

Goals, Policies, and Plans: City of Vernonia Transportation System Plan Update

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This memorandum provides background information to help inform the City of Vernonia's Transportation System Plan Update by determining the applicable goals, policies, and plans of Vernonia, the County, and the State.

The following relevant plans and policies have been reviewed to determine data gaps for the Transportation System Plan (TSP) Update, and to ensure that the update complies with all applicable plans and policies:

State

- Oregon Transportation Plan (2006)
- Oregon Highway Plan and Amendments (1999)
- Transportation Planning Rule (OAR Chapter 660, Division 012)
- Oregon Access Management Rule (OAR Chapter 734, Division 51)
- ODOT Highway Design Manual and amendments
- Oregon Bicycle and Pedestrian Plan (2009)
- Statewide Transportation Improvement Program (1999-present)

County

- Columbia County Community-Wide Transit Plan and US 30 Transit Access Plan (2009)
- Columbia County Rural Transportation System Plan (1998)

City

- City of Vernonia Transportation System Plan (1999)
- City of Vernonia Comprehensive Plan
- City of Vernonia Zoning Code and Public Works Standards

- Vernonia School Siting Study: Comparative Assessment of Transportation Needs (2009)
- Vernonia School Campus Transportation Impact Analysis (2010)
- Western Oregon Electric Cooperative Headquarters Facility, Transportation Impact Analysis (2010)
- Nehalem View Subdivision Traffic Impact Study (2008)
- Wetland Inventory (2000)
- The 1999 Master Capital Plan for Vernonia , KCM 1999
- The Vernonia Vision and Strategic Plan, Rural Initiatives, 1997, and the associated 2010 update, Paul Koch
- City of Vernonia Downtown Revitalization Plan, KCM 1998
- The 2010 Flood Insurance Rate Map
- Draft Economic Opportunities Analysis (EOA) and Draft Buildable Lands Inventory, Seth Lenaerts, 2009

Plan and Policy Review

Oregon Transportation Plan (2006)

The Oregon Transportation Plan (OTP) is a policy document developed by ODOT in response to federal and state mandates for systematic planning for the future of Oregon's transportation system. The OTP is intended to meet statutory requirements (ORS 184.618(1)) to develop a state transportation policy and comprehensive long-range plan for a multi-modal transportation system that addresses economic efficiency, orderly economic development, safety, and environmental quality. The OTP is a long-range policy document that defines goals, policies and actions for the state for the next 40 years. The OTP's goals, policies, and actions integrate all modes of transportation with the intention of encouraging the most appropriate mode for each type of travel. The Plan's System Element identifies a coordinated multimodal transportation system to be developed over a 25-year horizon which is intended to implement the goals and policies of the Plan. The goals and policies of the OTP cover a broad range of issues.

The 2006 OTP addresses issues of population growth, economic development, sustainability, global warming, and transportation system funding among other challenges. It is the state's 25-year multimodal state transportation plan for airports, bicycles and pedestrian facilities, highways and roadways, pipelines, ports, public transportation, rail and waterways.

This version of the OTP implementation element is focused on mitigating congestion, strengthening transportation's role in economic development, serving the needs of an aging population, reducing traffic fatalities and serious injuries, increasing technology's role in improving safety and efficiency, protecting and sustaining resources, prioritizing investments, and making the most strategic use of limited funding. There are no specific recommendations to incorporate into the Vernonia TSP. Oregon Highway Plan (1999)

The 1999 OHP, an element and modal plan of the state's comprehensive transportation plan (OTP), guides the planning, operations, and financing of ODOT's Highway Division. The basic framework for the OHP is a refinement and application of the goals and policies stated in the OTP applied to the state highway system. The OHP gives policy and investment direction to large scale facility plans and TSPs, but is not intended to direct specific projects and modal alternatives. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

Specific OHP policies with direct bearing on transportation system planning in Vernonia include the following:

Goal 1: System Definition

Policy 1A: State Highway Classification System

Policy 1A develops a state highway classification system to guide ODOT priorities for system investment and management. The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. It also includes special provisions for roadways classified as an Expressway.

The Vernonia TSP update will analyze one district highway – OR 47. OR 47 inside Vernonia is classified in the OHP as a district Highway. Inside the city limits of Vernonia, OR 47 is functionally classified as an urban collector. District Highways are countywide facilities and function as county arterials or collectors. The management objective for District Highways is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas. The Vernonia TSP classifies Hwy 47 as either an urban arterial or rural arterial depending on the location. The update will need to evaluate the two classifications and balance the state's management objectives for OR 47 with the local needs and objectives of Vernonia in relation to OR 47.

