Vernonia
TRANSPORTATION SYSTEM PLAN UPDATE
VOLUME I PLAN

PREPARED FOR

City of Vernonia

WITH SUPPORT FROM

Oregon Department of Transportation

Oregon Department of Land Conservation and Development

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CONTENTS

SECTION

Page

1 Introduction 1-1

2 Existing Conditions 2-1
Transportation Facility Inventory 2-1
Land Use Inventory 2-5
Existing Conditions Operational Analysis 2-10
Transit Facilities 2-15
Bicycle and Pedestrian Facilities 2-15
Pedestrian Facilities 2-21
Safe Routes to New Schools 2-27
Issues Important to the Community 2-32

3 Future Conditions 3-1
Future Housing and Employment Needs 3-1
Future Transportation Conditions 3-5
Future System Deficiencies 3-9

4 Development and Evaluation of Alternatives 4-1

5 Pavement Management 5-1
Refer to the 1999 TSP

6 Modal Plans 6-1
Roadway Functional Classification 6-1
Street Design Standards 6-3
Roadway Improvements 6-9
Roadway Projects Outside of the UGB 6-12
Bicycle and Pedestrian Improvements 6-17
Bicycle and Pedestrian Projects Outside of the UGB 6-20
Public Transit System Plan 6-26
Regional Transportation System Plan 6-26

7 Implementation 7-1
Implementation Plan 7-1
Existing Funding Sources 7-5
Existing Funding Sources Outlook 7-7
Potential Funding Sources 7-7

8 Land Use Ordinance Modifications 8-1

9 Transportation Planning Rule Compliance 9-1

Appendixes

A Public Involvement
B Goals, Plans, and Policies
C Existing Conditions
D Future Conditions
E System Solutions Report
F Implementing Language
G Safe Routes to New Schools

Tables

Table 2-1 City of Vernonia TSP – OR 47 Existing Access Inventory 2-2
Table 2-2 2009 Total Vernonia Land by Zone 2-6
Table 2-3 Total Vernonia Land by Class and Zone (2009) 2-7
Table 2-4 Vernonia Buildable Lands (2009) 2-8
Table 2-5 City of Vernonia Current Employment 2-9
Table 2-6 1999 Vernonia TSP and TSP Update Study Area Intersections 2-10
Table 2-7 Traffic Study Intersections 2-11
Table 2-8 Intersection Classifications and Mobility Standards on OR 47 2-12
Table 2-9 Intersections Operational Results 2-13
Table 2-10 Existing Conditions 95th Percentile Queues 2-14
Table 3-1 City of Vernonia Population Forecasts 3-1
Table 3-2 City of Vernonia 2031 Residential Land Needs 3-2
Table 3-3 City of Vernonia Employment Forecast 3-3
Table 3-4 City of Vernonia 2031 Employment Land Needs 3-3
Table 3-5 2031 Forecast Buildable Lands – Existing Zoning 3-4
Table 3-6 2031 Forecast Buildable Lands - Alternate Land Use Scenario 3-5
Table 3-7 Intersection Operational Results 3-6
Table 3-8 Year 2031 Baseline Conditions 95th Percentile Queues 3-7
Table 3-9 Year 2031 Left Turn Lane Warrants 3-8
Table 6-1 Roadway Standards 6-3
Table 6-2 Roadway Improvements 6-12
Table 6-3 Bicycle and Pedestrian Improvements 6-25
Table 7-1 Roadway Improvement Action Plan 7-3
Table 7-2 Bicycle and Pedestrian Improvement Action Plan 7-4
Table 9-1 Compliance Requirements for TSP Elements 9-2

Figures

Figure 1-1 Project Vicinity (from 1999 TSP) 1-3
Figure 1-2 Study Area 1-4
Figure 2-1 Functional Classification 2-3
Figure 2-2 Bicycle Facilities 2-19
Figure 2-3 Pedestrian Facilities 2-25
Figure 2-4 Safe Routes to New Schools 2-29
Figure 6-1 Functional Classification 6-5
Figure 6-2 Local Street Cross Section 6-6
Figure 6-3 Collector Street Cross Section 6-7
Figure 6-4 Arterial Road Cross Section 6-8
Figure 6-5 Existing Bridge Street and Mist Drive Intersection 6-11
Figure 6-6 Intersection Alignment Project 6-11
Figure 6-7 Roadway Projects 6-15
Figure 6-8 Bicycle and Pedestrian Projects 6-23

Project Staff

Carole Connell, Contract City Planner

Bill Haack, Interim City Administrator

Seth Brumley, ODOT

Doug Baumgartner, ODOT

Advisory Committee

Tim Bero, Airport and Economic Advisory Committee

Dan Brown, Vernonia Planning Commission

Jeff Burch, City of Vernonia Public Works

Mark Farmer, Western Oregon Electric Cooperative

Gary Fish, Department of Land Conservation and Development

Jeff Harrington, City Contract Engineer

Scott Laird, Bicycle/Pedestrian Representative

Randy Parrow, Vernonia City Council

Sean Pickner, Vernonia GIS Specialist

Mike Pihl, Freight

Dean Smith, Vernonia Fire Department

Don Wallace, Vernonia Planning Commission

Jane Wright, Columbia County Transit Division

Consultant Staff

Terra Lingley, CH2M HILL

Larry Weymouth, CH2M HILL

Mariah VanZerr, CH2M HILL

Josh Johnson, CH2M HILL

Darren Hippenstiel, CH2M HILL

Tegan Houghton, CH2M HILL

Mike Tresidder, Alta Planning + Design

Elliot Akwai-Scott, Alta Planning + Design

Erin Diurba, Critigen

1 INTRODUCTION

This document updates the 1999 City of Vernonia Transportation System Plan (1999 TSP) with new traffic analyses, land use assumptions, and environmental constraint information. Additionally, new schools are being constructed outside of the floodplain in Vernonia, and this update addresses safe routes to the new schools to encourage students to continue walking and bicycling to school.

The new information is meant to be supplemental to the 1999 TSP, and parts of the document continue to be valid, however, sections in this TSP update are meant to replace sections in the 1999 TSP. It is noted in the text where the information has been updated and is meant to replace previous information.

Study Area

The City of Vernonia is a small community on the eastern edge of the Nehalem River Valley in northwest Oregon, approximately 46 miles from Portland (Figure 1-1). The current population is approximately 2,370. The local economy has traditionally depended on the timber industry.

The study area for the TSP update includes the region within the City's Urban Growth Boundary (see study area on Figure 1-2). The topography of the area includes several bodies of water, hills, and bluffs. The floodplain encompasses much of the town, including some of the downtown core, and much of the residential areas on the east side of town near the Nehalem River. These topographical features present challenges to developing a well connected transportation system and to providing adequate roadway widths.

Public Involvement

City of Vernonia community members, stakeholders, representatives from the City, County, and Oregon Department of Transportation (ODOT) provided guidance and policy direction for the TSP update. The City and ODOT comprised the Project Management Team (PMT) which met via phone conference and in person throughout the process to help guide the TSP update.

The Project Advisory Committee (PAC) included representatives from City Council, the Planning Commission, emergency services, public works, and other stakeholder

representatives. This group met five times throughout the process, in September and November 2010, and January, February, and April 2011 to provide input on the project needs, existing and future conditions, possible transportation improvements, and to recommend TSP projects.

In addition to the meetings held with the PMT and the PAC, there were two Community Briefings (February and April 2011), and one Community Workshop in January 2011 to share information with the public at large. Appendix A includes the materials from the PMT and PAC meetings, as well as the Community Briefings and Workshop.

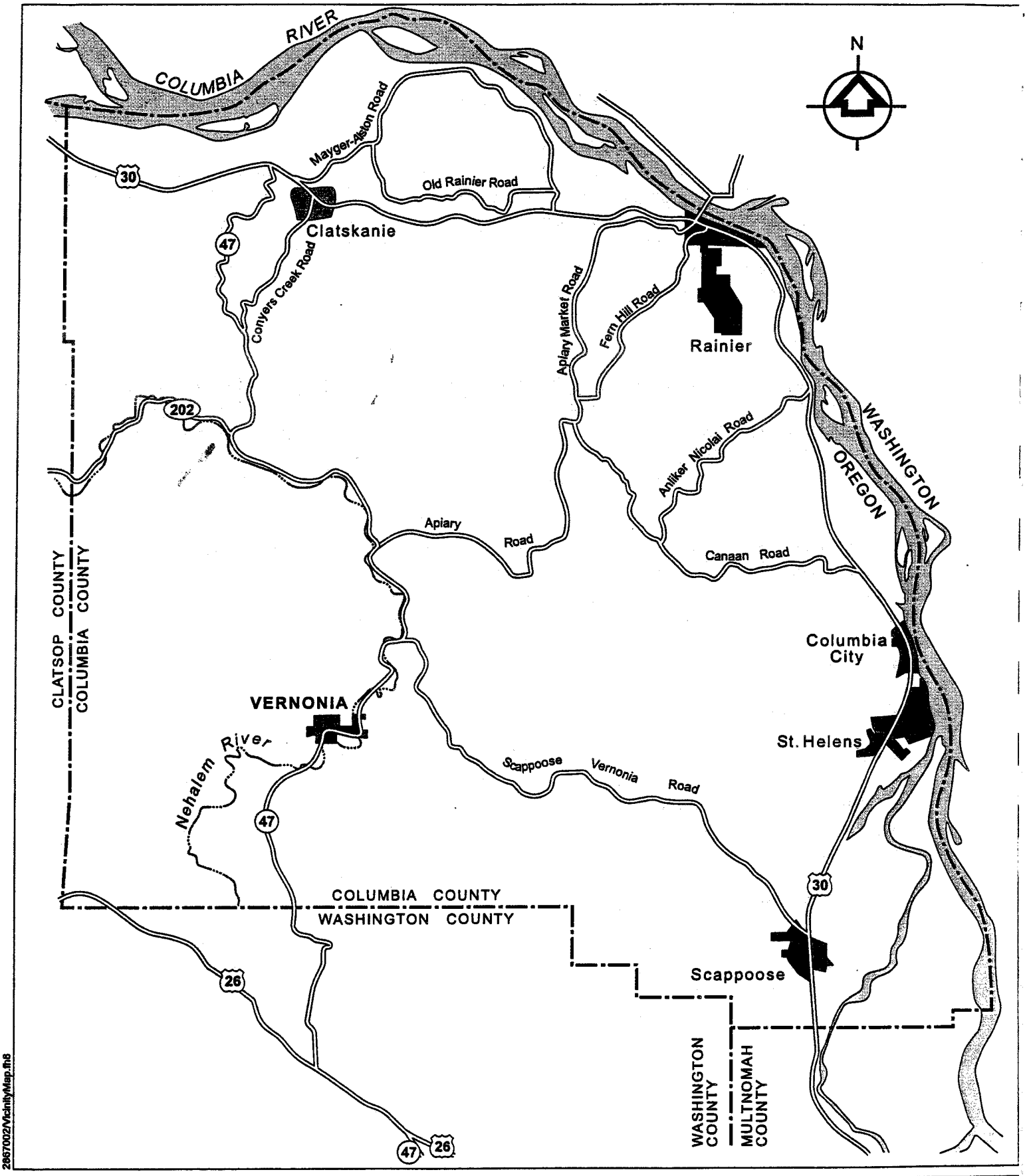
Background information and technical materials were available on the City's website (www.vernonia-or.gov) under the heading "Transportation System Study Documents." Public comments were also collected via email and regular mail.

Goals

The PAC revisited the 1999 TSP goals and adjusted the goals for the TSP update to reflect the current conditions in the City. The project goals for the TSP update are:

- Operation and Safety
  - Preserve and improve function, capacity, level of service, and safety of the roadway system
- Transportation Alternatives
  - Support use of other modes, especially bicycles and pedestrians, but including transit, etc.
  - Maintain and look into expansion of airport facilities
  - Support Safe Routes to New Schools programming and projects
- Finance
  - Sound fiscal approach to financing transportation system improvements

More information on the goals and policies that guided the Vernonia TSP update can be found in Appendix B.



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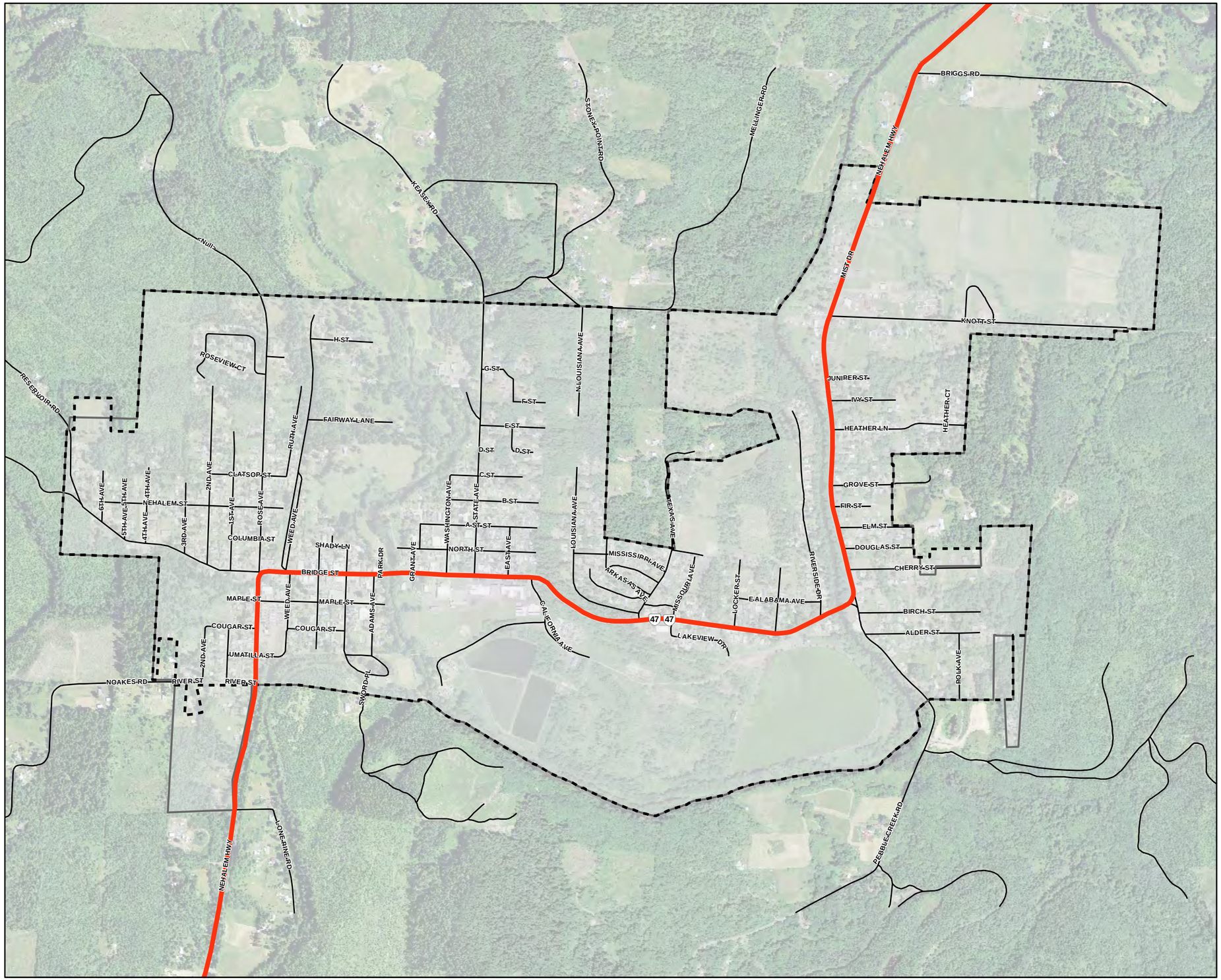
KCM 7080 SW Fir Loop Portland, Oregon 97223	City of Vernonia TRANSPORTATION SYSTEM PLAN	Figure 1-1. PROJECT VICINITY



VICINITY MAP

LEGEND

City Limits

Study Area

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

N

0 250 500 1,000
Feet

FIGURE 1-2
Vernonia TSP Update Study Area
Vernonia Transportation System Plan
City of Vernonia, Oregon

Organization of the Report

The TSP update is organized as follows:

- Introduction
- Existing Conditions
- Future Conditions
- Development and Evaluation of Alternatives
- Pavement Management
- Modal Plans
- Implementation
- Land Use Ordinance Modifications
- Transportation Planning Rule Compliance

Additionally, Appendixes provided at the end of this document include more in-depth technical memoranda and background information produced during the planning process.

- Appendix A: Public Involvement
- Appendix B: Goals, Plans, and Policies
- Appendix C: Existing Conditions
- Appendix D: Future Conditions
- Appendix E: System Solutions Report
- Appendix F: Implementing Ordinance Language
- Appendix G: Safe Routes to New Schools

2 Existing Conditions

The first step in the planning process is to determine the current transportation conditions within the study area. The project team collected information on traffic operations, safety issues, the layout of study intersections, environmental constraints, current and expected land uses, and zoning changes. These current conditions were verified with the public, the PMT, and the PAC.

This chapter replaces some of the sections of the 1999 TSP, and preserves others, where noted.

Transportation Facility Inventory

Functional Classification

The functional classification of a roadway identifies the kind of service it is intended to provide. The functional classification generally identifies the type of travel a road is used for and how many vehicles it carries.

No changes to the existing functional classification are recommended as part of this TSP update. The three existing functional classifications include arterials, collectors, and local streets. Arterials provide access between areas of a city and between cities. They are generally designed for high speed travel and should have minimum interference from through movement. Collectors provide access and traffic circulation within residential neighborhoods and the central business district. Travel distances are typically shorter than on arterials, and more moderate speeds are characteristic. Local roads provide access to land adjacent to the collector network and serve travel of short distances. The classifications for Vernonia are as follows (see Figure 2-1):

- Arterials – In the City, OR 47 is the only arterial roadway. It is the primary roadway providing access to and through the city. OR 47 has several different names within the City limits. The arterial designation applies to Rose Avenue from the south city limits to Bridge Street, on Bridge Street from Rose Avenue to Mist Drive, and on Mist Drive from Bridge Street to the north city limits.
- Collectors – The following streets are designated as collectors: State Avenue from Bridge Street to the north city limit, River/Cougar /2nd Streets, Rose Avenue north of Bridge Street, Louisiana Avenue, Nehalem Street, and Knott Street

- Local Streets – All other roadways in Vernonia are classified as local streets.

Roadway Condition

- The pavement of OR 47 is uniformly in excellent condition (looks new) from the south city limits at Rose Avenue and River Street to Bridge Street and State Avenue. To the east as far as the river, the pavement of Bridge Street (OR 47) is generally in excellent-to-good condition, with the pavement nearest the bridge in good-to-fair condition. On the east side of the river, the pavement condition of Mist Drive (OR 47) is generally good.
- The pavement condition of State Avenue from Bridge Street to "C" Street is poor. However, from "C" Street north to Stoney Road, pavement condition is excellent.

For information on other roadway conditions, please refer to the 1999 TSP, pages 2-1 through 2-2.

State Highway Access Conditions

This section replaces the section of the same name on page 2-2 of the 1999 TSP.

Access Points along OR 47

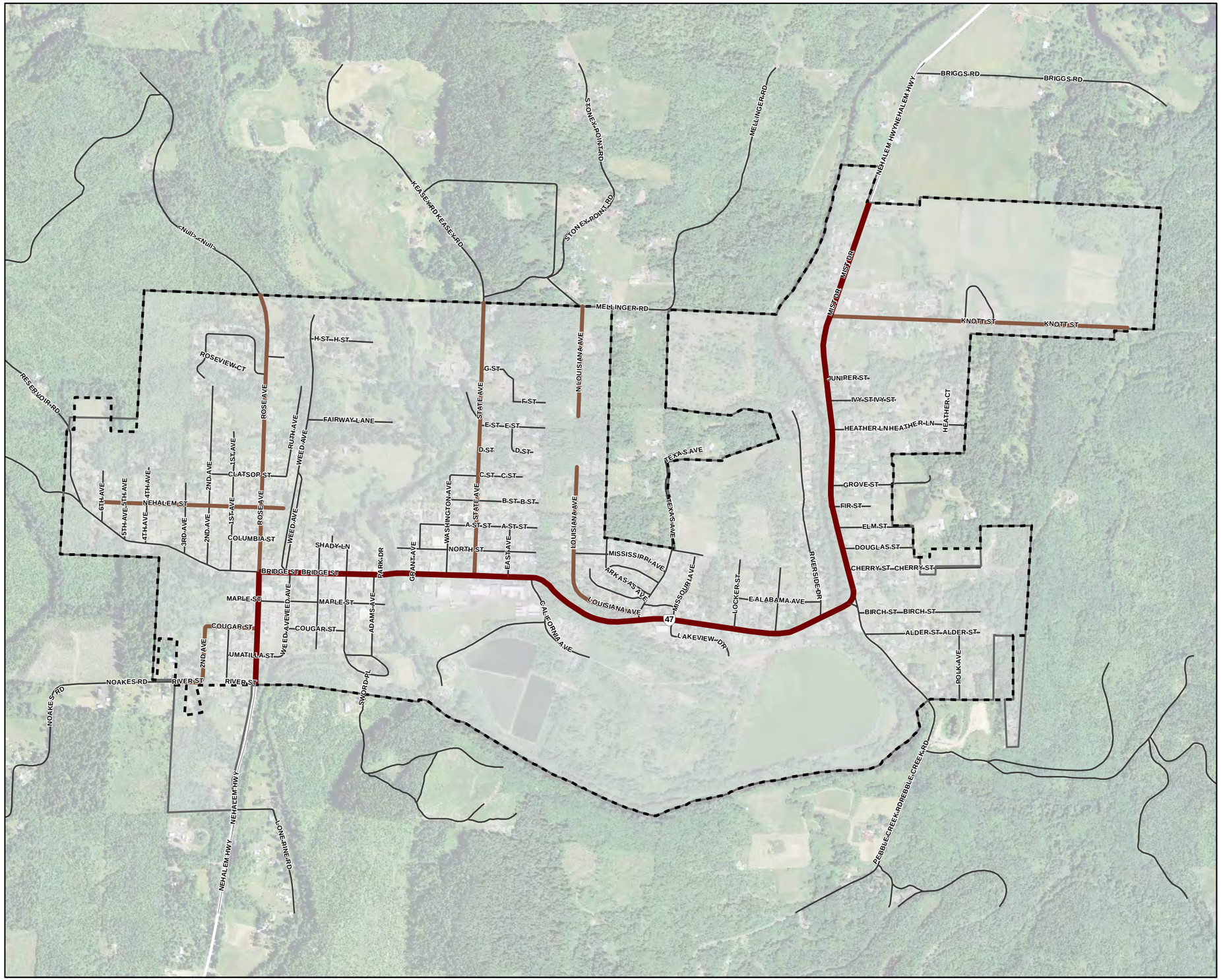
An inventory of all public and private access points within the study area was conducted, and the access points are aggregated by OR 47 road segment in Table 2-1. Within the study area, there are a total of 112 access points along the facility. Forty access points are associated with intersection approaches while the remaining 82 access points are residential or business driveways. Many residential driveways access OR 47 directly.

