through a planning process better enables Clackamas County staff to seek competitive grants for implementation. The first implementation step for this plan, will be to seek competitive grants.

If proposed projects are adopted into the Clackamas County Comprehensive Plan, the Mount Hood Community Plan and the Transportation System Plan will be updated. In accordance with the Mt. Hood Multimodal Transportation Plan (MHMTP), enhancements in the Villages at Mt. Hood will include bicycle and pedestrian improvements, shoulder widening and wayfinding along US 26, the Mt. Hood Highway. The MHMTP does not provide funding for these projects but sets prioritizations for projects as funding becomes available.

The Clackamas County Transportation System Plan (CCTSP) states the County's priority for bicycle and pedestrian projects that improve access to public transit stops and provide connections to significant local destinations. The CCTSP has designated new planned bikeways in the Villages at Mt. Hood along Barlow Trail, Lolo Pass Road, Salmon River Road, Welches Road, Fairway Avenue, Arrah Wanna Boulevard and Brightwood Loop Road. The planned bikeway network also includes US 26.

Funding is not currently available for development of any identified projects. Once the project plan is developed, the plan can then be used to pursue funding.

The development of this memorandum is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Moving Ahead for Progress in the 21st Century (MAP-21), local government, and the State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

Background

Developing a pedestrian and bikeway plan for the Villages at Mt. Hood requires reviewing existing design tools that are predominantly considered urban and applying these resources to a rural setting. To

accomplish this goal, the Clackamas County Active Transportation Plan (CCATP) was used as the primary resource for planning, designing, and operating pedestrian and bicycle facilities. The American Association of State Highway and Transportation Officials (AASHTO) bicycle and pedestrian design guides and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and Urban Street Design Guide were also referred to in order to provide a complete set of potential design options.

Additionally, the AASHTO Geometric Design of Highways and Streets (Green Book) and the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) are references for general design guidance.

CCATP

The ATP identifies 24 Principle Active Transportation routes within Clackamas County. Barlow Trail Road and a shared use path along US 26 are notable projects listed in the ATP. A key component of the ATP is the Facility Design Toolkit which is included in Chapter 5 of the ATP. The Facility Design Toolkit is a catalog of pedestrian and bicycle tools that can be used in both urban and rural facilities.

The ATP also includes a Signage Plan including wayfinding guides for bicycle, pedestrian and trail signage. Finally, route amenities including bike hubs, informational kiosks and bike parking are identified in the ATP. Route amenities are not requirements but can encourage more usage of the route.

The majority of the facilities identified in this memo are represented in the CCATP. Facilities identified in this memo that were obtained from other sources include grade separated crossings, parallel path crossings and lighting.

AASHTO Guides

AASHTO publishes two guides that address pedestrian and bicycle facilities: Guide for the Planning, Design, and Operation of Pedestrian Facilities, July 2004, (AASHTO Pedestrian Guide) provides guidelines for the planning, design, operation, and maintenance of pedestrian facilities, including signals and signing. The guide recommends methods for accommodating pedestrians, which vary among roadway and facility types, and addresses the effects of land use planning and site design on pedestrian mobility.

The Guide for the Development of Bicycle Facilities, 2012, Fourth Edition (AASHTO Bike Guide) provides detailed planning and design guidelines on how to accommodate bicycle travel and operation in most riding environments. It covers the planning, design, operation, maintenance, and safety of on-road facilities, shared use paths, and parking facilities. Flexibility is provided through ranges in design values to encourage facilities that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists.

NACTO Guides

The NACTO Guides build upon the flexibilities provided in the AASHTO guides, helping communities plan and design safe and convenient facilities for pedestrian and bicyclists. The FHWA supports the use of these resources to further develop non-motorized transportation networks in urban and rural areas. The Oregon Department of Transportation recently officially endorsed the NACTO Urban Bikeway Design Guide.

The vast majority of treatments illustrated in the NACTO Guide are either allowed or not precluded by the MUTCD. Additionally, non-compliant traffic control devices may be piloted through the MUTCD experimentation process. That process is described in Section 1A.10 of the MUTCD and in a table on the

FHWA's bicycle and pedestrian design guidance web page (FHWA Bicycle and Pedestrian Design Guidance). These sites provide more options for the evolving development of rural facilities and showcase the bicycle facilities, signs, and markings that adhere to the MUTCD.

The NACTO Urban Street Design Guide provides guidance for pedestrian and street control elements. While both design guides focus on urban settings, the treatments recommended provide the foundation for rural settings.

Moving Forward

The Federal Highway Administration has three functional classifications for roadways: arterial, collector and local roads. An arterial road provides the highest level of service at the greatest speed for the longest uninterrupted distance, therefore it also has the highest mobility and the lowest land access. A collector provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials. A local road consists of all roads not defined as arterials or collectors and primarily provides access to land with little or no through movement. The functional classifications for Clackamas County include distinctions to clarify volume or speeds such as principal, major or minor. The Villages at Mt. Hood roadways are classified as Major Arterial, Minor Arterial, Collector and Local roads.

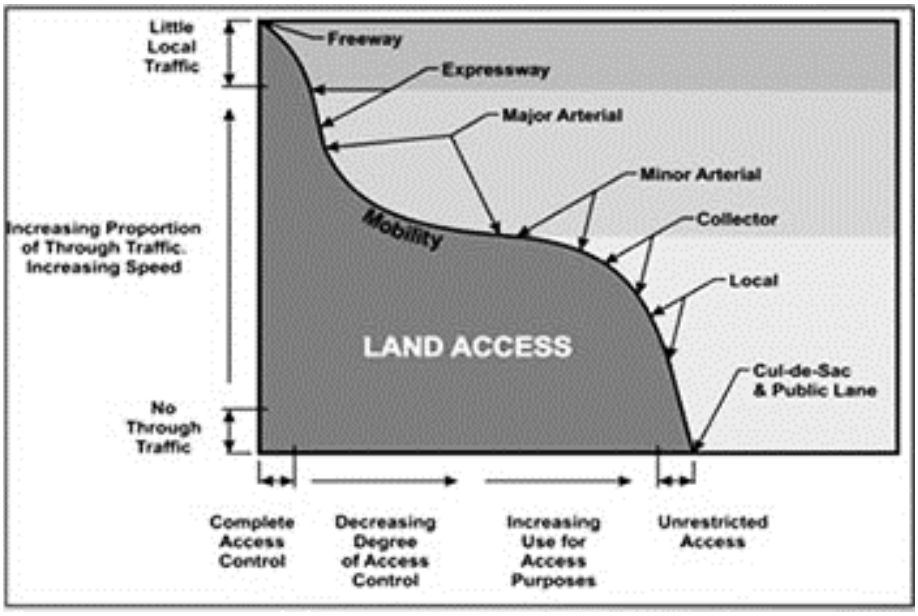


Figure 2: Traffic Movement vs. Access to Property

This memo provides a toolbox for the Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan. The tools provided include bicycle, pedestrian and roadway upgrades for roadways within the Villages at Mt. Hood. Moving forward, several of the tools provided will be selected for use in the plan by the community. To clarify their application for this selection process, below are a list of the roadway types along with design tools that are appropriate for use on them.

Major Arterials

US 26 is the only Major Arterials within the project limits. The TSP typical cross section for an arterial includes a 6' bikeway on both sides of the road, landscape strips and 6' wide pedestrian facilities. Tools most appropriately used on major arterials include:

- Buffered Bicycle Lane
- Bicycle Lane
- Shared Use path adjacent to roadway
- Pedestrian Path
- Midblock Crossings
- Hybrid (HAWK) Signal
- Active Warning Beacon
- Grade Separated Over and Under Crossings
- Grade Separated Over and Under Crossings

Rural (Minor) Arterials

There are four minor arterials within the project limits: Barlow Trail Road, Lolo Pass Road, Welches Road and Salmon River Road. The TSP typical cross section for an arterial includes a 6' bikeway on both sides of the road, landscape strips and 6' wide pedestrian facilities. The tools most appropriately used on minor arterials include:

- Bicycle Lane
- Shoulder Widening
- Bicycle Parking
- Shared Use Path
- Path or Sidewalk
- Midblock Crossings
- Parallel Path Crossings
- Grade Separated Over and Under Crossings
- Hybrid (HAWK) Signal
- Active Warning Beacon
- Wayfinding Signage
- Lighting
- Curb Extensions
- Vertical Speed Control: Speeds Hump
- Semi-Diverters, Median or Channelized Islands
- Access Management

Collectors

Brightwood Loop Road, Arrah Wanna Boulevard and Fairway Avenue are all classified as Collector facilities. The TSP typical cross section for an arterial includes a 6' paved shoulder bikeway on both sides of the road with a 5' – 8' gravel shoulder. The tools most appropriate for collectors are:

- Bicycle Lane
- Shoulder Widening
- Bicycle Parking
- Shared Use Path
- Path or Sidewalk
- Midblock Crossings
- Parallel Path Crossings
- Grade Separated Over and Under Crossings
- Hybrid (HAWK) Signal
- Active Warning Beacon
- Wayfinding Signage
- Lighting
- Curb Extensions
- Vertical Speed Control: Speeds Hump
- Semi-Diverters, Median or Channelized Islands
- Access Management

Local Roads

The remaining roads within the project limits are local roads. The TSP typical cross section does not provide for separated bicycle and pedestrian facilities. The tools most appropriately used on local roads are:

- Sharrows
- Shoulder Widening
- Advisory Lanes
- Bicycle Parking
- Shared Use Path
- Path
- Raised Crosswalks
- Parallel Path Crossings
- Wayfinding Signage
- Lighting
- Curb Extensions
- Chicanes
- Speed Humps
- Speed Tables
- Diagonal Diverters
- Semi-Diverters
- Access Management

Best Practices and Facilities

This section provides a summary of innovative bicycle, pedestrian and roadway facilities that are considered best practices by the manuals listed above. It is not an exhaustive list of facilities, but rather demonstrates potential facility types and innovations to be considered for the Villages at Mt. Hood planning efforts. Facilities presented in this section have been selected with consideration of the applicability to the project area.

Each facility is shown in a rural context, with a description and list of benefits and tradeoffs.

Pedestrian Path	*Description*	*Benefits*	*Tradeoffs*
	Pedestrian paths provide people with space to travel within the public right-of-way in a safe manner separated from vehicles and bicycles. Paths can be constructed from well-packed soil, concrete or asphalt. 8' preferred with pedestrian volumes/6' minimum in low volume areas per ATP.	- Reduces potential for pedestrian collisions in rural areas. - Increases accessibility for non-vehicle reliant population. - Encourages active modes of transportation.	- Are not recommended for every site. - Can require more right of way than a widened shoulder.

Sidewalk	*Description*	*Benefits*	*Tradeoffs*
	Sidewalks should be level, have a hard surface and be separated from vehicles by a buffer. Sidewalks are typically concrete. Considered urban in the ATP. 6' preferred with 5' minimum. ATP notes 6' walk with 4' buffer or 8' walk is required on ODOT facilities.	- Reduces potential for pedestrian collisions in rural areas. - Increases accessibility for non-vehicle reliant population. - Encourages active modes of transportation.	- Are not recommended for every site. - Can require more right of way than a widened shoulder. Typically more expensive than a path.

Shared Use Path	*Description*	*Benefits*	*Tradeoffs*
	Bi-directional pathways for bicyclists, pedestrians, and other users that extend and compliment the roadway network. ATP recommends 12' wide or greater for most situations. 8' minimum width. A 2' gravel shoulder should be provided on each side.	- Physical separation from motor vehicle traffic. -Can provide users with shortcuts. - Can provide an enjoyable recreational opportunity. - Have few intersections and as a result are safer for bicyclists/pedestrians than facilities located alongside or on roadways. - Appeal to users of all ages and abilities.	- Rarely the most direct transportation alignment. - Attract a variety of user groups who often have conflicting needs.

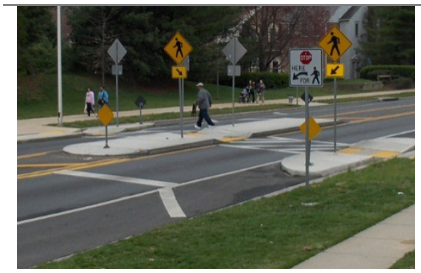
Bicycle Lane	*Description*	*Benefits*	*Tradeoffs*
	Bicycle lanes designate a portion of a roadway for preferential or exclusive use by bicyclists. They are distinguished from the portion of the roadway for motor vehicle traffic by a paint stripe and markings, curb, or other treatment. The ATP only recommends bike lanes on facilities with posted speeds up to 40 mph and up to 7,000 ADT. ODOT requires the standard width of a bike lane be 6'. A 4' wide smooth asphalt surface is required for shoulder bike lanes on ODOT facilities.	- Provides a dedicated space for bicyclists. - Enables bicyclists to ride at their preferred speed without the pressure of vehicular traffic. - Facilitates predictable behavior and movements between bicyclists and motorists. - Visually reminds motorists of bicyclists' right to the street. - Provides mode separation in areas where bicycles and vehicles are moving at significantly different speeds.	- Not all users may be comfortable in a bike lane due to lack of separation from vehicles. - Bicycle lanes located next to on-street parking create risk of car door conflicts. - Greater enforcement is required to prevent motorists from parking in the bike lane. - May require modification or elimination of travel or parking lanes to provide space for a bicycle lane.

Buffered Bicycle Lane	*Description*	*Benefits*	*Tradeoffs*
	Buffered lanes are conventional bike lanes with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane. Buffered bicycle lanes are typically used on corridors with high traffic volumes and/ or speeds where increased separation is desired. Per the ATP, preferred width is 6', with an additional 2' to 3' for a painted buffer. Minimum is 5'. The ATP recommends buffered bike lanes on roads with posted speeds up to 45 mph and up to 10,000 ADT.	- Increased separation of motorists and cyclists. - Informally provides space for bicyclists to pass another bicyclist without encroaching into the vehicle travel lane. - Allows bicyclists to ride outside of the door zone when buffer is between parked cars and bike lane. - Appeals to a wider cross-section of bicycle users, due to greater comfort.	- More right-of-way is needed.

Shoulder Widening	*Description*	*Benefits*	*Tradeoffs*
 	Shoulder widening provides an on street facility that designates space for pedestrian and/or bicycle travel by extending the roadway width on the shoulders. This treatment is common for rural roadways or areas without sidewalk or shared path options. The ATP states a preferred width of 6' with 4' minimum in areas of constrained ROW. It may be necessary to deviate in more constrained areas. ODOT Bicycle and Pedestrian Guide states that shoulders wider than 6' may be marked as bike lanes in areas of high use. For low speed/low traffic areas, 4' is acceptable.	- Provides separation from high speed (45+ mph) vehicle traffic for cyclists and pedestrians. - Adds more width to the shoulder for roadway stability. - Provides room for pedestrians when sidewalks are not present. - Extends the service life of the road by reducing edge deterioration. - Provides temporary space for disabled vehicles or vehicles pulling over for passing emergency responders.	- Requires additional paving to existing roadways. - Heavy bicycle use or mixed pedestrian and cycling requires larger shoulders. - Provides fewer protections than a signed, marked bike lane.

Advisory Lanes	*Description*	*Benefits*	*Tradeoffs*
	Dotted white lines on both sides of a narrow roadway create shoulder bikeways. Center travel lane is shared by two-way traffic and no center stripe is provided. Vehicles may use the shoulder bikeways to pass but are required to yield to cyclists and oncoming motorists. The ATP recommends 5' to 7' width to dotted lines with 13' to 18' for the center lane.	- Appropriate when there is no room for bike lanes and poor conditions for sharrows. - Drivers are more cautious due to oncoming traffic. - Can be used with high or low bike density. - Striping offers visual separation. - Does not require large roadways.	- Only applicable on local roads. - Motor vehicle encroachment into the bike lane is permitted. - It offers less protection for cyclists than a conventional bike lane. - As an uncommon roadway design, it may cause confusion to drivers.

Shared Lane Roadways	*Description*	*Benefits*	*Tradeoffs*
	Shared lane markings or "sharrows" are road markings used to indicate a shared lane environment for bicycles and automobiles. They are not a facility type but are used to support a complete bicycle network. Shared lane markings are most appropriate for lower volume, lower speed streets. A minimum of 11' from the edge of the curb should be planned for sharrow markings where on-street parking is present. In addition, or as an alternative, "Bicycles May Use Full Lane," signs can alert drivers to the presence of bikes.	- Reinforces the legitimacy of bicycle traffic on the street. - Assists bicyclists with lateral positioning away from the door zone & other hazards. - May be configured to offer directional and wayfinding guidance, or direct bicycles to low-stress roadways. - Requires no additional street space. - Reduces the incidence of sidewalk riding and wrong-way riding.	- Does not dedicate exclusive use for bicyclists. - Vehicular drivers may protest shared lane use.

Midblock Crossings	*Descriptions*	*Benefits*	*Tradeoffs*
	Midblock crossings are pedestrian crossings that are not located at the traditional corner of city blocks. They can include protected spaces, such as a pedestrian island placed in the center of the street to allow pedestrians to navigate only one direction of traffic at a time. Midblock crossings improve accessibility by reducing the distance a pedestrian must walk to access a demarcated crossing. They also improve visibility and calm traffic by narrowing roadways at the crossing.	- Reduces traffic speeds and provides warning to drivers of vulnerable users in the roadway. - On two-way streets, allows pedestrians and bicyclists to take advantage of gaps in one direction of traffic at a time by providing refuge. - Allows pedestrians a refuge between opposing directions of traffic to better judge potential conflict.	- May restrict left-turn movements of automobiles.

Raised Crosswalks	*Descriptions*	*Benefits*	*Tradeoffs*
	Raised crosswalks are crosswalks constructed 3-4 inches above the elevation of the street. They typically have the profile of a speed table and can be used at intersections or midblock to reduce vehicle speeds where pedestrians are crossing. Raised crosswalks improve visibility, accessibility and increase safety for users at key access points.	- Calms traffic and provides space for bicycle and pedestrian crossing. Better alerts drivers to the presence of pedestrians and bicyclists because the raised crosswalk causes drivers to slow down. - Improves accessibility for mobility device users and others by allowing pedestrians to cross at a nearly constant grade.	- Could slow emergency response times. - Potential drainage issues. - Should not be used on sharp curves or steep grades.

Parallel Path Crossings	*Description*	*Benefits*	*Tradeoffs*
	Parallel path crossings occur where a path running parallel to a road crosses another roadway in proximity to an intersection. The path is designed to prioritize the crossing bicycles and pedestrians. They are often used at three legged intersections or driveways.	- Creates fewer conflicts than traditional intersection crossings. - Can be timed to coordinate with a signalized intersection to increase safety. - Can be combined with a speed table to slow traffic and increase driver awareness.	

Grade Separated Over and Under Crossings	*Description*	*Benefits*	*Tradeoffs*
	Provides continuity of a bicycle/pedestrian facility using either a bridge over a roadway or an underpass beneath the roadway. For high-volume roads or fast-moving traffic, a grade-separated crossing reduces potential modal conflicts. Paths should be a minimum of 14' wide and 10' high to allow for access of all users and maintenance vehicles when necessary.	- A safer way to cross rivers, streets, and railroads while reducing delay for all users. - Provides continuity of the bicycle or pedestrian network, often addresses the 'weakest link' in a network that keeps pedestrians or bicyclists from using a facility. - If the path is above or below street grade, an over or undercrossing may require less ramping and elevation change.	- Users may feel vulnerable due to reduced visibility. - If the crossing is not convenient, easy to use or does not serve a direct connection, it may not be well utilized. - High cost relative to an at-grade crossing depending on grade of path.

Hybrid (HAWK) Beacon	*Description*	*Benefits*	*Tradeoffs*
	A High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal-heads for the minor street. HAWK beacons can either be activated by users or timed to coordinate with nearby traffic signals.	- Can be implemented where a conventional traffic signal is not desired due to delay. - Studies show greater than 95% driver compliance with red indications. - Improves safety for vulnerable users crossing roadway.	- While the cost is less than a full traffic signal, it is higher than a crosswalk. - Requires a pedestrian to actively engage the beacons (push-button) to be effective.

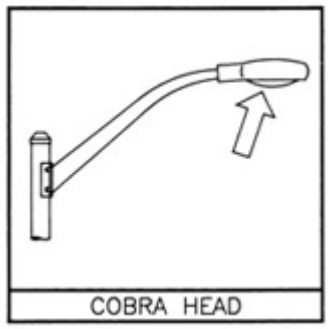
Active Warning Beacon	*Description*	*Benefits*	*Tradeoffs*
	These signals are activated by users and turn on amber flashing lights that function as warning lights at signalized intersections or mid-block crossings.	- Low cost alternative to a traffic signal or HAWK. - Increases driver yielding behavior to pedestrians and cyclists.	- Requires a pedestrian to actively engage the beacons (push-button) to be effective. - Pedestrians may misinterpret flashing lights as giving them right-of-way and could enter the street without waiting for traffic to yield.

Bike Parking	*Description*	*Benefits*	*Tradeoffs*
	Bike parking is critical to bicycling use and can be provided on and off-street.	- Low cost and fast implementation. - Requires little maintenance. - Encourages use of alternative modes by allowing customers to park close to building entrances. - Provides opportunity for city/township branding.	- Bicycle is not completely secure and parts can be removed by vandals. - Cannot be reserved and may not be consistently available. - Bicycle is typically exposed to the elements and possible weather damage such as rust.

Wayfinding Signage	*Description*	*Benefits*	*Tradeoffs*
	A wayfinding system consists of comprehensive signing and/or pavement markings to: - Designate a system of routes. - Designate a continuous or preferred route. - Provide location specific guidance.	- A cost-effective yet highly-visible treatment that can improve the walking/riding environment. - Directs pedestrians and bicyclists toward low-stress routes to destinations. - Can help brand a network of bicycle and pedestrian corridors or routes. It can also be used for wider-city branding. - Provides visible invitation to new bicyclists.	- When used alone, bicycle and pedestrian route signs convey little meaning. They are best when paired with high quality facilities and transportation treatments. - Without careful planning and public input, signage cause confusion.

Bike Hub	*Description*	*Benefits*	*Tradeoffs*
	Bike hubs are community operated "rest stops" for hikers, bicyclists, recreationalists and community members. Hubs act as a local welcome station and can include: - Information kiosk - Water fountain - Restrooms - Bicycle parking - Bicycle repair station - Lockers - Benches/picnic area - Electrical outlets	- Provides shelter and bicycle repair options. - Encourage recreationists to stay in the local community. - Supports and promotes bicycle tourism. - Creates a brand identity for the Villages at Mt. Hood. - Provides visitors with welcoming experience.	- Requires maintenance and upkeep by the community.

Bus Shelter	*Description*	*Benefits*	*Tradeoffs*
	A bus shelter provides protection from the elements while waiting for a bus or transit. Should have clear or open sides for visibility and safety. Typically considered in rural locations with a minimum of 10 boardings per day. Should include accessible path to shelter	- Increases security and comfort of transit users. - Provides clear indication of transit stop location.	- Can be costly depending on design.

Lighting	*Description*	*Benefits*	*Tradeoffs*
 200W LED Shoebox	Lighting of roadways, paths, and sidewalks can increase safety for all users during low-light conditions. Lighting for roadways is provided using cobrahead style LED lights. For pedestrian and bicycle paths, shoebox style lights are used.	- Increases security and comfort of pedestrians. - Improves safety for vehicles using roadway by increasing visibility of roadway hazards such as wildlife.	- LED lighting creates white light rather than soft yellow light and can contribute to light pollution.

Curb Extensions	*Description*	*Benefits*	*Tradeoffs*
	Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings and street trees.	- Increases overall visibility of pedestrians by aligning them with parking lane and reducing crossing distance. - Tightens intersection radii and encourages slower turning for vehicles. - Provides opportunity for stormwater treatment.	- Decreases overall width of roadway.

Chicane	*Description*	*Benefits*	*Tradeoffs*
	Chicanes are a type of horizontal deflection that require drivers to reduce speed to negotiate the lateral displacement in the vehicle path. Offset curb extensions on low volume streets create a chicane effect that slows traffic for safety.	- Calms traffic. - Increases public space available on a corridor that can be used for benches, bike parking, landscaping and stormwater treatments.	- May warrant additional signing and striping to ensure that drivers are aware of slight bend in roadway. - Can impact parking and driveway access.

Vertical Speed Control: Speed Hump	*Description*	*Benefits*	*Tradeoffs*
	Speed humps are rounded raised areas of pavement usually 12-14 feet in length and 3-4 inches high with a ramp length of 3-6'. Speed humps are installed in series set 300-600 feet apart with signage warning of the upcoming change in roadway. Humps can be installed with cutouts for large vehicles (emergency) to pass.	- Reduces speed to between 20 and 25 mph. - Inexpensive. - Works well in tandem with curb extensions to slow vehicles.	- Higher speeds resume following series. - Can cause dilemmas in areas with frequent driveways.

Vertical Speed Control: Speed Table	*Description*	*Benefits*	*Tradeoffs*
	Midblock traffic calming devices that raise entire wheelbase to reduce speed. Longer than speed humps and flat topped. Can be installed with cutouts for large vehicles (emergency) to pass.	- Can be used with midblock crossings and curb extensions as a raised crosswalk. - Slows speeds to 20-25 mph.	- Should only be applied on streets wider than 50 feet. - May divert traffic to parallel streets. - Can increase noise.

Traffic Calming: Traffic Islands	*Description*	*Benefits*	*Tradeoffs*
	A traffic island is an area between traffic lanes that separates opposing lanes of traffic on divided roadways or differentiates movements at an intersection. Traffic islands can include landscaping and stormwater management. Safety on highways can be increased by adding median barriers.	- Provides space for pedestrian safety features and traffic control devices, amenities, landscaping and stormwater management. - Reduces incidence of head on collision with or without median barriers.	- Difficult to clear in winter. - Decreases overall width of the roadway.

Access Management

Description	Benefits	Tradeoffs
Most pedestrian/motor vehicle collisions on busy streets occur at points of intersecting movements, such as intersections and driveways. Unlimited vehicle access on roads increases the level of conflicts between pedestrians walking along the roadway and cars entering or leaving the roadway. Pedestrians crossing the roadway need gaps in the traffic stream, but with unlimited access, vehicles entering the roadway quickly fill the available gaps. Limiting driveways reduces conflict points between pedestrians and motorists, as seen in Figure 1, increasing safety and comfort. Techniques: - Reduce driveways or consolidate driveways to parking areas and businesses. - Provide semi-diverters to control turning movements from the street, creating right-in, right-out driveways.	- Increases safety and comfort for pedestrians, bicyclists, and motorists, by decreasing conflict points, particularly with the use of center medians or concrete barriers that reduce the number of conflicts between left-turning vehicles and bicyclists and pedestrians. - Improved traffic flow may reduce the need for road-widening, allowing more space within the right-of-way for the use by pedestrians, bicyclists, and enhancements and maintaining fewer travel lanes to cross at intersections. - Limiting driveways creates gaps in traffic for pedestrians to cross more easily. - Pedestrian access to transit may also be complicated by excessive driveway access points, creating obstacles on the way to transit stops. Limiting driveways can ease access to transit. - Accommodating people with disabilities becomes easier with the localized need for special treatments or driveway cuts/aprons.	Land owners want unlimited driveway access. Potentially less convenient access for drivers.