Policy 1B: Land Use and Transportation

This policy recognizes the role of both state and local governments regarding the state highway system and calls for a coordinated approach to land use and transportation planning. It calls for coordination between ODOT and local governments to develop plans that support compact development within commercial and community centers, and

provides a definition for four highway segment designations which help guide the state's position on local land use planning and development standards. These designations are Special Transportation Areas (STAs), Commercial Centers, Urban Business Areas (UBAs), and Urban segments.

The only state-administered highway within the City of Vernonia is OR 47. The section of OR 47 from mile point 60.33 to mile point 62.77 is designated as an arterial. There is one section within the City of Vernonia that is designated a STA, from mile point 62.25 to 62.54. To provide coordination in the development of the Vernonia TSP update, a Project Management Team has been established that includes the City of Vernonia, DLCD, and ODOT.

In accordance with this policy, an analysis of planned future land uses will be performed for the TSP update to identify the potential for minimizing or mitigating future capacity deficiencies through land use modifications.

Policy 1F: Highway Mobility Standards Access Management Policy

This policy provides specific mobility standards for state highway sections, signalized intersections, and interchanges. Alternative standards are provided for certain locations and under certain conditions.

There is a Special Transportation Area (STA) designated in the study area. OR 47 is classified as a district highway for its entire length within the study area. The OR 47 study area intersections are located within the City of Vernonia Urban Growth Boundary (UGB), inside an area where the speed limit is 35 MPH or less. Applicable state mobility standards are listed in Table 1. In 2010 the City and ODOT coordinated their review of improvements at the intersection of Hwy 47 and Missouri Avenue for the proposed Vernonia K-12 school.

TABLE 1
State Mobility Standards on OR 47
Vernonia Transportation System Plan Update

Mile Post	Study Intersections	Speed Limit (MPH)	Planning V/C Ratio¹
62.48	Bridge Street (OR 47) and Weed Avenue (Within the STA)	35	0.95
62.54	Bridge Street (OR 47) and Rose Avenue	20	0.80
62.60-62.66	Rose Avenue (OR 47) and Maple Street, Cougar Street	20	0.80

1 – 1999 Oregon Highway Plan (2006).

Policy 1G: Major Improvements

This policy identifies the state's priorities for responding to highway needs by directing agencies to take measures that are the least complex and typically most cost-effective changes to a roadway system. The priority measures in order of implementation are:

1. Protect the existing system;
2. Improve efficiency and capacity of existing system;
3. Add capacity to existing system; and
4. Add new facilities to the system.

The above measures will be integrated into the criteria against which all potential alternatives will be evaluated. In this way, the TSP process will ensure that recommended projects have been prioritized in accordance with this OHP policy. In general, the TSP update would recommend the addition of new facilities or capacity only when other, higher priority projects do not address the problem.

Goal 3: Access Management

Policy 3A: Classification and Spacing Standards

Access management balances access to developed land while ensuring movement of traffic in a safe and efficient manner. This policy addresses the location, spacing, and type of road and street intersections and approach roads on state highways.

Goal 3 is critical in transportation planning efforts that involve state transportation facilities. This goal is implemented through the Access Management Rule (OAR 734-051), which is discussed later in this memorandum.

Goal 4: Travel Alternatives

Policy 4A: Efficiency of Freight Movement

This policy addresses the need to move freight effectively using the state highway system, the need to provide sufficient access to intermodal connections, and the need to balance the needs of all freight movements with local transportation needs.

Although OR 47 is not a designated freight route through Vernonia, the highway is the sole source of access for through freight and vehicular traffic.

Goal 5: Environmental and Scenic Resources

The Environmental and Scenic Resources Policies recognize ODOT's responsibilities for maintaining and enhancing environmental and scenic resources in highway planning, construction, operation and maintenance.

TSP alternatives will be evaluated to determine potential impacts to environmental and scenic resources, such as the Banks-Vernonia Bicycle Trail and the water quality and scenic resources of the Vernonia Lake, Nehalem River and Rock Creek.