TABLE 2-1

City of Vernonia TSP – OR 47 Existing Access Inventory

	Number of Access Points to Highway	
OR 47 Road Segment	South and East Side	North and West Side
Rose Street from Limits to Bridge	4	10
Bridge Street from Rose Avenue to Rock Creek	7	13
Bridge Street from Rock Creek to Texas Avenue	7	13
Bridge Street from Texas Avenue to Mist Drive	9	11
N Mist Drive from Bridge Street to Ivy Street	13	0
N Mist Drive from Ivy Street to City Limits	8	17
Total Access Points	**48**	**64**

Source: CH2M HILL analysis 2010



VICINITY MAP

LEGEND

- City Limits
- Study Area

Vernonia Street Classification

- Arterial
- Collector
- Local

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

N

0 250 500 1,000
Feet

FIGURE 2-1
Vernonia TSP Update Functional Classification
Vernonia Transportation System Plan
City of Vernonia, Oregon

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The State of Oregon had codified access management and spacing standards. The purpose of these standards is to provide a safe and efficient transportation system by protecting highway traffic from the hazards of unrestricted and unregulated entry from adjacent properties. Oregon Administrative Rule (OAR) 734-051-0115 specifies access management standards for ODOT facilities. The standards are based on the functional classification of the highway, the general type of land use (i.e., rural, urban), and the posted speed. In the Vernonia study area, OR 47 is subject to state access spacing standards. Relevant state access management spacing standards for OR 47 are found in OAR Division 51 Tables. Of the 40 public approaches onto OR 47 in the Vernonia Study area, only three intersections meet ODOT intersection spacing requirements. The spacing between public intersections widely varies. Most intersections in the downtown area are spaced between 300 and 390 feet apart; however, none of these intersections maintain the required 350 feet between both upstream and downstream intersections. Furthermore, seven of the eighty-two private driveway approaches meet the standard. Only driveways located along N. Mist Drive near the Vernonia north city limits are within standard. These driveways are isolated from public approaches and therefore meet the applicable access standard.

Safety Analysis

This section updates the Traffic Safety Section of the 1999 TSP.

A detailed traffic safety analysis was not conducted for the Vernonia Transportation System Plan Update. Based on OR 47 crash records between milepost 61 through 63, 46 recorded crashes occurred between 2000 and 2009. These crashes were fairly uniform in distribution. The highest number of crashes were fixed object. Other crashes types included rear end, pedestrian, and animal type crashes. Angle (turning) and crossing type crashes did occur; however, they were infrequent. Due to the relatively low number of recorded collisions over the last 10 years (4.6 collisions per year), ODOT and the project team concluded a focused crash analysis would not be of significant value to update.

Figure 2-3 of the 1999 TSP shows safety conditions, much of which have not changed. Safety issues in Vernonia include limited sight distance in the downtown core, bicycle and parking conflicts in the downtown core, and speeding on OR 47/Rose Avenue as traffic enters the City.

Land Use Inventory

The 1999 TSP does not include a discussion of available land use within the City. This is a new section for the TSP.

The draft City of Vernonia Buildable Lands Inventory is being finalized concurrently with the Vernonia TSP update. This study includes existing land use information and serves as the basis of the information provided in this section. The report draws on information from the City's geographic information system (GIS) database, County Assessor tax lot data, flood maps, and the City of Vernonia Local Wetland Inventory and Riparian Assessment.

The current acres of land within the Vernonia Urban Growth Boundary (UGB) is displayed in Table 2-2, and is broken down by zoning designation and the number of tax lots within each zone. Over 70 percent of the land within the Vernonia UGB is zoned

for residential uses, 19 percent is zoned for commercial and industrial uses, and 8 percent is zoned for parks and recreational uses.

TABLE 2-2

2009 Total Vernonia Land by Zone

Zone	Number of Taxlots	Acres	Percent of Total Land Supply
Residential (R)	965	501.76	54%
General Residential (GR)	277	117.85	13%
Low Density Residential (LDR)	3	62.92	7%
Light Industrial (LI)	21	103.34	11%
Public Recreation (PR)	11	74.55	8%
General Commercial (GC)	45	57.77	6%
Downtown (DT)	81	13.61	1%
Totals	**1,403**	**931.6**	**100%**

Source: Draft City of Vernonia Buildable Land Inventory (2009)

According to US Census data, in 2000 Vernonia had 880 housing units and 789 households. According to City geographic information system (GIS) parcel data, Vernonia currently has 943 homes. Vernonia's current housing is dominated by single family residential.

Buildable Lands

According to OAR 660 Division 8, "buildable land" means residentially designated land within the urban growth boundary, including both vacant and developed land likely to be redeveloped, that is suitable, available, and necessary for residential uses. Publicly owned land is generally not considered available for residential uses. Land is generally considered "suitable and available" unless it is:

- Severely constrained by natural hazards as determined under Statewide Planning Goal 7
- Subject to natural resource protection measures determined under statewide Planning Goals 5, 15, 16, 17, or 18
- Has slopes of 25 percent or greater
- Is within the 100-year flood plain; or
- Cannot be provided with public facilities

The acreage of land within the UGB is described in Table 2-3, broken down by zoning designation and by land development class. Each class of land is described below:

- Developed: A tax lot is considered developed when it is built to its zoned density
- Vacant: A tax lot is considered to be vacant when there is no improvement on the values. Vacant lands do not include tax lots that are below 5,000 square feet since those lots do not meet the minimum size for development.
- Redevelopable: A tax lot is considered redevelopable when the property is developed but has a low improvement value. For this inventory, residential low improvement value is when the value per square foot is below $10. This was determined by dividing the improvement value by the land value. If that number was below $10 per square foot the lot was deemed redevelopable.
- Infill: A tax lot is classified as infill, if the lot is developed but has sufficient land left available to build at least one other dwelling unit. To simplify this process a developed lot must be greater than .5 acres to be considered a candidate for infill development.
- Constrained: For this inventory, a tax lot was considered constrained if it is in a floodway, floodplain, wetland, or is government owned. According to the Vernonia public works department, all developed property within city limits are currently served by water and sewer and all undeveloped properties within the UGB can be served by water and sewer, so no development constraints exist related to the provision of public facilities.

TABLE 2-3

Total Vernonia Land by Class and Zone (2009)

Zone	Developed	Vacant	Redevelopable	Infill	Constrained	Total
R	115.2	114.43	14.95	46.67	210.51	501.76
GR	18.16	8.69	1.94	4.59	85.21	118.59
LDR	0	24.43	0	0	38.57	63
LI	3.41	3.49	0	34.16	62.42	103.48
PR	0	0	0	0	74.55	74.55
GC	0.44	1.38	0.29	0	54.72	56.83
DT	9.88	0.15	0	0	3.39	13.42
TOTALS	**147.09**	**152.57**	**17.18**	**85.42**	**529.37**	**931.6**

Source: Draft City of Vernonia Buildable Land Inventory (2009)

Table 2-4 is a list of buildable lands within the UGB. To calculate the amount of buildable land within the UGB, the acres of vacant, redevelopable and infill land were added together and then a percentage of this total was subtracted to account for public right of way needs. For this report, 25 percent of the buildable land supply was assumed to be needed for public right of way. In 2009 Vernonia had 189.9 acres of buildable land within the UGB.

TABLE 2-4

Vernonia Buildable Lands (2009)

Zone	Vacant	Redevelopable	Infill	Public Right of Way	Total Buildable
R	112.43	14.95	46.67	43.51	130.54
GR	8.69	1.94	4.59	3.81	11.42
LDR	24.43	0	0	6.11	18.32
LI	3.49	0	34.16	9.41	28.24
PR	0	0	0	0.00	0.00
GC	1.38	0.29	0	0.42	1.25
DT	0.15	0	0	0.04	0.11
TOTALS	**150.57**	**17.18**	**85.42**	**-63.29**	**189.9**

Source: Draft City of Vernonia Buildable Land Inventory (2009)

Current Employment

The draft City of Vernonia Economic Opportunity Analysis is being finalized concurrently with the Vernonia TSP update. This study includes existing employment information and serves as the basis of the information provided in this section.

The estimated employment for 2008 within the City by type of employment is shown in Table 2-5. Existing employment was estimated by using business licenses and information from the Vernonia Chamber of Commerce. These estimates were based on regular market conditions. Due to the recession, there has been a significant increase in unemployment which may reduce the amount of employment currently found within the City.

TABLE 2-5

City of Vernonia Current Employment

North American Industry Classification System	# of Firms	Employees 2008
Natural Resource	5	20
Construction	24	41
Manufacturing	12	22
Wholesale Trade	0	0
Retail Trade	43	100
Transportation, Warehouse and Utilities	8	40
Information	3	5
Financial Activities	8	21
Professional & Business Services	30	48
Education Services	1	85
Healthcare and Social Assistance	13	32
Leisure & Hospitality Services	15	65
Other Services	17	44
Public Administration	6	32
Total observed	**185**	**555**

Source: Draft City of Vernonia Economic Opportunity Analysis (2009)

Since Vernonia is a small study area, it is important to realize that any change in employment can affect the amount of jobs available to community members. Currently there are no plans for firms to settle in Vernonia, though the three largest employers, the School District, Government, and a Retreat and Conference Center are not expected to leave in the next 20 years.

Vernonia currently has three schools located on the same site, including Washington Grade School, Vernonia Middle School, and Vernonia High School. The Vernonia School District currently serves approximately 586 students, and employs an estimated 68 teachers and staff[1]. The school district may see a significant increase in enrollment and jobs if financing for the new school campus is found. Enrollment at the local school has decreased sine the 2007 flood. It is expected to rise significantly if a new school is built outside the floodplain.

[1] This excludes the students and employees at Mist Elementary School, which is within the Vernonia Schools District, but outside the Vernonia UGB. Source: http://www.vernonia.k12.or.us/

Existing Conditions Operational Analysis

Traffic Operations

This section describes the existing (2010) transportation conditions within the Vernonia Transportation System Plan (TSP) analysis study area. This section provides an overview of the traffic analysis and operational results, which are appended. This section updates the Roadway Operation section of the 1999 TSP.

Study Intersections

The existing conditions traffic analysis describes the motor vehicle operations for the existing (2010) p.m. peak hour conditions based on existing roadway geometry, lane configuration, and intersection control. This information provides the project team with an understanding of the mobility level and length of average vehicle delay on the existing roadway network within the City of Vernonia.

Ten study intersections were analyzed as part of the Vernonia TSP existing conditions analysis. The 1999 TSP analyzed different study area intersections than this TSP update. Table 2-6 shows the 1999 TSP intersections and the TSP update study area intersections. The difference between the two sets of intersections is based on the change in expected areas of development within the City of Vernonia and the focus of the TSP update, which includes relocating the schools. Five of the study area intersections are the same, while five are different. The different intersections are highlighted in grey in the table below. No operational issues were found in the 1999 TSP study area intersections. Counts were provided by ODOT from previous study efforts conducted during the last 3 years. Table 2-7 identifies the count locations, intersection traffic control, count duration, and count date.

TABLE 2-6

1999 Vernonia TSP and TSP Update Study Area Intersections

1999 TSP intersections	TSP Update Intersections
Rose Avenue/Cougar Street	Rose Avenue/Cougar Street
Rose Avenue/Bridge Street	Rose Avenue/Bridge Street
Bridge Street/State Avenue	Bridge Street/State Avenue
Bridge Street/Texas Avenue	Bridge Street/Texas Avenue
Keasey Road/State Avenue/Stoney Point Road	Stoney Point Road/State Avenue
Bridge Street/California	Bridge Street/Weed Avenue
Bridge Street/Jefferson Avenue	Bridge Street/Missouri Avenue
Bridge Street/Mist Drive	Bridge Street/Riverside Drive
Mist Drive/Knott Street	Maple Street/Rose Avenue
Stoney Point Road/Mellinger Road	Maple Street/Weed Avenue[1]

Sources: City of Vernonia TSP (1999)
CH2M HILL (2010)

TABLE 2-7

Traffic Study Intersections

ID #	Intersection	Traffic Control	Time of Count	Count Date
1	Stoney Point Road/State Avenue[1]	Two-Way Stop Controlled	4:00 PM to 6:00 PM	April 15th, 2008
2	Bridge Street/Rose Avenue	All-Way Stop Controlled[2]	3:00 PM to 5:00 PM	March 10th, 2010
3	Bridge Street/Weed Avenue	One-Way Stop Controlled	3:00 PM to 5:00 PM	March 10th, 2010
4	Bridge Street/State Avenue	One-Way Stop Controlled	4:00 PM to 6:00 PM	April 15th, 2008
5	Bridge Street/Texas Avenue	Two-Way Stop Controlled	2:30 PM to 6:00 PM	December 2nd, 2009
6	Bridge Street/Missouri Avenue	Two-Way Stop Controlled	3:00 PM to 6:00 PM	December 2nd, 2009
7	Bridge Street/Riverside Drive	Two-Way Stop Controlled	4:00 PM to 6:00 PM	April 24th, 2008
8	Maple Street/Rose Avenue	Two-Way Stop Controlled	3:00 PM to 5:00 PM	March 10th, 2010
9	Maple Street/Weed Avenue[1]	All-Way Stop Controlled	3:00 PM to 5:00 PM	March 10th, 2010
10	Cougar Street/Rose Avenue	Two-Way Stop Controlled	3:00 PM to 5:00 PM	March 10th, 2010

Notes:
[1]Intersection not under ODOT jurisdiction. Under jurisdiction of City of Vernonia.
[2]Westbound approach is yield controlled.

Peak hour turning movement volumes at each study intersection were identified from the p.m. peak period counts at each location. Raw traffic count data is provided in Appendix C, which shows that each intersection peaks during a different p.m. peak hour. Upon inspection of the counts, the p.m. peak hour occurs between 4:00 and 5:00 p.m. at the majority of intersections. Since the majority of study intersections share a common peak hour, and two previous studies - *West Oregon Electric Cooperative, Inc. Transportation Impact Analysis (DEA, May 2010*) and the *Nehalem View Subdivision Traffic Impact Study (Lancaster Engineering, May 2008)* – also identified 4:00 to 5:00 p.m. as the system peak hour, this system peak was selected for the Vernonia TSP traffic analysis.

Performance and Mobility Standards

State highway mobility standards were developed for the *Oregon Highway Plan (OHP)* as a method to gauge reasonable and consistent standards for traffic flow along state highways. These mobility standards consider the classification (e.g., freeway, regional, district) and location (rural, urban) of each state highway. Mobility standards are based on volume to capacity (V/C) ratios.

Table 2-8 shows the OHP mobility standards for each study intersection. These standards will be applied to all study intersections since they are all within ODOT jurisdiction. The intersection mobility standard is determined based on its traffic control. For unsignalized intersections, the highest V/C value for the major movement and the minor street movement is reported. Table 2-9 will be used to identify mobility standards in the existing and future conditions analysis.

Eight of the ten study intersections are located within ODOT Jurisdiction. The intersections of Maple Street/Weed Avenue and State Avenue/Stoney Point Road are under City of Vernonia jurisdiction. The 1999 Vernonia TSP assumed a mobility standard of LOS D, which will be applied to these two study intersections for existing and future scenarios.

TABLE 2-8

Intersection Classifications and Mobility Standards on OR 47

No.	Location	Mile Point	OHP Highway Classification	Mobility Standard Category	Area	Speed (mph)	Existing or Future No-Build V/C Ratio Standard
				OR 47			
2	At Bridge Street	62.54	District	District	STA	20	0.95/0.95*
3	At Weed Avenue	62.48	District	District	STA	20	0.95/0.95
4	At State Avenue	62.09	District	District	Non-MPO	25	0.90/0.90
5	At Texas Avenue	61.70	District	District	Non-MPO	35	0.90/0.90
6	At Missouri Avenue	61.63	District	District	Non-MPO	35	0.90/0.90
7	At Riverside Drive	61.32	District	District	Non-MPO	35	0.90/0.90
8	At Maple Street	62.60	District	District	Non-MPO	25	0.90/0.90
10	At Cougar Street	62.66	District	District	Non-MPO	35	0.90/0.90

STA – Special Transportation Area
* V/C Ratio Standards are shown as uncontrolled approach/controlled approach
Speed Source: Field Visit (2010)
Existing and No-Build Mobility Source: Adopted Oregon Highway Plan as Amended in August 2006 (Table 6)

Intersection Operational & Vehicle Queuing Analysis

Average intersection vehicle delay and level-of-service, 95th percentile queue length, and volume to capacity ratios were collected from the existing conditions traffic simulation models for the study area intersections.

Operational Analysis Results

This section updates the Current Intersection Level of Service section on page 2-6 of the 1999 TSP. Results from the operational analysis indicate that all ten study intersections currently meet jurisdictional mobility standards.

Table 2-9 shows the results of the existing conditions intersection operational analysis. V/C ratios that exceed mobility standards indicate that the intersection experiences congestion and operates poorly on at least one approach during the peak period. Intersection V/C ratios lower than the mobility standards indicate that intersections are likely operating at acceptable levels of mobility.

As shown in Table 2-9, all of the 10 study intersections meet the OHP or City of Vernonia mobility standards during the p.m. peak hour. All study intersections operate with a V/C ratio less than 0.25, indicating very good operating conditions.

TABLE 2-9

Intersection Operational Results

ID	Intersection	Control Type	Mobility Standard		Existing Conditions (2010) Operations	
			Uncontrolled Approach	Controlled Approach	Uncontrolled Approach	Controlled Approach
1	State Avenue/Stoney Point Road	TWSC	LOS D		LOS A (9.7 sec/veh) Worst Movement= EBL/T/R	
2	Rose Avenue/Bridge Street[1]	AWSC	0.95		0.25	
3	Bridge Street/Weed Avenue	TWSC	0.95	0.95	0.02	0.16
4	Bridge Street/State Avenue	TWSC	0.90	0.90	0.15	0.14
5	Bridge Street/Texas Avenue	TWSC	0.90	0.90	0.02	0.05
6	Bridge Street/Missouri Avenue	TWSC	0.90	0.90	0.00	0.03
7	Bridge Street/Riverside Drive	TWSC	0.90	0.90	0.01	0.02
8	Rose Avenue/Maple Street	TWSC	0.90	0.90	0.00	0.08
9	Maple Street/Weed Avenue	AWSC	LOS D		LOS A (7.5 sec/veh)	
10	Rose Avenue/Cougar Street	TWSC	0.90	0.90	0.00	0.05

Notes:
[1]The intersection of Bridge Street/Rose Avenue has a free NBR movement. The westbound approach is yield controlled.
AWSC: All-Way Stop Controlled
TWSC: Two-Way Stop Controlled
V/C ratios for All-Way Stop Controlled intersections are for the whole intersection.
Source: Synchro 7 Operational Analysis

Vehicle Queuing Analysis Results

The analysis shows that no intersection lane groups within the study area are experiencing vehicle queue lengths that exceed existing available storage. Vehicle queues and available storage are shown in Table 2-10.

TABLE 2-10

Existing Conditions 95th Percentile Queues (2010)

ID	Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
1	State Avenue/ Stoney Point Road	Eastbound	Left/Thru/Right	-	20[1]
		Westbound	Left/Thru/Right	740	40
2	Rose Avenue/ Bridge Street	Eastbound	Left/Thru/Right	280	50
		Westbound	Left/Thru/Right	260	40
		Northbound	Left/Thru	280	60
			Right	75	50
		Southbound	Left/Thru/Right	300	60
3	Bridge Street/ Weed Avenue	Southbound	Left/Thru/Right	-	70
4	Bridge Street/ State Avenue	Southbound	Left/ Right	240	70
5	Bridge Street/ Texas Avenue	Northbound	Left/Thru/Right	Driveway	n/a
		Southbound	Left/Thru/Right	150	50
6	Bridge Street/ Missouri Avenue	Northbound	Left/Thru/Right	850	30
		Southbound	Left/Thru/Right	120	20
7	Bridge Street/ Riverside Drive	Northbound	Left/Thru/Right	170	n/a
		Southbound	Left/Thru/Right	170	20
8	Rose Avenue/ Maple Street	Eastbound	Left/Thru/Right	260	20
		Westbound	Left/Thru/Right	290	60
9	Maple Street/ Weed Avenue	Eastbound	Thru/Right	290	60
		Westbound	Left/Thru	290	50
		Northbound	Left/ Right	270	30
		Southbound	Left/Thru/Right	280	60
10	Rose Avenue/ Cougar Street	Eastbound	Left/Thru/Right	270	50
		Westbound	Left/Thru/Right	driveway	20[1]

Notes:

[1] Queue Lengths less than 20' were rounded up to 20' to represent the minimum queue length of a single vehicle.

95th Percentile queues calculated using an average of five, one hour SimTraffic runs

Queue lengths not reported for free-flowing and uncontrolled movements

Queue lengths rounded up to the nearest ten feet

Movements in black highlight indicate a vehicle queue length that exceeds the available storage length

- indicates existing storage exceeds 1,000 feet.

Distances provided are available storage lengths from stop bar to the beginning of the taper or to nearest adjacent intersection.

Queue lengths are rounded up to the nearest 10 feet.

n/a= not applicable. No vehicle turn movements were recorded during the p.m. peak hour.

Operational Conditions

All study intersections meet applicable mobility standards and all intersection lane groups have 95th percentile queue lengths that are at or less than storage capacity.

Transit Facilities

This section updates the Public Transportation Services section of the 1999 TSP. The Columbia County Rider (CC Rider) provides the Nehalem Valley Fixed Route Service each Monday through Friday to serve commuters of Vernonia. The morning route originates from Vernonia City Hall, departing at 6:15 a.m., with stops at Stub Stewart State Park and Staley's Junction before arriving at Tri-Met's Willow Creek Station at 7:15 a.m. for transfers to Tri-Met's system. The morning return trip arrives back at City Hall at 8:10 a.m. The afternoon trip makes the same stops and departs City Hall a 4:30 p.m., arrives at the Willow Creek Station at 5:30 p.m., and is back at City Hall at 6:25 p.m. In addition, Vernonia is served by the CC Rider West County Flex Route, which operates between Vernonia and St. Helens with stops in Scappoose. This route currently operates on Tuesdays and Thursdays only, with departure times from Vernonia at 8:30 and 11:00 a.m., and 2:00 p.m. This bus connects with the CC Rider Portland and Washington County Fixed Route buses as well as the North and South Flex Routes.