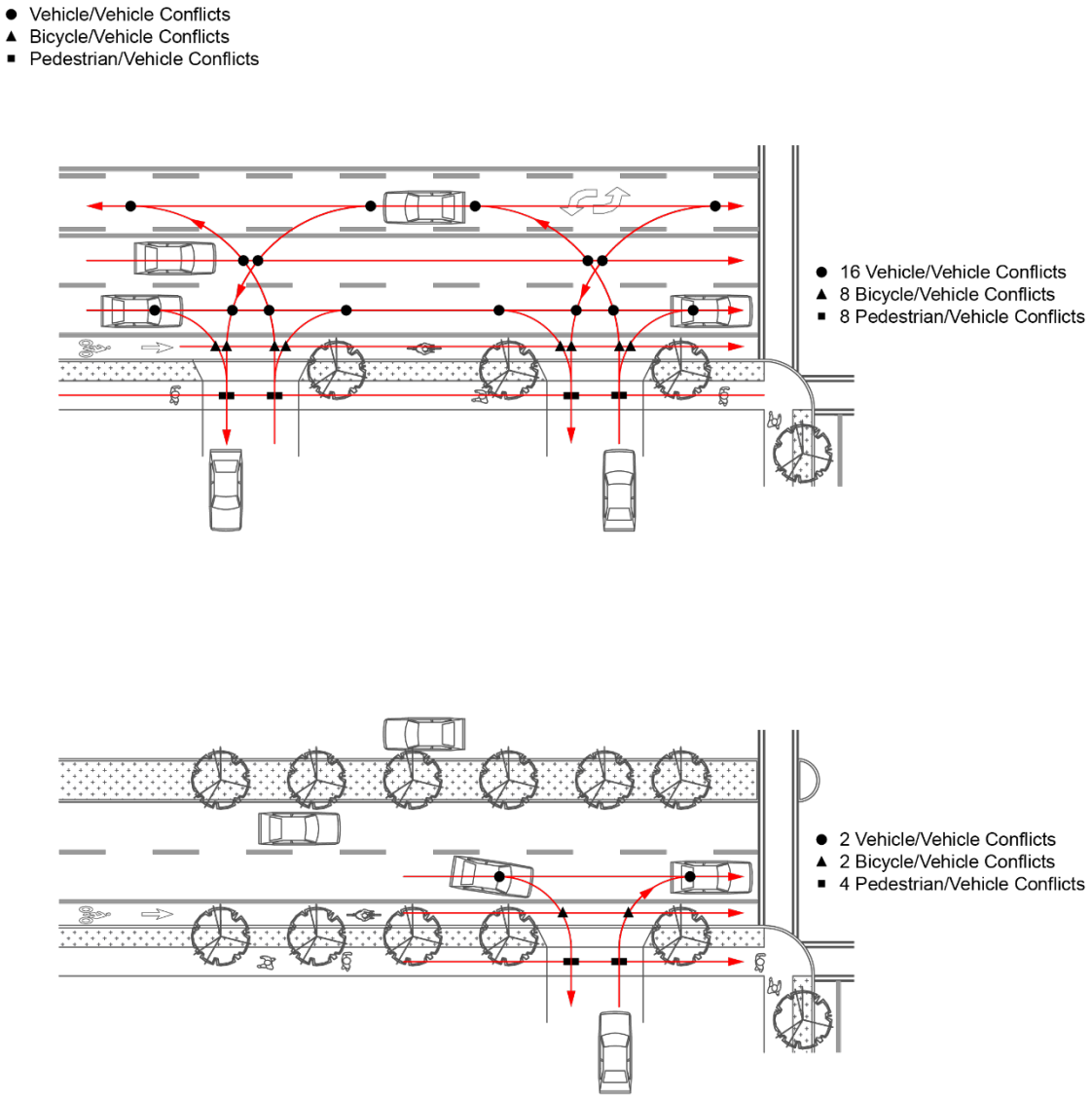


Figure 1: Access Management Diagrams

DRAFT

Technical Memo 5

Draft Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

WALK & BIKE
THE VILLAGES AT MT. HOOD

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

Technical Memo #5: Draft Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

April, 2016

ch2m

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This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Moving Ahead for Progress in the 21st Century (MAP-21), local government, and the State of Oregon funds.

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

Executive Summary

The memorandum provides a foundation for The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan project by cataloguing the potential alternative improvements for the area. This memorandum will inform decisions on potential solutions and opportunities to address needs and gaps in the existing network. Potential improvements, which complement or enhance existing Transportation System Plan (TSP) and Capital Improvement Program (CIP) to create a well-connected pedestrian and bicycle transportation system.

The Villages at Mt. Hood are Brightwood, Wemme, Welches, Zigzag, and Rhododendron. These unincorporated townships each contain characteristics that provide opportunities and challenges for multimodal transportation. The expanse of the Villages at Mt. Hood covers 26 square miles. US Highway 26 (US 26) bisects The Villages at Mt. Hood, creating a discontinuity within the transportation network of the community, particularly for pedestrian and bicycle access. Each unincorporated community has elements of a town grid, with local roads leading to collectors that contain limited pedestrian and bicycle accommodations. These elements are interspersed with dense forest, and the Sandy, Zigzag, and Salmon Rivers. US 26 is served by Mt. Hood Express, a commuter and recreational transit service with limited stops, most of which allow the bus to pull off of the highway, and The Villages at Mt. Hood Shuttle, a deviated fixed route for local, circulation service between Sandy and Rhododendron.

The following represent major findings and an overview of proposed improvements in the area:

- Potential projects must be developed with consideration towards the rural character of the area, anticipated level of use, and cost constraints for the Villages at Mount Hood, Clackamas County, and Oregon department of Transportation.
- Proposed improvements focus on increasing the safety of pedestrians, creating better access to transit stops, and increasing the safety and connectivity of bicycles. The projects are aimed at meeting the needs of a variety of users within the project area who may have varying transportation needs. The users include residents, transit users, lodging users, school children and older adults, and recreational users.
- US Highway 26 (US 26) bisects the Villages and can act as a barrier for pedestrians, transit users, and bicycle riders moving through their communities. Opportunities to cross the highway when traffic is stopped is limited to one signalized intersection at Welches Road. Throughout the remainder of the corridor, pedestrians and bicycles riders must wait for a gap to cross between four and five lanes of fast-moving traffic.
- Projects focused on addressing crossings of US 26 include improvements such as painting crosswalks, installing rapid flashing beacons and other advisory signs to alert motorists to crossing pedestrians, and upgrading the crossing at Welches Road to meet ADA standards.
- Projects to improve pedestrian and bicycle safety and connectivity are focused on creating dedicated space through the addition or expansion of shoulders to roadways or by building multiuse paths.
- US 26 has worn, dirt trails between Arrah Wanna Boulevard and Salmon River Road on the south side of the highway and between Arrah Wanna and Welches Road on the north side of the highway. Formalizing the trails by building a multiuse path would create a safe, separated facility that can act as the spine of the transportation system for pedestrians and bicycle riders moving through The Villages of Mt. Hood.
- Safe Routes to Schools are an important goal of the plan. Improvements focused on creating safer access to Welches Elementary and Middle Schools include crossing improvements at US 26 and Salmon River Road, creating a marked crossing at Woodsey Way and Learning Lane, and improving a

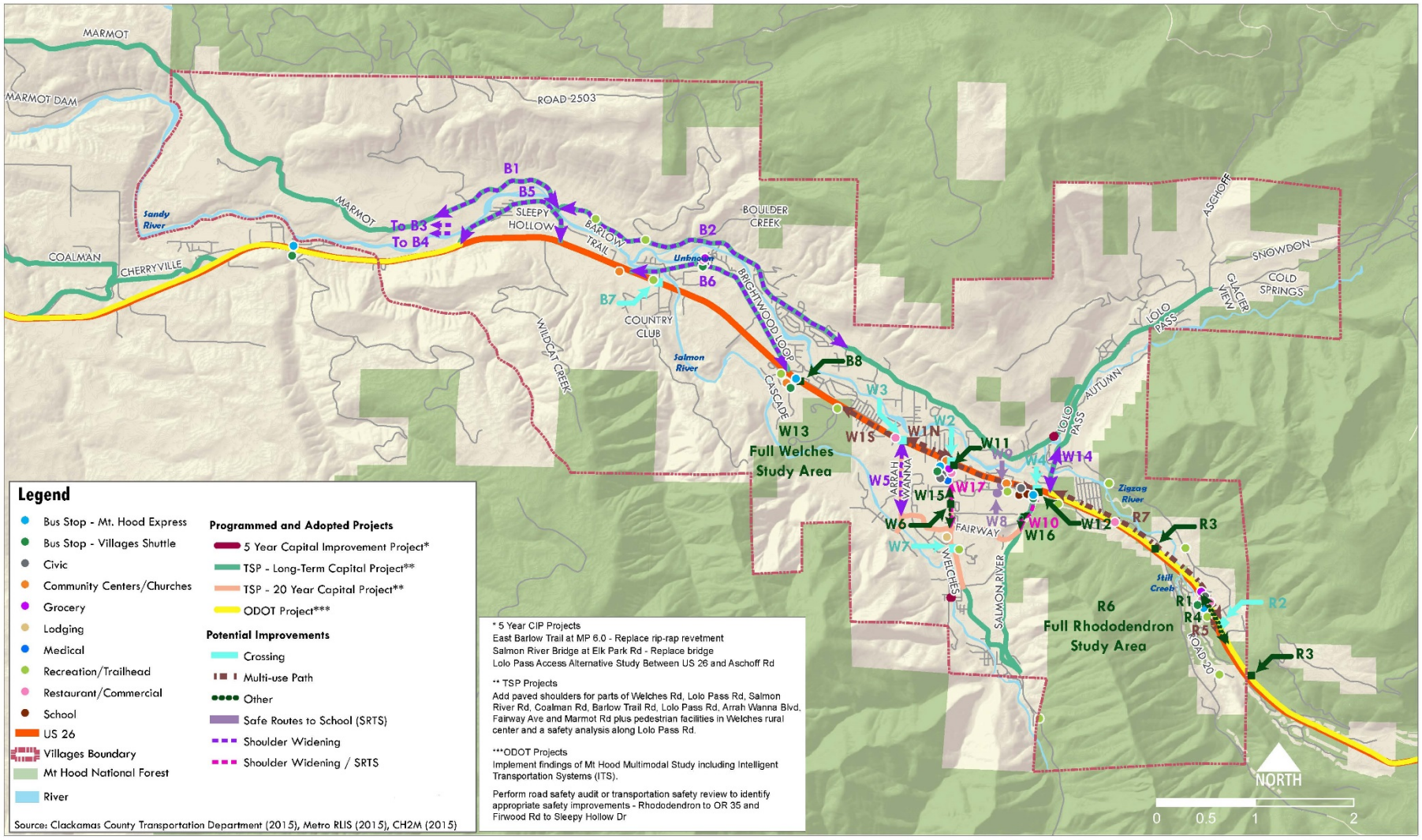
demand path between Woodsey Way and Huckleberry Drive. Other shoulder improvements, such as along Welches Road and Salmon River Road would particularly benefit children walking to school.

- Improved access to transit is another primary goal of the plan. Adding shoulders to roadways give transit riders walking or bicycling to transit a safer way to access the stops. Wayfinding to alerts transit users to stop locations and signs denoting park and ride locations are both recommended.
- Throughout the project area, wayfinding treatments are recommended to provide information to pedestrians and bicycle riders on active transportation routes, grade separated crossings and area amenities.
- In Rhododendron, gateway treatments and access control policies are proposed to signal to drivers that they are entering a more urbanized area where pedestrians and bicycle riders may be walking, riding and crossing.
- The average daily traffic on US 26 within the Villages is between 8,500 and 16,000. Traffic volumes are higher in the western section of the project area (Welches/ Wemme) than the eastern section (Rhododendron).
- The highest observed pedestrian volumes were at the intersection of Fairway Avenue and Welches Road.
- The highest observed bicycle volumes were at the intersections of US 26 and Brightwood Loop and Fairway Avenue and Welches Road.
- Many of the proposed improvements are currently planned for in the Clackamas County Transportation System Plan (CCTSP), including adding or expanding paved shoulders to Marmot Road, Barlow Road, Coalman Road, Arrah Wanna Boulevard, Welches Road, Salmon River Road, and Lolo Pass Road.

Potential area improvements in conjunction with TSP and CIP projects provides a well-connected pedestrian and bicycle transportation network that supports planning objectives. The system map below illustrates the combination of potential area improvements, TSP, and CIP projects that would create the pedestrian and bicycle network.

Pedestrian and Bicycle System: Programmed and Adopted Projects and Potential Improvements

VILLAGES AT MOUNT HOOD
Bikeway and Pedestrian Implementation Plan



Legend

- Bus Stop - Mt. Hood Express
- Bus Stop - Villages Shuttle
- Civic
- Community Centers/Churches
- Grocery
- Lodging
- Medical
- Recreation/Trailhead
- Restaurant/Commercial
- School
- US 26
- Villages Boundary
- Mt Hood National Forest
- River

Programmed and Adopted Projects

- 5 Year Capital Improvement Project*
- TSP - Long-Term Capital Project**
- TSP - 20 Year Capital Project**
- ODOT Project***

Potential Improvements

- Crossing
- Multi-use Path
- Other
- Safe Routes to School (SRTS)
- Shoulder Widening
- Shoulder Widening / SRTS

Source: Clackamas County Transportation Department (2015), Metro RLIS (2015), CH2M (2015)

* 5 Year CIP Projects
East Barlow Trail at MP 6.0 - Replace rip-rap revetment
Salmon River Bridge at Elk Park Rd - Replace bridge
Lolo Pass Access Alternative Study Between US 26 and Aschoff Rd

** TSP Projects
Add paved shoulders for parts of Welches Rd, Lolo Pass Rd, Salmon River Rd, Coalman Rd, Barlow Trail Rd, Lolo Pass Rd, Arrah Wanna Blvd, Fairway Ave and Marmot Rd plus pedestrian facilities in Welches rural center and a safety analysis along Lolo Pass Rd.

***ODOT Projects
Implement findings of Mt Hood Multimodal Study including Intelligent Transportation Systems (ITS).

Perform road safety audit or transportation safety review to identify appropriate safety improvements - Rhododendron to OR 35 and Firwood Rd to Sleepy Hollow Dr

The evaluation criteria was crafted by the project management team (PMT) with guidance and input from the Technical Advisory Committee (TAC) and the Public Advisory Committee (PAC). The criteria fall under five categories:

- Improve safety for all modes, with an emphasis on bicycle/ pedestrian safety
- Support healthy and active communities
- Provide safe routes to school
- Provide benefits to residents, businesses, and visitors, while minimizing negative impacts
- Create an implementable project plan

The categories, which include between two and three different evaluation criteria each, and were weighted by the TAC and PAC based on which they determined were most vital to the project. Each project was scored according to its performance against the evaluation criteria. The full matrix can be found in Appendix A.

The highest scoring projects (those that received more than **50 percent** of available points) by community include:

Brightwood

- Install wayfinding to the existing US 26 undercrossing
- Add/ expand shoulders to the Barlow Road Active transportation Route.

Welches/Wemme

- Multiuse path along US 26 (North and South side)
- Welches Road crossing of US 26
- Salmon River Road crossing of US 26
- Arrah Wanna crossing of US 26
- Welches Road shoulder widening
- Welches road at The Resort at the Mountain crossing
- Huckleberry Drive path
- Woodsey Way/Learning Lane path
- Salmon River Road shoulder widening

Zig Zag and Rhododendron

- Consolidate and define driveways in Rhododendron
- Crossing of US 26 in Rhododendron
- Pedestrian path along US 26 in Rhododendron
- Bicycle facility for trail connection
- Multiuse path/paved bike route to Government Camp

Introduction and Project Purpose

This memorandum presents potential pedestrian, bicycle, and transit access improvements that reflect the culmination of several site visits, input from numerous stakeholders, and technical analysis. Proposed improvements address gaps and opportunities to improve safety and connectivity identified in Technical Memorandum 1: Existing Conditions: Needs, Constraints, and Opportunities Memo. Improving the walking and bicycling network in and around the Villages will enable safer access to schools, transit stops, and other essential destinations for residents and visitors. The purpose of this project is to identify future infrastructure projects that will provide active transportation options that link the key destinations within the area. This project will determine the feasibility of a shared-use path and potential locations for widened shoulders and bikeways. Improvements to access transit stops through expanded shoulders, paths, and potential crossings of US 26 are also assessed. All proposed improvements were developed with the rural and scenic nature of The Villages at Mt. Hood, and variety of user types in mind.

Public Advisory Committee (PAC)

The PAC includes:

- neighborhood representatives
- local pedestrian and bicycle advocates
- local business owners
- community volunteers
- agency-based technical advisors

Technical Advisory Committee

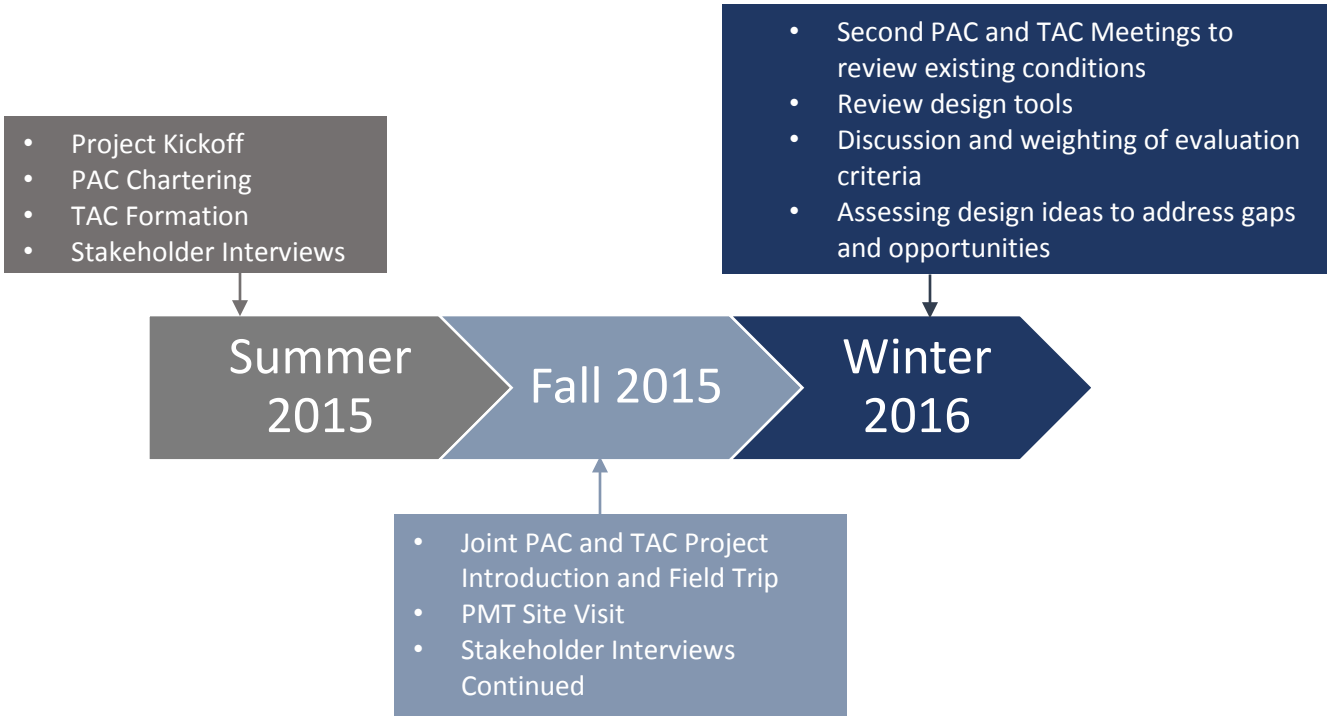
The TAC includes representatives from:

- Clackamas County Engineering and Planning Divisions
- US Forest Service
- Oregon Department of Transportation
- Mt Hood Express
- Clackamas County Tourism Department.

The memorandum provides a foundation for The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan project by cataloguing the potential alternative improvements for the area. This memorandum will inform decisions on potential solutions and opportunities to address needs and gaps in the existing network. Those proposed solutions will be evaluated through the projects' evaluation criteria and will undergo comment and discussion from the TAC, PAC, and the general public.

Potential improvements described within this memorandum were developed with the aim of being consistent with the rural character, anticipated level of use, and anticipated cost constraints for The Villages at Mt. Hood. Potential improvements are scaled to meet the needs within The Villages at Mt. Hood. This plan will ultimately implement project elements into the Mount Hood Community Plan and the Transportation System Plan which are both part of the Clackamas County Comprehensive Plan.

The process diagram below shows the process that led to the development of this memorandum, and potential improvements, including outreach to advisory committees and stakeholders.



Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

Early in the project development process, the project team developed an Existing Conditions Memorandum, Technical Memo 1, which identified key needs, opportunities and constraints within the project area. This report documented the variety of potential users who will benefit from improvements to the walking, bicycling, and transit facilities. Different groups of users will use the facilities to access various locations and can help to prioritize where projects can provide the most benefit.

Types of Transportation System Users

Residents: Low-income and zero-car households may have less access to auto travel and rely on transit, walking or riding a bicycle to meet their daily needs. Regardless of car ownership, residents have a desire to walk and bicycle safely within their own community for their daily needs. Important destinations for residents include food markets, schools, medical offices, and community centers or churches. Crossings and improvements along US 26 would be most heavily used by residents.

Transit Users: Mt. Hood Express and The Villages at Mt. Hood Shuttle serve both commuters and recreational users. Bus stops in The Villages at Mt. Hood lack access oriented toward pedestrians. Pedestrians and bicycle riders rely on roadway shoulders and desire paths on US 26 to access bus stops. Two bus stops (at Welches Road and E Salmon River Road) are located near crosswalks on US 26.

Lodging Users: Visitors staying at local area inns, resorts, and vacation rentals may drive up to The Villages at Mt. Hood, but prefer to walk or bicycle during their stay. Many guests like to park their vehicles and enjoy the scenery by walking to area restaurants, stores, or recreation attractions. These users may benefit from improved facilities and wayfinding that link lodgings and commercial areas.

School Children/ Older Adults: These groups of travelers are particularly vulnerable as they may have slower reflexes, use mobility devices and need more time to cross roadways. The Welches Elementary School, Middle School, area parks and the Hoodland Senior Center are common destinations for these users. Sidewalks, separated paths, and crossings would particularly benefit these user groups.

Recreational Users: Mt. Hood is a common destination for both road cyclists and mountain bikers. Many recreational users ride through The Villages at Mt. Hood while traveling recreational routes advertised by Travel Oregon, Clackamas County Tourism offices, and other local cycling groups. These users often prefer to ride roads away from US 26 to avoid heavy and fast-moving vehicles. Improvements to shoulders on roadways, particularly those designated by the Clackamas County Transportation Plan would improve the experience of this user group. Hood to Coast is a running event that goes through the area, and runners and hikers also have a preference for lower volume and speed roadways.

Project Objectives and Potential Improvements

The project has five overarching objectives that have guided the development of potential improvements. In many cases, a potential improvement meets more than one project objective.

- Improvements address bicycle and pedestrian needs
- Improves Access to Transit
- Provides Safe Routes to School
- Multi-use Path through the Project Area
- Potential US 26 Crossing Location

A table that lists all potential improvements and which project objectives they meet is in Appendix C.

Description of Potential Area Improvements for Pedestrians, Bicycle Riders, and Transit Users

The draft list of potential improvements will be presented at the first public workshop and subsequent TAC and PAC meetings. Comments will be incorporated from these meetings and a revised draft memorandum will be prepared. The revised list of potential area improvements will also incorporate feedback received from an online questionnaire. The Project Team will use the input to create a final set of recommended projects detailed in the draft Implementation Plan.

The potential area improvements are organized into three areas for ease and readability of maps: the Brightwood area (B1-B8), Welches/Wemme (W1-W13), and Zig Zag/Rhododendron (R1-R9).

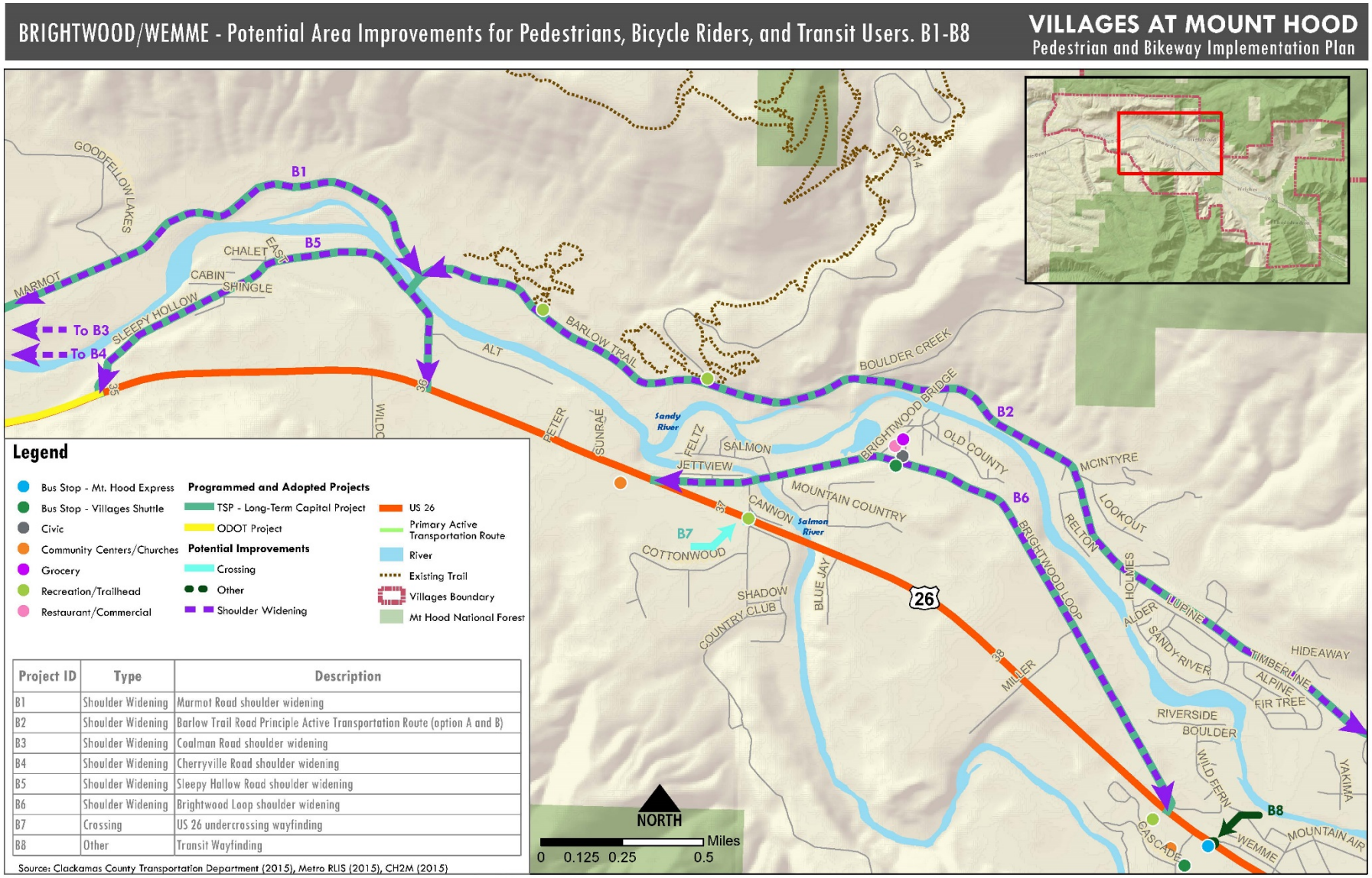
Potential area improvement descriptions include:

- an identification number (B1, W1, etc.)
- a description of the design solution
- any proposed project alternatives
- relevant constraints or opportunities
- future project development steps,
- evaluation against evaluation criteria results,
- any facilities considered and dismissed, and

- cost factor

Maps of potential improvements by area precede corresponding descriptions of each potential improvement.

Figure 1: Brightwood/Wemme Potential Area Improvements for Pedestrians, Bicycle riders, and Transit Users



Project ID	Type	Description
B1	Shoulder Widening	Marmot Road shoulder widening
B2	Shoulder Widening	Barlow Trail Road Principle Active Transportation Route (option A and B)
B3	Shoulder Widening	Coalman Road shoulder widening
B4	Shoulder Widening	Cherryville Road shoulder widening
B5	Shoulder Widening	Sleepy Hollow Road shoulder widening
B6	Shoulder Widening	Brightwood Loop shoulder widening
B7	Crossing	US 26 undercrossing wayfinding
B8	Other	Transit Wayfinding

Source: Clackamas County Transportation Department (2015), Metro RLIS (2015), CH2M (2015)

Brightwood Area (B1-B8)

Clackamas County has identified projects in their Transportation System Plan (CCTSP) that reflect many of the same priorities identified by the TAC and PAC. These include adding paved shoulders to Marmot Road, Barlow Trail Road, Coalman Road and Arrah Wanna Boulevard.

B1: Marmot Road shoulder widening

Potential Improvement Recommendation: Widen Marmot Road shoulder to 4' on each side from The Villages boundary to Barlow Trail Road.

Background

Marmot Road is classified as a Clackamas County Active Transportation Route but currently lacks a facility adequate for pedestrians or bicyclists. The existing cross section of Marmot Road is comprised of one 10-11' travel lane in each direction with a 0-1' wide shoulder that is lacking fog lines defining the shoulder.