Statewide Planning Goal 12 (Transportation Planning Rule) (OAR 660-012)

The objective of the Transportation Goal (Goal 12) is a safe, convenient, multimodal and economic transportation system. Consideration of local and regional economies, social consequences, environmental impacts, energy, the needs of transportation disadvantaged, and over reliance on a single mode should be included in local plans. Guidelines for planning and implementation are included to support the Statewide Planning Goals. The TPR requires cities (with a population of 2,500 or greater) and counties to prepare and adopt a TSP.

The TPR requires local governments to adopt land use regulations consistent with county, state and federal requirements “to protect transportation facilities, corridors, and sites for their identified functions” (OAR 660-012-0045(2)).”

The TPR has three key elements that guide planning¹:

1. TSPs to support comprehensive plans – these are multi-modal assessments of needs, options and priorities developed at a community level
2. Criteria for Comprehensive Plan/zone changes that would alter a TSP
3. Guidelines for rural areas that differentiate them from urban areas for transportation planning

The overarching goals to be accomplished by the TPR are to:

- Reduce dependence on the automobile and the number of people driving alone.
- Establish a stronger connection between land use and transportation planning.

To comply with the TPR, the City of Vernonia must adopt a TSP that complies with the Oregon Transportation Plan (OTP). Per the TPR, the elements that must be contained in a TSP are dependent upon the size of the local jurisdiction and whether the jurisdictional agency preparing the TSP is a Metropolitan Planning Organization (MPO). The TSPs of metropolitan areas and MPOs are required to include more elements than smaller cities. Vernonia is a city of approximately 2,370² and is not an MPO.

Per the TPR, elements that are required of the Vernonia TSP include:

- A determination of transportation system needs, including needs of the transportation disadvantaged and for movement of goods and services to support industrial and commercial development planned for pursuant to OAR 660-009 and Goal 9 (Economic Development)
- A road plan for a system of arterials and collectors which includes/addresses:

¹ *Oregon's Transportation Planning Rule Goes into the Shop for Repairs*, Ransford S. McCourt, August 2005

² Source: *2009 Oregon Population Report*, Portland State University Population Research Center: <
http://www.pdx.edu/sites/www.pdx.edu.pr/files/media_assets/PopRpt09b.pdf>

- Standards for the layout of local streets and other important non-collector street connections that must provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-012-0045(3)(b). Street standards must address extensions of existing streets; connections to existing or planned streets, including arterials and collectors and; connections to neighborhood destinations
- Functional classifications of all roadways
- Access management
- A public transportation plan which describes public transportation services for the transportation disadvantaged and identifies service inadequacies and; describes intercity bus and passenger rail service and identifies the location of terminals
- A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements must be in accordance with the requirements of ORS 366.514
- An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations
- Policies and land use regulations for implementing the TSP as addressed in OAR 660-012-0045
- A transportation financing program as provided in OAR 660-012-0040

All of the above elements must contain an inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition

The updated Vernonia TSP will need to include transportation financing information containing the following:

- An updated list of planned transportation facilities and major improvements;
- A general estimate of the timing for planned transportation facilities and major improvements;
- An updated determination of rough cost estimates for the transportation facilities and major improvements identified in the TSP
- Funding sources

If the updated Vernonia TSP proposes an alternative which entails improvements being made outside the city's UGB, the actions would either need to be accordance with requirements of 660-012-0065 (Transportation Improvements on Rural Lands) or would require an exception in accordance with the stipulations of 660-012-0070 (Exceptions for Transportation Improvements on Rural Land).

Preparation of the updated Vernonia TSP will need to be coordinated with affected state and federal agencies, local governments, special districts, and private providers of

transportation services. Vernonia must amend its land use regulations to implement the updated TSP.

Access Management Rule (OAR 734-051)

OAR 734-051, commonly known as the Access Management Rule, defines the State's role in managing access to highway facilities in order to maintain functional use and safety and to preserve public investment. The Access Management Rule is the basis for providing improvements associated with development. The provisions in the Access Management Rule apply to all roadways under the state's jurisdiction. The Access Management Rule contains include spacing standards for varying types of state roadways and provisions for developments such as commercial centers. In Vernonia the Access Management Rule is relevant to OR 47.

The purpose of the Access Management Rule is to control the issuing of permits for access to state highways, state highway rights of way and other properties under the State's jurisdiction. In addition, the ability to close existing approaches, set spacing standards and establish a formal appeals process in relation to access issues is also identified. These rules enable the State to set policy and direct location and spacing of intersections and approaches on state highways, ensuring the relevance of the functional classification system and preserving the efficient operation of state routes. Regulating access can help achieve the following:

- Protection of resource lands
- Preservation of highway capacity
- Improved safety for segments of state routes with sharp curves, steep grades or obstructed sight distance.