Bicycle and Pedestrian Facilities

According to the American Association of State Highway and Transportation Officials (AASHTO)'s *Guide for the Development of Bicycle Facilitie*s and the *Oregon Bicycle and Pedestrian Plan* (OBPP), there are several different types of bicycle facilities. Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles. Accommodation can be a bicycle route designation or bicycle lane striping. Shared-use paths are facilities separated from a roadway for use by cyclists, pedestrians, skaters, runners, and others. Bicycles are allowed on all study area roadways.

Existing Facilities

The following paragraphs describe the bicycle facilities present in Vernonia. See Figure 2-2 for an inventory of bicycle facilities on arterial and collector streets. Guidance for the construction of new bicycle facilities in the City of Vernonia is included in Public Works Design Standards Section 6.0070, with minimum widths for different facility types provided in Section 6.0071.

OR 47 bike lane with bike stencil.

Bike Lanes / Shoulder Bikeways

This section updates the Bicycle Facilities section of the 1999 TSP. OR 47 is marked with a bike lane for approximately one third of a mile inside the Vernonia city limits, from Vernonia Lake City Park on the east

to Texas Avenue on the west. The highway lacks bike lanes or shoulders through central Vernonia between O-A Hill and Rose Street, due to topographic constraints around O-A Hill and on-street parking provided through downtown. The Rock Creek and Nehalem River bridges are constrained areas for bicyclists riding on OR 47, where the roadway narrows to approximately 22-24 feet, where cyclists and motorists share 11-12 foot lanes in each direction. The Oregon State Bicycle Map shows OR 47 as having wide 4-foot shoulders as it travels on Rose Avenue south of Bridge Street and on Mist Drive from the Nehalem River Bridge to Knott Street.

Shared Roadways / Signed Shared Roadways

Most local streets in Vernonia are low speed/low volume roadways that could be classified as shared roadways. These streets can accommodate bicyclists of varying ages and currently have little need for dedicated bicycle facilities (e.g., bicycle lanes). They generally have low vehicle volumes (3,000 ADT or less) and low posted speeds (25 MPH or less). Roadway widths range between 25 and 40 feet with typical street cross-sections including two vehicle travel lanes with parking on both sides, depending on the presence of curbs and sidewalks.

State Avenue is an example of a shared roadway in Vernonia.

State Avenue is the only street in Vernonia designated as an urban collector/major rural collector other than OR 47. A posted speed of 25 mph and a curb-to-curb width of 36 feet provide ample room for the street to function as a shared roadway south of C Street. North of C Street, State Avenue narrows, with a variable width shoulder of zero to two feet. The posted speed increases to 35 mph and there is no bikeway signing or other accommodations for bicyclists.

Shared-use Paths

There are several shared-use paths in Vernonia, all of which are located south of Bridge Street and OR 47. The Banks-Vernonia State Trail parallels OR 47, connecting Vernonia to the town of Banks and the recently opened Stub Stewart State Park to the south. The State Trail is paved with asphalt and measures approximately eight feet wide, below the recommended

The Vernonia Linear Trail Extension is a two-mile long multi-use path that loops around Vernonia Lake.

minimum width for shared-use paths. Just under two miles long, the Vernonia Linear Trail Extension connects the Banks-Vernonia State Trail to Vernonia Lake City Park and completes a loop around Vernonia Lake. The Linear Extension also measures approximately eight feet wide, with two foot wide gravel shoulders on either side. Another 0.2 miles of shared-use path connects the Banks-Vernonia State Trail to California Avenue long the southern edge of the existing Vernonia school fields. Access to these paths from east of the Nehalem River is difficult, given lack of bicycle facilities on the Nehalem River bridge on OR 47.

Figure 2-2 shows Bicycle Facilities in Vernonia.

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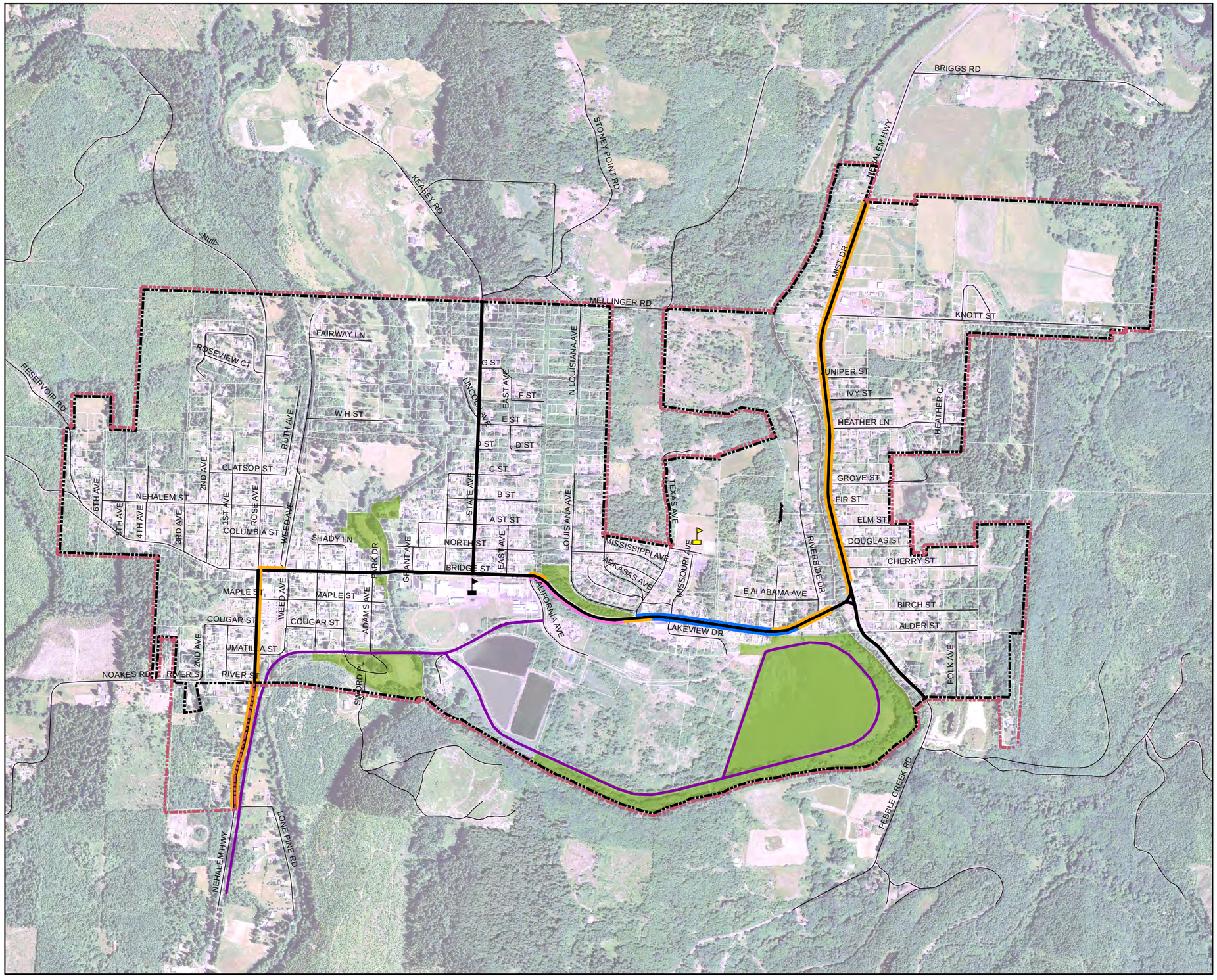
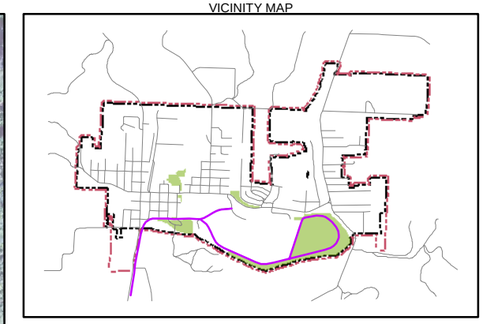


VICINITY MAP



LEGEND

- Existing Vernonia Schools
- Future Site of Vernonia Schools

Bike Facilities Inventory

- Bike Lane
- Shoulder Sidepath
- Shoulder
- Shared-Use Paths
- Inventoried Streets (Arterials & Collectors)
- Streets
- Parks
- City Limits
- Vernonia TSP Study Area

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

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Bicycle Facilities

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Pedestrian Facilities

This section updates the Pedestrian Facilities section of the 1999 TSP. According to the *OBPP*, pedestrian facilities are defined as any facilities utilized by a pedestrian or persons in wheelchairs. These types of facilities include walkways, traffic signals, crosswalks, curb ramps, and other features such as illumination or benches.

Existing Pedestrian Facilities

The following paragraphs describe the pedestrian facilities present in Vernonia. See Figure 2-3 for an inventory of pedestrian facilities on arterial and collector streets.

Sidewalks

The presence and condition of sidewalks in Vernonia varies by location. Where they exist, older sidewalks are generally four feet wide, set back from the curb by a planter strip, and may show some condition issues including cracks or heaves. Newer sidewalks are five feet wide, set curb-tight and in good condition, though some segments of newer sidewalks are located in areas without a consistent sidewalk network. Sidewalk widths throughout the city measure from four feet in areas with older sidewalks, to ten feet downtown and along the south side of Bridge Street adjacent to the existing Vernonia schools. Design requirements for the construction of sidewalks in the City of Vernonia are set forth in Public Works Design Standards Section 6.0060. The minimum width for the construction of new sidewalks is 5 feet or greater, depending on street classification and adjacent land use.

Northwest Vernonia

North of Bridge Street and west of Rose Avenue, most streets lack sidewalks. Exceptions are in areas of recent development, where curb-tight sidewalks were installed along with the construction of new housing. Examples of these areas include 4th Avenue and Rose Hedge Court.

Bridge Street in downtown Vernonia has pedestrian amenities – such as curb extensions, street trees, pedestrian-scale lighting, and decorative stamped crosswalks – that help improve the pedestrian experience.

Downtown Vernonia and Bridge Street

The sidewalk environment in the downtown core includes a variety of complementary pedestrian facilities such as Americans with Disabilities Act (ADA)-compliant curb ramps at intersections, sidewalk curb extensions, pedestrian-scale lighting, and street trees. Sidewalks on Bridge Street downtown are ten feet wide, with a six foot clear zone and four foot planter strip/furniture zone. Planter strips downtown contain street trees but are otherwise filled with concrete paving stones. Most intersections at Bridge Street downtown are equipped with small curb extensions

with curb ramps and decorative stamped crosswalks. These amenities, along with improved building frontages, make for an inviting pedestrian environment in downtown Vernonia.

Most north-south side streets in the downtown area also have sidewalks set back from the curb by planter strips. Notable streets in the downtown area missing sidewalks include Maple Street, Cougar Street, and Weed Avenue. Sidewalks on Bridge Street taper to five feet wide, curb-tight, over the Rock Creek Bridge. The lack of sidewalks on Weed Avenue north of Bridge Street is highlighted by the presence of an informal demand path between the dead-end of Columbia Street and the Wauna Federal Credit Union parking lot.

Rock Creek to O-A Hill

The majority of existing sidewalks in Vernonia are located in the residential area between Rock Creek and O-A Hill, north of Bridge Street and the existing Vernonia schools. Most sidewalks in this area are four feet wide and set back from the curb by a planter strip. However, sidewalks lack curb ramps at most intersections in this area. In some places, the sidewalk is set lower than the roadway and existing curbs, and the curb becomes an obstacle and trip-hazard to pedestrian traffic. Intersections along Bridge Street are generally exceptions to this trend, with stamped crosswalks and curb ramps at locations that access the existing Vernonia Schools. The sidewalk on the south side of Bridge Street directly adjacent to the schools is ten feet wide and curb-tight.

O-A Hill

O-A Hill is the main obstacle to east-west pedestrian movement across Vernonia; Bridge Street/OR 47 is the only through street pedestrians can use to traverse the hill. As it wraps around O-A Hill, Bridge Street lacks sidewalks or shoulders on either side, but pedestrians may use a sidepath on the south side of the street, separated from motor vehicle traffic by a guard rail. Like the adjacent roadway, the sidepath is paved with asphalt. There are no major issues with the pavement condition on the sidepath. The clear travelway along the sidepath is six feet between the guard rail footings on the north side and a chain link fence on the south side, which is below the standard for a path facility that is shared by both pedestrians and bicyclists. Pedestrians and bicyclists may have difficulty crossing to the south side of Bridge Street in order to use the sidepath due to limited visibility on either side as the street curves around O-A Hill.

A six foot wide sidepath along the south side of Bridge Street is the only formal facility for bicyclists and pedestrians who need to cross O-A Hill.

The many informal paths between the alphabet streets on the west and Louisiana Avenue on the east side of O-A Hill reflect the need to cross the hill for Vernonia residents. These paths are steep, with slopes of up to 40 percentin order to gain the elevation of over 100 feet to summit the hill. Many of these informal paths begin at the bottom of the hill at the ends of streets such as North Street and A Street, and emerge at the top of the hill on Louisiana Avenue or in the bushes of Ora Bolmeier City Park.

O-A Hill to Nehalem River

With the exception of Bridge Street, and several houses recently constructed on Lakeview Drive, there are virtually no sidewalks on streets between O-A Hill and the Nehalem River. Sidewalks along Bridge Street in this area are generally curb-tight and five feet wide, with curb ramps at most intersections. Sidewalks along Bridge Street end near Spencer Avenue and Vernonia Lake City Park. Pedestrians use the shoulder on the south side of Bridge Street to cover the remaining distance east to the Nehalem River Bridge.

East of Nehalem River

There are five foot sidewalks on the Nehalem River Bridge, but the clear travelway is constrained at either end of the bridge to widths as little as three feet or less. Several local streets east of the Nehalem River such as Heather Lane have sidewalks, but Mist Drive/OR 47 lacks dedicated pedestrian facilities. Pedestrians walking along Mist Drive use the highway shoulder, which varies up to four feet in width.

Shared-use Paths

Vernonia's shared-use paths, –discussed in the bicycle facilities section above, are attractive to residents and visitors as recreational and exercise facilities for walking and running. But whereas the majority Vernonia residents live on the north side of Bridge Street/OR 47, all of Vernonia's existing shared-use paths are located on the south side of Bridge Street/OR 47. Because they do not provide direct connections between common pedestrian trip origins and destinations in Vernonia, these shared-use paths serve only a limited function as pedestrian transportation routes.

Figure 2-3 shows pedestrian facilities within the City of Vernonia.

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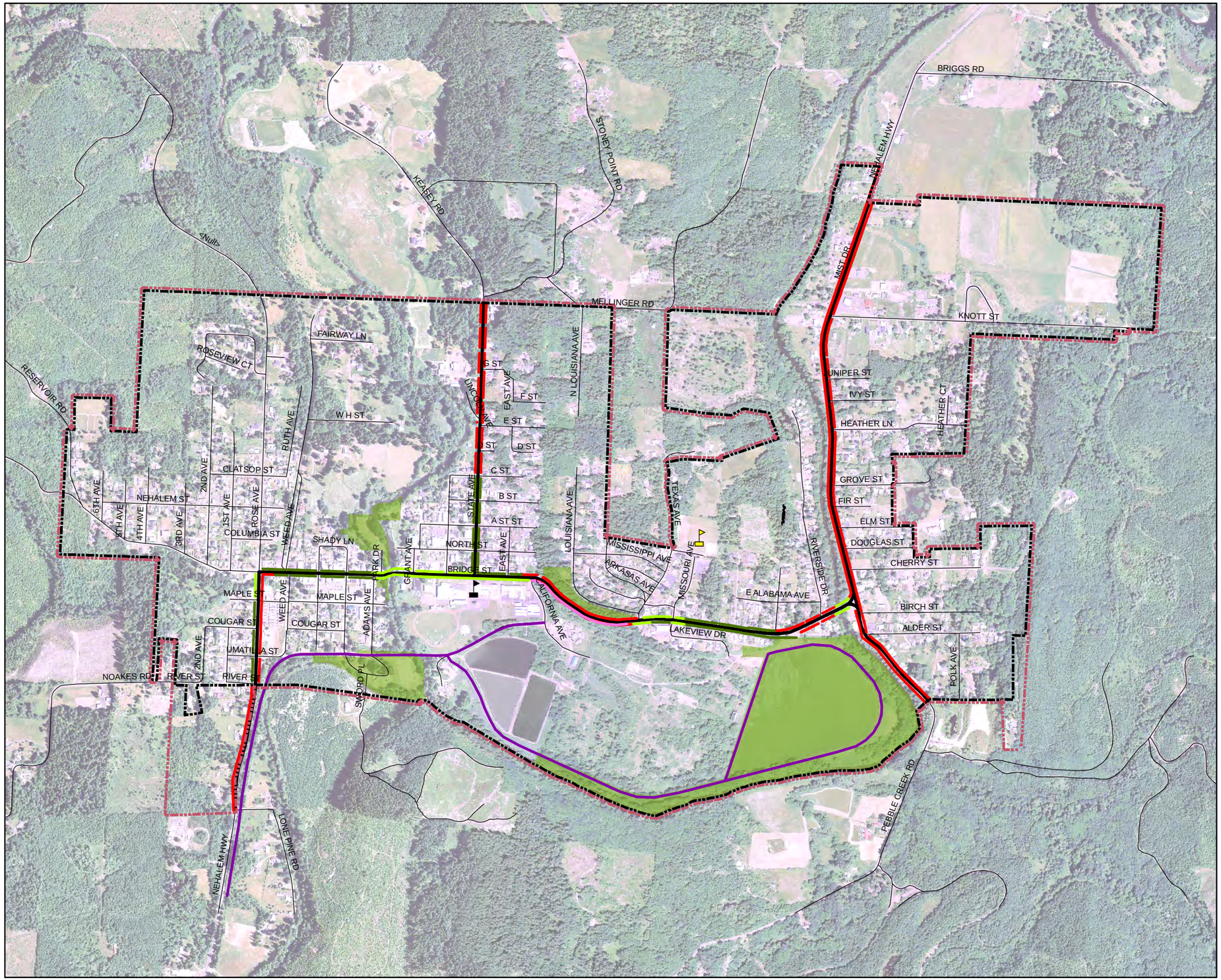
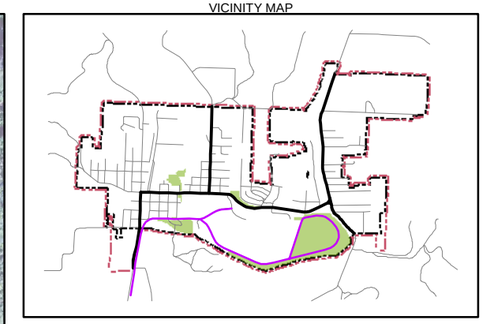


VICINITY MAP



LEGEND

- Existing Vernonia Schools
- Future Site of Vernonia Schools

Pedestrian Facilities Inventory

- Attached Sidewalk
- Detached Sidewalk
- Sidewalk Missing
- Shoulder Sidepath
- Shared-Use Paths
- Inventoried Streets (Arterials & Collectors)
- Streets
- Parks
- City Limits
- Vernonia TSP Study Area

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

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Pedestrian Facilities

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Safe Routes to New Schools

Walking and bicycling are key aspects of student travel to school in Vernonia. According to the *Vernonia School Siting Travel Mode Study* completed by Kittleson and Associates in 2008, walking is the most common mode of travel to school for students living inside the Vernonia city limit. Approximately 46 percent of students walk to school on a given day. Rates for student bicycling are lower, approximately 3 percent, but may reach levels as high as 10 percent during fair weather months at the beginning and end of the school year.

Existing conditions along Missouri Avenue near the future site of Vernonia schools. The 2009 Vernonia School Campus Transportation Impact Analysis Current plans call for the construction of a shared-use path parallel to the road to accommodate students who walk and bike to school.

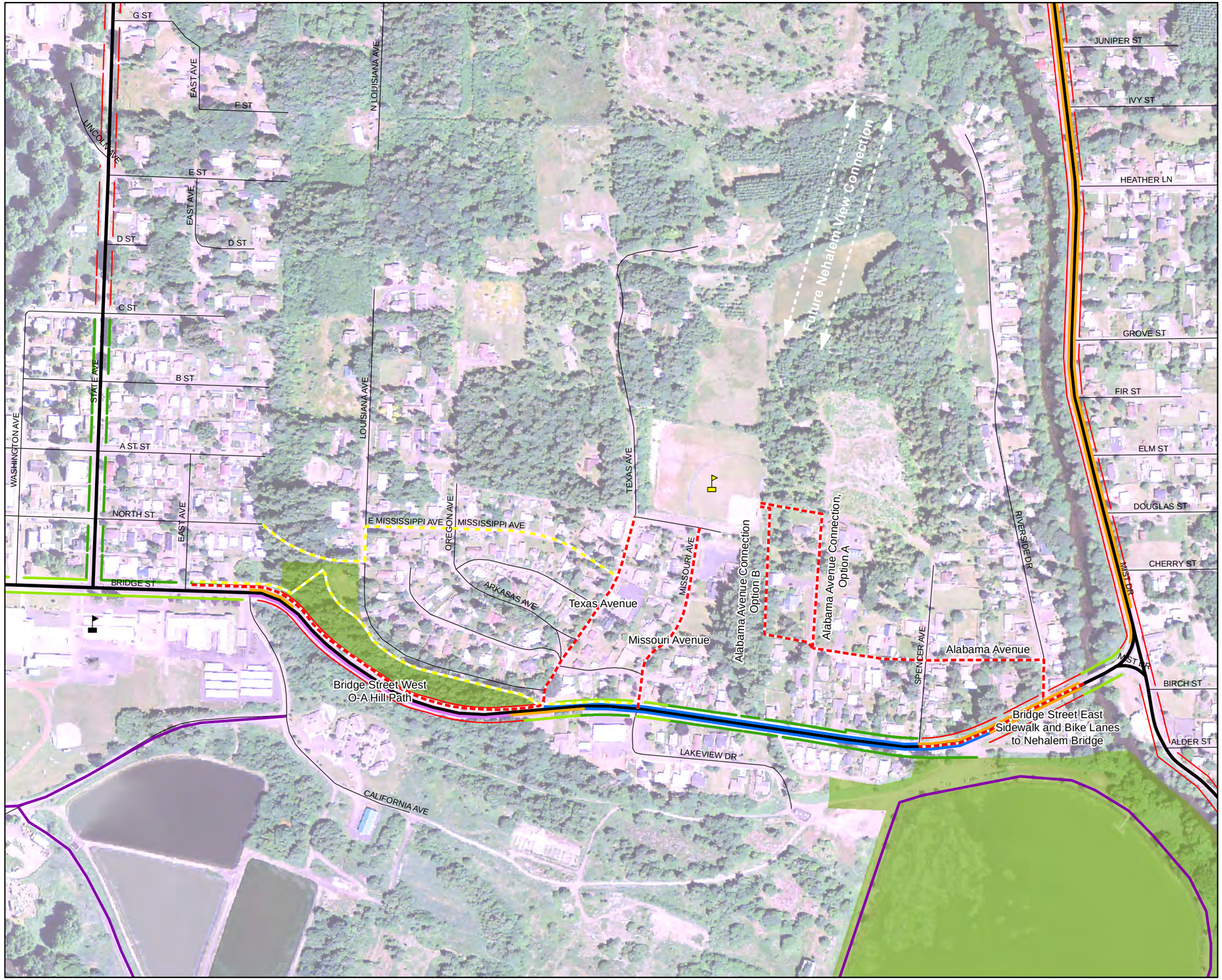
The sidewalk network adjacent to the existing Vernonia schools is among the most complete in the city. However, when the new Vernonia schools are built at the Boot Site at the existing Spencer Park, the schools will be located in an area that generally lacks sidewalks. The two streets that will provide access to the school, Texas Avenue and Missouri Avenue, currently lack sidewalks. The *Vernonia School Campus Transportation Impact Analysis* prepared by Kittleson and Associates in 2009 calls to "provide pedestrian and bike facilities" along Missouri Avenue (, and a "pedestrian-bike connection linking the campus to Texas Avenue."