Marmot Road needs a widened shoulder to provide an adequate facility for pedestrians and bicycles. Adding paved shoulders to Marmot Road is identified as project #3167 in the CCTSP as a Long term Capital Project. This project is also in accordance with the CCATP. Marmot Road is classified as a Minor Arterial. The standards in the CCTSP dictate that a typical section include a 6' bike lane and 6' pedestrian facility on each side of the street. Tight right-of-way constraints preclude this level of improvement.

Improvement Description

Feedback from the PAC and TAC contributed to a recommendation to add a 4' wide paved shoulder along each side of Marmot Road coupled with advisory signing to alert drivers to the presence of bicyclists and pedestrians along the route (Figure X.X).

Figure 2 Example of Shoulder Widening

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. It would benefit both residents and recreational users.

Considered and Not Recommended

Facilities that were considered but not recommended for Marmot Road include bike lanes, pedestrian paths and shared-use paths. Each of these facilities would require additional right-of-way and construction expense that is not justified by the level of use.

Evaluation

This potential improvement scored well in "supporting recreational opportunities" and "increasing physical health" areas, and lower in providing safe routes to school (SRTS) and access to transit areas. The potential improvement received an overall project score of 34/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$$ out of a potential $$$$.

B2: Barlow Trail Road Principle Active Transportation Route (Option A and B)

Background

Barlow Trail Road is classified as a Clackamas County Principle Active Transportation Route but currently lacks a facility adequate for pedestrians or bicyclists. The existing cross section of Barlow Trail Road is comprised of a single 11-12' travel lane in each direction with a total paved width, varying between 22-25' leaving little to no shoulder for pedestrian and bicycle use.

The preferred improvement to Barlow Trail Road would be a shared path facility to separate bikes and pedestrians from vehicular traffic. Adding paved shoulders to Barlow Trail Road is identified in the CCTSP as a Long term Capital Project (project #3166). This project is also in accordance with the CCATP. STRAVA data, voluntarily recorded by recreational riders tracking their riding performance, demonstrates Barlow Trail Road is one of the most popular bicycle routes in the area, and provides a parallel through route to US 26 (Appendix B). The Sandy Ridge mountain bike trail system is accessed by bicycle riders off of Barlow Trail Road.

It is unlikely that funding could be secured for a path facility; therefore, a widened shoulder to provide an adequate facility for pedestrians and bicycles is recommended. Barlow Trail Road is classified as a Minor Arterial which per the CCTSP is a typical section that includes a 6' bike lane and 6' pedestrian facility on each side of the street. Tight right-of-way constraints, trees and drainage ditches preclude this level of improvement.

Potential Improvement Option A: Widen Barlow Trail Road shoulder to 4' on each side from Sleepy Hollow Road to Lolo Pass Road.

Improvement Description

Feedback from the PAC and TAC contribute to a recommendation to add a 4' wide paved shoulder along each side of Barlow Trail Road coupled with advisory signing to alert drivers to the presence of bicyclists and pedestrians along the route.

Figure 3 Example of Bike Advisory Sign

Residential development is more predominant along Barlow Trail Road which would be served by improvements to this route. The addition of this facility would provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail.

As previously mentioned, Barlow Trail Road is classified as a Principle Active Transportation Route. In addition, bicycle tourism is being promoted along this route. These factors along with the greater residential development lead to the recommendation for the 4' widened shoulder and additional signage along the route. Some signage does exist on the road however additional signage is recommended due to the heavier anticipated usage of the route. Residents and recreational users would all benefit from these improvements.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$$$ out of a potential $$$$, largely due to the likelihood of acquiring right of way.

Potential Improvement Option B: Strategically Construct Widened Shoulders on Barlow Trail Road from Sleepy Hollow Road to Lolo Pass Road.

The preferred improvement to Barlow Trail Road of adding a 4' wide shoulder the entire length will be met with right-of-way constraints, cost constraints, and potential objections from residents along Barlow Trail Road. Option B is to construct widened shoulders strategically, in key areas to facilitate bicycle riding and walking.

Determining strategic, spot improvements require topographic survey to determine sight-distance limitations. Criteria for future projects to use to determine key locations at which a widened shoulder would best serve bicycle riders are:

- Areas where bicycle riders face a steep uphill section, which requires topographic survey and or as-built records
- Areas of limited sight-distance around a curve or up a hill

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$$ out of a potential $$$$.

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. It would benefit both residents and recreational users.

Considered and Not Recommended

Bike lanes, pedestrians and shared-use paths were each considered for this route. The tight right-of-way and construction expense were determining factors in eliminating these facilities from consideration. It is recommended that any proposed projects avoid impacts to the existing ditches running parallel to Barlow Trail Road as this would greatly increase construction costs.

Evaluation

This potential improvement scored well in "supporting recreational opportunities" and "increasing physical health," and "supporting economic development goals," due to the linkage to bicycle tourism and this route. The potential improvement received lower scores in SRTS and access to transit areas. The potential improvement received an overall project score of 45/100 points. Evaluation details are in Appendix A.

B3: Coalman Road Shoulder Widening

Potential Improvement Recommendation: Widen Coalman Road shoulder to 4' on each side from The Villages boundary to Baty Road.

Background

Coalman Road is classified as a collector according to the CCTSP. The existing facility has one travel lane in

Figure 4 Example of a wide shoulder for bicycle riders and pedestrians

each direction and is lacking a paved shoulder. Coalman Road is slightly outside the project boundary however it was included in the Existing Conditions Memorandum and adding paved shoulders to Coalman Road is included as project #3039 in the Long Term Capital Project list in the CCTSP. The CCTSP shows the typical section for a collector 6' bike lane and 6' pedestrian facility on each side of the street. The existing paved width of Coalman road is 22'. Tight right-of-way constraints, trees and drainage ditches preclude this level of improvement.

Improvement Description

This plan recommends adding a 4' wide paved shoulder along each side of Coalman Road. Due to its location outside the study area, this project should be considered a lower priority.

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. Improvements to this facility would primarily serve residents.

Evaluation

This potential improvement scored somewhat well in the area of "increasing physical health," and "reducing conflicts between modes," The potential improvement received an overall project score of 18.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

B4: Cherryville Road Shoulder Widening

Project Recommendation: Widen Cherryville Road shoulder to 4' on each side from The Villages boundary to US 26.

Background

Cherryville Road is classified as a collector according to the CCTSP. The existing facility has one travel lane in each direction and is lacking a paved shoulder. Improvements to Cherryville Road are not included in the CCTSP however improvements would provide connectivity from Coalman Road to US 26. Tight right-of-way, trees and drainage ditches are challenges for any level of improvement.

Improvement Description

A 4' wide paved shoulder along each side of Cherryville Road would be beneficial however the route is slightly outside the project boundary so should be considered a lower priority.

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Sandy Ridge Trail, Brightwood Post Office, Brightwood Store, Brightwood Tavern and The Villages at Mt. Hood Shuttle Stop. Improvements to this facility would primarily serve residents.

Evaluation

This potential improvement scored somewhat well in the area of "increasing physical health," and "reducing conflicts between modes," The potential improvement received an overall project score of 18.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

B5: Sleepy Hollow Road Shoulder Widening

Potential Improvement Recommendation: Widen Sleepy Hollow Road shoulder to 4' on each side from US 26 to US 26 (full extent).

Background

Sleepy Hollow Road is classified as a collector according to the CCTSP. The existing facility has one travel lane in each direction and is lacking a paved shoulder. Improvements to Cherryville Road are not included in the CCTSP however. Tight right-of-way constraints, trees and drainage ditches are challenges for any level of improvement.

Improvement Description

Traffic analysis did not support any improvements to Sleepy Hollow Road, based on vehicle traffic volumes being too low; however, feedback from the PAC and TAC contributed to a recommendation to add a 4' wide paved shoulder along each side of Sleepy Hollow Road.

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Brightwood Post Office, Brightwood Store, Brightwood Tavern. Improvements to this facility would primarily serve residents.

Evaluation

This potential improvement scored well in "supporting recreational opportunities" and "increasing physical health" areas, and lower in providing safe routes to school (SRTS) and access to transit areas. The potential improvement received an overall project score of 34/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

B6: Brightwood Loop Shoulder Widening

Potential Improvement Recommendation: Widen Brightwood Loop shoulder to 4' on each side from US 26 to US 26 (full extent).

Background

Brightwood Loop is classified as a collector according to the CCTSP. The existing facility has one travel lane in each direction and is lacking a paved shoulder. Improvements to Brightwood Loop is not included in the CCTSP, however the business cluster and transit stop are key destinations. The connection to Barlow Trail Road also elevates the need for improvements. Tight right-of-way constraints, trees and drainage ditches are challenges for any level of improvement.

Improvement Description

Traffic analysis did not support any improvements; however, feedback from the PAC and TAC contributed to a recommendation to add a 4' wide paved shoulder along each side of Brightwood Loop. Intersections improvements at the intersections along Brightwood Loop would provide access to the business cluster located on Brightwood Loop.

Benefits

The addition of this facility would provide pedestrian and bicycle access to key destinations including the Mt Hood Express bus stop, Brightwood Post Office, Brightwood Store and Brightwood Tavern. Residents and recreational users would all benefit from the recommended improvements.

Evaluation

This potential improvement scored well in the area of "increasing physical health," and "reducing conflicts between modes." The potential improvement received an overall project score of 34/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

Figure 5 The underpass is in good condition but not widely known by recreational riders or even residents in the area

B7: US 26 Undercrossing Wayfinding

Potential Improvement Recommendation: Provide wayfinding signage to direct bicycle riders and pedestrians to an existing undercrossing of US 26

Background

There is an existing undercrossing of US 26 at Salmon River that is vastly underused primarily due to the lack of knowledge of its existence.

Potential Improvement

Wayfinding to the undercrossing on Barlow Trail Road, US 26, and within the vicinity would help direct bicycle riders and pedestrians to the existing undercrossing of US 26, accessed via Country Club Road. Directing bicycle riders to the undercrossing would allow those eastbound on the south side of US 26 to cross grade-separated, and access Brightwood Loop and Barlow Trail Road. Signage at intersections along Brightwood Loop and Barlow Trail Road would provide wayfinding to key destinations.

Benefits

Figure 6 Entrance to the US 26 underpass for bicycle riders and pedestrians

Bicycle riders riding eastbound on US 26 and trying to cross US 26 to access Brightwood Loop or Barlow Trail Road, for a parallel through route or because they have a destination on those roads, would benefit from knowing about this undercrossing. Use of the undercrossing instead of crossing at-grade on US 26 has tremendous safety benefits and wayfinding signage has relatively low cost. Residents in the area would also benefit from the under crossing and could use it as a walking path. The improvement has potential to benefit bicycle riders and pedestrians, with recreational or access purposes.

Evaluation

This potential improvement scored well in the area of "increasing physical health," and "increasing recreational opportunities," and "minimizes environmental impacts," because it reinforces an existing facility. The potential improvement received an overall project score of 65/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

B8: Transit Park and Ride Wayfinding

Potential Improvement Recommendation: Provide wayfinding at Hoodland Senior Center Park and Ride

Background

No signage currently marks the transit stop and the park and ride location at the Hoodland Senior Center. This transit stop serves largely residents.

Improvement Description

The transit stop located at the Hoodland Senior Center would benefit from signage both along US 26 and on site to let people know it is there and direct them where to park. There is parking suitable for park and ride operations. The lot currently has underutilized RV parking, that if used would impede easy circulation for the bus. Removal of this RV parking is also recommended.

Benefits

The addition of this facility would benefit transit users in the area, who are primarily residents. Calling attention to the park and ride could attract riders traveling to the stop by car from a broader area.

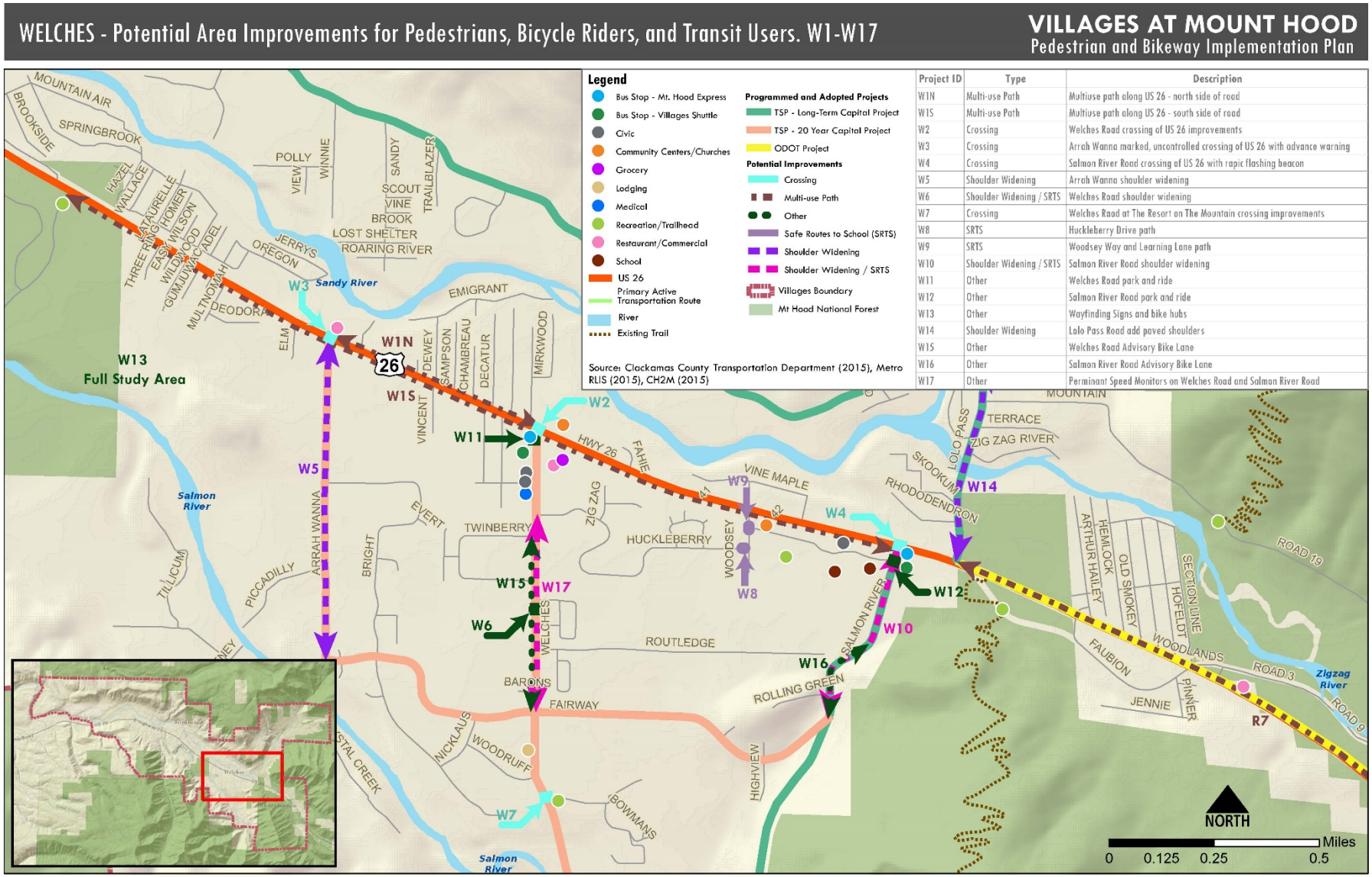
Evaluation

This potential improvement scored well in the area of "links to transit," and criteria related to implementation because it reinforces an existing facility. The project benefits transit riders arriving by car, and does not benefit bicycle and pedestrian access; therefore, it did not score well in related categories. The potential improvement received an overall project score of 31/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

Figure 7: Welches/Wemme Potential Area Improvements for Pedestrians, Bicycle riders, and Transit Users



Project ID	Type	Description
W1N	Multi-use Path	Multiuse path along US 26 - north side of road
W1S	Multi-use Path	Multiuse path along US 26 - south side of road
W2	Crossing	Welches Road crossing of US 26 improvements
W3	Crossing	Arrah Wanna marked, uncontrolled crossing of US 26 with advance warning
W4	Crossing	Salmon River Road crossing of US 26 with rapic flashing beacon
W5	Shoulder Widening	Arrah Wanna shoulder widening
W6	Shoulder Widening / SRTS	Welches Road shoulder widening
W7	Crossing	Welches Road at The Resort on The Mountain crossing improvements
W8	SRTS	Huckleberry Drive path
W9	SRTS	Woodsey Way and Learning Lane path
W10	Shoulder Widening / SRTS	Salmon River Road shoulder widening
W11	Other	Welches Road park and ride
W12	Other	Salmon River Road park and ride
W13	Other	Wayfinding Signs and bike hubs
W14	Shoulder Widening	Lolo Pass Road add paved shoulders
W15	Other	Welches Road Advisory Bike Lane
W16	Other	Salmon River Road Advisory Bike Lane
W17	Other	Permanent Speed Monitors on Welches Road and Salmon River Road

Welches (W1-W13)

W1S: Multiuse Path along US 26

Potential Improvement Recommendation: Construct a multiuse path along US 26, along the south side, between the Wildwood Recreation Site and Salmon River Road

Background

An existing dirt path parallels **US 26 along the south side** between Arrah Wanna and Salmon River Road, which has been worn by pedestrians. This area has the greatest concentration of destinations within the study area. Pedestrians regularly use the informal, dirt paths to access destinations. The existing condition is not up to standards and unpleasant for pedestrians because they are walking in marginal areas on uneven surfaces. Bike lanes on US 26 are provided for bicycle riders, but most riders find riding adjacent to high speeds and high traffic volumes intimidated and forgo riding their bicycle.

Improvement Description

The plan recommends the existing demand path be formalized to a shared-use path facility for bicycle riders and pedestrians. The preferred width for a shared-use path is 12' however 10' could be used as a minimum width where right-of-way constraints exist.

Figure 8 Example of a shared use path

A shared-use path facility in this location could be concrete, asphalt, or permeable pavement. Concrete is the most expensive option however it lasts longer and requires less maintenance. Permeable pavement does require maintenance twice a year (sweeping to remove debris and moss) however any concerns with water runoff and stormwater are greatly reduced due to the fact that water does not collect on or runoff the surface. This plan recommends use of permeable pavement, in light of concerns for stormwater runoff and to keep with the character of the area. Permeable pavement has been used for estimating purposes.

Although there are currently no plans to widen US 26, if improvements are made in the future, these pedestrian and bicycle improvements should be preserved. Likewise, during project development, the multiuse path should be located outside of potential future widening areas.

Benefits

The potential improvement would benefit residents, transit users, lodging users, recreational users, and any wheeled users who cannot navigate, uneven, dirt surfaces, such as wheelchair users and bicycle riders. Users would have better access to shopping, lodging, restaurants, and transit stops, the highest density of destinations in the study area.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "links to transit," "increases physical activity," and "keeps with the character of The Villages." The potential improvement received an overall project score of 89/100 points, the highest score received by any potential improvement. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

W1N: Multiuse Path along US 26

Potential Improvement Recommendation: Construct a multiuse path along US 26, the north side, between Arrah Wanna Road and Welches Road

An existing dirt path parallels **US 26 along the north side** between Arrah Wanna and Welches Road, worn by pedestrians accessing business clusters off US 26 in Wemme and Welches. Most destinations are on the south side of US 26, and this potential improvement would provide access to the crosswalk and signal at Welches Road. The existing worn path is not up to standards and unpleasant for pedestrians because they are walking in marginal areas on uneven surfaces. Bike lanes on US 26 are provided for bicycle riders, but most riders find riding adjacent to high speeds and high traffic volumes intimidated and forgo riding their bicycle.

Potential Improvement

This plan recommends that this demand path be formalized to a shared-use path facility for bicyclists and pedestrians. The preferred width for a shared-use path is 12' however 10' could be used as a minimum width where right-of-way constraints exist.

Similarly to the south side path, permeable pavement has been used for estimating purposes.

Although there are currently no plans to widen US 26, if improvements are made in the future, these pedestrian and bicycle improvements should be preserved. Likewise, during project development, the multiuse path should be located outside of potential future widening areas, which may require location outside of right-of-way.

Benefits

The potential improvement would benefit residents, transit users, lodging users, recreational users, and any wheeled users who cannot navigate, uneven, dirt surfaces, such as wheelchair users and bicycle riders. Users would have better access to shopping, lodging, restaurants, and transit stops, the highest density of destinations in the study area.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical activity," and "keeps with the character of The Villages." The proposed improvement is not on the same side of US 26 as schools; therefore, received lower SRTS related scores than the south side path. The potential improvement received an overall project score of 74/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

W2: Welches Road Crossing of US 26 Improvements

Potential Improvement Recommendation: Construct sidewalk and relocate pedestrian activation buttons to be ADA compliant at Welches Road Crossing of US 26

Background

There is an existing signal at the Welches Road intersection. The signal controls and intersection grading need improvements to meet current standards. The existing ramp facilities appear to be Americans with Disabilities Standards (ADA) compliant however it is recommended each corner should be surveyed.

Sidewalk needs to be constructed between the ramps located on the northwest and northeast corners of the intersection. Based on a visual inspection it appears that the pedestrian activation buttons need to be relocated in order to comply with current ADA. Pedestrian countdown controls should also be added to each corner.

The project team reviewed signal timing and used the crosswalks of the intersection. Neither demonstrated a need to adjust signal timing, and pedestrian crossing times are adequate.

Improvement Description

Construct sidewalk between ADA ramps located on the northwest and northeast corners of the intersection. Coupled with multi-use paths recommended above, this signal would become more safely and comfortably accessible by pedestrians and bicycle riders. Relocate pedestrian activation buttons and add pedestrian countdown controls to each corner. Topographically survey the existing ADA ramps to ensure their compliance with applicable standards.

Benefits

The addition of this facility would benefit residents, lodging users, transit users, and recreational users by enhancing the existing pedestrian access to key destinations at the intersection with US 26. Those in wheelchairs would benefit from compliance with ADA standards. The crossing enhancements would also improve connectivity to the recommended shared-use path paralleling US 26.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical activity," and "keeps with the character of The Villages." The potential improvement received an overall project score of 76/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W3: Arrah Wanna Crossing of US 26

Potential Improvement Recommendation: Create an uncontrolled crossing of US 26 at Arrah Wanna Road, with a continental style crosswalk

Background

A cluster of restaurants is located in the vicinity of Arrah Wanna Boulevard intersection with US 26. The number of restaurants and businesses at this location create pedestrian demand to cross at this location.

Improvement Description

This plan recommends a marked, uncontrolled crossing of US 26, using a continental crosswalk. Based on the traffic analysis of this section, pedestrian activated signalization of this crossing would not be recommended nor warranted. However, it would be appropriate to provide advisory signage on US 26 to alert drivers to the potential for pedestrians crossing the highway. Signs alerting pedestrians to use caution when crossing US 26 could also be considered.

Benefits

The addition of this facility would benefit residents, lodging users, and recreational users by providing a marked crosswalk to key destinations at the intersection with US 26. The crossing enhancements would also improve connectivity to the recommended shared-use path paralleling US 26.

Evaluation

This potential improvement scored well in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," and "increases physical activity." The potential improvement received an overall project score of 52.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W4: Salmon River Road Crossing of US 26

Potential Improvement Recommendation: Install a rectangular rapid flashing beacon at the Salmon River Road crossing of US 26

Figure 9: Example of a rectangular rapid flashing beacon

Background

There is an existing uncontrolled crossing of US 26 at Salmon River Road, marked by a faded continental style crosswalk. This crossing provides access to a Mt. Hood Express transit stop, schools and other destinations including access to the Lions Club. Transit riders regularly use this crosswalk to access transit stops. Although the school does not encourage students to cross US 26, there are numerous events at the school which increase the potential for vulnerable users to cross US 26 at this location.

Improvement Description

This project recommends a rectangular rapid flashing beacon be constructed at the Salmon River Road crossing of US 26. The proposed crossing improvements would benefit all types of users; residents, transit users, school children, older adults, and recreational users. The existing continental style crosswalk should be repainted because it is faded, reducing its visibility.

Considered but Not Recommended

A High-intensity Activated Crosswalk (HAWK) was considered for this intersection however pedestrian counts conducted for the traffic analysis showed that the pedestrian volumes did not justify this level of improvement.

Benefits

Rectangular Rapid Flashing Beacon

These signals are activated by users and turn on amber flashing lights that function as warning lights at signalized intersections or mid-block crossings. Traffic then yields to pedestrians.

A split rectangular rapid flashing beacon would have flashing signs alerting traffic of a pedestrian upstream and downstream of the crossing. This is useful in areas where sight distance at the crossing is difficult, such as the top of a hill.

The addition of this facility would benefit residents, lodging users, transit users, and recreational users by enhancing the existing marked crosswalk to residential areas, Welches Elementary and Middle Schools (as a community activity hub), and transit stops, at the intersection with US 26. The crossing enhancements would also improve connectivity to the recommended shared-use path paralleling US 26.

Evaluation

This potential improvement scored well in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "links to transit," and "slows traffic adjacent to Welches Elementary and Middle Schools." The potential improvement received an overall project score of 56/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W5: Arrah Wanna Shoulder Widening

Potential Improvement Recommendation: add a 4' wide paved shoulder along each side of Arrah Wanna Boulevard.

Background

Arrah Wanna Boulevard is classified as a collector according to the CCTSP. The existing facility has one travel lane in each direction and is lacking a paved shoulder with total roadway widths varying between 18-21'. Improvements to Arrah Wanna Boulevard are not included in the CCTSP; however, feedback from the PAC and TAC contributed to this project recommendation to add a paved shoulder along each side of Arrah Wanna Boulevard.

Improvement Description

This project recommendation is to add a 4' wide paved shoulder along each side of Arrah Wanna Boulevard.

Benefits

The addition of this facility would benefit residents, transit users, and recreational users by providing pedestrian and bicycle access to key destinations including the restaurant cluster located at the intersection with US 26. Pedestrian and bicycle facilities along Arrah Wanna Boulevard would also provide connectivity to the recommended shared-use path paralleling US 26 and recommended crossing improvement.

Evaluation

This potential improvement scored well in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," and "links to transit." The potential improvement received an overall project score of 52.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

W6: Welches Road Shoulder Widening and Multiuse Path

Potential Improvement Recommendation: Widen shoulders and/or develop a multi-use path on Welches Road, with a priority between Fairway Avenue and Huckleberry Drive, and extending to US 26

Background

The existing shoulder along **Welches Road** is narrow or nonexistent and pedestrians currently have to cross from side to side to find space to walk along the road. Options to provide pedestrian and bicycle access could be considered including a shared-use path, a widened shoulder or a combination of each. The CCTSP shows adding paved shoulders in the Long Term Capital Projects list (project #3056).

Welches Road is a key to providing Safe Routes to School and safe access to popular destinations. Many pedestrians use this roadway because of the density of residences and lodging along Welches, and the commercial cluster including the largest supermarket in the Villages, located at the intersection of Welches Road and US 26.

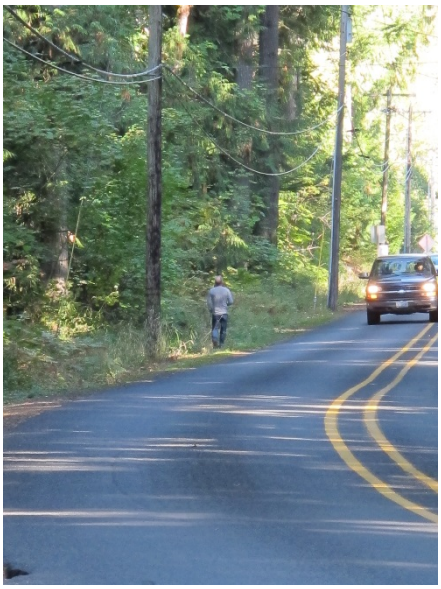


Figure 10: Existing Walking Conditions on Welches Road

Improvement Description

Options to provide pedestrian and bicycle access could be considered including a shared-use path, a widened shoulder or a combination of each. Project development process and topographical survey can help determine where a shared-use path or widened shoulder would provide the best accommodation. Greater separation is preferred. The key area for shoulder widening is Welches Road is between Fairway Avenue and Huckleberry Drive, particularly to provide Safe Routes to School. The widened shoulder should be expanded to US 26, connecting residents and visitors along Welches Road to destinations, such as shopping, on US 26.

The long-term vision for Welches Road is to have a multiuse path along at least one side if not both to provide separation between cars and pedestrians and bicycles.