The Access Management Rule establishes procedures and criteria used by ODOT to govern highway approaches, access control, spacing standards, medians and restriction of turning movements in compliance with statewide planning goals and in a manner compatible with acknowledged comprehensive plans and consistent with ORSs, OARs, and the Oregon Highway Plan (OHP).

Access Management Rule spacing standards will be used in the TSP to evaluate current access conditions.

Any new access proposed on OR 47 as part of the TSP update recommendations will need to comply with state spacing standards provided in OAR 734-051. Spacing standards should be reflected in the TSP and Public Works street design standards. These spacing standards vary depending on the posted speed of the facility, its location in an urban or rural area, and whether it has been designated as an expressway, UBA, or STA. Spacing standards applicable to OR 47 within the city limits of Vernonia are listed in Table 2:

TABLE 2
 OAR 734-051 Spacing Standards Applicable to OR 47 in Vernonia

Type of Roadway	Speed	Spacing Standard (feet)
District Highway	30 and 35 MPH	350
District Highway (Within a STA)	30 and 35 MPH	Defers to the local Comprehensive Plan, public road connections are preferred over private driveways.

Source: Division 51 Tables

Highway Design Manual

The ODOT Highway Design Manual (HDM) outlines the design standards, policies, and processes to be applied on state highways. The ODOT HDM is closely aligned with the American Association of State Highway and Transportation Officials (AASHTO) “A Policy on Geometric Design of Highways and Streets - 2001.” The ODOT HDM also identifies modifications to the AASHTO policy for certain specific design elements. Policies and standards to be applied are based on the jurisdiction (state and local), the functional classification, and the project type.

Project Relevance

The functional classification for OR 47 is a district highway, and specific standards from the HDM apply.

Access Management

Chapter 5 of the HDM identifies rules, laws, and techniques that designers can use when developing an access management strategy appropriate for Oregon State Highways.

Particular design elements of interest for the TSP update include access control and street design standards.

Urban Highway Design

Chapter 8 of the HDM identifies the design criteria for each of the elements of urban highway design (not freeway).

Particular design elements of interest for the TSP update include design speed, alignment and profile, shoulders, lane widths, cross slope, curbs, grades, vertical clearances, clear zones, traffic operations, and access management. The update will assure that city and state standards are consistent and/or can be modified by the City under certain conditions.

Pedestrian and Bicycle

Chapter 11 of the HDM outlines general guidance for bicycle and pedestrian movements. Other chapters provide additional or similar information on these design considerations.

The specific applications of these standards to OR 47, as a designated district highway, will be included in the TSP update.

Oregon Bicycle and Pedestrian Plan (1995)

The Oregon Bicycle and Pedestrian Plan provides guidance to regional and local jurisdictions for the development of safe, connected bicycle and pedestrian systems. The plan is a modal element of the OTP. It contains the standards used on state highway projects and provides guidance to cities in establishing facilities on local transportation systems.

The goal of the plan is the provision of safe and accessible bicycling and walking facilities for the purposes of encouraging increased levels of bicycling and walking. The plan provides actions that will assist local jurisdictions in understanding the principles and policies that ODOT follows in providing bike and walkways along state highways. In order to reach the plan's objectives, the strategies for system design are outlined, including:

- Providing bikeway and walkway systems that are integrated with other transportation systems.
- Providing a safe and accessible biking and walking environment.
- Development of education programs that improve bicycle and pedestrian safety.

The document includes two sections, including the Policy & Action Plan and the Bikeway & Walkway Planning Design, Maintenance & Safety Plan. The first section contains background information, legal mandates and current conditions, goals, actions and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. The second section assists ODOT, cities and counties in designing, constructing and maintaining pedestrian and bicycle facilities. Design standards and information on safety is provided. These standards are recommended but are not required for use by local jurisdictions in Oregon.

The Oregon Bicycle and Pedestrian Plan also addresses the Oregon Bike Bill (ORS 366.514). This law requires ODOT, counties, and cities in Oregon to expend reasonable amounts of the highway fund to provide bikeways and walkways. It also requires the inclusion of bikeways whenever roadways are constructed, reconstructed, or relocated – except in the following situations:

- There would be no probable use
- Safety would be jeopardized
- The cost would be excessively disproportionate to the need or probable use

The Vernonia TSP update should integrate the guidance of the Oregon Bicycle and Pedestrian Plan and recommended actions should include bicycle/pedestrian elements in accordance with the Bike Bill. Additionally, guidance will be used from this document to formulate the Safe Routes to School recommendations as included in the TSP update scope of work. Bicycle lane design and construction standards on the highway should be consistently defined in the TSP and city design documents. Alternative bicycle path designs are desired for the various conditions and locations in the city where standard bike lanes are not feasible or appropriate.