The new schools' location east of O-A Hill will create a challenge for students living west of O-A Hill. According to the *Vernonia School Siting Travel Mode Study*, nearly 70 percent of students inside the Vernonia city limits live west of O-A Hill, and represent more than 74 percent of students currently walking to school. The only existing route to access the new school site from west of O-A Hill uses the six foot wide sidepath along the south side of Bridge Street. In light of conditions along the existing route on Bridge Street, the Transportation Impact Analysis recommends the following improvements:

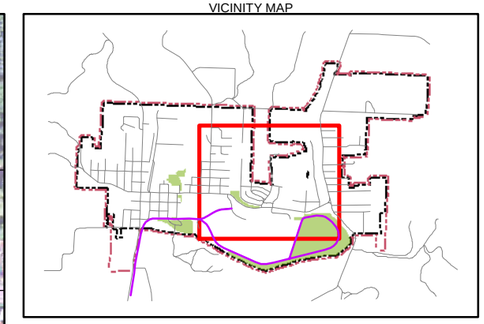
- Retain bike lanes on Bridge Street between Texas and Missouri Avenues;
- Install a multi-use pedestrian-bicycle path along the south side of Bridge Street between Texas and Missouri Avenues;
- Provide a pedestrian connection from the new school site to the city center of Vernonia.

The Transportation Impact Analysis does not directly address the condition of the existing sidepath along Bridge Street around O-A Hill. However, it did develop two additional Proposed Alternative Routes intended to be analyzed further in the Vernonia TSP. These proposed routes would climb O-A Hill from North Street to Ora Bolmeier

City Park, and follow local streets north of Bridge Street to connect to the new school site. These routes are currently used informally by local residents, but would be challenging to develop into formal pedestrian and bicycle facilities. Both alternative routes pass through a heavily forested area and face an elevation gain of approximately 100 feet over a short horizontal distance. Figure 2-4 shows potential routes to the new schools. Appendix G includes more information and recommendations for safe routes to the new schools.



VICINITY MAP



LEGEND

- Existing Vernonia Schools
- Future Site of Vernonia Schools
- Proposed Safe Routes to New Schools
- 2009 TIA Alternatives

Bike Facilities Inventory

- Bike Lane
- Shoulder Sidepath
- Shoulder
- Shared-Use Paths

Sidewalk Inventory

- Sidewalk Missing
- Attached Sidewalk
- Detached Sidewalk
- Inventoried Streets (Arterials & Collectors)
- Streets
- Parks

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

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Safe Routes to New Schools

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Bicycle and Pedestrian Volumes

Census 2000 Journey to Work data shows that approximately 3 percent of employed residents in Vernonia walk to work, while bicycling rates are too low to measure as a commute mode. Additionally, another 3 percent of Vernonia residents work from home, and may be likely to make local walking or bicycling trips during the day. Walking and bicycling are not feasible commute options for the majority of Vernonia workers who work outside the city, 77 percent as of Census 2000, due to distance.

A series of traffic counts conducted at key intersections in March 2010 correlates with moderate levels of walking traffic and low levels of bicycle traffic in Vernonia. The highest levels of pedestrian activity were measured in downtown, where 97 pedestrians, along with two bicyclists, were counted passing through the intersection of Bridge Street and Weed Avenue during the evening peak travel hours from 3:00 to 5:00 p.m.

Issues Important to the Community

The TSP update is the first City document to be updated. The City hopes to continue updating various planning documents including the City's Comprehensive Plan to make sure they are up to date and consistent with State, County and other documents within the City.

At the first joint PAC and PMT meeting, community leaders and stakeholders identified specific issues that might not be captured by the traffic analysis and inventory of existing facilities.

A number of PAC and PMT members noted that sight distance along Bridge Street from the side streets was hampered by on street parking, making it difficult to pull out onto Bridge Street safely. Other safety concerns or areas where "near misses" occur include the three leg intersection near Green Bride where Pebble Creek, Mist Drive and Bridge Street intersect, sight distance issues near Stoney Point and Keasey Roads near Mellinger. Pulling out from Hawkins Park onto Bridge Street is also dangerous due to limited sight distances. The group noted that the Rose Avenue/Bridge Street intersection is confusing for visitors who are trying to follow OR 47 through town, and dangerous for pedestrians and bicyclists.

There were concerns about congestion on City streets from new development including the Nehalem View subdivision and the location of the new schools, potential development near the airport, and potential residential development near Rose and 6th Avenue. The Fire Department is concerned that queuing vehicles waiting to turn left onto Missouri to access the future school site may interfere with or lengthen response times for emergency vehicles exiting the fire station to respond to emergency calls.

PAC and PMT members also raised concerns about bicyclists and pedestrians in the City, specifically how students will get to the new school site by bicycle and walking, and were concerned with the sidewalk ending on the west side of Green bridge to and along Mist Drive. There was a concern about the safety of bicyclists on Bridge Street, and some members noted that bicyclists sometimes ride erratically on OR 47 through town.

The group discussed the need for bus pull-outs to allow vehicles to move out of the traffic flow to pick up riders, and the need for a park and ride in town, potentially at the site of the old Western Oregon Electric Cooperative building.

Summary

Below is a summary of the existing conditions in Vernonia.

Land Use Inventory

- Most land in Vernonia is zoned residential
- There are some Buildable lands still available for development, mostly in residentially zoned areas, with some zoned light industrial
- There were approximately 560 jobs in Vernonia in 2008, and the main employers are the school district, government, and a retreat and conference center

Traffic Operations

- All 10 study area intersections operate within State and City standards
- There are currently no vehicle queues that exceed available storage capacity

Bicycle and Pedestrian Facilities

- There is a bike lane for approximately one third of a mile along OR 47 within the City Limits. The highway lacks shoulders through central Vernonia between O-A Hill and Rose Street due to topographical constraints and on-street parking
- Cyclists share the travel lane over Rock Creek and Nehalem River Bridges
- Most local streets could be considered shared roadways due to their low speeds and low traffic volumes
- There are some newly developed areas with sidewalks, though these are not always continuous
- Downtown and adjacent streets have a connected network of sidewalks with pedestrian amenities
- Maple Street, Cougar Street and Weed Avenue are lacking sidewalks near the downtown area
- O-A Hill is the main obstacle to east-west pedestrian movement within Vernonia – a sidepath along the south side of OR 47 is the only option for pedestrians
- There are very few sidewalks between O-A Hill and the Nehalem River
- Mist drive north of Bridge Street does not have any dedicated pedestrian facilities

3 FUTURE CONDITIONS

This section describes the likely future 2031 land use needs and baseline transportation conditions within the study area given expected population growth, economic opportunities, typical development patterns, and existing plans, policies, and development codes.

Future Housing and Employment Needs

This section is a new section for the TSP, as the 1999 TSP did not address future housing and employment needs.

Housing Needs

Housing Needs Analysis

Housing needs were forecast to the year 2031 using a City of Vernonia population forecast of 2,711 persons. This forecast was based on 2030 population forecast data available from the report *Population Forecasts for Columbia County Oregon, its Cities and Unincorporated Areas* completed by Portland State University's Population Research Center, and adopted by the City in 2009. According to this report, Vernonia is projected to grow at a rate of 0.8 percent from 2010 to 2020. Population growth is expected to slow to 0.4 percent from 2020-2030 (see Table 3-1). The average annual growth rate of 0.4 percent was applied to extend the 2030 population forecast to 2031.

TABLE 3-1

City of Vernonia Population Forecasts

	2010	2020	2030	2031
Population	2,405	2,605	2,700	2,711
Average Annual Growth Rate (AAGR)		0.8%	0.4%	0.4%

Source: Portland State University Population Research Center

Between 2009 and 2031 Vernonia is expected to see an increase in population of 400 persons. Additionally, according to the draft City of Vernonia Buildable Lands Inventory the average person per dwelling unit (APPDU) is expected to decline to 2.62 persons by 2030 due to the effects of an aging population. Assuming the APPDU

remains the same in 2031, the City of Vernonia is projected to need 153 new dwelling units by 2031.

Forecast 2031 Land Need for Housing

Residential (R) and General Residential (GR) zoned land has a minimum lot size of 5,000 square feet, which equates to a maximum density of 8.7 dwelling units per acre. Low Density Residential (LDR) zoned land has a minimum lot size of 10,000 square feet, which equates to a maximum density of 4.4 dwelling units per acre. To project Vernonia's residential land needs, the following equation was used:

> (Net population increase/Average persons per dwelling unit) ÷ Dwelling units per acre by zone = Number of new acres needed by zone

Table 3-2 shows the resulting residential land needs under low, medium, and high density growth scenarios. The low density scenario assumes all available LDR land is consumed and the remaining demand is split evenly between R and GR Zones. The medium density scenario assumes residential land demand is distributed evenly between the three residential zones. The high density scenario assumes all residential land demand is supplied by the R and GR zones, and no LDR land is consumed.

TABLE 3-2

City of Vernonia 2031 Residential Land Needs

Zone	Density (du per acre)	Net Buildable acres[1]	Maximum # of units available	Low Density Scenario (net acres consumed)	Medium Density Scenario (net acres consumed)	High Density Scenario (net acres consumed)
R	8.7	130.5	1,137	4.2	5.8	8.8
GR	8.7	11.4	99	4.2	5.8	8.8
LDR	4.4	18.3	80	18.3	11.7	0
Total		**160.3**	**1,317**	**26.7**	**23.4**	**17.5**

[1] Source: Draft City of Vernonia Buildable Lands Inventory (2009)

Vernonia will require 17.5 – 26.7 net acres of buildable residential land to meet projected housing needs in 2031. Currently, Vernonia has a sufficient amount of buildable residential land to meet housing needs under any of these projected growth scenarios. For the remainder of this analysis, it is assumed that Vernonia will need 23.4 net acres of buildable residential land to meet housing demands in 2031 (the medium density growth scenario).

Type and Level of Employment Growth

Employment Needs Analysis

Employment needs were forecast to the year 2031 using employment information from the draft City of Vernonia Economic Opportunity Analysis (2009). According to this report, commercial jobs are projected to grow at an average annual rate of 1.09 percent from 2008 to 2030 and industrial jobs are expected to grow at an average annual rate of

0.91 percent. These growth rates were applied respectively to the projected number of commercial and industrial jobs in 2030 to achieve estimates for 2031. As shown in Table 3-3, Vernonia is expected to add 127 new commercial jobs and 28 new industrial jobs by 2031.

TABLE 3-3

City of Vernonia Employment Forecast

	2008[1]	2030[1]	Projected 2031	Total New Jobs
Commercial Jobs (AAGR 1.09%)	449	570	576	127
Industrial Jobs (AAGR 0.91%)	123	150	151	28
Total	**572**	**720**	**727**	**155**

[1] Source: Draft City of Vernonia Economic Opportunity Analysis (2009)

Forecast 2031 Land Need for Job Growth

According to the draft *City of Vernonia Economic Opportunity Analysis* (2009), Vernonia's current commercial land density is about 33 jobs per acre and the current industrial land density is about 2.9 jobs per acre. At these densities, 3.9 acres of Downtown (DT) and General Commercial (GC) land would be needed to meet commercial land demand in 2031 and 9.8 acres of industrial land would be needed to meet industrial land demand. Table 3-4 shows the employment land needs.

TABLE 3-4

City of Vernonia 2031 Employment Land Needs

Zone	Density (jobs per acre)[1]	Buildable acres[2]	New jobs (2008-2031)	Land needed (acres)
GC & DT	33.0	1.4	127	3.9
LI	2.9	28.2	28	9.8
Total		**160.3**	**155**	**13.7**

[1] Source: Draft City of Vernonia Economic Opportunity Analysis (2009)

[2] Source: Draft City of Vernonia Buildable Lands Inventory (2009)

Future Land Supply

Forecast 2031 Land Supply

Table 3-5 shows that with no changes to current zoning, the current land supply is more than adequate to meet both residential and industrial land demands through 2031. However, the supply of buildable commercial land is not sufficient to meet the projected commercial land demand.

TABLE 3-5

2031 Forecast Buildable Lands – Existing Zoning

Zone	Current Buildable Land Supply (acres)[1]	2031 Land Demand (acres)	Unmet Demand (acres)	2031 Remaining Buildable Lands (acres)
R	130.5	5.8	0	124.7
GR	11.4	5.8	0	5.6
LDR	18.3	11.7	0	6.6
LI	28.2	9.8	0	18.4
PR	0	0	0	0
GC & DT	1.4	3.9	-2.5	0
TOTALS	**189.9**	**37.0**	**-2.5**	**155.3**

[1] Source: Draft City of Vernonia Buildable Lands Inventory (2009)

Vernonia has two zones that encourage commercial development: Downtown and General Commercial zones. Expanding available commercial lands would be one way for Vernonia to encourage local economic development and meet future commercial land needs.

Forecast 2031 Land Supply – Alternative Land Use Scenario

The City of Vernonia has developed an alternative land use scenario that reflects the City's desire to gain more commercial land outside the floodplain. To meet the projected employment demands and replace commercially zoned lands located in floodplain areas, the City is proposing to expand the Downtown Commercial Zone to include 6 acres of commercial land on the west side of Rose Avenue and 3 acres of commercial land between Jefferson and Weed Avenue. The 9 acres proposed for re-zoning are currently zoned for General Residential (GR). This means that under the alternative land use scenario, 9 acres of residential GR land would be re-zoned to commercial DT land.

Additionally, with 9 new acres of commercial land, the commercial job density would decrease from 33.0 to 19.4 jobs per acre. This means that the amount of commercial land needed to meet commercial land demand would increase to 6.6 acres under the alternative land use scenario.

Table 3-6 shows that under the alternative land use scenario, the buildable land supply would be more than adequate to meet residential, commercial, and industrial land demands through 2031. The 3.4 acres of unmet demand for General Residential (GR) land is due to the rezoning of 9 acres of GR land. However, this demand could be more than offset with the abundant supply of buildable Residential (R) land.

TABLE 3-6

2031 Forecast Buildable Lands – Alternative Land Use Scenario

Zone	Current Buildable Land Supply (acres)[1]	2031 Land Demand (acres)	Unmet Demand (acres)	2031 Remaining Buildable Lands (acres)
R	130.5	5.8	3.4	121.3
GR	2.4	5.8	-3.4	0.0
LDR	18.3	11.7	0.0	6.6
LI	28.2	9.8	0.0	18.4
PR	0.0	0	0.0	0.0
GC & DT	10.4	6.6	0.0	3.8
TOTALS	**189.9**	**39.7**	**0.0**	**150.2**

[1] Source: Draft City of Vernonia Buildable Lands Inventory (2009)

Future Transportation Conditions

Future Planned Infrastructure Projects

The traffic analysis assumes that only one planned and programmed project will occur within the study area. As part of the Vernonia Schools Relocation Project, a 100-foot eastbound left-turn pocket is assumed to be constructed at the intersection of Bridge Street and Missouri Avenue. No additional transportation improvements within the study area have committed funding sources. A review of the ODOT *Draft 2010-2013 Statewide Transportation Improvement Program* indicates that no state projects are anticipated along OR 47 within the study area.

Future Year Traffic Analysis

This section updates the Future Transportation Demand section of the 1999 TSP. The volume to capacity ratios and 95th percentile queue lengths were calculated for the ten study area intersections. These results indicate that the future traffic growth assumed will not lead to significant operational problems within Vernonia.

Table 3-7 also provides a summary of the Year 2031 LOS conditions for the ten study intersections during the PM peak hour. In the existing conditions analysis, all of the intersections meet mobility standards. Even with the growth of traffic in the city, all intersections are expected to operate at an acceptable mobility standard in the Year 2031. Detailed mobility reports are reported in Appendix D.

TABLE 3-7

Intersection Operational Results

ID	Intersection	Control Type	Mobility Standard[2]		Year 2031 Operations	
			Uncontrolled Approach	Controlled Approach	Uncontrolled Approach	Controlled Approach
1	State Avenue/Stoney Point Road*	TWSC	LOS D		LOS A (9.8 sec/veh) Worst Movement= EBL/T/R	
2	Rose Avenue/Bridge Street[1]	AWSC	0.95		0.38	
3	Bridge Street/Weed Avenue	TWSC	0.95	0.95	0.04	0.31
4	Bridge Street/State Avenue	TWSC	0.80	0.80	0.22	0.20
5	Bridge Street/Texas Avenue	TWSC	0.80	0.80	0.03	0.06
6	Bridge Street/Missouri Avenue	TWSC	0.80	0.80	0.17	0.18
7	Bridge Street/Riverside Drive	TWSC	0.80	0.80	0.03	0.06
8	Rose Avenue/Maple Street	TWSC	0.80	0.80	0.00	0.12
9	Maple Street/Weed Avenue*	AWSC	LOS D		LOS A (7.5 sec/veh)	
10	Rose Avenue/Cougar Street	TWSC	0.80	0.80	0.02	0.15

[1]The intersection of Bridge Street/Rose Avenue has a free NBR movement. The westbound approach is yield controlled.
[2]Future Mobility Source: ODOT Highway Design Manual (Table 10-1).
*These intersections are off of the state highway, and City standards (measured in Level of Service (LOS) apply)
AWSC: All-Way Stop Controlled
TWSC: Two-Way Stop Controlled
V/C ratios for All-Way Stop Controlled intersections are for the whole intersection.
Year 2031 Operations as reported from Synchro 7.

The vehicle queuing analysis identifies deficient vehicle storage locations and provides key information as the project advances into the alternative development stage. Table 3-8 shows the forecasted 2031 PM peak hour 95th percentile vehicle queues lengths at the 10 study intersections. One movement, the northbound right turn at Rose Street/Bridge Street, is expected to have a 95th percentile queue that exceeds existing storage capacity. The current right turn pocket can store approximately three vehicles. With the anticipated growth, the right turn queue is likely to spill back out of the existing right turn pocket.

TABLE 3-8

Year 2031 Baseline Conditions 95th Percentile Queues

ID	Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
1	State Avenue/ Stoney Point Road	Eastbound	Left/Thru/Right	-	20[1]
		Westbound	Left/Thru/Right	740	20
2	Rose Avenue/ Bridge Street	Eastbound	Left/Thru/Right	280	50
		Westbound	Left/Thru/Right	260	70
		Northbound	Left/Thru	280	60
			Right	**75**	**80**
		Southbound	Left/Thru/Right	300	60
3	Bridge Street/ Weed Avenue	Southbound	Left/Thru/Right	-	80
4	Bridge Street/ State Avenue	Southbound	Left/ Right	240	70
5	Bridge Street/ Texas Avenue	Northbound	Left/Thru/Right	Driveway	n/a
		Southbound	Left/Thru/Right	150	40
6	Bridge Street/ Missouri Avenue	Northbound	Left/Thru/Right	850	20
		Southbound	Left/Thru/Right	120	90
7	Bridge Street/ Riverside Drive	Northbound	Left/Thru/Right	170	n/a
		Southbound	Left/Thru/Right	170	40
8	Rose Avenue/ Maple Street	Eastbound	Left/Thru/Right	260	20
		Westbound	Left/Thru/Right	290	70
9	Maple Street/ Weed Avenue	Eastbound	Thru/Right	290	60
		Westbound	Left/Thru	290	50
		Northbound	Left/ Right	270	60
		Southbound	Left/Thru/Right	280	60
10	Rose Avenue/ Cougar Street	Eastbound	Left/Thru/Right	270	50
		Westbound	Left/Thru/Right	driveway	60

Notes:

[1]Queue lengths less than 20 feet are rounded up to the 20 feet to represent a standard vehicle length.

95th Percentile queues calculated using an average of five, one hour SimTraffic runs.

Queues lengths not reported for free-flowing and uncontrolled movements.

Queue lengths rounded to the nearest 10 feet

Numbers in black highlight indicate a vehicle queues length that exceeds the available storage length.

Turn Lane Warrants

A turn lane warrant analysis was completed to check if turn lanes meet the installation criteria outlines in the Highway Design Manual. Turn lanes improve safety and the capacity of the roadway by reducing the speed differential between through and turning vehicles. Meeting a turn lane criteria does not necessarily require installation. There are three criteria to determine if a turn lane should be installed:

- Traffic volumes
- Crash experience
- Special cases

Turn-lane warrants were completed at all study intersection based on the 2031 p.m. peak hour traffic volumes. The other two criteria were not analyzed. Table 3-9 show the threshold volumes for meeting turning left warrants.