Benefits

The potential improvement would benefit residents, transit users, lodging users, recreational users, school children, and any wheeled users who cannot navigate, ditches and uneven surfaces, such as wheelchair users. Users would have better access to shopping, lodging, restaurants, and transit stops at the US 26 intersection from the highest density of destinations residents and lodging in the study area, including The Resort on the Mountain.

Evaluation

This potential improvement scored very well overall, including in the areas of “addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations,” “links to transit,” “increases physical activity,” and “keeps with the character of The Villages.” The potential improvement received an overall project score of 83/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W7: Welches Road at The Resort at The Mountain Crossing Improvements

Potential Improvement Recommendation: Enhance existing crossing by adding advance warning signs and a split rapid flash beacon

Background

The Resort on Welches Road has constructed a painted crosswalk to provide connections between their lodging and the golf, spa and event facilities. Visitors, staff, and residents in the area frequently cross at the crosswalk. Although the crossing is in place, it is in an area of poor sight distance due to both horizontal and vertical curves in the road—the crossing is just north of a large hill.

Improvement Description

This project recommends improving the visibility of the existing crossing with the addition of advance warning signs and a split rapid flash beacon. A split rapid flash beacon would need to be placed on the horizontal curve (hill) south of the crossing to provide drivers with advance warning. Low level pedestrian lighting at the crossing could also be considered to provide increased visibility.

Benefits

Improvements to the existing crosswalk would benefit residents, school children, recreational users and lodging users and staff. Based on a site visit, this is one of the most used non-US 26, pedestrian crossing locations within the study area.

Evaluation

This potential improvement scored very well overall, including in the areas of "reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings," "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical activity," "supports recreational opportunities," and "supports economic development." The potential improvement received an overall project score of 75.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W8: Huckleberry Drive Path

Potential Improvement Recommendation: Construct path along Huckleberry Drive to connect Welches Road to Woodsey Way

Background

Huckleberry Drive provides the potential for direct access from Welches Road to the Welches Elementary and Middle Schools (via Woodsey Way and Learning Lane). Currently, a gap exists between Woodsey Way and Huckleberry Drive, where pedestrians, primarily school children, have worn a dirt path.

Improvement Description

Potential improvements on Huckleberry Drive include a path connecting Welches Road to Woodsey Way. The path would be a SRTS improvement providing access to the school away from US 26 and

ideally would be a minimum of 10' wide and constructed with permeable pavement. Ownership of right-of-way along is route is still in question.

Benefits

The location is amidst a fairly dense residential area and close to Welches Elementary and Middle Schools. The connection would primarily benefit residents and school children, and is already being informally used as an alternative to US 26.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical activity," and SRTS criteria. The potential improvement received an overall project score of 76.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W9: Woodsy Way and Learning Lane Path

Potential Improvement Recommendation: Construct path along Woodsey Way that connects to the existing sidewalk on Ceader Hill Terrace and add crossing enhancements

Background

Path improvements on **Woodsey Way** would provide a continuation of the proposed trail on Huckleberry Drive, and would connect to the existing sidewalk that exists between Cedar Hill Terrace and Woodsey Way. As the potential path continues on Woodsy Way, it would reach an intersection at Learning Lane. **Learning Lane** provides direct access to the schools and the ball fields located to the west of the school buildings; however, it is not a County owned facility so any improvements would need to be completed by the owner. Any potential path along Learning Lane should be located on the north side of the road to avoid conflicts with parking and access to the existing sports fields. A crossing of Learning Lane to the school facilities is best placed at the west end of the observed parking areas.

To make this route complete and safe for school children to use, a painted crosswalk with advance signing should be considered at the intersection of Huckleberry Drive and Welches Road as a SRTS improvement. A path along the west side of Welches Road between Rutledge and Twinberry with a painted crossing at Twinberry Loop would provide access to the school children in these developments.

Infrastructure that would support the implementation of this path is more secure bicycle parking at the schools. Bicycle parking at the school is dilapidated and should be replaced with staple bicycle racks.

Benefits

This project would benefit residents and primarily school children in one of the more dense residential areas of the study area. Crossing enhancements would improve the visibility of school children walking and bicycling, and would reduce conflicts amongst modes.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical

activity," and SRTS criteria. The potential improvement received an overall project score of 88/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W10: Salmon River Road Shoulder Widening

Potential Improvement Recommendation: Add paved shoulders or a path to Salmon River Road between US 26 and Fairway Ave.

Background

Salmon River Road is classified as a minor arterial and lacks pedestrian and bicycle facilities, particularly for school access. Both Welches Elementary and Middle School are located on Salmon River Road. Adding paved shoulders to Salmon River Road between US 26 and Welches Road is project #3052 in the CCTSP Long Range Capital Projects.

Improvement Description

Either a path or widened shoulder is recommended between US 26 and Fairway Avenue to provide optimal SRTS access.

Benefits

This project would benefit residents, transit riders, and primarily school children.

Evaluation

This potential improvement scored very well overall, including in the areas of "addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," "increases physical activity," and SRTS criteria. The potential improvement received an overall project score of 81.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $-$$ out of a potential $$$$, with shoulder widening being more costly.

W11: Welches Road Park and Ride

Potential Improvement Recommendation: Pave and formalize existing Welches Mt. Hood Transit Stop location to create a park and ride.

Background

The existing Mt. Hood Express transit stop is located in the southwest corner of the Welches Road/US 26 intersection. The stop is located in an empty lot, in need of repaving, which is owned by the Resort at the Mountain. This location could provide an ideal location for a park and ride facility. Signage along US 26 alerting recreational users to the presence of the stop could serve to provide better wayfinding.

Improvement Description

Pave the empty lot where the Mt. Hood Express Welches transit stop is currently. Formalize with delineated parking to create a park and ride and provide wayfinding signage to direct transit users.

Benefits

This project would benefit transit riders, residents, lodging users, and recreational users, by allowing them to drive and park to access transit.

Evaluation

This potential improvement scored well in the area of "links to transit." It is not a pedestrian or bicycle oriented project; therefore, it did not score well on the rest of the criteria, which favor pedestrian and bicycle projects. The potential improvement received an overall project score of 41/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W12: Salmon River Road Park and Ride

Potential Improvement Recommendation: Formalize Mt. Hood Express Salmon River Road stop with delineated parking and wayfinding for a park and ride

Background

A Mt. Hood Express stop is located along the east Side of Salmon River Road just south of US 26 and directly across from Welches Middle School. This stop is located on a County-owned parcel and also has ample space for a park and ride facility. The riders that utilize this stop are mostly commuters along with some recreational users.

Improvement Description

Formalize the Mt. Hood Express Salmon River Road stop with delineated parking and wayfinding to create a park and ride.

Benefits

This project would primarily benefit transit users, who in this area are commuters and some recreational users.

Evaluation

This potential improvement scored well in the area of "links to transit." It is not a pedestrian or bicycle oriented project; therefore, it did not score well on the rest of the criteria, which favor pedestrian and bicycle projects. The potential improvement received an overall project score of 41/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W13: Wayfinding Signs and Bike Hubs

Potential Improvement Recommendation: Enhance pedestrian and bicycle accessibility within the area with the strategic placement of wayfinding signage and bike hubs.

Figure 11: Example of a Bike Hub

Background

With the addition of the various pathways and widened shoulders, wayfinding signage is key to directing users to bicycle/pedestrian/SRTS routes, and pointing to key destinations within the area. Bike hubs would provide bicycle amenities in the area, such as secure, sheltered parking, a bench, basic bike tools, and other amenities that support bicycle riding. Wayfinding signs and bike hubs support economic development and tourism goals for the area.

Improvement Description

Wayfinding signs would ideally be located along US 26, Barlow Trail Road as well as at each intersection.

Signs providing direction to the transit stops within the corridor are also recommended.

Bike hubs at key locations along US 26 would better allow long-distance, bicycle riders to stop and patronize businesses. Potential locations for a bike hub within the Plan study area, include the plaza at the Hoodland Shopping Center, and a location in Rhododendron. Bike hubs could be located elsewhere throughout the US 26 corridor and bicycling destinations, such as the Sandy Ridge Trail System.

Bike Hubs would at a minimum have high-security, covered bike parking that could also be functional art. Other features could include a water fountain (as possible), loaner locks or built-in locks, seating, pump and simple bicycle repair tools, and wayfinding signage to destinations within the area. Bike hubs can be branded with a consistent look to aid wayfinding.

Benefits

Wayfinding signs and bike hubs would benefit residents, but primarily transit riders, recreational users, lodging users, and would support bicycle tourism and economic development goals for the area.

Evaluation

This potential improvement scored moderately overall, because it supports existing and potential infrastructure. It scored very well in the category of supporting economic development. The potential improvement received an overall project score of 34/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

W14: Lolo Pass Road Paved Shoulders

Potential Improvement Description: Widen shoulders to 4’ along Lolo Pass Road

Background

Although **Lolo Pass Road** does have an existing 1-2’ shoulder, it is classified as a minor arterial and needs improved pedestrian and bicycle facilities. Adding paved shoulders to Lolo Pass Road is project #3048 in the CCTSP and is also noted in the ATP.

A safety analysis is also included in the CCTSP. A **traffic signal warrant analysis** for the intersection with US 26 was completed as part of this study and it was determined that although a signal is warranted on US 26, it is not warranted on Lolo Pass Road. Per guidance in the Manual on Uniform Traffic Control Devices (MUTCD), and results from ODOT’s Preliminary Signal Warrant Analysis worksheet, a traffic signal warrant is not met. The warrant volumes must be met on both approaches to be considered for a controlled intersection.

Improvement Description

Widen existing 1-2’ shoulders to 4’ shoulders along Lolo Pass Road.

Benefits

This project would benefit residents in the area for their walking and bicycle riding needs, and recreational bicycle riders. STRAVA data, a tool primarily used by recreational bicycle riders, show that Lolo Pass Road is often used as a bicycle riding route.

Evaluation

This potential improvement scored well in the area of "increases physical activity." The potential improvement received an overall project score of 59/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $$ out of a potential $$$$.

W15: Welches Road Advisory Bike Lane

Potential Improvement: Provide Advisory Bike Lane in the sections with lower traffic and speeds

Background

The existing shoulder along **Welches Road** is narrow or nonexistent and bicyclists may ride in the travel lane, with no separation from cars. The CCTSP shows adding paved shoulders in the Long Term Capital Projects list (project #3056).

Welches Road is a key to providing Safe Routes to School and safe access to popular destinations. Many bicycle riders use this roadway because of the density of residences and lodging along Welches, and the commercial cluster including the largest supermarket in the Villages, located at the intersection of Welches Road and US 26.

Figure 12: Example of Advisory Bike Lanes

Improvement Description

Establish dashed, bike lanes, potentially 8' wide on both sides of the roadway. Have a single, potentially 16', auto traffic lane in the center of the roadway. An advisory bicycle lane is one into which motor vehicles may legally encroach. Therefore, the demarcation is a dashed line instead of solid. An advisory bike lane would be recommended in conjunction with a centerline removal. Advisory bike lanes are considered a safe alternative when a full, protected bike lane is infeasible. The single lane for car traffic, in other areas, has had the effect of slowing speeds.

Benefits

Long term accommodation of bicycle riders without a full bike lane, that could result in overall reduced motor vehicle speeds.

Evaluation

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of X out of a potential XX.

W16: Salmon River Road Advisory Bike Lane

Potential Improvement: Provide Advisory Bike Lane in the sections with lower traffic and speeds

Background

The existing shoulder along **Salmon River Road** is narrow or nonexistent and bicyclists may ride in the travel lane, with no separation from cars.

Welches Road is a key to providing Safe Routes to School and safe access to popular destinations. Many bicycle riders use this roadway because of the density of residences Salmon River Road, the presence of the two schools, and transit stops.

Improvement Description

Establish dashed, bike lanes, potentially 8' wide on both sides of the roadway. Have a single, potentially 16', auto traffic lane in the center of the roadway. An advisory bicycle lane is one into which motor vehicles may legally encroach. Therefore, the demarcation is a dashed line instead of solid. An advisory bike lane would be recommended in conjunction with a centerline removal. Advisory bike lanes are considered a safe alternative when a full, protected bike lane is infeasible. The single lane for car traffic, in other areas, has had the effect of slowing speeds.

Benefits

Long term accommodation of bicycle riders without a full bike lane, that could result in overall reduced motor vehicle speeds.

Evaluation

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of X out of a potential XX.

W17: Permanent Speed Monitors on Welches Road and Salmon River Road

Potential Improvement: Install permanent speed monitors

Background

Residents have described the presence of traffic with speeds above posted speed on both Welches Road and Salmon River Road. Permanent speed monitors would help with compliance of posted speed limits by making drivers aware of their travel speed.

Improvement Description

Active speed monitors are permanent devices to keep drivers aware of their speeds and the need to slow down, especially near schools. They are typically mounted on a speed limit sign and visually display drivers' real-time speeds as they pass. Drivers see how fast they are actually driving compared to the posted speed limit.

Benefits

Better speed limit compliance of motor vehicles.

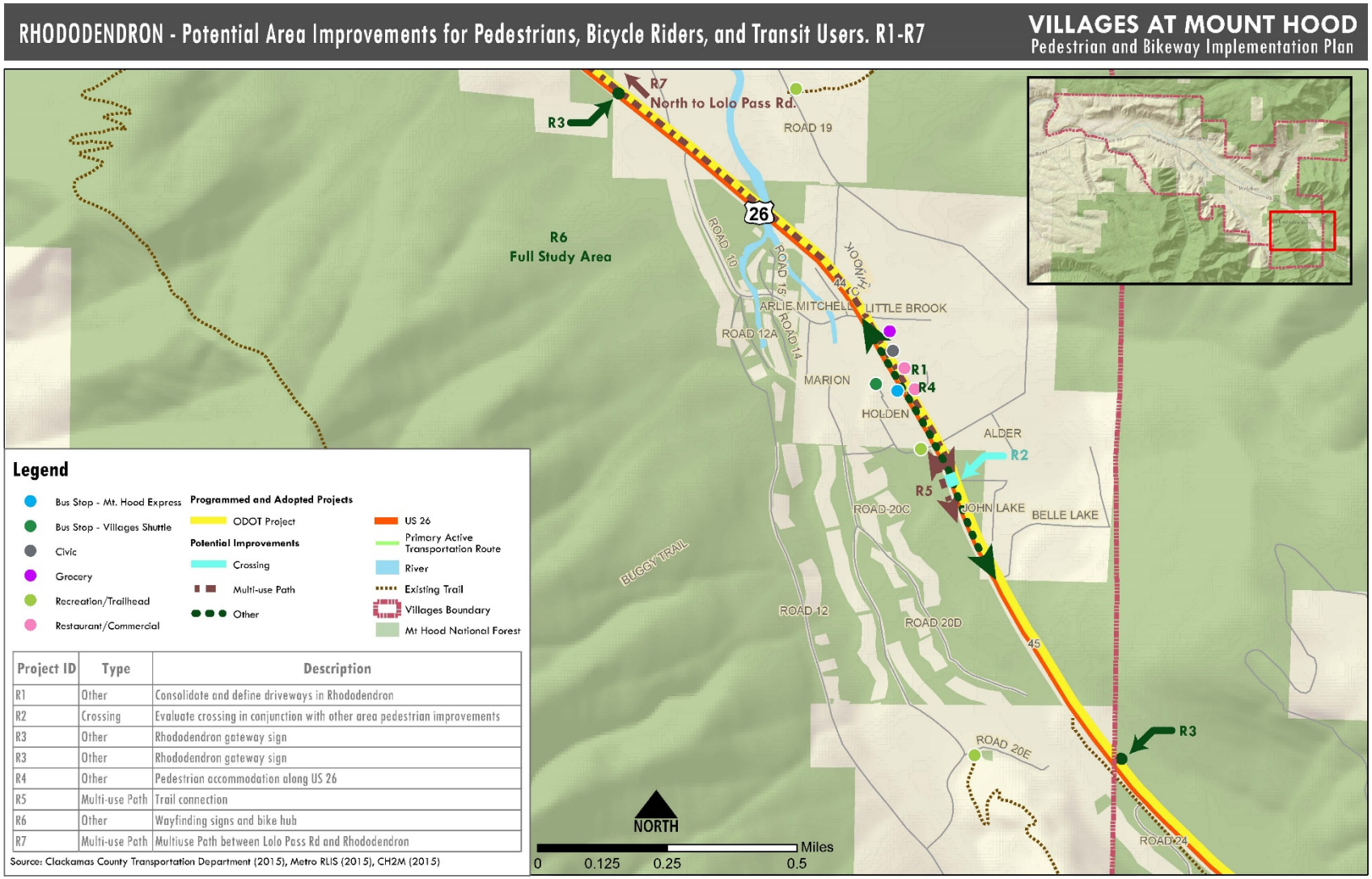
Evaluation

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of X out of a potential XX.

Zig Zag/ Rhododendron (R1-R7)

Figure 12: Zig Zag/Rhododendron Potential Area Improvements for Pedestrians, Bicycle riders, and Transit Users



Project ID	Type	Description
R1	Other	Consolidate and define driveways in Rhododendron
R2	Crossing	Evaluate crossing in conjunction with other area pedestrian improvements
R3	Other	Rhododendron gateway sign
R3	Other	Rhododendron gateway sign
R4	Other	Pedestrian accommodation along US 26
R5	Multi-use Path	Trail connection
R6	Other	Wayfinding signs and bike hub
R7	Multi-use Path	Multiuse Path between Lolo Pass Rd and Rhododendron

Source: Clackamas County Transportation Department (2015), Metro RLIS (2015), CH2M (2015)

Various destinations are located along both sides of **US 26** through Rhododendron, including restaurants, a market, and a bicycle and winter sport rental shop. The area currently has few defined access points, which allows vehicles to enter along much of US 26, and pedestrians cross US 26 at undefined points inconsistently. The lack of access management creates a challenging condition that will require a series of improvements to achieve a safe pedestrian and bicycle environment.

Within Rhododendron, this plan recommends a series of improvements to change the visual cues of the area to better indicate to drivers they are entering an area with active pedestrian and bicycle use. The series of improvements combined would begin to change visual cues. They are: 1) access management, 2) US 26 crossing improvement, 3) a gateway treatment to cue drivers that they are entering a developed area, and 4) a path with buffered landscape along US 26.

R1: Consolidate and Define Driveways in Rhododendron

Potential Improvement Recommendation: Consolidate and define driveways within Rhododendron through access management.

Background

The current condition, with no access management, allows vehicles to enter and leave the roadway at any location instead of only at intersections and driveways. Creating specific access points decreases

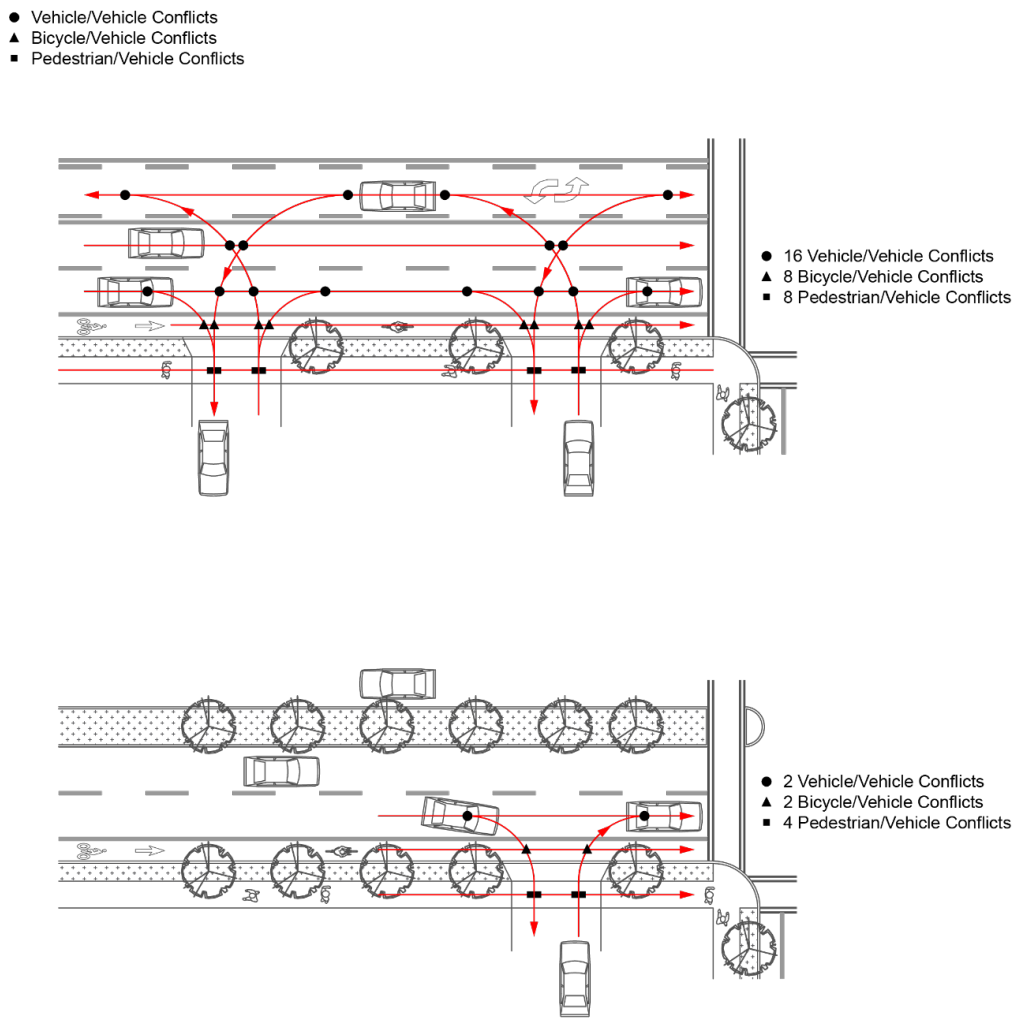


Figure 13: Reduction of conflict points due to access management

points of conflict between vehicles and pedestrians and bicyclists. Limiting access points on and off of US 26 would also create gaps in traffic and provide opportunities for pedestrians to cross US 26 at a desired location.

Improvement Description

Consolidate and define driveways within Rhododendron through access management, which would provide definition of driveways and intersections. The driveway(s) could be defined by breaks in a landscape buffer, by colored paved driveways, or by stamped concrete or pavers delineating the path across a driveway.

Land owners may be more open to negotiating access points with the County if the County used providing a path for pedestrians and bicycle riders in front of their parcel as an incentive. The path would enhance their property, while access management would enhance the transportation system.

Considered and Not Recommended

This improvement does not recommend the use of curbs to delineate driveways because it would require corresponding drainage to be installed and would decrease the feasibility of the improvement by increasing cost.

Benefits

This improvement has the potential to benefit pedestrians and drivers, by reducing the number of conflict points (Figure 13). This improvement would benefit residents, lodging users, recreational users, and transit riders.

Evaluation

This potential improvement scored well in the area of "reducing conflicts between modes." The potential improvement received an overall project score of 62.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Costing access management is difficult and would require some topographic survey and work with land owners to define access points. A detailed cost estimate was not developed; however, in order of magnitude this plan anticipates a cost factor of $ out of a potential $$$$.

R2 Crossing of US 26 in Rhododendron with Consideration of Future Rapid Flashing Beacons

Potential Improvement Recommendation: Install a marked, continental style crosswalk in Rhododendron on US 26 with consideration of a subsequent rapid flashing beacon to alert drivers

Background

Rhododendron has commercial uses on the north and south side of US 26, and during site visits pedestrians of many types, mothers with children, recreational users, transit riders, were observed crossing the street. Mt. Hood Express transit stops are on either side of US 26, and the service reports that transit riders often cross US 26 to access a market or food. A regional bus service stops at the Dairy Queen, allowing riders a half-hour to be in town. A crossing would help these riders as well.

Pedestrian crossing counts are amongst the highest here relative to the rest of the study area; however pedestrian counts and traffic analysis do not presently warrant rapid flashing beacons. Due to safety

concerns crossing US 26, pedestrians may forgo the crossing altogether; therefore existing pedestrian counts are a poor demonstration of pedestrian crossing demand.

Counts were also taken for a two hour period, in the summer, on a Friday evening, in anticipation of a "peak travel time." Given the non-urban, employment orientation of this area, the project team does not anticipate a typical "peak," travel time, and instead pedestrians crossing would be anticipated throughout the day, particularly in conjunction with transit frequency. A two-hour count is inadequate to anticipate pedestrian demand.

Improvement Description

ODOT's greatest concern when placing a crosswalk on US26 is safety. A crossing alone does not provide drivers with visual cues necessary for them to recognize the need to slow and watch for pedestrians.

For this reason, a crossing of US 26 in Rhododendron would need to be developed in conjunction with other changes to the streetscape of US 26 to change driver cues and alert them that they are entering an area with pedestrians.

To this end, a crossing would be evaluated with sidewalks, curb, and gutter, which formalize the pedestrian realm, provide opportunities for bulb outs to narrow the roadway width, managed access points, and a pedestrian refuge island for any crossing. Decorative illumination at a pedestrian scale, which is cast down to protect the night sky would also emphasize the presence of pedestrians.

This plan recommends a painted, continental style crosswalk on US 26 to be placed within Rhododendron. In the future, a rapid flashing beacon would be installed to further emphasize the presence of a crossing.

Benefits

Mt. Hood Express transit stops are also located in Rhododendron. The stop for eastbound riders is located on the south side of US 26 in a pull-off area onto a property leased by SkiBowl. The stop for westbound travels is located in the plaza parking lot across the street. There is a small sign for the eastbound stop but no signage exists for the westbound stop. A marked, continental style crosswalk would provide access across US 26 for users to access the transit stops on both sides.

Transit riders, residents, lodging users, and recreational users would all benefit from a marked crosswalk on US 26 in Rhododendron.

Evaluation

This potential improvement scored particularly well in the area of "Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations," and "links to transit." The potential improvement received an overall project score of 70.5/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

R3: Rhododendron Gateway Sign

Potential Improvement Recommendation: Install gateway signs in advance of Rhododendron in both the eastbound and westbound direction of US 26

Figure 14: Example of a gateway sign. A gateway sign can be themed to match the character of Rhododendron

Background

The posted speed along US 26 through Rhododendron is 40 mph however actual speeds exceed that. US 26 is a major east-west route and traffic calming mechanisms such as speed bumps are not feasible. Instead, this project recommends a gateway treatment leaving and entering Rhododendron to alert drivers that they are entering a developed area. A gateway treatment, along with pedestrian crossing signage and the access management improvements would all serve as a means to alert drivers and encourage them to slow down because they are entering a place with commercial uses and pedestrian and bicycle crossings.

Improvement Description

Install a gateway sign, similar to the gateway sign depicted in Figure 14, to provide drivers a visual cue and alert them that they are entering an area with commercial uses and pedestrian and bicycle crossings.

Benefits

Gateway signage has the effect of alerting drivers that they are entering a place. Currently, US 26 is enclosed with trees and forest both east and westbound on US 26 in advance of Rhododendron. It can seem like Rhododendron suddenly appears to drivers. The presence of a gateway sign could help slow traffic speeds. This would benefit transit riders, residents, and recreational users.

Evaluation

This potential improvement scored well in the area of “reducing conflicts between modes” and “supporting economic development goals.” The potential improvement received an overall project score of 39/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

R4: Pedestrian Accommodation along US 26 in Rhododendron

Potential Improvement Recommendation: Install curbs, sidewalk, and gutter along US 26 in Rhododendron

Background

No pedestrian facility presently exists within Rhododendron and the area has several commercial uses and transit stops that attract pedestrian use, which is not well accommodated.

Improvement Description

A pedestrian facility along US 26 through Rhododendron would provide access to the transit stops and the businesses along the highway. It would also cue drivers they are entering a location with increased pedestrian activity as well as facilitate access to the businesses along the highway.

For safety reasons, and drawing the attention of drivers to the presence of pedestrians, a crossing will be considered in conjunction with:

- Sidewalks, curbs, and gutter
- Pedestrian-oriented illumination
- Pedestrian refuge island
- Managed access points (driveways)

Benefits

Pedestrian sidewalk, curb and gutter provide visual cue to drivers that they are entering a place. With pedestrians. Sidewalks can be ADA accessible and compliant. Sidewalks provide an opportunity to construct bulb outs, which narrow the roadway width and further emphasize the presence of pedestrians.

Evaluation

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of X out of a potential XX.