TABLE 3-9
Year 2031 Left Turn Lane Warrants

Intersection	Movement	Estimated 2031 p.m. Peak Hour Volume	Opposing/ Advancing Volumes[1]	Turn Lane Warrant Threshold	Is Warrant Met?
Rose Avenue/ Bridge Street	WBL	195	320	50	**Yes**
	NBL	25	355	44	**No**
	SBL	45	355	44	**Yes**
Bridge Street/ Weed Avenue	WBL	50	680	17	**Yes**
	EBL	30	660	17	**Yes**
Bridge Street/ State Avenue	EBL	85	755	17	**Yes**
Bridge Street/ Texas Avenue	EBL	35	625	20	**Yes**
Bridge Street/ Riverside Drive	EBL	35	475	31	**Yes**
Rose Avenue/ Maple Street	NBL	3	568	22	No
	SBL	5	570	22	No
Rose Avenue/ Cougar Street	NBL	4	534	25	No
	SBL	25	555	22	**Yes**

[1]Only movements having opposing/advancing volumes greater than 200 vehicles per hour were analyzed.
Numbers in black highlight indicates a warrant is met for a left-turn pocket.
Left turn lane warrants based on Exhibit 7-1 from the *ODOT Analysis Procedure Manual (APM).*

As shown in Table 3-9, several eastbound and westbound left lanes along Bridge Street are warranted. Eastbound left turn lanes are warranted along all study intersections along Bridge Street and westbound left turn lanes are warranted at the intersections of Bridge Street/Rose Avenue and Bridge Street/Weed Avenue. Furthermore, left turn

lanes are warranted along Rose Avenue at a few study intersections. There are no study intersections will warrant a right turn lane based on 2031 p.m. peak hour traffic volumes.

Future System Deficiencies

Based on the analysis of existing and future transportation conditions, and recommendations from traffic impact analyses, the following needs have been identified for the future.

Missing Links

This section updates the Connectivity section of the 1999 TSP. Please refer to Figure 2-6 of the 1999 TSP for a map of these connectivity shortcomings. OR 47 will carry much of the east-west traffic through the city by the year 2031 due to the lack of east-west connectivity through the city. Improving the connectivity and completing parts of the grid network around downtown Vernonia will provide some relief along OR 47. However, topographical constraints through the city provide a challenge. A few missing links are identified below that could improve east-west connectivity through the city:

- A two-way connection between Rose Avenue and Weed Avenue along Cougar Street
- 1st Avenue between Bridge and Cougar Streets
- Columbia Street between 3rd Avenue and Weed Avenue
- Nehalem Street connection to Weed Avenue
- Cougar Street between Jefferson Avenue and Adams Avenue
- North-south road parallel to OR 47 on east side where OR 47 is Mist Drive
- Bridges (as called out in the 1999 TSP)

Geometric Deficiencies

- The intersection of Rose Avenue and Bridge Street will likely have northbound right turn queue that exceeds available storage in the future conditions
- The flashing beacon at Rose Avenue/Bridge Street is confusing for visitors
- There is a potential safety conflict at the offset intersection of Weed Avenue and Bridge Street

Safety Issues

No safety needs were identified.

Summary of Future Conditions and Needs

Land Use

- With current zoning, the City of Vernonia's buildable land supply will be more than adequate to meet both residential and industrial land needs through 2031. However, the supply of buildable commercial land is not sufficient to meet the projected commercial land demand.
- The alternative land use scenario would add 9 acres of commercial land to the Downtown (DT) commercial district. Under this scenario, the buildable land supply within Vernonia would be more than adequate to meet residential, commercial, and industrial land needs through 2031.

Traffic and Transportation

- All study intersections are anticipated to operate at an acceptable mobility standard in the Year 2031 p.m. peak hour.
- One study area intersection, Bridge Street/Rose Avenue, will experience vehicle queuing on the northbound right turn.
- Several left turn lane warrants were met for eastbound and westbound left turn movements along Bridge Street. No right turn lane warrants were met at any study intersections for the p.m. peak hour.
- There is little east-west connectively through the city
- The intersection of Rose Avenue/Bridge Street can be confusing for visitors.

4 Development and Evaluation of Alternatives

This section updates Chapter 4 of the 1999 TSP with the process used to evaluate and recommend the projects in this TSP update. A range of alternatives were developed to address deficiencies and needs identified in the existing and future conditions.

The Planning Process

Following PAC meeting #2 (November 2010), and before the Community Workshop (January 2011), the project team held a brainstorming meeting where potential alternatives were suggested and grouped into two categories: low-cost and high-cost alternatives. The alternatives used information from the existing and future conditions analyses to create a range of potential solutions to address the deficiencies identified in the existing and future conditions analyses.

Key steps in the alternatives development process were as follows:

1. Develop a range of alternatives that seek to meet project goals, incorporating input from the project team, and the PAC (November and December 2010)
2. Revised concepts based on feedback received from the PAC (January and February 2011), and at the Community Workshop (January 2011) and Community Briefing #1 (February 2011)
3. Evaluate each potential alternative to illustrate how it addresses each project goal, and the ability to fund (February and March 2011)
4. Present draft alternatives to the PAC, the Public, and the City Council and Planning Commission (April and May 2011)
5. Finalize recommendations based on feedback from the PAC and the public and create the City of Vernonia Transportation System Plan Update (April-June 2011)

Range of Potential Projects

There were two sets of potential projects developed for the TSP update process: High-build, expensive projects, and low-build less expensive projects. Both sets of alternatives included multimodal transportation improvement alternatives, and are a result of

school and business relocations, as prompted by floods and an increase in the City's commercial land inventory. The alternatives were analyzed for potential environmental constraints, and impacts to Goal 5 resources (natural resources, scenic and historic areas, and open spaces). These sets of projects were then shared with the PAC and the public, and narrowed to the projects included in this TSP update. More information on the alternatives development process and the range of alternatives considered can be found in Appendix E.

5 PAVEMENT MANAGEMENT

The TSP update process did not look at surface conditions or recommended improvements. This chapter should be taken from the 1999 TSP.

6 Modal Plans

This section replaces chapter 6 of the 1999 TSP.

This chapter summarizes all elements of the City of Vernonia Transportation System Plan (TSP). The TSP outlines steps for developing a coordinated network of transportation facilities to meet current and future demands on the transportation system. Projects are described in the following areas:

- Roadway System Plan
- Bicycle System Plan
- Pedestrian System Plan

In addition to road improvement projects, the roadway system plan includes standards and guidelines for providing a balanced transportation system. A functional classification system is outlined for City streets. Design standards are intended to ensure that as the transportation infrastructure is improved, it will safely and efficiently serve the traveling public. Road improvements described in this element are intended to improve safety.

Roadway Functional Classification

The functional classification of a roadway identifies the kind of service it is intended to provide. The functional classification generally identifies the type of travel a road is intended to be used for and how many vehicles it is intended to carry. Three classifications of roadways are used in Vernonia – arterial, collector, and local. Roadway functional classifications are shown on Figure 6-1.

Arterials provide access between cities and larger towns. They are generally designed for high speed travel and the through movement takes priority. Urban collectors provide access and traffic circulation between residential neighborhoods and the central business district. Rural collectors generally serve travel within the rural or unincorporated area. Travel distances on collectors are typically shorter than on arterials, and more moderate speeds are characteristic. The local road system provides access to land adjacent to the collector network and serves travel of short distances.

In the study area, OR 47 is an arterial roadway. It is the primary roadway providing access to and through the city. OR 47 has several names within the city limits: Rose Avenue, Bridge Street, and Mist Drive. The designation of arterial applies on Rose Avenue from the south city limits to Bridge Street, on Bridge Street from Rose Avenue to Mist Drive, and on Mist Drive to the northern city limits. Collector roads within Vernonia include State Avenue, River Street/Cougar Street/2nd Avenue, Rose north of Bridge Street, Louisiana Avenue, Nehalem, and Knott Streets. All remaining roadways in Vernonia are classified as local roadways.

Street Design Standards

As part of this TSP, a set of design standards have been developed for the City of Vernonia based on the previous design standards and refined during conversations with the PAC, the PMT, and the general public. The standards define requirements for sidewalks, parking and planting strips and the accommodation of bicyclists. In addition to establishing requirements for each functional classification (arterial, collector, and local), the standards are flexible to allow accommodation of different available right of way widths. The proposed standards are outlined in Table 6-1, and Figures 6-2 through 6-4 show cross sections for the different street designations.

TABLE 6-1
Roadway Standards

Roadway Element	Local Road	Collector Road	Arterial Road[2]
Available ROW	40' 46'	50' 55'	60' Minimum 75' Maximum
Parking Standards	None for minimum gravel cross-section 8' one side for 40' right-of-way 8' both sides for 47' right-of-way	8' both sides, all right-of-way widths	Downtown Core – 8' both sides None outside of the downtown core
Sidewalk Standards	12' shared-use path for 40' right-of-way** Two 6' sidewalks for 47' right-of-way	8' shared-use path for 40' right-of-way 8' shared-use path and 6' sidewalk for 55' right-of-way	Minimum – 6' both sides Maximum – 12' both sides
Bikeway Standards	None – See sidewalk standards for shared-use-path. On local roads, bicyclists are expected to be able to share the travel lane or use the shared-use path	None – See sidewalk standards for shared-use-path	6' both sides
Lane widths	16' two-way traveled way for minimum gravel cross section 2 – 10' for 40' and 47' total right-of-way	2 – 10' for all right-of-way widths	2 – 12' travel lanes, and one 14' center turn lane
Shoulders	2' for minimum gravel cross-section	None	None
Planting Strips	None	6' Planter/Drainage for 50' right-of-way 8' Planter/Drainage for 55' right-of-way	Downtown core – 4' furniture zone, both sides. Can include street trees.

* Where included, curbs have a 0.5' width each side of the road

** Includes curb width

[2] Note: The OR 47 cross-sections are consistent with ODOT Standards. Specific roadway designs will be developed through a refinement plan or project development process. Design and future improvements to OR 47 must address all applicable design standards appropriate for the designation of the roadway.

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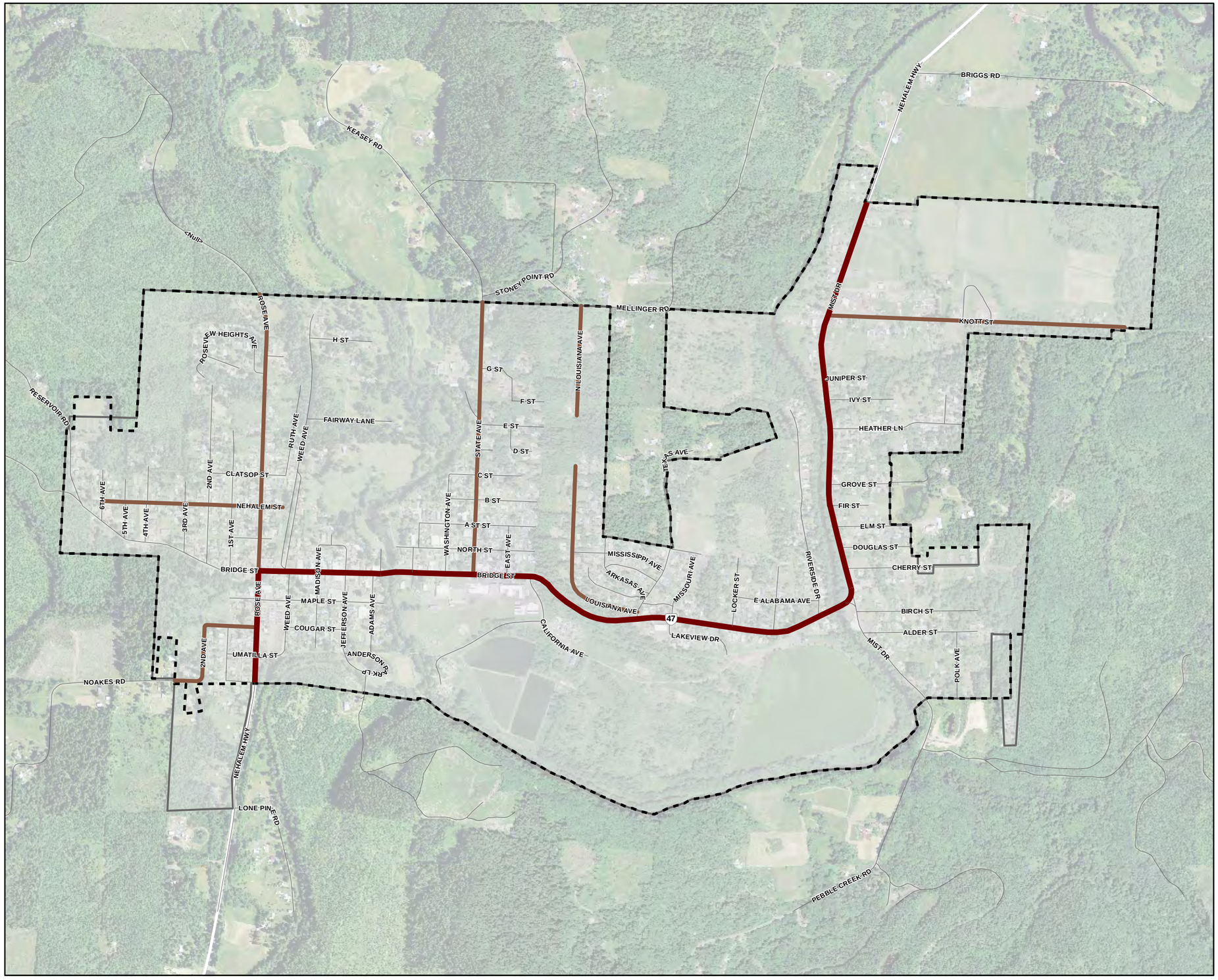


VICINITY MAP

LEGEND

- City Limits
- Study Area

Vernonia Street Classification

- Arterial
- Collector
- Local

Sources:
1. UGB and City Limits - City of Vernonia, 2010
2. Streets - City of Vernonia, 2010

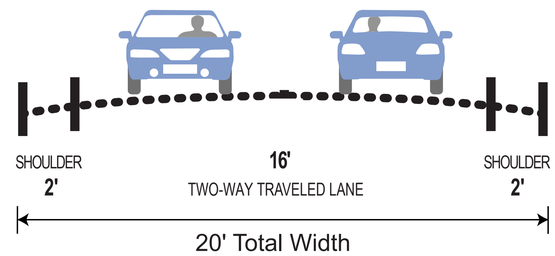
N

0 250 500 1,000
Feet

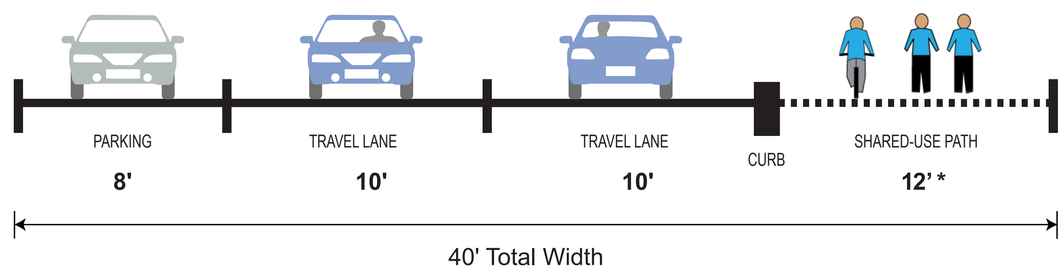
FIGURE 6-1
Functional Classification System
Vernonia Transportation System Plan
City of Vernonia, Oregon

Figure 6-2 Range of Local Road Cross-Sections

Minimum Cross-Section: Gravel



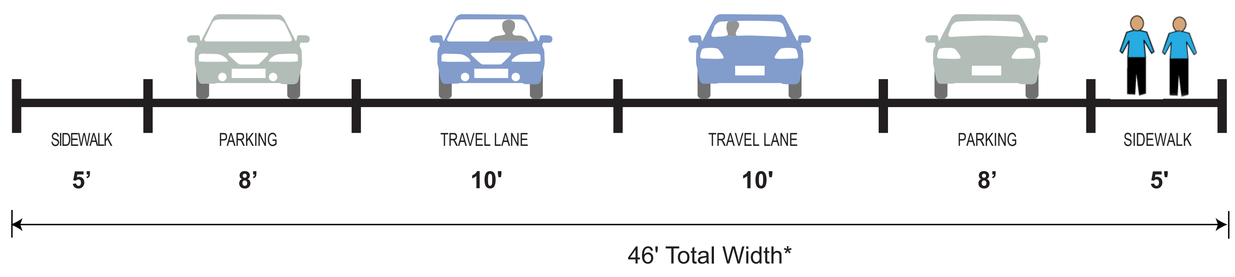
Intermediate Cross-Section: Shared Use Path with Curb, Parking One Side



* Includes 0.5' of curb width

NOTE:
On local streets, bicycles are assumed to be able to share the travel lane or the shared-use path.

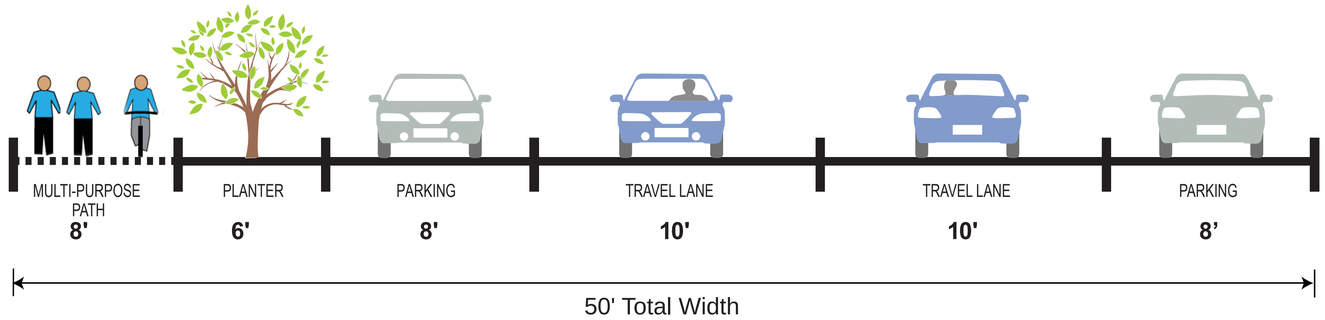
Maximum Cross-Section: Sidewalk and Parking Both Sides



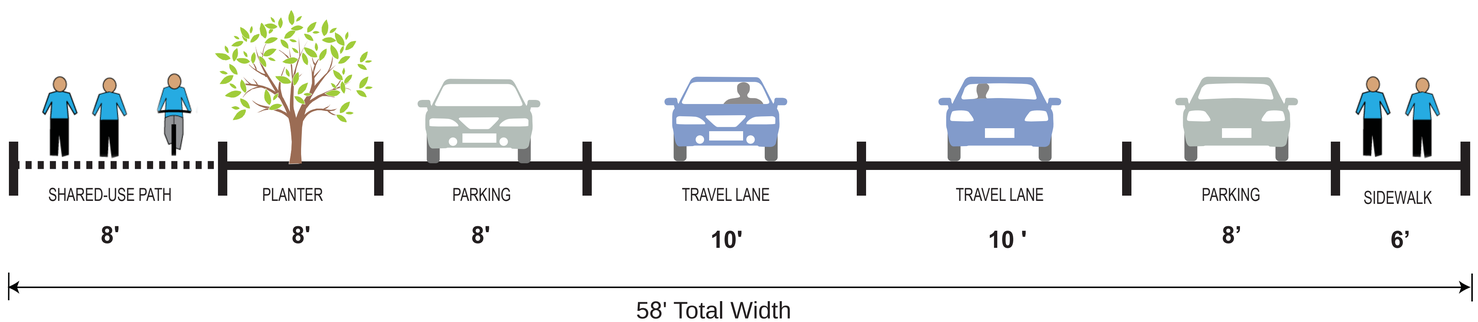
* Also an option for a wide path and planter on one side

Figure 6-3 Range of Collector Road Cross-Sections

Minimum Cross-Section: Shared-Use Path on One Side



Maximum Cross-Section: Pedestrian Facilities and Parking on Both Sides

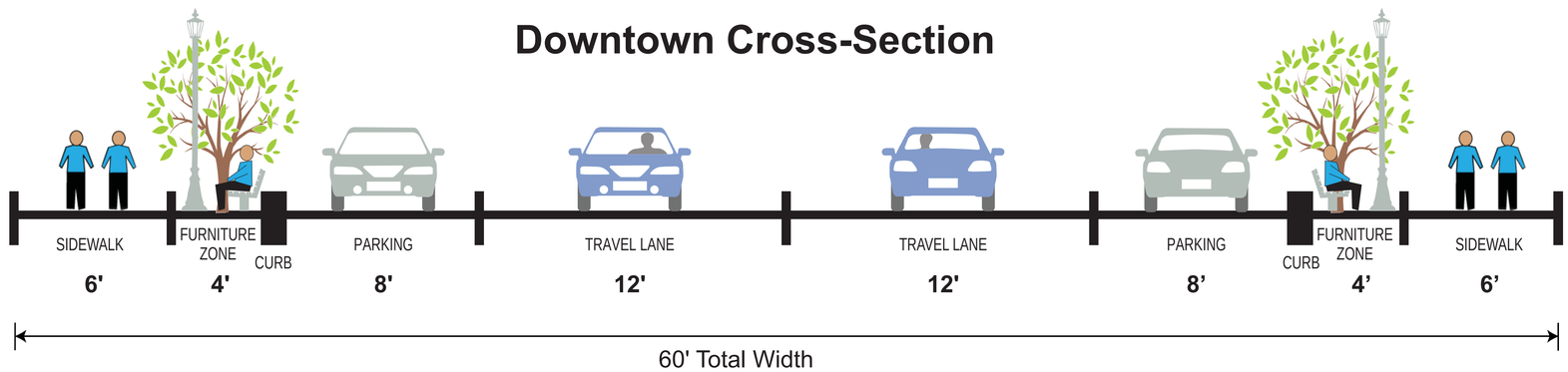


Collector Streets are:

- Rose Ave (North of Bridge St), 75' ROW
- Nehalem St (West of Rose Ave), 50' ROW
- State Ave, 50' ROW
- Louisiana Ave (South Segment), 50' ROW
- Louisiana Ave (North Segment), 60' ROW
- Knott St, 60' ROW
- Cougar St (West of Rose Ave), 60' ROW

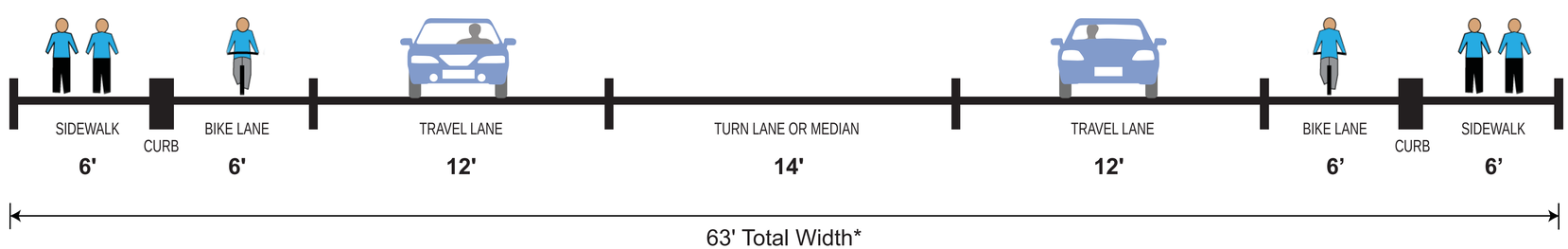
Figure 6-4 OR 47 (Arterial Road) Range of Cross-Sections

Downtown Cross-Section



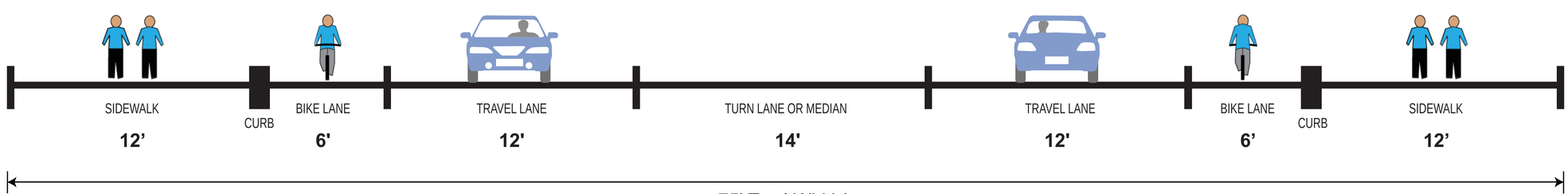
* 1' for curb

Minimum Cross-Section



* 1' for curb

Maximum Cross-Section



* 1' for curb

Roadway Improvements

The following roadway projects (RD) have been developed to address pedestrian, bicyclist, and vehicle needs on roadways and intersections as identified in Chapter 2: Existing Conditions of the TSP. The proposed projects are described below and a summary with cost estimates and the timeframe is included in Table 6-2 below.

RD–1 Improve Signage at OR 47 and Rose Avenue

The intersection of OR 47 and Rose Avenue is confusing for visitors. The majority of traffic follows the highway and turns right at Bridge Street, and the green turn arrow indicates that it is free flow. A flashing red light requires northbound traffic to stop on Rose Avenue before proceeding through the intersection.

This project would add directional signage at the intersection near the flashing red light to increase visibility of the intersection, and would provide a visual cue for drivers that they need to turn right to follow the state highway. It is listed as a short-term priority due to the low cost and potential positive impact at the intersection, and is not expected to have any significant environmental impacts.

RD–2 Restrict Parking at Corners on OR 47

Within the downtown core of Vernonia, between Rose Avenue and the Rock Creek Bridge, parking is allowed on both sides of Bridge Street/OR 47, though restricted at street corners by curb bulb-outs and yellow striping. However, the yellow striping is often ignored, and parked cars adjacent to the corners make it difficult to determine if there is oncoming traffic when attempting to pull out onto Bridge Street from a driveway or local road. Additional striping at corners and creating curbed bioswales, installing pavement bumps, or extending the curb bulb-outs would discourage or prevent parking near street corners. This would increase the distance drivers are able to see, and would allow them to safely pull out onto the highway. Current Public Works Standards restrict parking within 30 feet and 45 feet of the curb return on local and collector streets, respectively. There are no standards restricting parking at corners along Bridge Street/OR 47, the only arterial road within Vernonia. Restricting parking at corners along Bridge Street/OR 47, especially in the downtown core could reduce on-street parking. A parking inventory or study is recommended prior to implementation, working with local businesses to ensure adequate parking supply. This project is not expected to have any significant environmental impacts, and is designated as a short-term project because it could improve safety on Bridge Street/OR 47, and is relatively inexpensive and could be implemented in phases.

RD–3 Widen OR 47 – Add Bicycle and Pedestrian Path on Both Sides

OR 47 along O-A Hill currently has a 10 foot bicycle and pedestrian path along the south side on the outside of the guardrail and two 12 foot travel lanes for a total width of 34 feet. The highway is very narrow around O-A Hill, and with the current configuration, there is no room for pedestrians or bicyclists on the north side of the

highway. This project would widen the highway to a total width of 49 feet, which would require improvements to the existing retaining wall and potentially some cutting back of the slope north of the highway. The final cross-section on O-A hill will include two 12 foot travel lanes, two 6 foot bike lanes, and a 6 foot sidewalk with 6 inches on either side for a curb.

This project would reduce the number of times students and other bicyclists and pedestrians who live north of OR 47 would need to cross the highway to access sidewalks when walking or bicycling along OR 47/Bridge Street to the new school site off of Missouri Street. Currently, students who live north of OR 47/Bridge Street would need to cross the highway a total of four times a day to access the sidepath on the south side of O-A Hill to get to and from school. This is out of direction and a potential safety issue, as there is no striped crosswalk on the west side of O-A Hill, though one is proposed as part of this TSP update. There will be a striped crosswalk on the east side of Missouri Avenue to access the new schools. Many students currently cross the highway at a diagonal or use the informal narrow path along the north side of the highway adjacent to the slope when walking to the current school site from east of O-A Hill.

This project could affect trees on O-A Hill for the expansion of the highway and potential retaining wall on the north side. Impacts to trees will need to be considered during the design phase. It is listed as a medium-term priority to ensure that it is completed soon after the new schools are opened to students, but recognizing that it is an expensive project that will require some time to identify and gather funding.

RD–4 Reconfigure the Mist Drive/Bridge Street Intersection

The current Mist Drive/Bridge Street Intersection is confusing for travelers, as most of the vehicles turn north to follow the highway. The existing intersection is configured as a “Y”, with a triangular curb area separating north and southbound traffic on Mist Drive south of the intersection with the highway. Figure 6-5 shows the existing configuration of the intersection. There are signs in the intersection, but they do not provide enough warning for drivers unfamiliar with the area to determine which direction is appropriate to follow the highway.

Reconfiguring the intersection would provide more certainty for all drivers and reduce confusion at this intersection.

This project would realign Mist Drive south of the highway, creating one connection with the northbound curve of the highway. This would provide certainty for drivers that the highway continues to the north, and Mist Drive south of Bridge Street is a local street. Figure 6-6 shows the approximate realignment. The intersection would be designed to accommodate large trucks and ensure that trucks are able to turn without leaving the roadway, as this intersection carries log and other truck traffic.

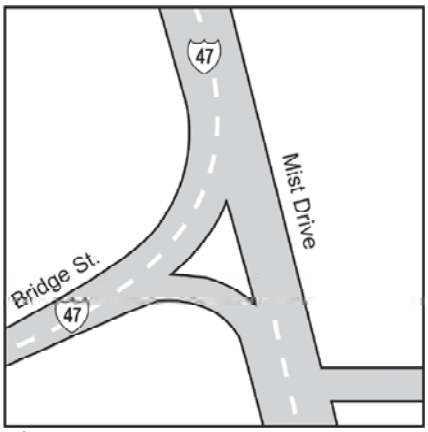


Figure 6-5
Existing Bridge Street and Mist Drive Intersection

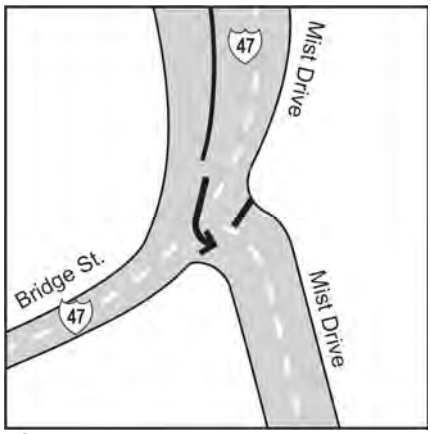


Figure 6-6
Intersection Alignment Project

The intersection is located within the floodway and floodplain, but there are no additional environmental considerations. This project is categorized as a medium term timeframe project to address the existing safety concerns at the intersection.

RD–5 Connect the North and South Sections of Louisiana Avenue

Louisiana Avenue currently does not connect for motor vehicle traffic between the northern and southern parts of the road. The connection is graveled and restricted to pedestrian use by large cement jersey barriers, and there are approximately two blocks where the street is not connected for through traffic. Opening the street to through traffic would allow those who live along Louisiana to have a choice when leaving the neighborhood, and would provide an alternate route to OR 47. This project could potentially impact documented wetlands. This project is identified as a medium term project based on conversations with the PAC and PMT.

RD–6 East-West Road Connection North of Knott Avenue

This approximately half mile connection would serve the existing and currently undeveloped industrial land in the northeast of the City. The future street would provide an alternate access to the industrial parcel, and could connect to Knott Street. Development of this street connection could occur at the same time the industrial parcel develops. There are no platted streets in the vicinity, and any connection would require the City to obtain an easement or purchase right of way from adjacent landowners.

This project would be partially located within the 100-year floodplain and could potentially impact wetlands or a small creek. During design, environmental considerations should be taken into account. This project is labeled as a long-term priority, as it would likely be implemented when the industrial land is developed. The City has no immediate plans or development proposal for the industrial parcel.

RD–7 Connect California Avenue and the Vernonia Lake Parking Lot

This project would connect the existing California Avenue road to the Vernonia Lake parking lot. Currently there is a rough gravel road, but this project would formalize the connection to allow vehicles, bicyclists and pedestrians to travel from the site of the old schools to the Lake without having to use OR 47. The old school site will be converted to a park as part of the new school development project, and providing an off-highway connection between the new park and the existing lake recreational area would allow for more local connectivity south of the highway.

This project is located completely within the 100 year floodplain, and environmental considerations should be taken into account. During design, topography and wetlands/floodway issues will need to be addressed, and additional survey and environmental analysis would be needed. The project is identified as a medium-term project.

TABLE 6-2

Roadway Improvements

	Improvement	Cost Estimate (2011 $)	Timeframe
RD-1	Improve signage at OR 47 and Rose Avenue	$10,000	Short
RD-2	Bridge Street signing and Striping, potential bioswales, concrete bumps or curb bulb-out extensions. There are 7 corners in the downtown core where this treatment could be applied.	$13,000-$15,000 each corner	Short
RD-3	Widen OR 47, add bicycle and pedestrian path on both sides	$8,463,000	Medium
RD-4	Reconfigure the Mist Drive/Bridge Street intersection	$369,000	Medium
RD-5	Connect the north and south sections of Louisiana Avenue	$358,000	Medium
RD-6	Add an east-west local street north of Knott Street to provide additional access to the light industrial parcel east of Mist Drive/OR 47	$2,647,000	Long
RD-7	Connect California Avenue and the Vernonia Lake Parking Lot	$271,000	Medium

Cost estimates are planning-level cost estimates, and do not include right-of-way costs or environmental documentation

Figure 6-7 shows the roadway improvements described above[3].

Roadway Projects Outside of the UGB

In addition to the above projects located within the City, one roadway project was identified outside of the UGB limits. Any facilities located outside of the UGB are not planned facilities or improvements and may not be constructed until authorized by a subsequent post acknowledgment plan amendment. This facility may represent logical extensions or connections to meet future needs, but is not needed to meet current

[3] Note: This project figure is for illustrative purposes only. The designs are conception and do not represent final roadway alignments. Final alignments will be developed by working with property owners, and the projects must be approved by the State or City.

transportation needs within the city. This project is suggested for consideration when future land use decisions, such as UGB expansion amendments, are considered. Designation of this project as planned facility or improvements would require an amendment to the Columbia County TSP (which may require an exception to the statewide planning goals), as the County is the local government with jurisdiction, or a UGB amendment and amendment of the TSP.

Extend Texas Avenue to Mellinger Road

Texas Avenue currently ends at the UGB just north of the new school site. Mellinger Road is located to the north, along the northern UGB boundary. Connecting the two roads would allow additional access into the future Nehalem View Estates and could provide a northern connection to the new school site. There are a number of issues with this connection. Specifically, the connection would: require the road to be, in part, outside of the UGB; connect to a roadway that is largely outside of the UGB; and need to be included in the Columbia County TSP or added to the City's TSP in the event of a UGB expansion. There are no roads platted in this area, and the City would need to obtain an easement or purchase right of way from adjacent landowners.

This project could be phased depending on how and when the Nehalem View Estates are developed. Phase I would connect the development south to Texas Avenue. As more houses are constructed in the development, the connection could be extended north to connect to Mellinger Road. The Nehalem View Estates currently do not have a time frame for development, and so the project is listed as a long-term priority; regardless, the project should be implemented in conjunction with development. The planning-level cost estimate for this project is approximately $1,445,000. This project would be located outside of the City's UGB, and potentially in an area with topographical constraints. There are no identified potential environmental considerations associated with the potential roadway connection.

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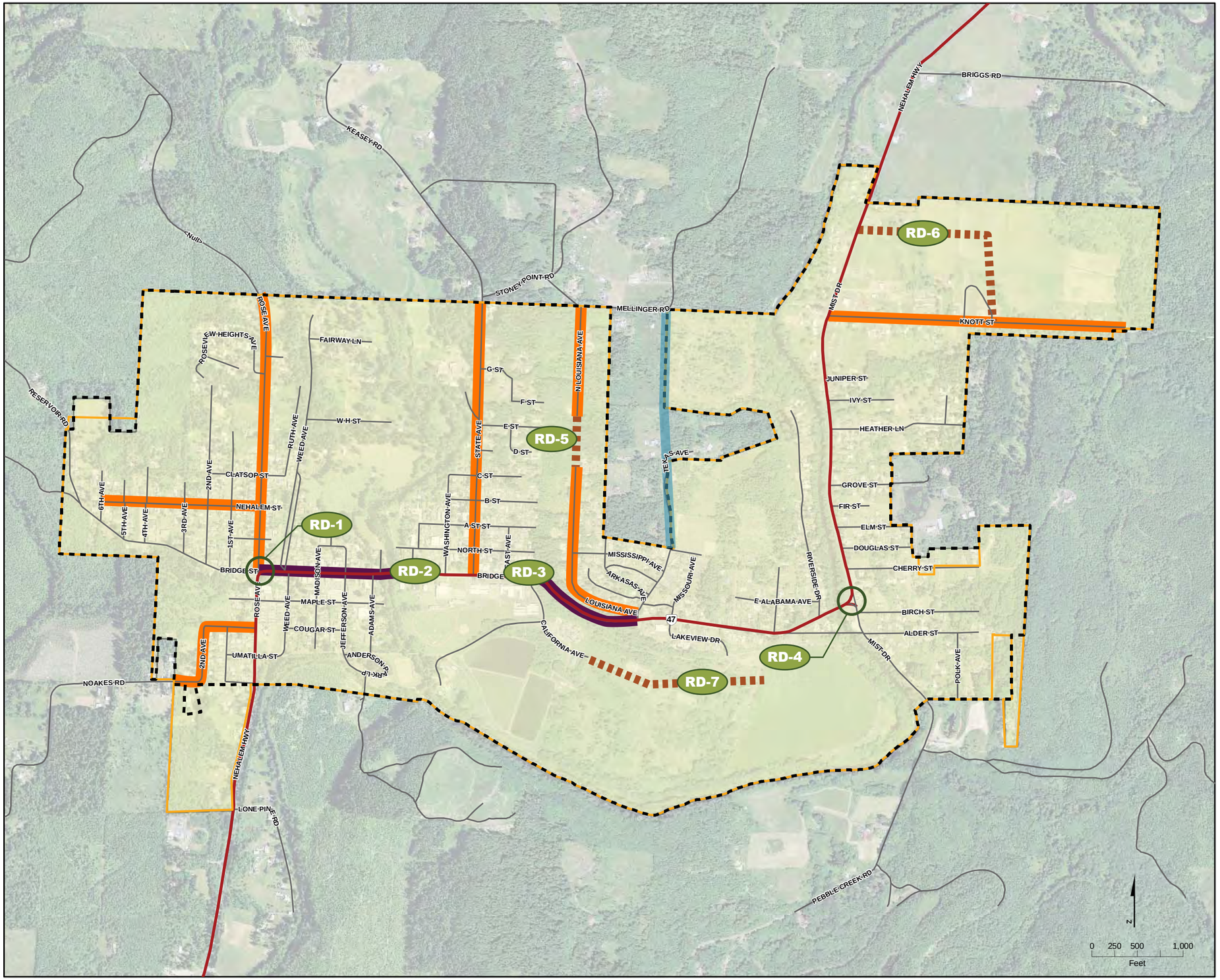

VICINITY MAP

LEGEND

- State Highway
- Streets
- City Limits
- Urban Growth Boundary
- Study Area
- Collector Streets
- Street Connections
- RD-1 Improve signage at OR47 and Rose Avenue
- RD-2 Restrict parking at corners on OR47
- RD-3 Widen OR47; add bicycle/pedestrian path on both sides
- RD-4 Reconfigure the Mist Drive/Bridge Street intersection
- RD-5 Connect Louisiana Avenue
- RD-6 East-West road connection north of Knott Street
- RD-7 Local road connection between California Avenue and Vernonia Lake Parking lot

Projects Outside of the UGB

- Extend Texas Avenue to Mellinger Road

Note: Location of street and path connections are approximate and subject to design review process and environmental considerations

Figure 6-7
Roadway Projects
Vernonia Transportation System Plan
City of Vernonia, Oregon

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Bicycle and Pedestrian Improvements

Bicycle and pedestrian improvements (BP) were identified as an important focus for this TSP update due to the school relocation and emphasis in the community on Safe Routes to Schools. The following projects address the deficiencies and needs identified early in the TSP process. Projects BP-1 through BP-5 are categorized as short-term projects to be implemented before the new schools open north of Missouri Avenue to provide safe bicycle and pedestrian paths to the new schools for students who choose to walk or bicycle to school. Table 6-3 lists the bicycle and pedestrian improvements, cost estimates, and time frame for implementation. Figure 6-8 shows the improvements in the City.

BP–1 Safe Routes to School Connection – Alabama Avenue

This project would create an improved bicycle and pedestrian route between the new schools site and Bridge Street near the Nehalem River Bridge. Alabama Avenue currently is approximately 20-feet wide with no dedicated bicycle or pedestrian facilities and a narrow shoulder. The street is a direct, low traffic volume street for non-motorized users that avoids potential conflicts and high traffic volumes on Bridge Street. The proposed 6-foot sidewalks on one side of the street would provide a separate area for students to walk and bicycle to school.

BP–2 Safe Routes to School Connection – Mississippi Avenue

This project would create an improved bicycle and pedestrian route between the new schools site and Ora Bolmeier Park, accessing a soft-surface trail up O-A Hill. Mississippi Avenue currently is approximately 20-feet wide with no dedicated bicycle or pedestrian facilities and a narrow shoulder. The street is a direct, low traffic volume street for non-motorized users that avoids potential conflicts and high traffic volumes on Bridge Street. The proposed 6-foot sidewalks on one side of the street would provide a separate area for students to walk and bicycle to school.

BP–3 Safe Routes to School Connection – Texas Avenue

This project would create an improved bicycle and pedestrian route between the new schools site and Bridge Street. Texas Avenue is an alternate, parallel route to Missouri Avenue, and is a direct, low traffic volume street for non-motorized users that avoids potential conflicts and high traffic volumes on Missouri Avenue. Texas Avenue currently is approximately 20-feet wide with no dedicated bicycle or pedestrian facilities and a narrow shoulder. The proposed 6-foot sidewalks on one side of the street would provide a separate facility for students to walk and bicycle to school.

BP–4 Soft-surface Trail up O-A Hill

This project would formalize the existing demand paths that run up and down the west side of O-A Hill between Ora Bolmeier Park and the ends of North Street and A Street. This project would eliminate steep routes, mitigate erosion issues, and consolidate the existing paths into a single-track trail following a moderate slope up O-A Hill, with a

spur connecting to the north side of Bridge Street across from California Avenue. This project could have impacts to Ora Bolmeier Park; however, the nature of the soft-surface pedestrian connection would allow the design to minimize environmental impacts.

BP–5 Improve Pedestrian Crossing at OR 47 – Access to Sidepath on O-A Hill

This project would improve crossing conditions for pedestrians and bicyclists accessing the current sidepath on the south side of OR 47/Bridge Street to traverse O-A Hill, which is a key route to the new Vernonia Schools site. The exact location of the crossing would need to be determined with input from the school and ODOT, as O-A Hill topography could impact speeds and safety at a crossing at the base of the hill. Treatments for the crossing include new sidewalks along the north side of Bridge Street, new sidewalks to connect with the side path, a crosswalk, warning signage, and curb ramps.

BP–6 Linear Trail North-South East of Mist Drive/OR 47 Connecting the "Tree Streets"

This would connect the "tree streets" east of Mist Drive/OR 47 with a north-south trail or linear park connection. There is no City right of way platted in this area, but many of the houses east of Mist Drive have been or are actively being purchased by the City, because they are located in the flood zone. Prior to construction, the City would need to coordinate the property buy-out, and determine the location of the path/linear park.

This project has a number of potential environmental considerations; the area is largely within the 100-year floodplain, and there are several identified wetlands within the approximate location of any north-south connection. The nature of the trail connection could minimize impacts to floodplains and wetlands. This project is considered a short- or medium-term project, coinciding with the expected time frame of the property buy-outs and to allow the City more time to coordinate with landowners and determine an alignment.

BP–7 Pedestrian and Bicycle Connection between California and Missouri Avenues

Improving California Avenue would provide an off-highway route for students south of OR 47 to get around O-A Hill to connect to Missouri Avenue. The right-of-way for California Avenue is platted, and part of the road currently exists, but it does not connect to Missouri Avenue. This project would connect the end of California Avenue to Bridge Street or to Lakeview Drive and Missouri Avenue as a pedestrian and bicycle path. There is a large change in elevation that would need to be addressed between the platted California Avenue and Bridge Street.

This project could have some impacts on environmental resources. California Avenue is located within the 100-year inundated floodplain, and there are a number of wetlands on either side of the platted street. Additionally, this project is a lower priority compared the previous projects, in the medium-term time frame, because it is an

additional bicycle and pedestrian connection to those proposed in Projects BP-4 and BP-5.

In addition to this bicycle and pedestrian connection, the City is interested in studying a potential local road to connect between California and the Vernonia Lake parking lot. Currently there is a gravel connection, but future projects in the area should consider that a local road could provide a connection between California Avenue and the Vernonia Lake parking lot.