R5: Bicycle Facility for Trail Connection

Potential Improvement Recommendation: Construct a bicycle facility (contraflow lane or multi-use path) to connect Pioneer Bridle Trailhead to Rhododendron, particularly Mt. Hood Express stop.

Background

Currently, mountain bikers descend down the Pioneer Bridle Trail toward the Mt. Hood Express Transit Stop. The Mt. Hood Express acts a shuttle for bicycle riders who loop between SkiBowl and Rhododendron. At the trails end, mountain bikers must either cross US 26 twice in a short distance, or ride the wrong way westbound on the US 26 shoulder to access the stop. No direct connection exists between the trailhead and the Mt. Hood Express transit stop.

Improvement Description

This project proposes a separated bicycle facility that would provide for contra-flow cyclists on the south side of US 26. With the existing condition, cyclists are riding westbound along the eastbound shoulder of US 26. Existing right of way does narrow from 90’ to 80’ as US 26 continues east out of Rhododendron however a path that provides room for two-way cyclists and pedestrians should be considered. This facility would primarily benefit recreational users. Since right-of-way appears to be limited in this area, the available width for this facility is likely to be constrained. A typical shared facility is preferred to be 12’ wide but it is unlikely there is space in this location. It may be worth considering a

Figure 15: Example of a contraflow bike lane that allows bicycle riders to ride in the opposite direction of vehicular traffic

separated 4’ lane for contraflow cyclists with eastbound cyclists and pedestrians sharing a 4’-5’ lane. An 8’ facility has been assuming for cost estimating purposes.

Benefits

This improvement would benefit recreational users, residents who wish to easily access the trail, and transit users who are also recreational users.

Evaluation

This potential improvement scored well in the area of “reducing conflicts between modes” and “Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations.” The potential improvement received an overall project score of 68/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

R6 Wayfinding Signs and Bike Hub

Potential Improvement Recommendation: Install wayfinding signs to highlight the presence of the Mt. Hood Express transit stops and a bicycle hub.

Background

As noted, transit stops are located on opposite sides of US 26. Clear signage is needed to alert riders to the location of the stops.

Businesses are located along both sides of US 26 and this is a primary area for bicyclists to be able to ride through and a take a break during their trip. A bike hub would encourage bicyclists to stop by providing a safe place to secure there bike and is recommended at this location. Wayfinding could aid visitors and recreational users navigate between Rhododendron services and recreational areas, such as trailheads.

Improvement Description

Install wayfinding signs to alert users to the presence of the Mt. Hood Express stops, and a bicycle hub to better accommodate recreational bicycle rider use in Rhododendron. Recreational bicycle rider use is significant in Rhododendron due to the proximity to mountain biking trails.

Benefits

This improvement would benefit recreational users, particularly bicycle riders, and transit users who are also often recreational users at this location.

Evaluation

This potential improvement scored well in the area of “supporting economic development goals.” The potential improvement received an overall project score of 34/100 points. Evaluation details are in Appendix A.

Cost Factor

Cost details are in Appendix D, and are provided in summary using a cost factor. This improvement receives a cost factor of $ out of a potential $$$$.

R7 Multiuse Path between Lolo Pass Road and Rhododendron

Potential Improvement Recommendation: Further evaluate the feasibility of a multiuse path/bike route between Lolo Pass Road and Rhododendron

Background

US 26 is the only route that provides a continuous connection through The Villages at Mt. Hood and to Government Camp. Presently, pedestrians and bicycle riders use US 26 to travel between Welches and Rhododendron, which can be uncomfortable to most pedestrians and bicycle riders due to the high volumes and high speed of traffic in adjacent lanes. A multiuse path offers

Improvement Description

Construct a multiuse path along US 26 right-of-way that connects Lolo Pass Road to Rhododendron.

Benefits

A multiuse path offers an opportunity for pedestrians and bicycle riders to travel with separation from vehicles between, Lolo Pass Road and the developed areas of Rhododendron.

Evaluation

Cost Factor

Appendices

Appendix A –Evaluation Criteria

Evaluation criteria reflect project goals and the values of stakeholders and the community. The criteria are set in advance of potential improvement development to guide the process. Both the PAC and TAC have provided endorsed the evaluation criteria, and provided feedback on criteria weighting. The tables in this section list the evaluation criteria and their weighting. A following set of tables provides the evaluation of potential improvements.

The evaluation framework is a tool that provides objective measures that help decision-makers understand how potential improvements would advance the goals and objectives of the project, serve the community, and their relative, potential impact including cost. The evaluation framework does not alone advance a potential improvements to the implementation plan and rank their priority. Instead the framework is used to help frame the discussion of relative benefits and impacts related to potential improvements.

Each evaluation criterion is not equal in importance. Therefore, the project team asked both the PAC and TAC to give feedback on which criteria were more important. Based on collective feedback, the project team weighted each criterion using a 100 point scale. The 100 points were divided among the five overall policy areas, and then further subdivided to each criterion.

If a potential improvement received a full circle (●), meaning it meets the objective of the criterion, it received full value of potential points for that criterion, while a half circle (◐) received half of the potential points for that criterion. An empty circle (○) received a value of zero. Individual scores were tabulated both by policy area and totaled for the project. Those projects near schools received greater points based on safe routes to school criteria. Those projects that reinforce existing infrastructure and are therefore, highly implementable, such as wayfinding signage, received higher scores. In this way, the evaluated potential improvements allow the project team and stakeholders to better understand relative differences.

Category Weight (Total = 100%)	DRAFT Policy Area	Criteria Weighting (Total = 100%)	DRAFT Evaluation Criteria	DRAFT Performance Evaluation	Draft Measure and Rating
30	**Improve safety for all modes, with emphasis on bicycle/pedestrian safety**	5	Reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings	Quantitative assessment based on potential to reduce the number of conflict points and/or number of difficult crossings compared to existing conditions	● Proposed project substantially reduces the number of conflict points ◖ Proposed project somewhat reduces the number of conflict points ○ Proposed project does not reduce the number of conflict points N/A Proposed project does not affect evaluation criteria
		15	Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations	Using a range of 1-3, assign each destination with a trip attraction/generation value. Assuming residential and lodging areas as origins; assess the number of destinations accessible with and without the project. Multiply the number of destinations accessible with the value of the trip generation/attraction potential. For instance, a school would generally have a higher trip generation value than some commercial uses.	● Proposed project substantially increases the number of destinations, qualified by their trip generation potential ◖ Proposed project somewhat increases the number of destinations, qualified by their trip generation potential ○ Proposed project does not increases the number of destinations, qualified by their trip generation potential N/A Proposed project does not affect evaluation criteria
		10	Reduce conflicts among all modes	Degree to which improvement provides physical separation between modes (including at intersections), and includes signage/markings to guide user behavior	● Proposed project provides substantial separation between modes ◖ Proposed project separates modes somewhat ○ Proposed project does not provide separation between modes N/A Proposed project does not affect evaluation criteria
20	**Support healthy and active communities**	4	Increase physical activity	Qualitative assessment of potential to increase physical activity (determined by completing network gaps, traffic levels, and user comfort)	● Proposed project substantially increases opportunity for physical activity ◖ Proposed project somewhat increases opportunity for physical activity ○ Proposed project does not increase opportunities for physical activity N/A Proposed project does not affect evaluation criteria
		8	Supports recreational opportunities in the area	Potential to support and reinforce recreational demands in the area by improving bicycling and walking conditions to recreational areas, such as parks and trailheads, and along recreational routes (quantify the increased number of recreational areas that can be accessed with the proposed improvement/system connection)	● Proposed project substantially increases the number of accessible recreational areas or substantially increases the bicycling and/or walking conditions to recreational areas ◖ Proposed project somewhat increases the number of accessible recreational areas or substantially increases the bicycling and/or walking conditions to recreational areas ○ Proposed project does not increase the number of accessible recreational areas or substantially increases the bicycling and/or walking conditions to recreational areas N/A Proposed project does not affect evaluation criteria
		8	Links to transit	Links bicycle/pedestrian facilities to transit stops within the study area	● Proposed project substantially increases the number of accessible transit stops or substantially increases the bicycling and/or walking conditions to transit stops ◖ Proposed project somewhat increases the number of accessible transit stops or substantially increases the bicycling and/or walking conditions to transit stops

					○ Proposed project does not increase the number of accessible transit stops or substantially increases the bicycling and/or walking conditions to transit stops N/A Proposed project does not affect evaluation criteria
20	**Provide safe routes to school**	5	Slows traffic adjacent to Welches Elementary and Middle School	Potential of improvement to reduce traffic speeds on streets within a quarter mile of Welches Elementary and Middle School	● Proposed project would calm traffic or substantially reduce speeds on streets within a quarter mile of schools ◖ Proposed project would somewhat calm traffic or substantially reduce speeds on streets within a quarter mile of schools ○ Proposed project does not calm traffic or substantially reduce speeds on streets within a quarter mile of schools N/A Proposed project does not affect evaluation criteria
		15	Provide safe opportunities for children to bicycle and walk to school safely	The number of school children and the potential for children to safely walk or bicycle to school.	● Proposed project substantially reduces the number of conflict points ◖ Proposed project somewhat reduces the number of conflict points ○ Proposed project does not reduce the number of conflict points N/A Proposed project does not affect evaluation criteria
20	**Provide benefits to residents, businesses, and visitors, while minimizing negative impacts**	4	Keeps with the character of The Villages at Mt. Hood with designs that are appropriate for a rural setting	Builds upon informal connections already in place, increases safety of existing bicycling and walking conditions with a level of intervention that matches demand in a rural setting. Formalizes existing demand paths with low buildout projects.	● Proposed project effectively meets need with a level of intervention that matches rural setting ◖ Proposed project somewhat meets need with a level of intervention that matches rural setting ○ Proposed project does not meets need with a level of intervention that matches rural setting N/A Proposed project does not affect evaluation criteria
		7	Supports economic development and tourism	Better allows residents and visitors to access restaurants, commercial services, and other destinations, such as recreational areas through walking, bicycling or transit use. Supports the bicycle tourism in the area.	● Proposed project substantially increases residents and visitor's access ◖ Proposed project somewhat increases residents and visitor's access ○ Proposed project does not increases residents and visitor's access N/A Proposed project does not affect evaluation criteria
		7	Minimizes delays to motor vehicle system	Seeks to increase pedestrian and bicycle safety and access, while minimizing delays to motor vehicle traffic. Traffic analysis underlies the measure and rating.	● Proposed project does not negatively affect vehicle traffic operations ◖ Proposed project somewhat negatively affects vehicle traffic operations ○ Proposed project substantially, negatively affects vehicle traffic operations N/A Proposed project does not affect evaluation criteria
		2	Minimizes impacts to environmental sensitive areas	Project minimizes direct impacts to environmentally sensitive areas and seeks to reduce or mitigates water runoff	● Proposed project does not negatively affect environmentally sensitive areas ◖ Proposed project somewhat negatively affects environmentally sensitive areas ○ Proposed project substantially, negatively affects

					environmentally sensitive areas N/A Proposed project does not affect evaluation criteria
10	**Create an implementable project plan**	5	Determine feasibility	Extent of right-of-way (ROW) purchases, natural barriers, ownership issues, interagency support required	● Proposed project would have to overcome substantial ROW purchase, naturally barriers, ownership issues, and/or require coordination with other agencies ◖ Proposed project would have to overcome some ROW purchase, naturally barriers, ownership issues, and/or require coordination with other agencies ○ Proposed project would have to overcome minimal ROW purchase, naturally barriers, ownership issues, and/or require coordination with other agencies N/A Proposed project does not affect evaluation criteria
		3	Determine capital cost	Proposed project aligns well with current or potential future funding and financing sources	● Proposed project aligns well with current or potential future funding and financing sources ◖ Proposed project somewhat aligns well with current or potential future funding and financing sources ○ Proposed project does not align with current or potential future funding and financing sources N/A Proposed project does not affect evaluation criteria
		2	Determine maintenance cost (ongoing and seasonal)	Proposed project aligns well with current or potential future funding and financing sources	● Proposed project aligns well with current or potential future funding and financing sources ◖ Proposed project somewhat aligns well with current or potential future funding and financing sources ○ Proposed project does not align with current or potential future funding and financing sources N/A Proposed project does not affect evaluation criteria

Category Weight (points)	DRAFT Policy Area	Criteria Weighting (points)	DRAFT Evaluation Criteria	B1: Marmot Road shoulder widening	B2: Barlow Trail Road Principle Active Transportation Route	B3:Coalman Road shoulder widening	B4:Cherryville Road shoulder widening	B5: Sleepy Hallow shoulder widening	B6: Brightwood Loop shoulder widening	B7: US 26 Undercrossing wayfinding	B8: Transit park and ride wayfinding
30	**Improve safety for all modes, with emphasis on bicycle/pedestrian safety**	5	Reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings	○	○	○	○	○	○	●	○
		15	Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations	○	◖	○	○	○	○	●	○
		10	Reduce conflicts among all modes	◖	◖	◖	◖	◖	◖	●	○
	Project subcategory score			5/30	12.5/30	5/30	5/30	5/30	5/30	30/30	0/30
20	**Support healthy and active communities**	4	Increase physical activity	●	●	◖	◖	●	●	●	○
		8	Supports recreational opportunities in the area	●	●	○	○	●	●	●	○
		8	Links to transit	○	○	○	○	○	○	○	●
	Project subcategory score			12/20	12/20	2/20	2/20	12/20	12/20	12/20	8/20
20	**Provide safe routes to school**	5	Slows traffic adjacent to Welches Elementary and Middle School	○	○	○	○	○	○	○	○
		15	Provide safe opportunities for children to bicycle and walk to school safely	○	○	○	○	○	○	○	○
	Project subcategory score			0/20	0/20	0/20	0/20	0/20	0/20	0/20	0/20
20	**Provide benefits to residents, businesses, and visitors, while minimizing negative impacts**	4	Keeps with the character of The Villages at Mt. Hood with designs that are appropriate for a rural setting	●	●	◖	◖	●	●	●	●
		7	Supports economic development and tourism	◖	●	○	○	◖	◖	◖	○
		7	Minimizes delays to motor vehicle system	◖	◖	◖	◖	◖	◖	◖	●
		2	Minimizes impacts to environmental sensitive areas	◖	◖	◖	◖	◖	◖	●	●
	Project subcategory score			12/20	15.5/20	6.5/20	6.5/20	12/20	12/20	13/20	13/20
10	**Create an implementable project plan**	5	Determine feasibility	◖	◖	◖	◖	◖	◖	●	●
		3	Determine capital cost	◖	◖	◖	◖	◖	◖	●	●
		2	Determine maintenance cost (ongoing and seasonal)	◖	◖	◖	◖	◖	◖	●	●
	Project subcategory score			5/10	5/10	5/10	5/10	5/10	5/10	10/10	10/10
	Total project score			34/100	45/100	18.5/100	18.5/100	34/100	34/100	65/100	31/100

Category Weight (points)	DRAFT Policy Area	Criteria Weighting (points)	DRAFT Evaluation Criteria	W1S: Multiuse path along US 26	W1N: Multiuse path along US 26	W2: Welches Road crossing of US 26	W4: Salmon River Road crossing of US 26	W5: Arrah Wanna crossing of US 26	W6: Welches Road shoulder widening	W7: Wleches road at The Resort crossing	W8: Huckleberry Drive path	W9: Woodsey Way/Learning Lane path	W10: Salmon River Road shoulder widening	W11: Welches Road park and ride
30	**Improve safety for all modes, with emphasis on bicycle/pedestrian safety**	5	Reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings	◖	◖	●	●	●	◖	●	◖	◖	◖	○
		15	Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations	●	●	●	●	●	●	●	●	●	●	○
		10	Reduce conflicts among all modes	●	●	●	◖	◖	●	●	●	●	●	●
	Project subcategory score			27.5/30	27.5/30	30/30	25/30	25/30	27.5/30	30/30	27.5/30	27.5/30	27.5/30	10/30
20	**Support healthy and active communities**	4	Increase physical activity	●	●	●	◖	●	●	●	●	●	●	○
		8	Supports recreational opportunities in the area	●	●	◖	○	◖	●	●	◖	◖	●	●
		8	Links to transit	●	●	●	●	○	●	◖	◖	◖	●	●
	Project subcategory score			20/20	20/20	16/20	10/20	8/20	20/20	16/20	12/20	12/20	20/20	16/20
20	**Provide safe routes to school**	5	Slows traffic adjacent to Welches Elementary and Middle School	○	○	○	●	○	○	○	○	●	●	○
		15	Provide safe opportunities for children to bicycle and walk to school safely	●	○	○	○	○	●	◖	●	●	●	○
	Project subcategory score			15/20	0/20	0/20	5/20	0/20	15/20	7.5/20	15/20	20/20	20/20	0/20
20	**Provide benefits to residents, businesses, and visitors, while minimizing negative impacts**	4	Keeps with the character of The Villages at Mt. Hood with designs that are appropriate for a rural setting	●	●	●	◖	◖	●	◖	●	●	●	◖
		7	Supports economic development and tourism	●	●	●	◖	●	●	●	○	○	◖	◖
		7	Minimizes delays to motor vehicle system	●	●	●	◖	◖	◖	●	●	●	●	◖
		2	Minimizes impacts to environmental sensitive areas	◖	◖	●	●	●	◖	◖	◖	◖	◖	◖
	Project subcategory score			19/20	19/20	20/20	11/20	14.5/20	15.5/20	17/20	12/20	12/20	15.5/20	10/20
10	**Create an implementable project plan**	5	Determine feasibility	●	●	●	◖	◖	◖	◖	●	●	◖	◖
		3	Determine capital cost	◖	◖	●	◖	◖	◖	◖	●	●	◖	◖
		2	Determine maintenance cost (ongoing and seasonal)	◖	◖	●	◖	◖	◖	◖	●	●	◖	◖
	Project subcategory score			7.5/10	7.5/10	10/10	5/10	5/10	5/10	5/10	10/10	10/10	5/10	5/10
	Total project score			89/100	74/100	76/100	56/100	52.5/100	83/100	75.5/100	76.5/100	81.5/100	88/100	41/100

Category Weight (points)	DRAFT Policy Area	Criteria Weighting (points)	DRAFT Evaluation Criteria	R1: Consolidate and define driveways in Rhododendron	R2: Crossing of US 26 in Rhododendron	R3: Rhododendron gateway sign	R4: Pedestrian path along US 26 in Rhododendron	R5: Bicycle facility for trail connection	R6: Wayfinding signs	R7: Multiuse path/paved bike route to Government Camp
30	**Improve safety for all modes, with emphasis on bicycle/pedestrian safety**	5	Reduce and/or avoid bicycle and pedestrian safety hazards at intersection crossings	●	●	◖	◖	◖	○	○
		15	Addresses critical bicycle and pedestrian gaps in the system, particularly access to major destinations	◖	●	○	●	●	◖	●
		10	Reduce conflicts among all modes	●	●	●	●	●	◖	●
	Project subcategory score			22.5/30	30/30	12.5/30	27.5/30	27.5/30	14.5/30	25/30
20	**Support healthy and active communities**	4	Increase physical activity	◖	●	○	●	●	◖	●
		8	Supports recreational opportunities in the area	●	●	◖	●	●	●	●
		8	Links to transit	●	●	◖	●	●	◖	○
	Project subcategory score			18/20	20/20	8/20	20/20	20/20	14/20	12/20
20	**Provide safe routes to school**	5	Slows traffic adjacent to Welches Elementary and Middle School	○	○	○	○	○	○	○
		15	Provide safe opportunities for children to bicycle and walk to school safely	○	○	○	○	○	○	○
	Project subcategory score			0/20	0/20	0/20	0/20	0/20	0/20	0/20
20	**Provide benefits to residents, businesses, and visitors, while minimizing negative impacts**	4	Keeps with the character of The Villages at Mt. Hood with designs that are appropriate for a rural setting	◖	●	◖	●	●	●	●
		7	Supports economic development and tourism	●	●	●	●	●	●	●
		7	Minimizes delays to motor vehicle system	●	◖	◖	◖	◖	◖	●
		2	Minimizes impacts to environmental sensitive areas	◖	◖	◖	◖	◖	◖	◖
	Project subcategory score			17/20	15.5/20	13.5/20	15.5/20	15.5/20	15.5/20	19/20
10	**Create an implementable project plan**	5	Determine feasibility	◖	◖	◖	◖	◖	●	◖
		3	Determine capital cost	◖	◖	◖	◖	◖	●	○
		2	Determine maintenance cost (ongoing and seasonal)	◖	◖	◖	◖	◖	●	◖
	Project subcategory score			5/10	5/10	5/10	5/10	5/10	10/10	3.5/10
	Total project score			62.5/100	70.5/100	39/100	68/100	68/100	34/100	59.5/100

Table X.X: Potential Improvements Evaluated against Weighted Evaluation Criteria: Zig Zag/Rhododendron

Appendix B – Traffic Analysis

Traffic analysis helps evaluate and inform the proposal of specific design solutions, their impact to other modes, particularly vehicular traffic, and in some cases, may provide justification of a particular solution.

1. Potential and recommended US 26 pedestrian crossings location(s) considering both at-grade and grade separated facilities including traffic analysis. (3.1.4A)
    a. Collect and review County and Agency traffic data (crash data , traffic volumes, aerials)
    b. Observations from potential ped crossing locations of current conditions
    c. Documentation of location and distances between crossing opportunities
    d. Measure sight distance at crossing at E Salmon River road, as well as the other potential crossing locations

2. Conduct traffic analysis for the following potential crossing improvement locations (include information about NCHRP crossing evaluations – worksheets in appendix) (3.1.4B)
    a. crosswalk at US 26 and E Salmon River Road

    b. in commercial area of Rhododendron

    c. Intersection of US 26 and Arrah Wanna

3. Discussion of why consultants did not analyze and are not recommending signalized crossings (3.1.4.C) or HAWKS

4. US/ Lolo Pass Road intersection traffic signal warrant analysis from MUTCD guidance

    a. crash history of the last 5 years of data at this intersection

    b. turning movement counts; and

    c. an operational analysis using MUTCD

Appendix C – Cost Estimate Details

CH2M HILL - ORDER OF MAGNITUDE ESTIMATE
Villages at Mt. Hood

PROJECT: Brightood	PREPARED BY: Sharon Daleo		DATE: 2/23/2016
DESIGN LEVEL: Conceptual			
KIND OF WORK: Path, Bike Lanes, Widened Shoulders	LENGTH (MILE):		SHEET: 1 of 1

NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	COST FACTOR
B1	Marmot Road - 3' shoulder widening	Mile	10	$85,000.00	$850,000	$$$
B2A	Barlow Trail Road - Option A	Mile	14	$105,000.00	$1,470,000	$$$$
B2B	Barlow Trail - Option B	Mile	7	$105,000.00	$735,000	$$$
B5	Sleepy Hollow Road	Mile	1.5	$85,000.00	$127,500	$$
B3	Coalman Road - 3' Shoulder widening	Mile	5	$85,000.00	$425,000	$$
B4	Cherryville Road - 3' shoulder widenir	Mile	5	$85,000.00	$425,000	$$
B6	Brightwood Loop - 3' shoulder wideni	Mile	4.4	$85,000.00	$374,000	$$
B7	Wayfinding	Each	6	$500.00	$3,000	$
B8	Transit Wayfinding	Each	6	$500.00	$3,000	$
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
	SUBTOTAL					*$0*

CH2M HILL - ORDER OF MAGNITUDE ESTIMATE
Villages at Mt. Hood

PROJECT: Brightood	PREPARED BY: Sharon Daleo		DATE: 2/23/2016
DESIGN LEVEL: Conceptual			
KIND OF WORK: Path, Bike Lanes, Widened Shoulders	LENGTH (MILE):		SHEET: 1 of 1

NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	COST FACTOR
B1	Marmot Road - 3' shoulder widening	Mile	10	$85,000.00	$850,000	$$$
B2A	Barlow Trail Road - Option A	Mile	14	$105,000.00	$1,470,000	$$$$
B2B	Barlow Trail - Option B	Mile	7	$105,000.00	$735,000	$$$
B5	Sleepy Hollow Road	Mile	1.5	$85,000.00	$127,500	$$
B3	Coalman Road - 3' Shoulder widening	Mile	5	$85,000.00	$425,000	$$
B4	Cherryville Road - 3' shoulder widenir	Mile	5	$85,000.00	$425,000	$$
B6	Brightwood Loop - 3' shoulder wideni	Mile	4.4	$85,000.00	$374,000	$$
B7	Wayfinding	Each	6	$500.00	$3,000	$
B8	Transit Wayfinding	Each	6	$500.00	$3,000	$
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
	SUBTOTAL					*$0*

CH2M HILL - ORDER OF MAGNITUDE ESTIMATE
Villages at Mt. Hood

PROJECT:	Zig Zag/Rhododendron		PREPARED BY:			DATE:
DESIGN LEVEL:	Conceptual		Sharon Daleo			2/23/2016
KIND OF WORK:	Path, Bike Lanes, Widened Shoulders		LENGTH (MILE):			SHEET: 1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	COST FACTOR
R4	Shared Use Path - Asphalt	Mile	0.3	$190,000.00	$57,000	$
R2	Painted Crossing	EA	1	$500.00	$500	$
R6	Signs	EA	2	$500.00	$1,000	$
R4	Pedestrian Path-Pervious		0.3	$125,000.00	$37,500	$
R4A	Landscape Buffer		0.3	$115,000.00	$34,500	$
R6	Wayfinding Signs and Bike Hub					$
R3	Gateway Sign	Each	2.0	$500.00	$1,000	$
R1	Access Control				$0	
R5	8' wide shared facility		0.3	$150,000.00	$45,000	$
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	
					$0	$0
						$0
	SUBTOTAL					***$0***

Appendix D – Tables of Potential Improvements and Project Objectives

Brightwood Area Potential Improvements and Project Objectives.

Brightwood Area Potential Improvements	Improvements address bicycle and pedestrian needs	Improves Access to Transit	Provides Safe Routes to School	Multi-use Path	Potential US 26 Crossing Location
B1: Marmot Road shoulder widening	✓				
B2: Barlow Trail Road Principle Active Transportation Route	✓				
B3:Coalman Road shoulder widening	✓				
B4: Cherryville Road shoulder widening	✓				
B5: Sleepy Hollow shoulder widening	✓				
B6: Brightwood Loop shoulder widening	✓				
B7: US 26 Undercrossing wayfinding	✓				✓
B8: Transit park and ride wayfinding	✓	✓			

Welches/Wemme Area Potential Improvements and Project Objectives.

Welches/Wemme Area Potential Improvements	Improvements address bicycle and pedestrian needs	Improves Access to Transit	Provides Safe Routes to School	Multi-use Path	Potential US 26 Crossing Location
W1S: Multiuse path along US 26	✓	✓		✓	
W1N: Multiuse path along US 26	✓	✓		✓	
W2: Welches Road crossing of US 26 Improvements	✓	✓			✓
W3: Arrah Wanna crossing of US 26	✓	✓	✓		✓
W4: Salmon River Road crossing of US 26	✓	✓	✓		✓
W5: Arrah Wanna shoulder widening	✓				
W6: Welches Road shoulder widening	✓	✓	✓		
W7: Welches Road at The Resort on The Mountain crossing improvements	✓		✓		
W8: Huckleberry Drive path	✓		✓		
W9: Woodsey Way and Learning Lane path	✓	✓	✓		
W10: Salmon River Road shoulder	✓	✓	✓		

widening					
W11: Welches Road park and ride	✓	✓	✓		
W12: Salmon River Road park and ride	✓	✓	✓		
W13: Wayfinding signs and bike hubs	✓	✓		✓	
W14: Lolo Pass Road paved shoulders	✓				

Zig Zag/Rhododendron Area Potential Improvements and Project Objectives

Zig Zag/Rhododendron Potential Improvements	Improvements address bicycle and pedestrian needs	Improves Access to Transit	Provides Safe Routes to School	Multi-use Path	Potential US 26 Crossing Location
R1: Consolidate and define driveways in Rhododendron	✓				
R2: Crossing of US 26 in Rhododendron with rapid flashing beacons	✓	✓			✓
R3: Rhododendron gateway sign	✓				
R4: Pedestrian path along US 26 in Rhododendron	✓	✓			
R5: Bicycle facility for trail connection	✓	✓			
R6: Wayfinding signs	✓	✓			
R7: Multiuse path/paved bike route to Government Camp	✓			✓	

Appendix D – Needs, Opportunities and Constraints memo

DRAFT

Appendix A

Traffic Analysis

DRAFT

WALK & BIKE
THE VILLAGES AT MT. HOOD

The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

Technical Memo #5 – Appendix A

Traffic Analysis

April, 2016

ch2m

Traffic Analysis

Traffic analysis helps evaluate and inform the proposal of specific design solutions, their impact to other modes, particularly vehicular traffic, and in some cases, may provide justification of a particular solution.

This memorandum summarizes existing traffic operations at the ten study intersections within the Villages at Mt. Hood project area, and identifies any deficiencies based on vehicle delay, crash history, and roadway geometrics. This analysis reports the volume-to-capacity (v/c) ratio, level of service (LOS), and average delay time at each of the study intersections for existing (2016) conditions.

Study Area

The transportation study area is located in northeast Clackamas County. It generally extends along US 26 between milepost 34 and milepost 46. The study area includes parallel roadways to the north of US 26 (Barlow Trail Road and Brightwood Loop Road) as well as roadways that intersect US 26 providing access to local areas (Arrah Wanna Boulevard, Welches Road, Salmon River Road, and Lolo Pass Road).

Seven of the ten study intersections included in this analysis are located on US 26. The remaining three intersections are located on local roadways. The study intersections are as follows:

1. US 26 at Brightwood Loop
2. US 26 at Camino Rio Road
3. US 26 at Arrah Wanna Boulevard
4. US 26 at Welches Road
5. US 26 at Salmon River Road
6. US 26 at Lolo Pass Road
7. US 26 at Arlie Mitchell Road
8. E Barlow Trail Road at Marmot Road
9. E Barlow Trail Road at Lolo Pass Road
10. Fairway Ave at Welches Road

The intersection at US 26 at Welches Road is controlled by a traffic signal. This traffic signal is maintained by the Oregon Department of Transportation (ODOT), and facilitates both vehicle traffic and pedestrians. The remaining study intersections are stop-controlled, meaning one or more roadway approaches are controlled by a stop-sign.

Streets

US 26 provides access between the Portland metropolitan area and the Mt. Hood recreational area. Through the study area, it is a 4- to 5-lane paved roadway that is designated as a State National Highway System (NHS) highway in the 1999 Oregon Highway Plan (OHP). This roadway, which is functionally classified as a principal arterial, allows bicycles in both directions of travel. The primary function of US 26 is to provide mobility; therefore, access to this roadway can be limited and speed limits are usually at least 45 miles per hour (mph). Through the study area, US 26 also provides local access for shorter trips between the Brightwood, Wemme/Welches, and Zig Zag/Rhododendron areas. The speed limit through Rhododendron is posted at 40 mph.

Barlow Trail Road, Salmon River Road, Welches Road, and Lolo Pass Road within the study area are paved, 2-lane (one lane in each direction) roadways classified as major collectors. Collector streets provide connections between local roads and arterials, usually have more access locations, and operate at moderate speeds.

Traffic Volumes

Turning movement volumes at the study intersections were collected during a 2-hour PM period (4:00 PM to 6:00 PM) on Friday, July 17, 2015. This peak period was selected to capture typical end-of-day commuter traffic as well as early weekend trips destined to the Mt. Hood recreational area.

Volumes were collected in 15-minute intervals. Peak-hour volumes at each of the intersections were used in the traffic analysis. Peak-hour factors and heavy vehicle percentages were applied by intersection approach. The existing balanced turning movement volumes and intersection lane channelization are presented in Figure 1. The raw count data are provided in Attachment A.

Average daily traffic volumes on US 26 within the study area have shown a general trend of contraction since 2010, based on the most recent volumes available from ODOT. In 2014, US 26 carried approximately 20,000 vehicle trips (in both directions) per day near the intersection with Sleepy Hollow Drive. At the east junction of Brightwood Loop, nearly 16,000 vehicle trips per day were recorded on US 26. Further east, traffic volumes dropped slightly to approximately 11,600 daily trips through Rhododendron.

Mobility Targets

The 1999 OHP (amended in December 2011) designates mobility standards expressed as v/c ratios based on facility classification, area type, and speed zones for roadways intersecting state highways. The study intersections are outside of an Urban Growth Boundary in unincorporated communities. The OHP designates US 26 within the study areas as a statewide (NHS) freight route. It is also categorized as outside the jurisdiction of a metropolitan planning organization (non-MPO), with a speed limit of 45 mph west of Rhododendron and speed limit of 40 mph through Rhododendron. According to Table 6 of the OHP, the mobility standard threshold for intersections on US 26 is 0.70.

The remaining study area streets are categorized as district or local interest roadways by the OHP, which indicates the mobility threshold at the intersections on Barlow Trail Road and on Welches Road is a v/c ratio of 0.80. Mobility standard thresholds by facility type for study intersections are listed in Table 1.

TABLE 1
Oregon Highway Plan Mobility Standards—Existing Conditions
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

	Outside Urban Growth Boundary, Unincorporated Communities	
Street	**Classification Categories**	**Mobility Standard (v/c ratio)**
US 26	Freight Route on a Statewide Highway	0.70
Barlow Trail Road, Lolo Pass Road, Welches Road	District/Local Interest Road	0.80

Source: 1999 Oregon Highway Plan, Table 6, amended December 2011.

In addition to v/c ratios, traffic operations are described by levels of service (LOS) and delay per vehicle in seconds. Within the study area there is no existing LOS standard, but it is reported to describe driver perception and comfort. The LOS can generally be described by six grades which categorize operating conditions at an intersection based on the average vehicle delay time in seconds. LOS classifications are given a letter designation from LOS A to LOS F. LOS A generally represents ideal operating conditions with little to no delay and where movements are not influenced by other vehicles on the roadway. LOS F typically represents poor operating conditions, including high delays and extreme congestion. Table 2

shows the LOS categories in reference to average delay time criteria for both stop-controlled and signalized intersections.

TABLE 2
Level of Service Categories
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

	Vehicle Delay (seconds)	
Level of Service Grade	**Signalized Intersections**	**Stop-Controlled Intersections**
LOS A	≤10	≤10
LOS B	> 10 and ≤ 20	> 10 and ≤ 15
LOS C	> 20 and ≤ 35	> 15 and ≤ 25
LOS D	> 35 and ≤ 55	> 25 and ≤ 35
LOS E	> 55 and ≤ 80	> 35 and ≤ 50
LOS F	> 80	> 50

Source: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

Existing Traffic Operations

Intersection operations were analyzed using SYNCHRO software version 8. This software tool, based on the methodology adopted in the *Highway Capacity Manual 2000* (Transportation Research Board, 2005), analyzes stop-controlled intersections as well as intersections controlled by signals. The analysis tool computes the LOS and v/c ratios necessary to determine whether the intersection meets the applicable mobility standards from the OHP as presented in Table 1.

At the signal-controlled intersection, the v/c ratio, LOS, and delay reported considered driver perceptions and were based on overall operations. At stop-controlled intersections, the v/c ratio was reported for the worst approach and movement direction, while the LOS and delay were reported for the worst minor movement only. Table 3 summarizes the existing operational results. Signalized study intersections that resulted in overall v/c ratios that were worse than the OHP mobility standard were considered failing. Stop-controlled intersections were considered failing if the worst-performing stop-controlled approach was worse than the OHP-designated mobility standard. Existing conditions SYNCHRO model output reports are provided in Attachment B.

The results of the existing operational analyses show that the v/c ratio at each of the study intersections meets the designated OHP mobility target. In most cases, the v/c ratio is well below the target value, indicating that the vehicle capacity provided sufficiently accommodates the existing traffic demand.

TABLE 3
Existing Conditions (2016)—Intersection Analysis Summary
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

Intersection			Worst Approach[a]				
No.	**Major/Minor Approach**	**Control**	**Volume-to-Capacity Ratio**	**Direction**	**OHP Conditions Mobility Target**	**Level of Service[b]**	**Delay (sec)[b]**
1	US 26/Brightwood Loop	TWSC	0.49	SB	0.70	E	39.6
2	US 26/Camino Rio Road	TWSC	0.19	NB	0.70	C	23.1
3	US 26/Arrah Wanna	TWSC	0.17	NB	0.70	C	18.5

TABLE 3
Existing Conditions (2016)—Intersection Analysis Summary
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

Intersection			Worst Approach[a]				
No.	Major/Minor Approach	Control	Volume-to-Capacity Ratio	Direction	OHP Conditions Mobility Target	Level of Service[b]	Delay (sec)[b]
	Boulevard						
4	US 26/Welches Road	Signal	0.63	-	0.70	B	18.6
5	US 26/Salmon River Road	TWSC	0.16	NB	0.70	B	14.6
6	US 26/Lolo Pass Road	TWSC	0.56	SB	0.70	E	39.0
7	US 26/Arlie Mitchell Road	TWSC	0.07	WB	0.70	B	12.3
8	Barlow Trail Road/Marmot Road	TWSC	0.04	EB	0.80	A	9.3
9	Lolo Pass Road/Barlow Trail Road	TWSC	0.04	EB	0.80	A	9.3
10	Welches Road/Fairway Avenue	TWSC	0.14	EB	0.80	B	11.5

TWSC: Two-way stop controlled intersection

[a] Volume-to-capacity ratio is reported for worst approach (stop-controlled intersections) or for overall operations (signal-controlled intersections).

[b] LOS and delay are reported for worst approach (stop-controlled intersections) or for overall operations (signal-controlled intersections).

Existing Safety Conditions

This safety analysis provides an assessment of vehicular crash[1] history in the study area between 2010 and 2014. Crash history statistics, which were provided by the ODOT Crash Analysis Unit for this time period, are the most recent 5 years available at the time of this study.

A total of 99 crashes were recorded on US 26 within the study area between January 1, 2010 and December 31, 2014. Approximately half of the crashes involved property damage only while the other half resulted in personal injuries. Two fatality crashes were recorded on US 26; one incident involved a vehicle striking a fixed object, the other involved a vehicle striking a pedestrian. The pedestrian fatality incident occurred on November, 11, 2010 on a clear evening at dusk at milepost 39.65, which is directly adjacent to the Hoodland Senior Center and Mt. Hood RV Park. It involved two individuals; the pedestrian crossing US 26 was killed while the other individual driving a vehicle westbound was not injured.

One bicycle-related crash and three pedestrian-related crashes occurred on US 26 resulting in personal injury. The pedestrian injury crashes each involved a single pedestrian, crossing US 26 between intersections, colliding with a single vehicle traveling on the highway.

One injury crash involving two bicyclists and one motorist occurred on August, 5, 2011 under cloudy, dry, daylight conditions near milepost 37.06. The crash occurred when a northbound vehicle (approaching from a driveway) turned left towards westbound US 26 and failed to yield the right-of-way

[1] Legally reportable motor vehicle traffic crashes are those that involve death, bodily injury, or damage to personal property in excess of $1,500.

to two bicyclists heading eastbound on US 26. Both bicyclists were reported to have non-incapacitating injuries.

A total of 43 crashes occurred on other roadways within the study area. While the majority of local road crashes resulted in injuries or property damage only, two fatality incidents occurred within the past 5 years. At milepost 2.09 on Barlow Trail Road, a fatality occurred when a vehicle struck a fixed object in snowy conditions. On E. Welches Road at the intersection with E. Twinberry Loop, a fatality incident occurred when two vehicles collided (one traveling north-south on E. Welches Road, the other turning to or from E. Twinberry Loop) in dark, wet conditions. Table 4 summarizes the number of crashes, by severity, along the study area roadway segments.

TABLE 4
Historical Crash Statistics, by Severity, 2009-2013
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

No.	Roadway (Between Mileposts)	PDO	Injury	Fatality	Total Number of Crashes
1	E Arrah Wanna Blvd (MP 0 to 0.89)	0	1	0	1
2	E Barlow Trail Rd (MP 0 to 6.74)	4	11	1	16
3	E Brightwood Loop Rd (MP 0 to 2.13)	2	4	0	6
4	E Fairway Ave (MP 0 to 0.59) West of E Welches Rd	0	1	0	1
5	E Fairway Ave (MP 0 to 0.77) East of E Welches Rd	0	0	0	0
6	E Lolo Pass Rd (MP 0 to 4.0)	2	3	0	5
7	E Salmon River Rd (MP 0 to 2.02)	1	1	0	2
8	E Sleepy Hollow Dr (MP 0 to 1.49)	2	0	0	2
9	E Welches Rd (MP 0 to 2.45)	6	3	1	10
10	SE Marmot Rd (MP 5.74 to 11.22)	0	0	0	0
11	US Route 26 (MP 39.0 to 41.01)	47	50	2	99
	TOTAL	**64**	**74**	**4**	**142**

Source: Crash Analysis and Reporting Unit, ODOT.

Table 5 summarizes crashes on study area roadways by crash type. The most common type of crash recorded involved a vehicle colliding with a fixed object. A total of 58 collisions (nearly 41 percent of crashes within the past 5 years) involved at least one vehicle striking a fixed object within the study area. Crashes involving turning vehicles, and vehicles sideswiping another vehicle, were the next most common type of collision with approximately 20 recorded incidents for each type. Detailed crash statistics are presented in Attachment C.

TABLE 5
Historical Crash Statistics, by Crash Type, 2009-2013
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

No.	Roadway (Between Mileposts)	Angle	Fixed Object	Rear End	Side-swipe	Turning	Ped/ Bike	Other	Total
1	E Arrah Wanna Blvd (MP 0 to 0.89)	0	1	0	0	0	0	0	1
2	E Barlow Trail Rd (MP 0 to 6.74)	0	12	0	0	4	0	0	16
3	E Brightwood Loop Rd (MP 0 to 2.13)	0	3	0	2	0	0	1	6
4	E Fairway Ave (MP 0 to 0.59) West of E Welches Rd	0	0	0	0	1	0	0	1
5	E Fairway Ave (MP 0 to 0.77) East of E Welches Rd	0	0	0	0	0	0	0	0
6	E Lolo Pass Rd (MP 0 to 4.0)	0	3	0	1	1	0	0	5
7	E Salmon River Rd (MP 0 to 2.02)	0	1	0	0	1	0	0	2
8	E Sleepy Hollow Dr (MP 0 to 1.49)	0	1	0	1	0	0	0	2
9	E Welches Rd (MP 0 to 2.45)	1	3	1	1	4	0	0	10
10	SE Marmot Rd (MP 5.74 to 11.22)	0	0	0	0	0	0	0	0
11	US Route 26 (MP 39.0 to 41.01)	8	34	5	13	9	5	25	99
	TOTAL	**9**	**58**	**6**	**18**	**20**	**5**	**26**	**142**

Source: Crash Analysis and Reporting Unit, ODOT.

Existing Pedestrian and Bicycle Conditions

There are no sidewalks along either side of US 26 through the study area, and few opportunities to cross US 26 in a marked facility are provided. At the intersection of US 26 and Welches Road, a traffic signal facilitates pedestrians in marked crosswalks on all approaches of the intersection. At the intersection of US 26 and Salmon River Road, a marked crosswalk is provided across the east approach of US 26, but no warning lights or overhead pedestrian signals are provided. The distance between these two crossing locations is approximately 0.90 miles. There are no other designated crossings of US 26 within the study area.

At the Salmon River Road crosswalk, the existing sight distance for approaching vehicles is adequate. Based on the location of the crosswalk along this straight stretch of US 26, both directions of travel have adequate stopping sight distance to react to pedestrians in the crosswalk.

Guidance in *A Policy on Geometric Design of Highways and Streets, 6th Edition* (American Association of State Highway and Transportation Officials (AASHTO), 2011) indicates that for a level roadway facility with a design speed of 50 mph (typically posted as speed limit of 45 mph), the minimum appropriate stopping sight distance is 425 feet. Using aerial mapping, a clear line of sight exists for at least 425 feet in both directions of US 26 from the crosswalk, indicating that drivers operating vehicles within the speed limit should have adequate reaction time to observe the crosswalk, decelerate, and stop prior to the crosswalk.

Table 6 summarizes the stopping sight distance, assuming level roadways, for various highway design speeds.

TABLE 6
Vehicle Stopping Sight Distance
Villages at Mount Hood, Bicycle and Pedestrian Implementation Plan

Design Speed (mph)	Posted Speed (mph)	Stopping Sight Distance (feet)
40	35	305
45	40	360
50	45	425
55	50	495

Source: A Policy on Geometric Design of Highways and Streets, 6th Edition (AASHTO, 2011).

Paved shoulders are provided on US 26 in both directions, but designated bicycle lanes are not marked along the roadway. Existing pedestrian and bicycle counts were taken during the same time period as vehicle turning movement counts. Figure 2 presents the existing PM peak hour pedestrian activity at the study area intersections. Figure 3 summarizes existing bicycle activity during the PM peak hour.

Traffic Analysis for Potential Area Improvements

Within the study area, three distinct areas were evaluated for potential improvements for non-motorized and transit users. The three areas include the Brightwood area, the Welches/Wemme area, and the Zig Zag/Rhododendron area. This section describes changes to traffic operations with the potential improvements. Traffic operations were analyzed in SYNCHRO. Model output reports and worksheets described below are provided in Attachment D.

Brightwood Area

No changes to traffic control or vehicle circulation are proposed within the Brightwood area.

Potential improvements to roadways within this area include widened, paved shoulders on minor arterials such as Marmot Road and Barlow Trail Road. While this improvement is not likely to change existing vehicle operations, paved shoulders would provide greater separation between motorized vehicles and non-motorized users thereby potentially improving the comfort level of pedestrians and bicyclists.

Welches/Wemme Area

Improvements to comply with current Americans with Disabilities Standards (ADA) are proposed at the existing crossing of US 26 at Welches Road. While these potential improvements would not affect vehicular traffic circulation or operations, they could increase visibility of the pedestrian environment and make the crossing more comfortable for non-motorized users.

A marked, uncontrolled crossing of US 26 is a potential improvement at the Arrah Wanna Boulevard intersection. This crossing would serve the businesses and restaurants on both sides of US 26.

- Based on guidelines in the National Cooperative Highway Research Program (NCHRP) Report 562 *Improving Pedestrian Safety at Unsignalized Crossings* (Transportation Research Board, 2006), the type of pedestrian crossing treatment should take into account the speed of the roadway being crossed, the number of pedestrians crossing, and the number of vehicles conflicting with pedestrians. Using Worksheet #2, which evaluates peak-hour pedestrian volumes on roadways with a posted speed limit of 35 mph or greater, the potential crossing at Arrah Wanna Boulevard does not meet the minimum number of pedestrians (14 per peak hour) to warrant further investigation into a traffic control device (such as a traffic signal or

pedestrian-activated signal). An uncontrolled, marked crosswalk with advisory signage is appropriate at this location.

- The stopping sight distance is adequate for vehicles approaching a potential marked crosswalk at this location. Per the AASHTO data in Table 6, the minimum appropriate stopping sight distance is 425 feet for a level roadway facility with a design speed of 50 mph (typically posted as speed limit of 45 mph). Aerial mapping indicates that a clear line of sight exists for at least 425 feet in both directions of US 26 from the intersection of Arrah Wanna Boulevard. Drivers operating vehicles within the speed limit should have adequate reaction time to observe the crosswalk, decelerate, and stop prior to the crosswalk.
- The approximate distance across US 26 at this potential crosswalk location is roughly 75 feet. Based on a conservative walking speed of 3.1 feet/second, the crossing time for pedestrians would be roughly 25 seconds. With a crosswalk, eastbound and westbound traffic on US 26 would need to stop for at least 25 seconds to yield to pedestrians. This would interrupt traffic flow on US 26, but would not cause adverse impacts to v/c ratios, vehicle queuing, or vehicle delay. Eastbound and westbound traffic during the peak hour would operate at v/c ratios below the mobility threshold of 0.70, and the average delay per vehicle would be approximately 12 or 13 seconds, on average. Queue lengths (95th percentile) on US 26 would be 250 feet or less during the PM peak hour.

At the intersection of US 26 and Salmon River Road, a rectangular rapid flashing beacon is a potential improvement to the existing marked, uncontrolled crosswalk.

- Using Worksheet #2 of the NCHRP Report 562, the existing crossing at Salmon River Road does not warrant further investigation into a traffic control device (such as a traffic signal or pedestrian-activated signal). Fewer than 14 pedestrians were observed at the crosswalk during the PM peak hour. It is likely that the pedestrian peak hour occurs closer to midday or at the end of the school day. Because this location provides access to the transit stop and schools, improvements to increase the visibility of pedestrians crossing US 26 should be considered.
- As described above, the stopping sight distance is adequate for vehicles approaching this existing marked crosswalk at this location.
- The approximate distance across US 26 at this potential crosswalk location is roughly 75 feet. Based on a conservative walking speed of 3.1 feet/second, the crossing time for pedestrians would be roughly 25 seconds. With a crosswalk, eastbound and westbound traffic on US 26 would need to stop for at least 25 seconds to yield to pedestrians. This would interrupt traffic flow on US 26, but would not cause adverse impacts to v/c ratios, vehicle queuing, or vehicle delay. Eastbound and westbound traffic during the peak hour would operate at v/c ratios below the mobility threshold of 0.70, and the average delay per vehicle would be approximately 12 or 13 seconds, on average. Queue lengths (95th percentile) on US 26 would be 250 feet or less during the PM peak hour.

Zig Zag/Rhododendron Area

Within the Rhododendron area, a marked, uncontrolled crossing of US 26 is a potential improvement towards safer pedestrian and bicycle access. Although a specific location for the crossing has not been identified, the traffic analysis suggests that vehicle delay and operations would not be adversely affected by a crosswalk.

- Based on data collected during the PM peak hour, six pedestrians were observed crossing US 26 within Rhododendron. Based on Worksheet #2 of the NCHRP Report 562, a potential crossing in this vicinity does not meet the minimum number of pedestrians (14 per peak hour) to warrant

further investigation into a traffic control device (such as a traffic signal or pedestrian-activated signal). An uncontrolled, marked crosswalk with advisory signage is appropriate at this location.

- The stopping sight distance is adequate for vehicles approaching a potential marked crosswalk in this area. Although the posted speed limit is 40 mph, vehicles have been observed to regularly travel over the speed limit. Therefore, a design speed of 55 mph was assumed for this location. Per AASHTO, the minimum appropriate stopping sight distance is 495 feet for a level roadway facility with a design speed of 55 mph. Aerial mapping indicates that a clear line of sight exists for at least 495 feet in both directions of US 26 through Rhododendron. Drivers operating vehicles at 50 mph should have adequate reaction time to observe the crosswalk, decelerate, and stop prior to the crosswalk. Based on the slight curvature of US 26 north of Rhododendron, a potential crosswalk south of the Arlie Mitchell Road intersection would likely provide optimal, unobstructed sight distance lines.
- The approximate distance across US 26 through Rhododendron is roughly 70 feet. Based on a conservative walking speed of 3.1 feet/second, the crossing time for pedestrians would be roughly 23 seconds. With a crosswalk, eastbound and westbound traffic on US 26 would need to stop for at least 23 seconds to yield to pedestrians. This would interrupt traffic flow on US 26, but would not cause adverse impacts to v/c ratios, vehicle queuing, or vehicle delay. Eastbound and westbound traffic during the peak hour would operate at v/c ratios below the mobility threshold of 0.70, and the average delay per vehicle would be approximately 10 seconds, on average. Queue lengths (95th percentile) on US 26 would be 200 feet or less during the PM peak hour.

At the intersection of US 26 and Lolo Pass Road, a peak-hour signal warrant analysis was performed (using ODOT's Preliminary Traffic Signal Warrant worksheet) to assess whether current traffic volumes on US 26 and Lolo Pass Road merit investigation into additional traffic control.

The intersection is currently stop-controlled on the minor approaches; the southbound approach consists of a single shared-turn lane on Lolo Pass Road and the northbound approach consists of a single shared-turn lane out of the business driveway. While the v/c ratios on each approach are below the 0.70 mobility threshold, the average delay is approximately 40 seconds per vehicle on Lolo Pass Road (LOS E) and approximately 60 seconds per vehicle exiting the private driveway (LOS F).

Assuming that the peak hour volumes shown in Figure 1 are approximately 8 to 10 percent of the average daily traffic volumes entering this intersection, the traffic volumes on the major street (US 26) approaches meet the minimum warrant volume for a two-lane roadway. The traffic volumes on the higher-volume minor street (Lolo Pass Road) do not meet the minimum warrant volume for a single lane road. The minimum volume on both the major and minor approaches need to be met in order for the preliminary signal warrant to be met and the intersection considered for signalized traffic control. The preliminary signal warrant analysis is provided in Attachment E.

TR0509161111SAC

EXHIBIT LIST
ZDO-260;
Villages at Mt. Hood Pedestrian & Bikeway Implementation Plan

Ex. No.	*Date Received*	*Author or source*	*Subject & Date of document*
1	10/10/2016	Staff	10/10/16; Public/DLCD/newspaper notices
2	9/10/2016	Michelle Lamoreaux, resident & Rhododendron CPO board member	7/10/16 letter; Supports Plan, specifically addresses planned improvements in Rhododendron
3	11/3/2016	Barlow Trail Association	11/1/16 letter; Disagrees with the prioritization of projects, suggests different projects be considered the highest priority
4			
5			
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* Exhibits received during hearing

CLACKAMAS COUNTY

MIKE MCCALLISTER
PLANNING AND ZONING DIRECTOR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD OREGON CITY, OR 97045

MEMORANDUM

TO: Community Planning Organizations, Hamlets, Villages and Other Interested Parties
FROM: Lori Mastrantonio, Senior Planner
DATE: October 10, 2016
SUBJECT: ***File ZDO-260***; Proposed Comprehensive Plan (Chapters 5 and10) amendments: *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan*

Clackamas County is proposing amendments to the Clackamas County Comprehensive Plan (Plan). Because this amendment may affect your community or area of interest, we want to give you and your organization the opportunity to review and comment on the proposed changes before or at public hearings scheduled in front of the Planning Commission on November 14, 2016 and in front of the Board of County Commissioners on December 7, 2016.

Planning File #ZDO-260 would amend the Comprehensive Plan by adding the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* to Appendix B and updating Table 5-3a: 20-Year Capital Projects, Table 5-3b: Preferred Projects, Table 5-3c: Long Term Capital Projects, Table 5-3d: Regional Capital Projects, and Map 5-11b: Capital Improvement Plan East County. Planning File #ZDO-260 would also amend Chapter 10 of the Comprehensive Plan by updating the Mount Hood Community Plan. You are encouraged to review the draft *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* document and the associated draft Comprehensive Plan amendments, posted at http://www.clackamas.us/planning/zdoproposed.html.

In fall of 2014, Clackamas County received a Transportation and Growth Management (TGM) grant from the Oregon Department of Transportation (ODOT) to prepare a plan focusing on pedestrian and bicycle needs in the Villages at Mt. Hood. Construction of the recommended improvements described in the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* will provide safe, active transportation connections in the communities of Brightwood, Welches/Wemme, Zig Zag and Rhododendron. The main objectives of the plan include the following:

- Identify bicycle and pedestrian needs within the Villages at Mt. Hood

- Develop a Safe Routes to School Plan for Welches Elementary and Middle School
- Identify potential locations for and the feasibility of pedestrian crossings along US 26
- Evaluate the feasibility and location of a multi-use path in the area

The current pedestrian and bicycle network within the Villages at Mt. Hood is poorly connected. People walk on shoulders that disappear into ditches or are poorly lit. Many use dirt footpaths worn along roads over time. Community members indicated that safe paths, crossings and connections to transit were high priority projects.

The *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* includes recommended pedestrian and bikeway improvements within the Villages. Some of the major improvement projects include:

- Multi-use path connecting key destinations along US 26
- Strategic/targeted shoulder widening
- Undercrossings, gateway and transit directional signage
- Sidewalks
- Improvements to existing crossings

Amendments proposed in ZDO-260: the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* include:

- **Comprehensive Plan Appendices.**
  Appendix B of the Clackamas County Comprehensive Plan contains a list of supporting documents and publications. This amendment package proposes to add the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* to Appendix B of the Comprehensive Plan.

- **Comprehensive Plan Chapter 5.**
  Chapter 5 of the Comprehensive Plan contains the County's Transportation System Plan (TSP). This amendment package proposes to add and/or amend projects in Table 5-3a: 20-Year Capital Projects, Table 5-3b: Preferred Projects, Table 5-3c: Long Term Capital Projects, Table 5-3d: Regional Capital Projects, and Map 5-11b: Capital Improvement Plan East County.