BP–8 Create a Bicycle and Pedestrian Bridge Over the Nehalem River

This project would create a new bicycle and pedestrian bridge over the Nehalem River north of Bridge Street. This would allow students who live near Mist Drive to cross the river and access the new schools site without having to use the Green Bridge and the associated narrow pedestrian and bicycle facilities. This should also be connected with a bicycle and pedestrian path to link to other safe routes to school, providing a continuous and safe way for students to bicycle or walk to school. The narrowest part of the floodplain over the Nehalem River is in the vicinity of Alabama Avenue; however, further design and information is needed before an exact location is determined. This project could impact the floodway and floodplain, however, a bicycle and pedestrian bridge has different requirements than roadway bridges with respect to the floodplain. Additionally, the complexity and cost of this project make it more likely to be a medium term priority for the City.

BP – 9 Create a Pedestrian and Bicycle Connection to the New Schools from Riverside Drive

This facility would connect the new Vernonia Schools site to Riverside Drive to the east with a new off-street shared use path. The school site plan already includes a path heading east from the school property. This path would connect to the planned school path and allow students living in the future Nehalem View Estates or along Riverside Drive to access the new school site without having to walk along Bridge Street/OR 47. The path would extend down Riverside Drive towards Bridge Street. The intersection of Bridge Street and Riverside Drive was identified as a dangerous one for bicyclists and pedestrians trying to cross the highway. This crossing and the access to Vernonia Lake would need to be addressed when this project is implemented. This project could be implemented in phases to help reduce project costs, and tied to future development along Riverside Drive.

The bicycle and pedestrian path could have some impacts to a wetlands area adjacent to the new schools; however, the nature of the bicycle and pedestrian connection would allow the design to minimize environmental impacts. This project is identified as a medium-term priority, and could be coupled with the expected Nehalem View Estate development.

BP–10 Construct Sidewalks and Bicycle Facilities on Collector Streets

Collector Streets within Vernonia include Knott Street, Louisiana Avenue, State Avenue, Rose Avenue north of Bridge Street, Nehalem Street west of Rose Avenue, and the Cougar Street connection to 2nd Avenue and River Street in the southwest part of the city. These collector streets do not have consistent sidewalks or bicycle facilities, but are meant to carry higher traffic volumes than local streets. It is important to ensure that they accommodate all users. These improvements are consistent with the street standards that are included in the TSP update and described in the section above.

Many of the collector roads are located within the 100-year floodplain and improving these streets for bicycles and pedestrians could have environmental considerations; however, the improvements are not expected to significantly impact environmental resources as the roadways already exist.

These projects are designated as medium- and long-term priorities as they could be implemented along with development or other improvements, or they could be implemented in phases instead of all at once to reduce initial costs for construction.

BP–11 Add Sidewalk Along OR 47/Mist Drive on the East Side

A sidewalk along the east side of OR 47/Mist Drive would provide a pedestrian connection to the Green Bridge for residents living on the east side of the Nehalem River. This is a lower priority, and designated as a long-term project, as the pedestrian and bicycle path connecting the "tree streets" (Project BP-9) is preferred by both the PMT and the PAC. However, when the underground water line near Mist Drive is replaced by the public works department, the City should look for opportunities to combine the water replacement work with the installation of a sidewalk.

This project would require adding pavement or asphalt along Mist Drive/OR 47 to construct a pedestrian sidewalk. Much of this section of the highway is located within both the 100-year floodway and floodplain.

Bicycle and Pedestrian Projects Outside of the UGB

In addition to the above projects located within the city, two bicycle and pedestrian projects were identified outside of the UGB limits. Any facilities located outside of the UGB are not planned facilities or improvements and may not be constructed until authorized by a subsequent post acknowledgment plan amendment. These facilities may represent logical extensions or connections to meet future needs, but are not needed to meet current transportation needs within the city. Designation of this project as planned facilities or improvements would require an amendment to the Columbia County TSP (which may require an exception to the statewide planning goals), as the County is the local government with jurisdiction, or a UGB amendment and amendment of the TSP.

Pedestrian and Bicycle Connection from Vernonia Schools to Nehalem View Development

This facility would connect the new Vernonia Schools site to the Nehalem View residential development north of the school with a new off-street shared use path. This project serves a similar purpose of connecting Texas Avenue to the Nehalem View Estates development (Roadway Project RD-7, see page 6-12). If the roadway connection is developed first, this project will take a lower priority, and should be reevaluated to see if it is needed. This project is designated a long-term priority, and should be developed when the Nehalem View Estates are constructed. The cost estimate for the bicycle/pedestrian connection is $210,000.

Connect Future Crown-Zellerbach Trail to the Banks-Vernonia Trail

This project would create an off-street shared-use path connection between the end of the Banks-Vernonia Trail near Vernonia Lake, and the future Crown-Zellerbach Trail to Scappoose that would enter Vernonia from the east. This path connection could turn south from Knott along an existing power line alignment and cross the Nehalem River rather than provide an on-street connection via OR 47/Mist Drive and Knott Street. It could also connect to the north south linear trail through the "tree streets" (Project BP-6, see page 6-11) to keep the bicycle and pedestrian traffic off of Mist Drive/OR 47. The Crown-Zellerbach trail could connect to this linear park, and use the alignment to travel south to the Banks-Vernonia Trail. However, with either option, a new bicycle and pedestrian bridge over the Nehalem River would help make the connection without users having to travel along the highway or use the existing narrow bicycle/pedestrian facilities on the Green Bridge. There are currently a number of organizations working to complete and connect the two trails. The City would coordinate with those groups to ensure that the two trails are able to connect.

This project may have some environmental impacts to floodplain and wetlands, but the nature of the trail and the recreational use is not expected to have any significant impacts. Due to the complexity and the potential need for a bridge over the Nehalem River, this is categorized as a long-term project to allow the City time to organize, coordinate with other organizations, and identify funding sources to complete the connection. The planning-level cost estimate is $1,710,000.

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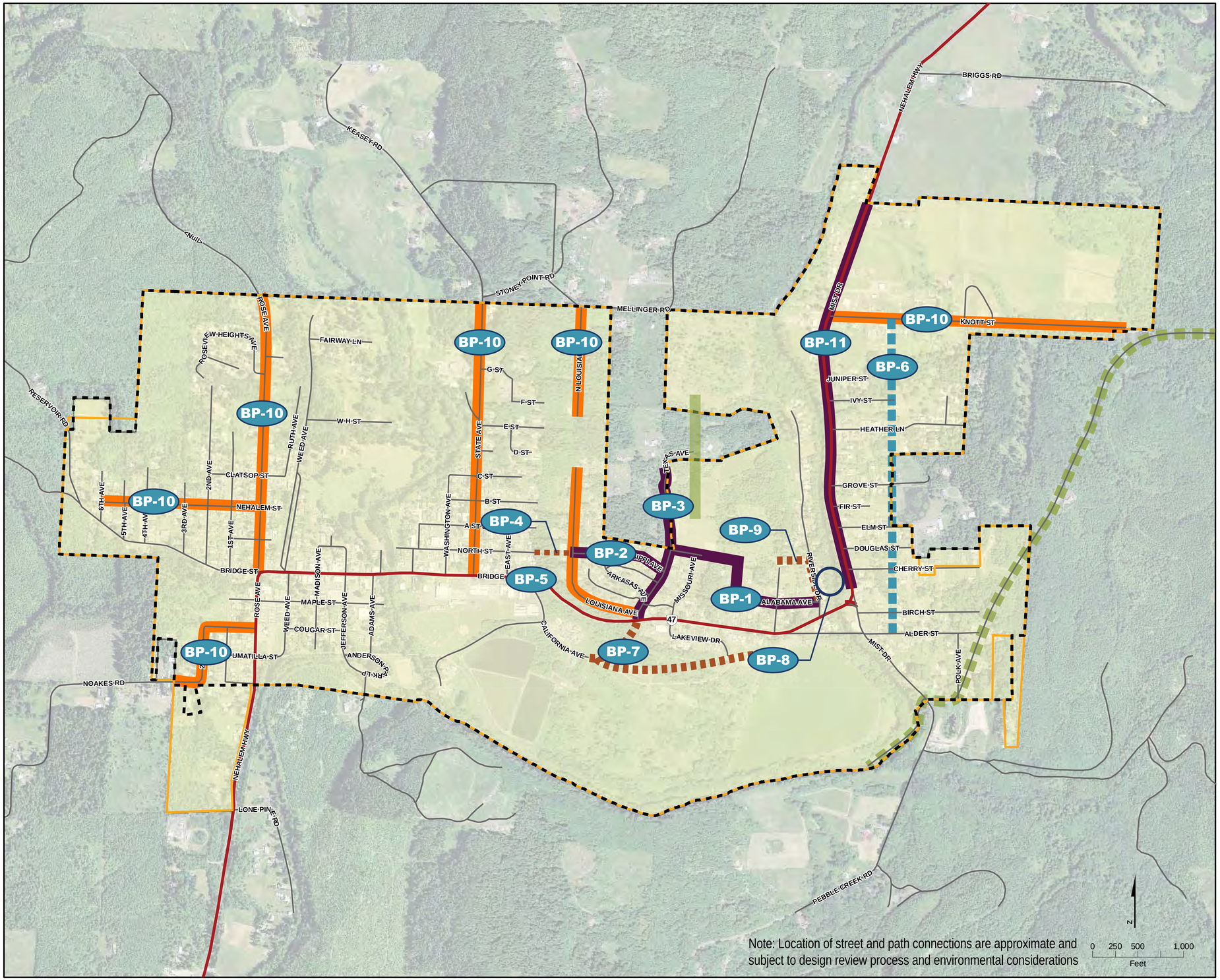
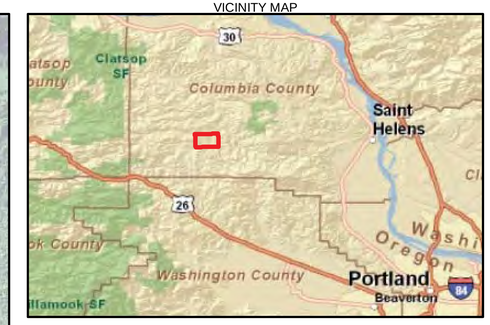


VICINITY MAP



LEGEND

- State Highway
- Streets
- City Limits
- Urban Growth Boundary
- Study Area
- Collector Streets
- Bicycle and Pedestrian Path Connections
- Linear Park/Trail Through City-Owned Properties
- BP-1 Safe routes to school connection – Alabama Ave.
- BP-2 Safe routes to school connection – Mississippi Ave.
- BP-3 Safe routes to school connection – Texas Ave.
- BP-4 Soft-surface trail improvements up O-A Hill. Exact location to be determined.
- BP-5 Improve pedestrian crossing at OR47 to access the side path on O-A Hill. Exact location to be determined.
- BP-6 Linear north-south trail connecting the "Tree Streets".
- BP-7 Pedestrian and bicycle connection between California and Missouri Avenues.
- BP-8 Dedicate bicycle/pedestrian bridge over the Nehalem River.
- BP-9 Bicycle/pedestrian connection – new schools to Riverside Drive.
- BP-10 Add sidewalks or connect existing sidewalks along collector streets. Add bicycle facilities or shared lane markings.
- BP-11 Add sidewalk along OR47/Mist Drive (east side).

Projects Outside of the UGB

- Add bicycle and pedestrian connection between new schools and future Nehalem View development. Exact location to be determined.
- Connect future Crown-Zellerbach Trail to Banks-Vernonia Trail.

Figure 6-8
Bicycle and Pedestrian Projects
Vernonia Transportation System Plan
City of Vernonia, Oregon

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TABLE 6-3

Bicycle and Pedestrian Improvements

	Project	Cost Estimate	Time Frame
BP-1	Safe Routes to School Connection – Alabama Avenue	$150,000	Short
BP-2	Safe Routes to School Connection – Mississippi Avenue	$110,000	Short
BP-3	Safe Routes to School Connection – Texas Avenue	$80,000	Short
BP-4	Soft-Surface Trail Improvements up O-A Hill	$60,000	Short
BP-5	Improve Pedestrian Crossing on OR 47/Bridge Street to Access O-A Hill Sidepath	$50,000	Short
BP-6	Add a pedestrian/bicycle trail north-south east of Mist Drive/OR 47 to connect the "tree streets"	$452,000	Short/Medium
BP-7	Pedestrian and Bicycle Connection between California Avenue and Missouri Avenue	$450,000	Medium
BP-8	Create a bicycle/pedestrian bridge over the Nehalem River in the vicinity of Alabama Avenue.	$1,689,000	Medium
BP-9	Create a Bicycle/Pedestrian Connection to the New Schools from Riverside Drive	$230,000	Medium
BP-10	Construct Sidewalks and Bicycle Facilities on Collector Streets	$5,480,000	Medium/Long
BP-11	Construct Sidewalk Along OR 47/Mist Drive	$750,000	**Long**

In addition to the roadway and bicycle and pedestrian projects described above, there are a number of citizen concerns not addressed in this TSP update, either because they fall outside of the 20-year planning horizon, or they are operations and maintenance or enforcement issues to be addressed by ODOT or the City:

- There is concern with heavy trucks using OR 47 through downtown. Some community members would like a heavy truck bypass to be studied in the future. This is outside of the 20-year planning horizon as the traffic projections do not justify a bypass at this time. In addition, funding is not expected to be available for constructing a bypass within the 20-year planning horizon.
- Related to heavy trucks through the city is a concern that heavy trucks violate the weight limit standards, and the weight limits are not being enforced. This should be addressed by ODOT and the City working together to increase enforcement and inspection of heavy trucks on state and city roadways.

- Other community concerns include a lack of lighting, which impairs safety. Lighting is a maintenance and operations issue to be addressed by ODOT and the City, depending on the jurisdiction of the roadway.

Public Transit System Plan

The City and County transit plans must be consistent, and the recommendations below are consistent with the Columbia County Community-Wide Transit Plan and US 30 Transit Access Plan goals and projects.

Transit service in Columbia County is provided by the Columbia County Rider, operated by Columbia County Transit Division. For the planning horizon, it is anticipated that this dial-a-ride van service, and the fixed route service that leaves from Vernonia City Hall, will serve rural transit demands effectively and economically. The City should support and encourage this service in any manner it can, as it is the only service available to the transportation disadvantaged. No additional service is recommended.

During the first PMT/PAC meeting, the committee members discussed adding a formalized park and ride area. Currently the Columbia County Rider buss stop is located near City Hall, and there are no other established stops within Vernonia. Public transit improvements are dependent upon demand and funds available to Columbia County. Potential improvements include additional park-and-ride facilities. Park and ride facilities could be located near the former school sites or the former Western Oregon Electric Cooperative site once those have been vacated, but will need to take into account floodplain restrictions. No cost estimate is provided for a park-and-ride lot, because it would likely use existing facilities.

Regional Transportation System Plan

Air

National and international air transportation is provided via Portland International Airport, which is located approximately 50 miles southeast of Vernonia. The Vernonia Municipal Airport is located west of the city. This is a public airport with a grass landing strip. It is anticipated that the Vernonia Municipal Airport will continue to be used for recreational purposes. The City should support efforts to maintain and expand the airport facilities as needed.

Rail

There are no rail facilities in the City of Vernonia. There is no rail passenger service within Columbia County. Amtrak provides service at Kelso, Washington with eight daily trains, four in each direction along the Seattle to Portland corridor. It is not anticipated that rail will directly serve Vernonia or become a component of its transportation system within the planning horizon. No improvements are needed at this time.

Water

There is no scheduled water freight or passenger service to Vernonia, and no navigable waterways within the City. The Port of St. Helens, located about 20 miles to the east, is the closest port on the Columbia River. It is not anticipated that water travel will be a component of Vernonia's transportation system within the planning horizon. No improvements are needed at this time.

Pipeline

Natural gas pipelines that serve Columbia County are owned by Northwest Natural Gas. As reported in the Columbia County TSP, the county is adequately served by pipeline facilities. At this time, there is no need for expansion identified.

7 IMPLEMENTATION

This section replaces Chapter 7 of the 1999 TSP.

The full strikeout/underline implementing ordinance language can be found in Appendix F.

Implementation Plan

Identifying funding sources, creating prioritized project lists, and writing implementation ordinances are critical actions to implement the individual projects in the Vernonia TSP. Projects in this plan are estimated to cost approximately $25 million, which is a significant amount for a small city, even when considering the 20-year planning horizon. Funding the projects will require exploring a wide range of existing and potential future funding sources. An Action Plan for implementing the TSP update projects, along with a discussion of funding sources, are included in this chapter. All costs are presented in 2011 dollars.

Action Plan

The following plan prioritizes the TSP projects based on a time frame for implementation and potential funding sources. The projects are categorized as either roadway projects or bicycle/pedestrian projects, because the funding sources, priorities, and implementation time frames tend to be different between the two categories. In developing the action plan, the following criteria were used to set priorities and assign potential funding sources for both roadway and bicycle/pedestrian projects:

- Help improve safety
- Serve students who bike and walk
- Available funding

Additionally, projects identified by the PAC, PMT and community members as high priority were included as short- and medium-term projects. Due to the high cost and complexity of assembling adequate funding, the larger infrastructure projects have longer time frames associated with them.

Tables 7-1 and 7-2 below describe the projects, potential funding sources, cost estimates, and suggested timeframes for implementation. Those projects identified as priorities in the short-term should be considered for inclusion in the City's 5-year Transportation Capital Improvement Plan update.

Inclusion of proposed projects and actions in this plan does not obligate or imply obligations of funds by any jurisdiction for project-level planning or construction. Instead, the inclusion of proposed projects and actions serves as an opportunity for the project to be included, if appropriate, in the State Transportation Improvement Program (STIP) and the City of Vernonia Capital Improvement Program. Such inclusion is not automatic, but it is incumbent on the State, City of Vernonia, Columbia County, and the general public to take action to encourage and support inclusion of projects in the STIP or the CIP at the appropriate time. Because a project must have identified funding to be included in the STIP or CIP, the ultimate number of projects that can be included in these documents is constrained by available funding.

TABLE 7-1

Roadway Improvement Action Plan

Project	Cost Estimate	Potential Funding Sources	Secondary Funding Sources	Time Frame[4]	Explanation
Improve signage at OR 47 and Rose Avenue	$10,000	ODOT Transportation Enhancements (TE); ODOT Operations - Signs, Signals and Illumination Program		Short	This is the biggest safety concern on US 101, and the project is easy to implement and lower-cost
Bridge Street signing and striping, potential bioswales, concrete bumps or curb bulb-out extensions. There are a total of seven corners in the downtown core where this treatment is appropriate.	$13,000-$15,000 each corner	ODOT Transportation Enhancements (TE); Highway Safety Improvement Program; ODOT Bicycle and Pedestrian Program;	Local Improvement District (LID)	Short	Relatively low-cost project that would enhance safety in the Downtown core
Widen OR 47, add bicycle and pedestrian path on both sides	$8,463,000	ODOT Transportation Enhancements (TE); ODOT Bicycle and Pedestrian Program	ODOT Modernization	Medium	This is an expensive and complicated project, however, the benefits for walkers and bikers would be great
Reconfigure the Mist Drive/Bridge Street intersection	$369,000	ODOT Modernization; ODOT Operations - Signs, Signals and Illumination Program		Medium	This is a safety concern for residents
Connect the north and south sections of Louisiana Avenue	$358,000	City System Development Charges; Local Improvement District (LID)	Street Improvement Bond	Medium	The community noted that this would be a nice alternate connection once the schools are open. For the short term, the existing pedestrian connection is sufficient
Connect California Avenue and Vernonia Lake parking lot	$271,000	City System Development Charges; Local Improvement District (LID)	Street Improvement Bond	Medium	Would provide an off-highway connection between the new park (former school site) and Vernonia Lake
Add an east-west local street north of Knott Street to provide additional access to the light industrial parcel east of Mist Drive/OR 47	$2,647,000	City System Development Charges; Local Improvement District (LID)	Street Improvement Bond; Developer Contribution	Long	This improvement is not needed until the industrial parcel is developed
Project Outside of the UGB – Additional Coordination with Columbia County needed					
Connect Texas Avenue to Mellinger Road at the north of the City's UGB	$1,445,000	City System Development Charges; Local Improvement District (LID)	Street Improvement Bond	Long	This improvement is not needed until the Nehalem View Estates are developed

[4] Short-term projects are meant to be implemented in the 0-5 year timeframe. Medium-term projects include those in the 6-10 year timeframe, and long-term projects are 11-20 year timeframe.

TABLE 7-2

Bicycle and Pedestrian improvement Action Plan

Project	Cost Estimate	Potential Funding Sources	Secondary Funding Sources	Time Frame	Explanation
Safe Routes to School Connection – Alabama Avenue	$150,000	Community Development Block Grant; Local Improvement District	Street Utility Fee	Short	Enhances safety and encourages walking and bicycling to school – should be implemented when the new schools are open to students
Safe Routes to School Connection – Mississippi Avenue	$110,000	Community Development Block Grant; Local Improvement District	Street Utility Fee	Short	Enhances safety and encourages walking and bicycling to school – should be implemented when the new schools are open to students
Safe Routes to School Connection – Texas Avenue	$80,000	Community Development Block Grant; Local Improvement District	Street Utility Fee	Short	Enhances safety and encourages walking and bicycling to school – should be implemented when the new schools are open to students
Soft-Surface Trail Improvements up O-A Hill	$60,000	Oregon State Parks Recreational Trails Grant; Land and Water Conservation Fund; Urban Trails Fund	ODOT Transportation Enhancements (TE)	Short	Enhances safety and encourages walking and bicycling to school – should be implemented when the new schools are open to students
Improve pedestrian crossing on OR 47/Bridge Street to access O-A Hill side path	$50,000	Highway Safety Improvement Program; ODOT Bicycle and Pedestrian Program;	ODOT Transportation Enhancements (TE)	Short	Enhances safety and encourages walking and bicycling to school – should be implemented when the new schools are open to students
Add a north-south bicycle-pedestrian trail to the east of Mist Drive/OR 47 to connect the "tree streets"	$452,000	Oregon State Parks Recreational Trails Grant; Land and Water Conservation Fund; Urban Trails Fund;	ODOT Transportation Enhancements (TE); Park System Development Charges	Short/ Medium	The parcels along the potential alignment are in the process of being purchased by the City. Expected timeframe for implementation is Medium term.
Create a pedestrian and bicycle connection between California Avenue and Missouri Avenue	$450,000	City System Development Charges; Local Improvement District (LID)		Medium	Enhances safety, however, the projects above provide alternate off-street routes, making this a lower priority
Create a bicycle/pedestrian bridge over the Nehalem River in the vicinity of Alabama Avenue.	$1,689,000	Community Development Block Grant;	ODOT Transportation Enhancements (TE)	Medium	The complexity and expense of this project makes it a Medium term priority
Create a bicycle/pedestrian connection to the new schools from Riverside Drive	$230,000	Developer Contribution; Local Improvement District (LID)	Community Development Block Grants (CDBG);	Medium	Enhances safety. The school is implementing one section. Currently Riverside Drive is a lower traffic lower speed road. As the area is developed, this path can be implemented
Construct sidewalks and bicycle facilities on collector streets	$5,480,000	Community Development Block Grant (CDBG); Local Improvement District (LID)	Developer Contribution; Street Utility Fee	Medium/ Long	Upgrades to collector streets can be done in conjunction with development and phased as appropriate, and when funds are available
Construct sidewalk along OR 47/Mist Drive	$750,000	ODOT Bicycle and Pedestrian Program; ODOT Transportation Enhancements (TE)		**Long**	This project is a lower priority than the linear trail through the "Tree Streets" is constructed. The community indicated that walking along the highway could be less desirable than an off-street path
Projects Outside of the UGB - Additional Coordination with Columbia County needed					
Construct a bicycle/pedestrian connection from Vernonia schools to the Nehalem View development	$210,000	Developer Contribution; Local Improvement District (LID)	Community Development Block Grant (CDBG)	Medium/ Long	Enhances safety, however, this should be completed when the Nehalem View Estates are developed. This is not expected until the medium timeframe or longer
Connect future Crown-Zellerbach Trail to Banks-Vernonia Trail	$1,710,000	Oregon State Parks Recreational Trails Grant; Urban Trails Fund	ODOT Transportation Enhancements (TE); Land and Water Conservation Fund	**Long**	The complexity and potential land ownership/easement issues suggest that the longer timeframe is appropriate

Existing Funding Sources

Federal Highway Trust Fund

Revenues comprising the Federal Highway Trust Fund come from motor vehicle fuel taxes, sales taxes for heavy trucks and trailers, tire taxes, and annual heavy truck use taxes. Revenues are split into two accounts: the highway account and the transit account. Funds are appropriated to individual states on an annual basis under the current surface transportation legislation, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Authorization to use the Federal Highway Trust Fund, under SAFETEA-LU, expired on September 29, 2009. Since then, continuances have been used to support federal transportation funding in the absence of a new federal transportation funding bill.