- **Comprehensive Plan Chapter 10.**
  Chapter 10 of the Comprehensive Plan includes community plans and design plans. This amendment proposes an update to the Mount Hood Community Plan

with appropriate policies to guide development in consideration of the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan.*

The Planning Commission public hearing will begin at 6:30 p.m., Monday, November 14, 2016, at the Development Services Building Auditorium, Rm. 115, 150 Beavercreek Rd., Oregon City, to consider these amendments. You are invited to attend the hearing and present oral comments to the Planning Commission. Typically, written correspondence received at least one week prior to the hearing will be included in the Planning Commission packets. Written testimony received after that time will be emailed to the Planning Commission, or provided to the Planning Commission on the evening of the hearing.

The Board of County Commissioners will consider the Planning Commission's recommendations on the proposed amendments beginning at 9:30 a.m., Wednesday, December 7, 2016, at the Public Services Building, Board of County Commissioners Hearing Room, 2051 Kaen Rd., Oregon City. Once again, you are invited to attend the hearing and present oral comments to the Commissioners. The Board will consider all written testimony submitted to the Planning Commission and will accept additional written testimony up to, and on the day of, the hearing.

For additional information regarding these proposed amendments, please contact Lori Mastrantonio, Senior Planner, at (503) 742-4511 or lorim@clackamas.us. The draft amendments are also available for review on the county web site at http://www.clackamas.us/planning/zdoproposed.html.

DLCD FORM 1

NOTICE OF A PROPOSED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

FOR DLCD USE

File No.:

Received:

Local governments are required to send notice of a proposed change to a comprehensive plan or land use regulation **at least 35 days before the first evidentiary hearing**. (*See* OAR 660-018-0020 for a post-acknowledgment plan amendment and OAR 660-025-0080 for a periodic review task). The rules require that the notice include a completed copy of this form.

Jurisdiction: **Clackamas County**

Local file no.: **ZDO-260**

Please check the type of change that best describes the proposal:

☐ **Urban growth boundary (UGB) amendment** including more than 50 acres, by a city with a population greater than 2,500 within the UGB

☐ **UGB amendment** over 100 acres by a metropolitan service district

☐ **Urban reserve designation,** or amendment including over 50 acres, by a city with a population greater than 2,500 within the UGB

☐ **Periodic review task** – Task no.:

☒ **Any other change** to a comp plan or land use regulation (*e.g.*, a post-acknowledgement plan amendment)

Local contact person (name and title): Lori Mastrantonio

Phone: 503 742-4511 E-mail: lorim@clackamas

Street address: 150 Beavercreek Road City: Oregon City Zip: 97045-

Briefly summarize the proposal in plain language. Please identify all chapters of the plan or code proposed for amendment (maximum 500 characters):

Planning File #ZDO-260 would amend the Comprehensive Plan by adding the Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan to Appendix B and updating the list of needed transporation projects in the County's 20-Year Capital Improvement Plan (Tables 5-3a-d and Map 5-11b). It would also update the Mt. Hood Community Plan in Chapter 10 with appropriate policies that guide development in consideration of the Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan.

Date of first evidentiary hearing: 11/14/2016

Date of final hearing: 12/07/16

☐ This is a revision to a previously submitted notice. Date of previous submittal:

Check all that apply:

☒ Comprehensive Plan text amendment(s)

☐ Comprehensive Plan map amendment(s) – Change from to

Change from to

☐ New or amended land use regulation

☐ Zoning map amendment(s) – Change from to

Change from to

☐ An exception to a statewide planning goal is proposed – goal(s) subject to exception:

☐ Acres affected by map amendment:

Location of property, if applicable (site address and T, R, Sec., TL):

ZDO-260
EXHIBIT 1
Page 4 of 8

List affected state or federal agencies, local governments and special districts: ODOT

NOTICE OF A PROPOSED CHANGE – SUBMITTAL INSTRUCTIONS

1. Except under certain circumstances,[1] proposed amendments must be submitted to DLCD's Salem office at least 35 days before the first evidentiary hearing on the proposal. The 35 days begins the day of the postmark if mailed, or, if submitted by means other than US Postal Service, on the day DLCD receives the proposal in its Salem office. **DLCD will not confirm receipt of a Notice of a Proposed Change unless requested.**

2. A Notice of a Proposed Change must be submitted by a local government (city, county, or metropolitan service district). DLCD will not accept a Notice of a Proposed Change submitted by an individual or private firm or organization.

3. **Hard-copy submittal:** When submitting a Notice of a Proposed Change on paper, via the US Postal Service or hand-delivery, print a completed copy of this Form 1 on light green paper if available. Submit **one copy** of the proposed change, including this form and other required materials to:

Attention: Plan Amendment Specialist
Dept. of Land Conservation and Development
635 Capitol Street NE, Suite 150
Salem, OR 97301-2540

This form is available here:
http://www.oregon.gov/LCD/forms.shtml

4. **Electronic submittals** of up to 20MB may be sent via e-mail. Address e-mails to plan.amendments@state.or.us with the subject line "Notice of Proposed Amendment."

Submittals may also be uploaded to DLCD's FTP site at http://www.oregon.gov/LCD/Pages/papa_submittal.aspx.

E-mails with attachments that exceed 20MB will not be received, and therefore FTP must be used for these electronic submittals. **The FTP site must be used for all .zip files** regardless of size. The maximum file size for uploading via FTP is 150MB.

Include this Form 1 as the first pages of a combined file or as a separate file.

5. **File format:** When submitting a Notice of a Proposed Change via e-mail or FTP, or on a digital disc, attach all materials in one of the following formats: Adobe .pdf (preferred); Microsoft Office (for example, Word .doc or docx or Excel .xls or xlsx); or ESRI .mxd, .gdb, or .mpk. For other file formats, please contact the plan amendment specialist at 503-934-0017 or plan.amendments@state.or.us.

6. **Text:** Submittal of a Notice of a Proposed Change for a comprehensive plan or land use regulation text amendment must include the text of the amendment and any other information necessary to advise DLCD of the effect of the proposal. "Text" means the specific language proposed to be amended, added to, or deleted from the currently acknowledged plan or land use regulation. A general description of the proposal is not adequate. The notice may be deemed incomplete without this documentation.

7. **Staff report:** Attach any staff report on the proposed change or information that describes when the staff report will be available and how a copy may be obtained.

8. **Local hearing notice:** Attach the notice or a draft of the notice required under ORS 197.763 regarding a quasi-judicial land use hearing, if applicable.

9. **Maps:** Submittal of a proposed map amendment must include a map of the affected area showing existing and proposed plan and zone designations. A paper map must be legible if printed on 8½" x 11" paper. Include text regarding background, justification for the change, and the application if there was one accepted by the local government. A map by itself is not a complete notice.

10. **Goal exceptions:** Submittal of proposed amendments that involve a goal exception must include the proposed language of the exception.

[1] 660-018-0022 provides:
(1) When a local government determines that no goals, commission rules, or land use statutes apply to a particular proposed change, the notice of a proposed change is not required [a notice of adoption is still required, however]; and
(2) If a local government determines that emergency circumstances beyond the control of the local government require expedited review such that the local government cannot submit the proposed change consistent with the 35-day timeline, the local government may submit the proposed change to the department as soon as practicable. The submittal must include a description of the emergency circumstances.

If you have any questions or would like assistance, please contact your DLCD regional representative or the DLCD Salem office at 503-934-0017 or e-mail plan.amendments@state.or.us.

Notice checklist. Include all that apply:

- ☒ Completed Form 1
- ☒ The text of the amendment (e.g., plan or code text changes, exception findings, justification for change)
- ☐ Any staff report on the proposed change or information that describes when the staff report will be available and how a copy may be obtained
- ☐ A map of the affected area showing existing and proposed plan and zone designations
- ☒ A copy of the notice or a draft of the notice regarding a quasi-judicial land use hearing, if applicable
- ☐ Any other information necessary to advise DLCD of the effect of the proposal

NOTICE OF PUBLIC HEARINGS
SCHEDULED ON PROPOSED COMPREHENSIVE PLAN AMENDMENT –
Planning File # ZD0-260: The Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan

The Clackamas County Planning Commission and Board of County Commissioners will hold public hearings to consider proposed amendments to the County Comprehensive Plan. Planning File #ZDO-260 would amend the Comprehensive Plan by adding the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan* to Appendix B and updating the list of needed transportation projects in the County's 20-Year Capital Improvement Plan (Tables 5-3a-d and Map 5-11b). Planning file #ZDO-260 would also update the Mount Hood Community Plan in Chapter 10 of the Comprehensive Plan with appropriate policies that guide development in consideration of the *Villages at Mt. Hood Pedestrian and Bikeway Implementation Plan*.

The amendments are available at http://www.clackamas.us/planning/zdoproposed.html. The public may review and comment on the proposed amendments before and during the public hearings.

Planning Commission Public Hearing
Monday, November 14, 2016, 6:30 p.m.
Development Services Building Auditorium, Rm. 115, 150 Beavercreek Rd., Oregon City

Board of Commissioners Public Hearing
Wednesday, December 7, 2016, 9:30 a.m.
Board Hearing Room, Public Services Building, 2051 Kaen Rd., Oregon City

For more information: Lori Mastrantonio, 503-742-4511 or lorim@clackamas.us

July 10, 2016

To Whom it May Concern,

My name is Michelle Lamoreaux and I have lived full time in Rhododendron since 1971. My family has owned property with a homesteaders log cabin since approximately 1926.

I write this letter as both a long time, private resident and also a representative for the Rhododendron CPO for which I am an active board member. It is in this role that I attended meetings in the Hoodland area for the Villages at Mt. Hood Pedestrian and Bike way Implementation Plan.

One of the main elements of the Villages at Mt. Hood plan includes identifying locations for pedestrian crossings of US 26 within the project area which includes the Rhododendron (Rhody) community. The pedestrian crossing in Rhody is a high priority project in the Plan according to Lori Mastrantonio and Sumi Malik.

As the Rhododendron CPO, we maintain bimonthly meetings and have committed members functioning as President, Vice President/Treasurer, Secretary, and Board members. Traffic has been an ongoing concern for many years since US 26 runs directly through the community and serves a large recreational area. There are businesses and homes or cabins on both sides of 26 with no designated walkway anywhere.

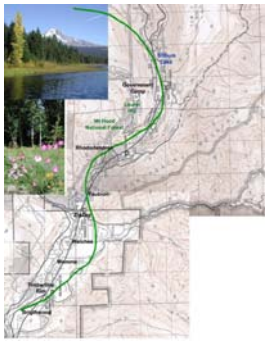
At multiple meetings including the Project Advisory Committee meetings, Technical Advisory Committee meetings and two Open House meetings this pedestrian crossing was ranked with high priority. A pedestrian crossing in this area could also involve improvements in conjunction with other enhancements to a pedestrian environment such as a "Welcome to Rhododendron " gateway sign, sidewalks, landscaping, or lighting.

The CPO established and maintains a Community Garden at the west entrance to Rhody. It has been tended to for approximately 6 to 8 years and attempts to alert drivers that they are entering a community and need to show respect by slowing their speed. Members also support local businesses and engage in regular roadside garbage pickups.

There are two transit stops in the Rhody area, the Mt. Hood Express and the Villages at Mt. Hood Shuttle. A crosswalk in the vicinity of these two stops in conjunction with businesses and homes on the opposite side of US 26 is a high priority project in this plan.

Your attention and support for this plan is of the upmost concern. The safety of residents and travelers passing through is very important to us,

Michelle Lamoreaux and Rhododendron CPO members Thank you.



Barlow Trail Association

P.O. Box 360
Rhododendron, OR, 97049
503-622-6429

Creating Community Trails tying together the Villages at Mt. Hood

To: Lori Mastrantonio November 1, 2016
From: Susan Corwin, Executive Director
Re: Villages at Mt. Hood Ped/Bike draft plan of June 2016

CC: Planning Commission for Public Hearing 2016/11/14
CC: BCC Review 2015-12-07

Our review of the draft plan indicates:
the different parts of the elephant really do fit together.

Bottom line: - Limited Resources
We have given input that this is rural, low population density area and not an urban area, but the prioritization seems to focus on low value projects.

There isn't a lot of money to work this far out in the rural area, even along an "interstate".
We suggest the Planning Commission and the BCC act expediently.

Poor prioritization
We are a bit disappointed that the multiple aspects of evaluation were less than rigorously viewed, resulting in "silly" decisions by people with very limited knowledge.

A. attractive items of low value or high cost have been latched upon
B. the rural, low population density of the area is ignored
C. "urban" facilities are proposed to be implemented on the equivalent of an Interstate highway
D. the most useful but not flashy items are given "short shift".

Important projects
We suggest that, evaluating on what "will actually be heavily used" criteria, the highest priority items are:

1. W1S and W1N pedestrian paths along US 26 from Zigzag to Arrah Wanna, both sides
   => ties together the business areas and the hotel housing
2. W6 and W5 - widening central area roads with shoulder/bike lane
   => this is where there actually is some population density.

which the we have gotten on the CIP back in 2005
We note that the project R7 is actually "done": it is called Road 19 to anyone with local knowledge.

Silly, won't happen projects at top of list!
The first three items on the ZBB, No. B2, B6, and B7 are just plan silly.

- B2 - Barlow Trail Road: the ROW isn't wide enough and in the land slide area and the Mt. Hood Rock Products driveway areas, it won't happen

The Barlow Trail Association is tax-exempt under IRS code Section 501(c)(3), Tax Number 20-1120117, and that no gifts or benefits have been given as a result of this donation or work

- B6 - Brightwood loop - a no use area, doesn't go anywhere project and demanding the replacement of the bridge over the Sandy is not optimal.
- B7 - a US 26 under bridge splash area that doesn't start anywhere and doesn't go anywhere

While these may be "interesting", they are pretty worthless and not useful or likely to happen and, somehow, were put up as the "top three" projects!

Pedestrian Projects on an "Interstate"
There are a number of projects that proposed "pedestrian improvements" that propose to obstruct a freight expressway.
=> Projects W15, W4, W7, R2, W2, W3, and W16 all propose to have pedestrians "step out in traffic. We view that the "collateral damage" of such projects is to have pedestrians feel they "have the right of way" as they step in front of a tractor-trailer speeding to Bend with the pedestrian being the loser.

It is our view that the few pedestrians who wish to cross US 26 are better if they feel the traffic is "aimed at them" and they must dodge/be clever/safe about crossing.
=> as we noted to the Rhody CPO,

- a pedestrian overpass is very expensive (ADA) and would not be used very much
- an underpass is dangerous, especially after dark for women
- a crossing light is likely to get someone hit

and we suggested a summer center "safety island" so pedestrians can dodge across one traffic lane at a time and it can be removed for snow issues in the winter

Local conditions preclude
Some of the project ignore local conditions that make them unacceptable.
W10, widening Salmon River Road ignores the landslide area(!), B1 - Marmot road narrow ROW, W14 - Lolo Pass road - narrow ROW and the Sandy River(!), etc

Urban centric - not appropriate/useful for rural area
The project list contains a number of "urban bike signage" and "urban bike facilities". While there are very attractive for an "urban" setting, in the remote, rural area, they are a very poor use of investment. W13, W12, W11, R5, B8, B5, B4, and B3.

Don't bully Rhody
We note that Rhody (Rhododendron) is a very small isolated area and having ODOT close driveways - R1, put up signs - R6, R3, etc would not work very well.

TO: Clackamas County Planning Commission

FROM: Dan Johnson/David Queener

DATE: November 14, 2016

RE: CLACKAMAS TOWN CENTER URBAN RENEWAL PLAN 22nd AMENDMENT

I. PROPOSAL AND ROLE OF PLANNING COMMISSION

The Clackamas Planning Commission is being asked to make a recommendation to the Clackamas County Development Agency Board and County Commissioners regarding the adoption of an amendment to the Clackamas Town Center Urban Renewal Plan (Twenty-second Amendment). This action does not require a formal public hearing, and the Planning Commission is not being asked to approve the action, but rather make a recommendation. If the public wishes to testify, it is advised to allow for testimony.

The Twenty-second amendment to the Clackamas Town Center Urban Renewal Plan includes the addition of a project. This change to the Clackamas Town Center Urban Renewal Plan is considered a substantial amendment because it involves the addition of a project that serves a substantially different function from any project, activity or programs currently specified in the Plan and is estimated to cost in excess of $500,000 adjusted for inflation. Therefore, the amendment must be approved in the same manner as the original adoption of the Plan, including presentation to the Planning Commission.

ORS 457.085(4), the Oregon Revised Statute which governs the requirement for Planning Commission review, is not specific about the role of the Planning Commission in review of an urban renewal plan. ORS 457.085(4) states: “An urban renewal plan and accompanying report shall be forwarded to the planning commission of the municipality for recommendations prior to presenting the plan to the governing body of the municipality for approval under ORS 457.095.”

The general understanding is that the Planning Commission reviews the urban renewal plan amendment for conformance with the comprehensive plan. This staff report has identified the comprehensive plan sections as they relate to the amendment and has summarized the basic findings of fact. This staff report includes a recommendation for approval.

II. BACKGROUND

Clackamas County ceased tax increment collections through division of taxes for the Clackamas Town Center Urban Renewal Area (Area) in 2013. Therefore, this Amendment does not have a fiscal impact on taxing districts. The Amendment will not increase the Maximum Indebtedness of the Plan, but will allow for expenditure of existing funds to a new project.

The Amendment would add an additional project to the Plan for Mt. Scott Elementary School. The project would increase the size of the building, increase capacity to address overcrowding, address the inadequate facilities for students with special needs and address the substandard cafeteria size and capacity of the Mt. Scott Elementary School. The funding proposed to be provided by the Clackamas County Development Agency (CCDA) is $2,500,000.

III. CONFORMANCE WITH COMPREHENSIVE PLAN

The Clackamas Town Center Urban Renewal Plan Twenty-second Amendment conforms to the following goals outlined in Chapter 7 of the Clackamas County Comprehensive Plan. The numbering reflects those in the Comprehensive Plan document.

Chapter 7 - Public Facilities and Services

- *Schools*
  - *Public Services*
    - *Goals*
      - *Coordinate proposed land use actions and Plan amendments with school districts.*
      - *Coordinate the location and size of future school sites with appropriate school districts.*
      - *Support school facilities as focal points of community activity subject to available funding and interest.*
- *Policies*
  - *Education*
    - *6.0 Encourage maximum use of school facilities.*
    - *10.0 Encourage the location of schools in the urban areas within a safe walking distance for students.*

The Clackamas Town Center Urban Renewal Plan conforms to the Clackamas Comprehensive plan because Clackamas County and the Clackamas County Development Agency have coordinated with the North Clackamas School District to identify school needs within the Area. The request from North Clackamas School District to help fund the improvements to Mt. Scott Elementary School was reviewed by staff and is being presented to the Clackamas County Development Agency Board and County Commissioners for approval. By improving the facilities, the County will be supporting school facilities as focal points of community activity,

encouraging the maximum use of the school facilities and encouraging the location of the schools in the urban area.

IV. STAFF RECOMMENDATION

Staff recommends that the Planning Commission find that the Twenty-second Amendment to the Clackamas Town Center Urban Renewal Plan conforms with the Clackamas County Comprehensive Plan and forward the Twenty-second Amendment to the Clackamas County Development Agency Board and County Commissioners for their approval.

V. PROCESS FOR REVIEW

The process for final review of the Plan and Report include the following steps:

October 13	Clackamas County Development Agency Board review
October 14	Send formal notice to taxing jurisdictions
October 19	Notice to property owners in Citizen News
November 14	Planning Commission review
November 15	City of Happy Valley approval of Resolution
December 15	Clackamas County Commission Hearing/Vote

VI. PLANNING COMMISSION MOTION AND VOTE

Recommendation/Suggested Motion:

"I move that the Clackamas Planning Commission find that the Twenty-Second Amendment to the Clackamas Town Center Urban Renewal Plan conforms with the Clackamas Comprehensive Plan."

Attachments:

Exhibit A Clackamas Town Center Urban Renewal Plan 22nd Amendment

Exhibit B Report Accompanying the 22nd Amendment to the Clackamas Town Center Urban Renewal Plan

REPORT ACCOMPANYING THE 22nd AMENDMENT TO THE CLACKAMAS TOWN CENTER URBAN RENEWAL PLAN

DRAFT

Clackamas County

DATE

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DRAFT

I. INTRODUCTION

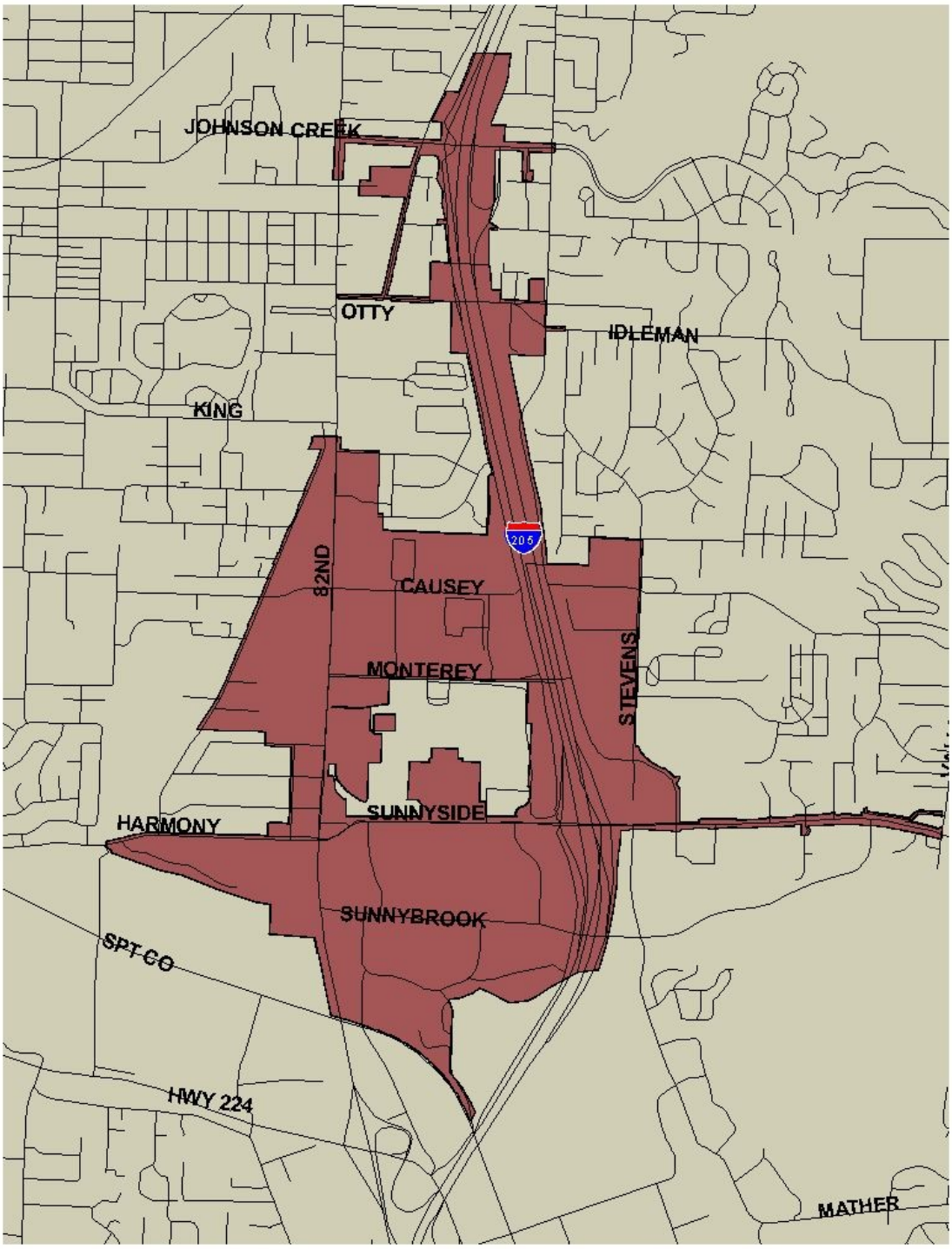
This Clackamas Town Center 22nd Amendment Urban Renewal Report (Report) contains background information and project details for the 22nd amendment to the Clackamas Town Center Urban Renewal Plan (Amendment). The Report is not a legal part of the Plan but is intended to provide public information and a basis for the findings made by Clackamas County as part of its approval of the Plan.

The Report provides the information required in ORS 457.085(3). The format of the Report is based on this statute.

The 2016 Amendment to the Clackamas Town Center Urban Renewal Plan adds a project to the urban renewal plan.

DRAFT

Figure 1 – Clackamas Town Center Urban Renewal Area



Source: Clackamas County

II. EXISTING PHYSICAL, SOCIAL, AND ECONOMIC CONDITIONS AND THEIR IMPACT ON MUNICIPAL SERVICES

This section of the Report describes existing conditions within the Area, and documents the occurrence of "blighted areas" as defined by ORS 457.010(1).

A. Physical Conditions

1. Land Use

The urban renewal area is 819 acres, 409.2 acres of tax lots and 409.8 acres of right of way.

An analysis of property classification data from the Clackamas County FY 2015/16 Assessment and Taxation database was used to determine the land use designation of parcels in the Area. Detailed land use information for the Area is in Table 1. As shown in the table, 51.37 percent of the acres are commercial, for a total of 210.2 acres.

Table 1 - Existing Land Use of Area

Existing Land Use	Parcels	Acres	Percent of Acres
Commercial	144	210.2	51.37%
Apartments	21	69.01	16.86%
Industrial	26	44.09	10.77%
Low Income Housing	5	16.66	4.07%
Residential	4	11.94	2.92%
Retirement Homes	6	11.78	2.88%
Hotel/Motel	2	11.3	2.76%
High Density Res	10	9.82	2.40%
Mixed use	4	8.05	1.97%
Multi-family Res	29	7.32	1.79%
Condos	79	5.52	1.35%
PGE	1	2.05	0.50%
Manufactured Homes	1	1.25	0.31%
Not Identified	2	0.22	0.05%
Total	334	409.2	100.00%

Source: Clackamas County Assessor Records

DRAFT

2. Zoning and Comprehensive Plan Designations

In Clackamas County the zoning and comprehensive plan designations are the same. Table 2 shows the detailed zoning and comprehensive plan designations for the Area. As illustrated in the table, 19.84 percent of the acreage of the Area parcels is zoned Regional Center Commercial and another 17.51 percent of the acreage of the parcels is zoned Regional Center High Density Residential.

Table 2 - Zoning and Comprehensive Plan Designations of Area

Zoning	Parcels	Acres	Percent of Acres
Regional Center Commercial	74	81.20	19.84%
Regional Center High Density Residential	98	71.66	17.51%
Regional Center Office	26	53.71	13.13%
Light Industrial	6	46.13	11.27%
Retail Commercial	18	34.30	8.38%
Open Space Management District	4	23.05	5.63%
Station Community Mixed Use	40	17.06	4.17%
Regional Center Mixed Use	9	16.39	4.01%
High Density Residential	15	15.68	3.83%
Medium High Density Residential (MR-2)	30	13.80	3.37%
Urban Low Density Residential (R5)	1	8.28	2.02%
Office Commercial	2	7.70	1.88%
Medium Density Residential (MR-1)	5	7.43	1.82%
Planned Mix Use	1	5.49	1.34%
Corridor Commercial	1	3.62	0.88%
Institutional Public Use	1	2.14	0.52%
Urban Low Density Residential (R10)	2	1.52	0.37%
Null	1	0.04	0.01%
Total	334	409.2	100.00%

Source: Clackamas County Assessor Records

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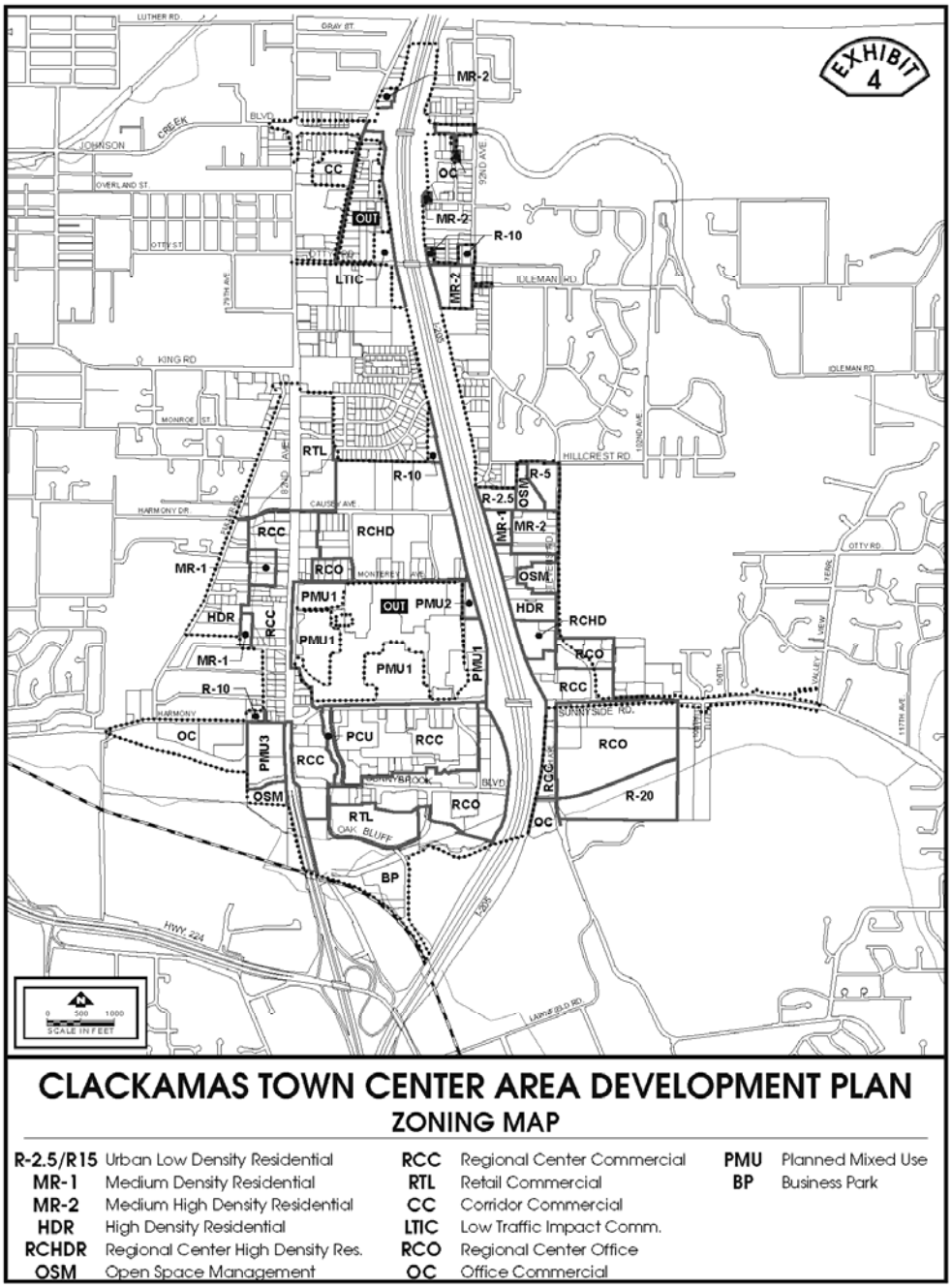
Figure 2 – Zoning/Comprehensive Plan Designations (Figure 4 of original Report)



B. Public Facilities

1. *Schools*

The blighting conditions in the Area are within the Mt Scott Elementary School, as defined below. These conditions were provided by North Clackamas Schools in an e mail dated July 21, 2016.

Inadequate improper, defectively designed, substandard Facility due to school size:
Mt. Scott Elementary School is the smallest neighborhood elementary school in the North Clackamas School District and its size is substandard. The school has 48,730 square feet (sf) and the standard is over 60,000 sf. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed and substandard facility due to capacity and overcrowding:
Mt. Scott Elementary School enrollment has exceeded capacity and is projected to further exceed capacity in the future. While the Portland State University Population Research Center reported that the 2015-2016 enrollment was 373 and capacity was 375, the enrollment was using the October 2015 numbers. The June 2016 enrollment is 379 and enrollment will be growing in the coming years due to development in the area. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed facility due to substandard sized cafeteria:
Mt Scott Elementary School's cafeteria is substandard. The size of the cafeterias 1,875 sf and the standard is approximately 2,400 sf. There is only one other school in the district with a cafeteria this small or smaller and it will be expanded in the coming years. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed, and substandard facility for students with special needs due to faulty interior arrangement and fixtures:
Mt. Scott Elementary School's Structured Learning Center for students with special needs is substandard. The standard requires an adjacent student restroom. The school needs appropriate classrooms with adjacent restrooms to adequately support students with special needs. This detrimental to the safety, health and welfare of the community.

The proposed project would increase the size of the building, increase capacity to address overcrowding, address the inadequate facilities for students with special needs and address the substandard cafeteria size and capacity.

C. Infrastructure

The projects listed below are showing deficiencies in the Area. The identification of these projects from the Capital Improvement plans do not mean these projects are identified to be built using tax increment funds, only that they are identified as needed improvements in the Area, supporting the fact that the Area is blighted.

1. Streets

The following projects are identified in the Clackamas County Capital Projects list.

Table 3 – Transportation Projects in the Area

Project/Street Name	Segment/ Locations	Project Description
Clack. Regional Center Bike/Ped Corridors	N/A	Construct pedestrian and bike improvements as described in the Clackamas Regional Center Pedestrian/Bicycle Plan
CTC Alternative Performance Standards Study	Clackamas Regional Center	Develop alternative performance standards for the intersections within the Clackamas Regional Center
CTC Circulation Plan	West of the Town Center	Study the circulation and create a plan
Harmony Rd/Sunnyside Rd	Harmony Rd/Sunnyside Rd/OR 213 intersection	Extend queue storage on westbound approach and rebuild median; extend queue storage on eastbound approach and install median; convert to right-in-right-out accesses on frontage road
I-205 Multi-Use Path Connection	Between Sunnyside Rd. and Sunnybrook Blvd.	Construct ADA compliant access to the commercial area from the I-205 Multi-Use Path
Monterey Ave	Stevens Rd. to Bob Schumacher Rd.	Construct collector roadways with bikeways and pedestrian facilities
Sunnyside Rd	93rd Ave to 126th Ave	Perform road safety audit or transportation safety review to identify appropriate safety improvements
Sunnyside Rd	Sunnyside Rd/Stevens Rd Intersection	Intersection improvements, such as additional turn lanes, turn lane extensions, and/or signal timing modifications

Source: Clackamas County Capital Projects List Table 5-3a

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2. Water

The water lines in the Area are in good condition.

3. Sewer

There are two projects in the Capital Improvement Plan for the Clackamas Town Center Area:

Slip Line Pipe Project – Sunnybrook: This collection system pipe located at Sunnybrook Boulevard attracts heavy use from the surrounding businesses in the area. Continual buildup of Greece and large flows of other caustic materials mean this line requires a very high level of maintenance. This project provides a new lining in the existing collecting system pipe that has been eroded by caustic elements in the flow coming from businesses in the area. Lining the pipe will reduce friction and increase flow through the line resulting in less maintenance and reduced operating costs, extending the life of the asset, and reduce inflow and infiltration which helps to preserve treatment capacity at the plant.

Sunrise Corridor Sewer Relocation: The Oregon Department of Transportation (ODOT) is currently finalizing the design for the first phase of their Sunrise Corridor JTA project, which constructs a new roadway easterly of I-205 and just north of Highway 212/224. Numerous existing District sanitary sewer lines will be affected by this proposed construction and must be strengthened to accommodate this new roadway and the associated loadings it will place on the pipes. Additionally, assessing and improving these lines after the improvements would be very difficult. The District is utilizing the services of OBEC Engineers to design the necessary sanitary sewer improvements and the district will be providing the labor to manage and inspect the project. All of these District costs will be reimbursed by ODOT, but the District will have to fund the expenditures initially. Construction of the actual improvements will be done by ODOT's contractor, will be paid directly by ODOT. This project reflects an opportunity to upgrade our existing conveyance pipes in the area at no cost to the District.

4. Storm Water

The storm water systems in the Area are in good condition.

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D. Social Conditions

There are 157 parcels in the Area classified by the Clackamas County Assessor as having residential use.

The largest group of people in the block group is age 18 to 24 years, 19 percent, followed by age 25 to 34 years, 15 percent.

Table 4 – Age in the URA

Age	Number	Percent
Under 5 Years	679	9%
5 to 9 Years	530	7%
10 to 14 Years	384	5%
15 to 17 Years	256	3%
18 to 24 Years	1,462	19%
25 to 34 Years	1,184	15%
35 to 44 Years	802	10%
45 to 54 Years	916	12%
55 to 64 Years	739	10%
65 to 74 Years	429	6%
75 to 84 Years	231	3%
85 Years and over	78	1%
Total	7,690	100%

Source: Social Explorer, American Community Survey 2010-2014 5-Year Estimates

The majority of people in the block group are white alone, 84 percent.

Table 5 – Race in the URA

Race	Number	Percent
White Alone	6,476	84%
Black or African American Alone	185	2%
American Indian and Alaska Native Alone	109	1%
Asian Alone	389	5%
Native Hawaiian and Other Pacific Islander Alone	9	0%
Some Other Race Alone	275	4%
Two or More races	247	3%
Total	7,690	100%

Source: Social Explorer, American Community Survey 2010-2014 5-Year Estimates

The largest group of people have some college experience, 38 percent, while 20 percent of the group have completed college.

Table 6 – Educational Attainment in the URA

Educational Attainment	Number	Percent
Less Than High School	522	12%
High School Graduate (includes equivalency)	1,194	27%
Some college	1,670	38%
Bachelor's degree	721	16%
Master's degree	147	3%
Professional school degree	94	2%
Doctorate degree	31	1%
Total	4,379	100%

Source: Social Explorer, American Community Survey 2010-2014 5-Year Estimates

The largest group of people, 25 percent in the block group, drove 20 to 29 minutes to work.

Table 7 – Travel Time to Work in the URA

Travel Time to Work	Number	Percent
Less than 10 minutes	622	15%
10 to 19 minutes	938	23%
20 to 29 minutes	989	25%
30 to 39 minutes	472	12%
40 to 59 minutes	474	12%
60 to 89 minutes	175	4%
90 or More minutes	124	3%
Worked at home	222	6%
Total	4,016	100%

Source: Social Explorer, American Community Survey 2010-2014 5-Year Estimates

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The majority of the block group, 71 percent, drove alone to work.

Table 8 – Means of Transportation to Work in the URA

Means of Transportation to Work	Number	Percent
Drove Alone	2,840	71%
Carpooled	538	13%
Public transportation (Includes Taxicab)	294	7%
Motorcycle	24	1%
Bicycle	0	0%
Walked	73	2%
Other means	25	1%
Worked at home	222	6%
Total	4,016	100%

Source: Social Explorer, American Community Survey 2010-2014 5-Year Estimates

E. Economic Conditions

1. *Taxable Value of Property within the Area*

There is no increase in the total assessed value of the properties in the 2016 amendment. No property is being added. The Clackamas Town Center Urban Renewal Plan discontinued taking tax increment proceeds in FY 2013/2014.

2. *Building to Land Value Ratio*

An analysis of property values can be used to evaluate the economic condition of real estate investments in a given area. The relationship of a property's improvement value (the value of buildings and other improvements to the property) to its land value is generally an accurate indicator of the condition of real estate investments. This relationship is referred to as the "Improvement to Land Ratio" or "I:L". The values used are real market values. In urban renewal areas, the I:L may be used to measure the intensity of development or the extent to which an area has achieved its short- and long-term development objectives. A healthy condition of real estate investment in the Clackamas Town Center area would be over 2:1.

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As shown in Table 7 below 18 percent (77 acres) of the Area's acreage has no improvements. An additional 35 percent of the acreage has an I:L value below 2.

Table 9 - I:L Ratio of Parcels in the Area

Improvement/Land Ratio	Parcels	Acres	Percent of Acres
Exempt	2	1.45	0.35%
Condominiums	74	2.92	0.71%
No Improvement Value	77	77.14	18.85%
0.01-0.50	33	34.55	8.44%
0.51-1.00	23	26.93	6.58%
1.01-1.50	20	39.16	9.57%
1.51-2.00	38	41.29	10.09%
2.01-2.50	23	58.28	14.24%
2.51-3.00	6	21.48	5.25%
3.00-4.00	12	21.96	5.37%
>4.00	26	84.04	20.54%
Total	334	409.2	100.00%

Source: Clackamas County Assessor data

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F. Impact on Municipal Services

The fiscal impact of tax increment financing on taxing districts that levy taxes within the Area (affected taxing districts) is described in Section IX of this Report. This subsection discusses the fiscal impacts resulting from potential increases in demand for municipal services.

Municipality is defined in ORS 457 as any county or any city in this state. The addition of the Mt Scott Elementary School project will impact county services by providing a better environment for education within the county. Mt. Scott Elementary presently has conditions that need to be upgraded, as described in Section II. B. of this document. The ability to fund improvements to the school will assist residents in providing education opportunities within their local school area.

III. REASONS FOR SELECTION OF EACH URBAN RENEWAL AREA IN THE PLAN

There is no change to this section as no new property is being added to the urban renewal area.

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IV. THE RELATIONSHIP BETWEEN URBAN RENEWAL PROJECTS AND THE EXISTING CONDITIONS IN THE URBAN RENEWAL AREA

The new project in the Area is:

Mt. Scott Elementary School Improvements:
The proposed project would increase the size of the building, increase capacity to address overcrowding, address the inadequate facilities for students with special needs and address the substandard cafeteria size and capacity at the Mt Scott Elementary School.

Existing Conditions:
Inadequate improper, defectively designed, substandard Facility due to school size:
Mt. Scott Elementary School is the smallest neighborhood elementary school in the North Clackamas School District and its size is substandard. The school has 48,730 square feet (sf) and the standard is over 60,000 sf. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed and substandard facility due to capacity and overcrowding:
Mt. Scott Elementary School enrollment has exceeded capacity and is projected to further exceed capacity in the future. While the Portland State University Population Research Center reported that the 2015-2016 enrollment was 373 and capacity was 375, the enrollment was using the October 2015 numbers. The June 2016 enrollment is 379 and enrollment will be growing in the coming years due to development in the area. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed facility due to substandard sized cafeteria:
Mt Scott Elementary School's cafeteria is substandard. The size of the cafeterias 1,875 sf and the standard is approximately 2,400 sf. There is only one other school in the district with a cafeteria this small or smaller and it will be expanded in the coming years. This is detrimental to the safety, health and welfare of the community.

Inadequate, improper, defectively designed, and substandard facility for students with special needs due to faulty interior arrangement and fixtures:
Mt. Scott Elementary School's Structured Learning Center for students with special needs is substandard. The standard requires an adjacent student restroom. The school needs appropriate classrooms with adjacent restrooms to adequately support students with special needs. This detrimental to the safety, health and welfare of the community.

The proposed project would increase the size of the building, increase capacity to address overcrowding, address the inadequate facilities for students with special needs and address the substandard cafeteria size and capacity.

V. THE ESTIMATED TOTAL COST OF EACH PROJECT AND THE SOURCES OF MONEYS TO PAY SUCH COSTS

The costs of projects in the FY 16/17 budget are shown below. The sources of money to pay the projects are funds within the Clackamas Town Center Fund maintained by the Clackamas County Development Agency (CCDA). Tax increment division of taxes has ceased in this urban renewal area. No new tax increment funds are being taken from division of taxes to fund projects.

Table 10 – Project and Plan Categories for FY 16/17

Project	Estimated Cost	Estimated completion date
Payments to Local Governments (Mt Scott Elementary School portion $2,500,000)	$2,842,937	Payment to be made in FY 2016/17
Boyer Drive Extension	$1,925,000	FY 2016/17 to FY 2019/20
Otty Street Re-alignment	$2,500,000	FY 2016/17 to FY 2019/20
Sunnyside Road/Stevens Intersection Improvements	$1,375,000	FY 2016/17 to FY 2019/20
Clackamas Regional Center Mobility Improvements	$2,550,000	FY 2016/17 to FY 2019/20
Bike and Pedestrian Improvements	$105,000	FY 2016/17 to FY 2019/20
Monterey to Price-Fuller	$10,000	FY 2016/17 to FY 2019/20
Total	$11,307,937	

Source: Clackamas County FY 2016/17 Budget

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VI. THE ANTICIPATED COMPLETION DATE FOR EACH PROJECT

Estimated completion dates for the projects in the FY 16/17 budget are shown above in Table 10.

VII. THE ESTIMATED AMOUNT OF TAX INCREMENT REVENUES REQUIRED AND THE ANTICIPATED YEAR IN WHICH INDEBTEDNESS WILL BE RETIRED

The $2,500,000 of revenues required for the Mt. Scott elementary School are not new tax increment revenues, but revenues within the Clackamas Town Center Fund. There are additional projected revenues of $32,130,807, $26,630,807 of which is reserved for future expenditures and $1,500,000 in contingency, in the Clackamas Town Center Debt Service Fund as shown in the FY 16/17 budget. There are no existing long term indebtedness commitments in the Development Area.

VIII. FINANCIAL ANALYSIS OF THE PLAN

The CCDA has approved a FY 16/17 budget for the Clackamas Town Center that includes a line item for Payments to Local Governments. This Amendment would allocate $2,500,000 from the Payments to Local Governments to North Clackamas Schools for the Mt. Scott Elementary School Improvement Project. These funds are in the Clackamas Town Center Fund and do not represent any new collections of tax increment from division of taxes.

IX. IMPACT OF THE TAX INCREMENT FINANCING, BOTH UNTIL AND AFTER THE INDEBTEDNESS IS REPAID, UPON ALL ENTITIES LEVYING TAXES UPON PROPERTY IN THE URBAN RENEWAL AREA

The impact of tax increment financing on overlapping taxing districts is not relevant to this Amendment. The Town Center Urban Renewal Area is no longer taking division of taxes. If this project was not pursued, these funds could be used for other specified urban renewal projects.

X. RELOCATION REPORT

There are no businesses or residents to be relocated under the Amendment.

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XI. COMPLIANCE WITH STATUTORY LIMITS ON ASSESSED VALUE AND SIZE OF URBAN RENEWAL AREA

The Clackamas Town Center is no longer division of taxes, so this section is not relevant to this Amendment.

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Exhibit A Clackamas Town Center Urban Renewal Plan 22nd Amendment

The following changes are made in the Clackamas Town Center Urban Renewal Plan. Added language is shown in *italics*.

SECTION 100. INTRODUCTION

1st Amendment – 1/7/82 – Resolution and Order No. 82-22 – addition of the Town Center Branch Library Project.

2nd Amendment – 1/21/82 – Resolution and Order No. 82-132 – a major amendment, addition of the geography of the I-205 Lester interchange and extension of Sunnybrook Avenue from 90th to 93rd Avenue.

3rd Amendment – 11/1/82 – Resolution and Order No. 84-1534 – a minor amendment, added the 93rd Avenue realignment project plan.

4th Amendment – 10/25/85 – Resolution and Order No. 85-1190 – a major amendment, reviewed/revised projects to provide necessary public improvements to encourage development and redevelopment in the Clackamas town Center development area. Substantial development had occurred in the past six years, and it was necessary to revise the plan. Some projects originally scheduled have been completed; additional projects necessary for orderly development/redevelopment were added. These products may include property acquisition, roadway improvements, and community facility projects not previously identified.

5th Amendment – 12/4/86 – Resolution and Order No. 86-1263 – a major amendment, deleted two areas from District terminating the TIF process and returned $90,054,000 of incremental assessed value to the general tax rolls. The TIF return implemented a provision of the Fourth Amendment. The amendment also incorporated, by reference, amendments to the County Comprehensive Plan into this Plan.

6th Amendment – 12/24/86 – Resolution and Order No. 86-1372 – a minor amendment, amended the project schedule to provide for payback of State Lottery Funds for the Sunnyside Road Improvement Project.

7th Amendment – 6/4/87 – Resolution and Order No. 87-624 – a minor amendment, substituted the Ickes/Harmony School site for a previously identified site for the OIT/CCC campus project.

8th Amendment – 9/24/87 – Resolution and Order No. 87-1168 – a minor amendment, substituted the 82nd to 85th Avenue Extension project.

9th Amendment – 11/12/87 – Resolution and Order No. 87-1137 – a major amendment, <u>Transportation:</u> Adds the 1-205 Eastside Frontage Road and Boyer Drive Extension West Projects; Modifies the 1-205 Pedestrian/Bikeway/Vehicle Overpass and Monterey and Causey connections projects; Modifies the LRT project to reflect current conditions. <u>Community Use Facilities</u>: Modifies the Parksite Development and Acquisition project; Adds a low and moderate income housing subsidy program.

10th Amendment – 1/14/88 – Resolution and Order No. 88-44 – amended boundary of Development Area.

11th Amendment – 3/3/88 – Resolution and Order No. 88-211 – added Law Enforcement Training Center as project and identified site for acquisition.

12th Amendment – 5/16/91 – Resolution and Order No. 91-442 – added a maximum amount of indebtedness to be incurred under the Development Plan.

13th Amendment – 6/20/91 – Resolution and Order No. 91-590 – a minor amendment involving multiple sections of the plan.

14th Amendment – 4/18/96 – Resolution and Order No. 96-322 – a minor amendment, amending the boundary area to include and authorizing acquisition of the amended parcel.

15th Amendment – 11/7/96 – Resolution and Order No. 96-692 – a minor amendment, identifying parcels to be acquired and adding projects to the plan.

16th Amendment – 11/27/96 – Resolution and Order No. 96-729 – an update of the report to the Clackamas Town Center Development Area Plan, the report to the Clackamas Industrial Development Area Plan, and the report on the Government Camp Village Revitalization Area Plan, along with the decision to incur bonded debt.

17th Amendment – 5/21/98 – Resolution and Order No. 98-3461, 98-3711 – established a maximum indebtedness of $177,153,300. The Board of Commissioners also selected option 1 as described in ORS 457.435(2)(a) as the method for collecting ad valorem property taxes.

18th Amendment – 6/22/00 – Resolution and Order No. 00-136 – updated the definition of substantial amendment in the report so that it reflects current statutory requirements. Amended to allow for the acquisition of land on the South East 91st Avenue for redevelopment purposes. Updated projects list.

19th Amendment – 4/5/01 – Resolution and Order No. 2001-63 – added 7.02 acres along Sunnyside Road to the Area.

20th Amendment – 7/22/04 – Resolution and Order No. 2004-161 – Clarified language pertaining to the light rail project along I-205.

21st Amendment – 6/16/05 – Resolution and Order No. 2005-159 – added projects and amended the boundaries.

22nd Amendment – 12/15/16 – Ordinance adding project for Mt. Scott Elementary School.

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SECTION 400 – DECLARATION OF NECESSITY, PURPOSE AND DEVELOMENT PLAN OBJECTIVES

410 – Purpose and Objectives of the Development Plan

1. Provide public facilities, *including school facilities*, and an economic climate to encourage private investment in housing and support of the County's housing policy;

SECTION 600. ACTIONS WHICH MAY BE USED TO IMPLEMENT THE PLAN AND TO ACHIEVE PLAN OBJECTVES

620 - Public Improvement

B. Community Use Facilities (See Exhibit 6)

12. Mt. Scott Elementary School Capital Improvement Project

The proposed project would increase the size of the building, increase capacity to address overcrowding, address the inadequate facilities for students with special needs and address the substandard cafeteria size and capacity of the Mt. Scott Elementary School.

The Mt. Scott Elementary School serves and benefits the Clackamas Town Center Urban Renewal *Area (Development Area) by providing education and community facilities to residents of the Development Area.*

SECTION 1400 – RELATIONSHIP TO LOCAL OBJECTIVES

The areas where the Clackamas Town Center Urban Renewal Plan 22nd Amendment conforms to the goals of the Clackamas County Comprehensive Plan are as follows. The numbering reflects the numbering in the comprehensive plan document. The text in bold identifies the specific text from the comprehensive plan.

Chapter 7 - Public Facilities and Services
Schools
Public Services
Goals
Coordinate proposed land use actions and Plan amendments with school districts.
Coordinate the location and size of future school sites with appropriate school districts.
Support school facilities as focal points of community activity subject to available funding and interest.

Education
6.0 Encourage maximum use of school facilities.
10.0 Encourage the location of schools in the urban areas within a safe walking distance for students.

The Clackamas Town Center Urban Renewal Plan conforms to the Clackamas Comprehensive Plan because Clackamas County and the Clackamas County Development Agency have coordinated with the North Clackamas Schools to identify schools needs within the Area. The request from North Clackamas Schools to help fund the improvements to Mt. Scott Elementary School was reviewed by staff and is being presented to the Clackamas County Development Agency and County Commission for approval. By improving the facilities, the County will be supporting school facilities as focal points of community activity, encouraging the maximum use of the school facilities and encouraging the location of the schools in the urban area.

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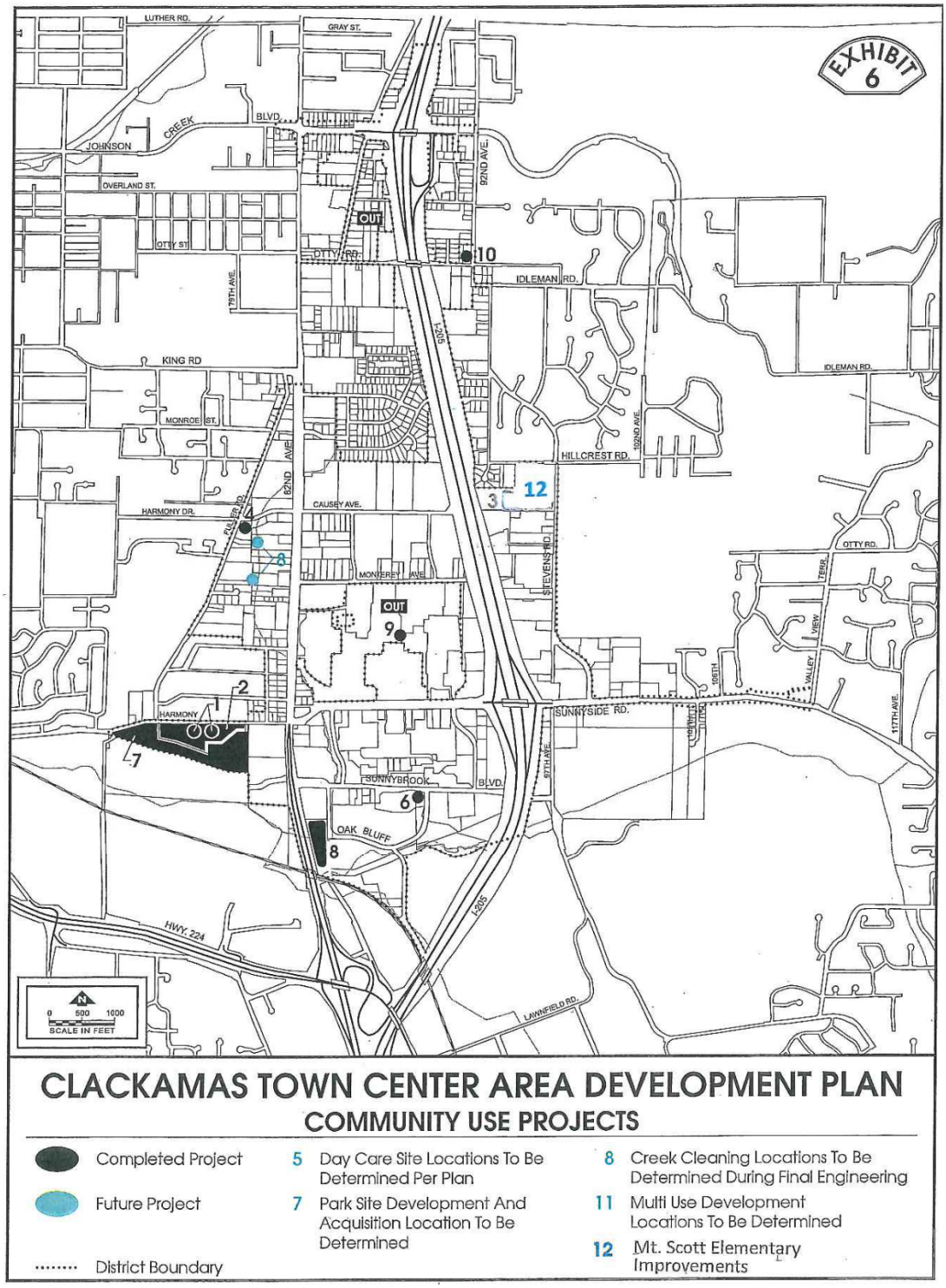
Exhibit Six – Community Service Projects- Replaced in its Entirety



Source: Clackamas County