Programs funded under SAFETEA-LU, and relevant to this plan, include the Surface Transportation Program (STP), and the Safe Routes to School. The Transportation Enhancement (TE) Program is funded by states setting aside a portion of the STP budget. Federal funds must be matched with state and local funds; in Oregon, the current matching amount is 10.27 percent of total costs.

To receive funds from the Federal Highway Trust Fund, projects must be included in Oregon's Statewide Transportation Improvement Program (STIP), which is developed by the Oregon Department of Transportation for approval by the Oregon Transportation Commission. Specific programs and grants through which these funds are allocated are described in the State Funding Sources section of this document. Currently the only STIP project through year 2013 in Vernonia is the Banks-Vernonia Trailhead project.

State Highway Fund

Revenues in the State Highway Fund are received from a combination of fuel taxes, vehicle registration and title fees, driver's license fees, the truck weight-mile tax, and federal monies. State Highway Trust Fund revenues may be used only for construction and maintenance of state and local highways, bridges, and roadside rest areas, but according to state law (ORS 366.514), reasonable amounts of the fund must also be spent on walkways and bikeways. State Highway funds cannot be spent on trails in parks or other areas outside of a road, street, or highway right-of-way. The law requires that in any given fiscal year, the amounts expended to provide walkways and bikeways must be a minimum of 1 percent of the State Highway Fund received by the Department, a city, or county. Cities and counties are not required to spend a minimum of 1 percent each year; they may credit this amount to a reserve fund and expend these amounts within a period not to exceed 10 years.

State Highway Fund revenues are appropriated by the Oregon Transportation Commission (OTC) on an annual basis. Appropriation is based on population for

cities and registered vehicles for counties; net revenues are distributed in the following manner:

- 60 percent state
- 24 percent counties (by number of vehicles registered)
- 16 percent cities (by population)

Infrastructure projects within state, city or county right-of-way are eligible to be funded by the State Highway Fund. To receive funding, projects must be listed in the STIP.

Statewide Transportation Improvement Program (STIP)

The STIP is the capital improvement program for transportation projects in the State of Oregon. It provides a schedule and identifies funding for projects throughout the state. The STIP lists projects that are planned for construction during a 4-year period. Projects that are included in the STIP are considered "regionally significant" and have been given a high priority through planning efforts and by the relevant Area Commission on Transportation (ACT). The ACT for Vernonia is the Northwest Oregon ACT. Transportation projects from TSPs are reviewed and prioritized by the ACT and are then included in the STIP. The 2010-2013 STIP has five categories: modernization, safety, preservation, bridge, and operations. All federally funded transportation projects and programs, as well as all state and locally funded projects that are deemed "regionally significant," must be included in the STIP. Approximately 80 percent of STIP projects are federally funded.

Because OR 47 is a state highway, STIP funds could be applied to it. However, any project on OR 47 would need to compete with projects on other highways in the area (OR 26, OR 30) that server larger numbers of regional trips.

County Funding Sources

The Columbia County Roads Department has a budget to conduct bridge replacement, paving, and road construction. The department receives funds from the statewide gas tax, vehicle registration fees, truck weight mile tax, county general fund, aggregate fees, and federal funds.

This funding source would only apply to county roads. County roads within the study area include Mist Drive to Pebble Creek Road, and Pebble Creek Road south of the City limits. No projects are currently suggested on County roadways.

City Funding Sources

Small City Allotment Grant

The City of Vernonia receives a Small City Allotment Grant annually from ODOT, and usually it is $25,000 per year. In 2011, the City received $50,000 for the next two

years. This grant has historically been used for paving City streets, and funding was supplemented with money from the City Street Fund.

Federal Emergency Management Agency Funds

The Federal Emergency Management Agency (FEMA) provided limited funds for street paving following the 2007 flood. Adequate documentation of the condition of City streets prior to the flood was an impediment to receiving additional FEMA funds.

Street Improvement Bond

Between 2001 and 2011, the City borrowed $470,000 to chip seal about 75 percent of City streets and intersections. The bond will be paid in full this year, though the City may explore another bonding measure, because streets that were sealed 10 years ago will need to be resealed in the near future.

Street System Development Charges (SDC)

The City of Vernonia currently charges a one-time street system development fee of $858 per single family dwelling, or per equivalent dwelling unit (EDU) for other uses. This money goes to the City to construct City streets.

Existing Funding Sources Outlook

Overall, the existing transportation funding sources are expected to be similar to those reported above. The U.S. Congress is deliberating a reauthorization of the SAFETEA-LU surface transportation legislation for the next 6 years, as it expired in September of 2009 and has been operating on continuing resolutions since that time. The financing package for the SAFETEA-LU legislation (2005-2009) was approximately $244 billion and current uncertainty with the federal budget make it difficult to predict the amount of any new transportation legislation.

According to ODOT, fuel tax revenues are expected to decrease, as fuel revenue purchasing power decreases with inflation and increased numbers of more fuel-efficient vehicles. Oregon has been considering a shift to a user-based revenue fee system to offset decreased revenues from the fuel tax, but there is currently no plan to change the revenue system.

Potential Funding Sources

The City of Vernonia does not have a lot of funding sources that could provide additional revenue for transportation maintenance and improvement projects. This section identifies potential additional funding sources that could be instituted and used to fund the TSP projects.

Local Sources

Increased Transportation System Development Charges and Developer Fees

The City currently has System Development Charges (SDCs) and developer fees. These charges and fees could be increased or dedicated to specific transportation improvements as a condition for permitting and development of land within the City.

Park System Development Charges

Park SDCs could be instituted and used for the soft-surface trail through Ora Bolmeier Park and up O-A Hill (Project BP-4). Additionally, if the vacated parcels east of Mist Drive in the eastern part of the city become a linear park, Park SDCs could be used to fund and maintain that pedestrian and bicycle connection (Project BP-6). A park SDC would be levied on development or redevelopment of parcels within the City.

Local Improvement District (LID)

A Local Improvement District (LID) is created by property owners within a district of the City to raise revenues for constructing street improvements within that district. LIDs may be used to assess property owners for improvements that benefit properties and are secured by property liens. Property owners typically enter into LIDs because they see economic or personal advantages to the improvements. The City would work with property owners to acquire financing at lower interest rates than under other financing methods.

The formation of LIDs is governed by State law and local jurisdictional development codes. LIDs can vary considerably in the size of the district. LID revenues are used solely for capital costs, and can be combined with other revenue sources to fully fund improvement costs. LIDs do not currently exist within the City of Vernonia, but could be an appropriate funding source for street improvements throughout the City.

Parking Fees and Fines

Vernonia currently has non-metered street parking. Income generated by converting free parking spaces to metered or permitted parking spaces could be directed to projects identified in the TSP, especially in the downtown area.

To implement this funding strategy, the City would need to purchase and install parking meters. The City may choose to install meters in busy locations, such as the downtown core along Bridge Street where tourists will be willing to pay for a convenient spot. The visual impact of parking meters can be minimized by installing smart meters, which only require a single meter per block. Some smart meters can accept credit card payments as well as cash.

Revenue and General Obligation Bonds

Bonding allows municipal and county governments to finance construction projects by borrowing money and paying it back over time (with interest). Financing costs with bonds requires funding to pay back borrowed funds. Financing requires

smaller regular payments over time compared to paying the full cost at once; however, financing increases the total cost by adding interest. General Obligation Bonds are often used to pay for construction of large capital improvements. This method is typically used to fund road improvements that will benefit an entire community. General Obligation Bonds add the cost of the improvement to property taxes over a period of time. A double majority voter approval is required for instituting General Obligation Bonds. Revenue for General Obligation Bonds is collected in property tax billings.

Revenue bonds are repaid with dedicated revenue from a source other than property taxes. Revenues from a Systems Development Charge, Local Improvement District, or other reliable revenue streams can be used. Revenue bonds are typically used to fund improvements that primarily benefit the people who provide the revenue through fees and assessments.

A Transportation General Obligation Bond may be an effective method to fund some of the local roadway projects and bicycle and pedestrian projects that benefit the larger community.

Street Utility Fee

A street utility fee applies a monthly service charge that any road authority may collect to offset their cost to operate and maintain public streets. The fee is collected at the same time as other utility service charges, like water, sewer, storm drainage, or garbage. Different users and different level of usage could be charged at a different rate depending on the amount of traffic a particular parcel generates. Industrial or logging parcels could be charged more since the heavier vehicles contribute to more wear and tear on the road system.

County Sources

Local Option Levies

In Columbia County, voters within an established taxing district, such as a city or a fire district can approve levies for operating purposes or capital projects. The levy has most commonly been used for operating purposes. A levy can either be established as a set rate or a set dollar amount. For capital projects, a levy cannot last longer than 10 years. Levies must be approved at a November election in an even-numbered year by more than 50 percent of eligible voters (double majority).

Federal and State Sources

A variety of federal and state funding sources are available for the projects identified in the TSP. The following sections describe the programs and the eligibility requirements.

State Transportation Improvement Program

Improvements along OR 47 within the project area are possible candidates for STIP funding. Transportation projects in the STIP are generally categorized into the five main categories referenced above, plus a sixth "special projects" category. Projects identified within the Vernonia TSP may fall within three categories: Modernization Program, Operations Projects, and Special Programs including bicycle/pedestrian and Transportation Enhancement. The STIP states that the applicable uses under each of these projects are as follows:

- **Modernization Program:** Capital projects that lead to increased highway system capacity.
- **Operations Projects:** System management and improvements that lead to more efficient and safer traffic operations and greater system reliability.
- **Special Programs:** Bicycle and Pedestrian, Public Transit, and Transportation Enhancement.

The funding programs under these three categories are described in more detail over the pages that follow.

Modernization Program

The 2010-2013 STIP states that projects funded under this section are capital highway improvements that lead to increased system capacity. Increased capacity can be accomplished by either adding additional lanes, constructing new highways, or other system improvements. Strong competition exists for funding through the STIP Modernization Program, as the need for funding such projects greatly exceeds the funds available. Projects are awarded funding through this program by the applicable ODOT Region. Projects to add sidewalks and bike lanes on OR 47 or improvements to the Mist Drive/Bridge Street intersection would be eligible for funding through this program.

Operations Projects

The 2010-2013 STIP states that projects funded under this section "improve the efficiency of the transportation system through the replacement of aging infrastructure and the deployment of technology that allows the existing system to meet increased demands." Applicable projects may be listed within four sub-categories: (1) Intelligent Transportation Systems (ITS); (2) Signs, Signals, and Illumination; (3) Slides and Rockfalls and; (4) Transportation Demand Management (TDM).

- **Signs, Signals, and Illumination Program –** The Signs, Signals, and Illumination program provides funding for the replacement of equipment that has reached the end of its useful life. This program also provides limited funding for new or upgraded signals at problem intersections. New signs at OR

47 and Rose Avenue identified in the TSP may be eligible to receive funding through this program.

Special Programs

ODOT also provides funding to a number of special programs. This section describes the programs that are applicable to projects outlined in the Vernonia TSP.

- **ODOT Bicycle and Pedestrian Grant Program –** The ODOT Pedestrian and Bicycle Grant Program provides funding to cities, counties and ODOT regional and district offices through a competitive process. Eligible projects are related to the design and construction of pedestrian and bicycle facilities within the public right-of-way. The application process occurs every two years. Every biennium, the program awards approximately $5 million in grants. A local match is expected for projects that receive this grant.

  Many of the bicycle and pedestrian projects included in this TSP are within the public right-of-way and would be eligible for this program. Projects RD-2, RD-3, BP-5, and BP-11 would be eligible for bicycle and pedestrian program funding.

- **Transportation Enhancement Program –** Oregon's Transportation Enhancement (TE) program provides federal highway funds for project that strengthen the cultural, aesthetic, or environmental value of the transportation system. TE activities are funded through a required State set-aside from STP funds of 10 percent, or the amount set aside in Fiscal Year 2005, whichever is greater. Projects fall into four main categories: Bicycle and Pedestrian; Historic Preservation; Landscaping and Scenic Beautification; and Environmental Mitigation. The intent of the program is to fund special or additional activities not normally required on a highway or transportation project.

  Since the program's inception in 1992, 190 projects of approximately $97 million have been funded in Oregon through the TE program. For fiscal years 2008-2011 the Program will have $6.5 million per year for competitive selection, and $2 million per year for the TE Discretionary Account. The funds are provided through reimbursement not grants. Participation requires matching funds from the project sponsor, at a minimum of 10.27 percent. All projects must have a direct relationship to surface transportation.

  Bicycle and pedestrian projects in the Vernonia TSP are eligible for funding through the ODOT TE Program. This is a competitive grant application process facilitated by ODOT that awards funding to local governments on an annual basis. The TE Advisory Committee awards the grants based on a project's technical merit and local support. The committee also considers the TE "focus areas" for the year and the connection to other transportation projects.

Community Development Block Grant

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may

> "use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs."

Oregon State Parks Recreational Trails Grant

The Oregon Parks and Recreation Department (OPRD) administers a Local Government Grants program using Oregon Lottery revenues. The grants may pay for acquisition, development, and major rehabilitation projects for public outdoor park and recreation areas and facilities. The amount of money available for grants varies depending on the approved OPRD budget. Grants are available for three categories of projects: small projects (maximum $50,000 request), large projects (maximum $750,000 request, or $1,000,000 for land acquisition), and small community planning projects (maximum $25,000 request). Projects identified in the TSP would meet the grant eligibility requirements.

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Oregon Parks and Recreation Department as a grant program. Any projects located in future parks could benefit from planning and land acquisition funding through the LWCF. Trail corridor acquisition can be funded with LWCF grants as well, but historically few trails have been proposed compared to parks.

Urban Trails Fund

The Urban Trails Fund (UTF) was created in 2009 by the Oregon Legislature, as part of House Bill 2001 (the Jobs and Transportation Act). The purpose of the Urban Trails Fund was to develop shared-use paths for non-motorized vehicles and pedestrians, within urban growth boundaries, to provide or improve links to roads and highways, footpaths, bike trails, and public transit. The UTF was specifically

created in response to a gap in the current funding stream for projects outside of the public right-of-way that provide non-motorized transportation links.

The Urban Trails Fund was initially created by a one-time appropriation of $1.0 million, and was managed as a competitive grant program by ODOT. The Oregon Bicycle and Pedestrian Advisory Committee was the public advisory committee overseeing the Urban Trails Fund. The intention of the first round of funding was to demonstrate the value of the program with the hope that the Oregon Legislature will authorize additional program dollars in the future. If the program is continued in the future, the path connection and linear trail projects identified in the TSP are able to compete for grant awards.

ODOT Highway Safety Program

The Traffic – Roadway Section at ODOT administers the Highway Safety Program to encourage engineering improvements that address identified safety needs. Funded projects are determined by ODOT Region Traffic staff each year, and funds can be used on any public road or publicly owned bicycle/pedestrian pathway or trail. Eligible projects include signal installation or improvement, pedestrian safety, pavement markers, and sign installation or improvement. There are no Safety Priority Index Sites (SPIS) in the City of Vernonia, and the City would have to compete with other ODOT Region 1 projects, which include the Portland Metro area.

Developer Contribution

When a larger scale development is proposed in a city, the City can require developers to pay for transportation system improvements, especially if the development is likely to increase or adversely impact the existing transportation system. Often times the developer will construct the physical infrastructure required by the City including upgrading an intersection or including bicycle or pedestrian facilities adjacent to the development, or the developer can provide payment in lieu of improvements. Developer contributions collected by the City can then be applied to the transportation system affected by the given development.

8 Land Use Ordinance Modifications

This section updates the section of the same name in the 1999 TSP. The City's *Comprehensive Plan* is already consistent with the 1999 TSP, as it was modified during that process. Upon its adoption, the TSP update will become the transportation element of the *Comprehensive Plan*. A few changes are recommended to ensure that the *Comprehensive Plan* is consistent with the TSP update, and will ensure that the *Comprehensive Plan* will help carry out the goals and intent of this TSP update. The TSP update must also comply with the Transportation Planning Rule, to ensure that the City's zoning ordinance is consistent with the TSP, especially when considering street standards. The recommended changes to both City documents are described in general below and the strikethrough/addition language can be found in Appendix F.

Comprehensive Plan Revisions

The changes to the Comprehensive Plan to support the TSP update include modifying the transportation goals to be consistent with the goals identified in Chapter 1 of this TSP update. Additionally, the transit goals have been updated to reflect that *Columbia County Community-wide Transit and US Highway 30 Highway Access Plan* (2009).

The collector road designations have been updated to reflect the current collector roads in Vernonia. Additionally, the policies have also been updated to reflect the addition of Safe Routes to Schools.

Ordinance Revisions

In addition to the Comprehensive Plan changes, the zoning ordinance needed to be updated to match the new street standards and other projects in the TSP update. Those include updating ordinance to support transit goals, changing access spacing standards to comply with state requirements, language to support access management, and the street design standards.

Sections of the City's Ordinance that are affected by these changes include:

- Section 9-01.11-20 Public Notice and Coordinated Review
- Section 9-01.11-30 Access Management Standards

- Section 9-01.11-50 Transportation Improvements
- Section 9-01.11-60 Street Standards
- Section 9-01.11-70 Internal Connections
- Section 9-01.11-90 Traffic Impact Studies
- Section 9-02.08-20 Street Design Standards
- Section 9-02.09-30 Improvements in Subdivisions

9 Transportation Planning Rule Compliance

This chapter discusses how the changes to the *Vernonia Zoning Ordinance* recommended by the TSP update bring the applicable planning documents into compliance with the *Oregon Transportation Plan* and *Transportation Planning Rule* (TPR).

Overview

The TPR (OAR 660 Division 12) implements Oregon's Statewide Planning Goal 12 (transportation) and promotes the development of safe, convenient, and economic transportation systems that reduce reliance on automobile travel. TPR Section 660-012-0045(1) requires that "each local government shall amend its land use regulations to implement the TSP."

Recommended changes are based on a review of the *City of Vernonia Zoning Ordinance* and *Comprehensive Plan* for consistency with the TPR. Most of the *Zoning Ordinance* is already in compliance, and changes to the zoning ordinance reflect the changes to street standards that resulted from the update process.

Table 9-1 below shows the applicable sections of the TPR, and how the code should be amended to bring the documents into compliance. Where the City's code is adequate to address the TPR section without any changes, it is noted.

TABLE 9-1

Compliance Requirements for TSP Elements

Applicable TPR Section	City of Vernonia TSP Update
OAR 660-12-0045(1)(b)	
Each local government shall amend its land use regulations to implement the TSP. *To the extent, if any, that a transportation facility, service, or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.*	Section 9-01.11-50 [Transportation Improvements] section (C) includes language to address this requirement Language was added under section (E) to support the Columbia County Community-Wide Transit and US Highway 30 Transit Access Plan
OAR 660-12-0045(1)(c)	
Each local government shall amend its land use regulations to implement the TSP. *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 660-012-0500. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.*	Section 9-01.11-20 [Public Notice and Coordinate Review] satisfies this requirement Language added to provide Columbia County Transit notice of proposals that may impact transit ridership or facilities
OAR 660-12-0045(2)(a)	
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: *Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities.*	Section 9-01.11-30 [Access Management Standards] satisfies this TPR requirement. Table 11-30-1 was updated to reflect access spacing standards as a result of the TSP Update Additional access spacing standard language was added, along with joint and cross-access language to encourage shared driveways to meet access spacing requirements.
OAR 660-12-0045(2)(b)	
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 include: Standards to protect future operation of roads, transitways and major transit corridors.	Section 9-01.11-40 [Protection of Transportation Facilities] satisfies this TPR requirement. Section 9-01.11-90 [Traffic Impact Studies was revised to ensure consistency between the Public works standards and the Zoning Ordinance
OAR 660-12-0045(2)(f-g)	
Local government 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.	Section 9-01.11-20 [Public Notice and Coordinated Review] (C.) satisfies this TPR requirement. Section 9-01.11-40 [Protection of Transportation Facilities] satisfies this TPR requirement. No additional changes needed.
OAR 660-12-0045(3)(a)	
Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. *Bicycle parking facilities as part of a 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.*	Section 9-01.11-80 [Bicycle Parking Facilities] satisfies this TPR requirement. No additional change needed
OAR 660-12-0045(3)(b)	
Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. *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.*	Section 9-01.11-60 [Street Standards] was changed to address inconsistencies between the TSP and the Public Works Design Standards Language added to Section 9-01.11-70 [Internal Connections] to require developers to notify Columbia County Transit in the event of a development that will impact transit service Section 9-02.08-20 [Streets] was changed to address the new street standards in the TSP update Section 9-02.09-30 [Improvements in Subdivisions] was amended to be consistent with new street standards Table 11-60-1 Required Roadway Design Standards was amended to reflect the new standards in the TSP Update

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