State Transportation Improvement Program (STIP)

The STIP is updated every two years and provides a 5-year state funding and scheduling guide for ODOT and the metropolitan planning organizations for transportation projects. Projects funded in the STIP reflect and advance the OTP for highways, public transportation, freight and passenger rail and bicycle and pedestrian facilities. STIP projects starting in 1998 to 2010-2013 for Vernonia are noted below:

1998-2001 STIP

- Anderson Park – Vernonia: Pave 8' wide trail, construct a 12' wide pedestrian/bike bridge across Rock Creek in 1999. (Total cost: \$178,000) (Key number 06716)

2000-2003 STIP

- Vernonia NCL – Sunset Highway Junction Overlay Highway project in 2002. (Total cost \$6,830,000) (Key number 11131).

2002-2005 STIP

- Vernonia NCL – Sunset Highway Junction Overlay Highway project in 2003 which includes significant bicycle and pedestrian elements, including adding sidewalk where possible. (Total cost \$7,388,000) (Key number 11131).

2004-2007 STIP

- OR 47: Sidewalks/Bike Lanes – Texas Avenue to Riverside Drive in 2005. (Total cost \$453,000) (Key number 13259)

2006-2009 STIP

- OR 47: Sidewalks/Bike Lanes – Texas Avenue to Riverside Drive in 2006. (Total cost \$453,000) (Key number 13259)

2008-2011 STIP

- Banks-Vernonia Trail: South Trailhead Banks Road. Construction is scheduled to begin in 2008. (Total cost: \$819,000) (Key Number 14771).

2010-2013 STIP

- Banks-Vernonia Trail: South Trailhead Banks Road. Construction is scheduled to begin in 2010. (Total cost: \$1,046,000) (Key Number 14270).

These projects are expected to be completed, and are the only State-funded STIP projects included in Vernonia since 1998.

Columbia County Community-Wide Transit Plan and US 30 Transit Access Plan (2009)

The Transit Plan addresses current and future transit needs in Columbia County. The plan is designed to serve the needs of the major population centers of Scappoose, St. Helens, Rainier, Clatskanie, and Vernonia, along with the County's smaller communities and rural areas. The plan provides a set of recommendations for transit services throughout the

County, including fixed-route bus, demand-response bus, vanpool, and carpool, supported by transit facilities, including upgraded bus stops and new park-and-ride lots.

Currently, demand-responsive service is the only public transportation provided by the County to Vernonia.

Recommendations for additional transit service to Vernonia include:

- Fixed-route service to Hillsboro and PCC-Rock Creek
- Weekday flex-route between Vernonia and St. Helens via Scappoose

In the City's 1999 TSP, the document encourages the City's support of a dial-a-ride van service, but does not recommend additional public transit service. The Columbia County Transit Plan has a number of recommendations to change the TSP to support the transit plan:

The City of Vernonia should revise existing conditions information in the TSP to reflect current Columbia County transit planning. Background information that supports proposed policy should include current conditions in Vernonia, including the identified need for a park-and-ride. In addition, the transit plan recommended policy amendments to support the Transit Plan, and site new bus stops and park-and-ride lots within the City.

The plan recommends new fixed-route service from Vernonia to Hillsboro and PCC-Rock Creek and a weekday flex-route that travels from Vernonia to St. Helens via Scappoose three days per week and to Clatskanie via Mist the other two days per week. The plan calls for a park-and-ride area in Vernonia to support these new services, noting that park-and-ride spaces may be accommodated through on-street parking along the side of City Hall.

The following modifications to the development regulations of Title 9 are recommended to support the Transit Plan:

- Section 9-01.11-50.C of City Development Regulations (includes a list of transportation improvements that are permitted outright in any zone: "projects specifically identified in the TSP as not requiring further land use regulation." With the modifications to the City's transit policies, any transit improvements associated with the recommendations of the Transit Plan will be allowed outright.
- Section 9-01.11-70 Internal Connections requires walkways between adjoining developments and from commercial, office and institutional uses to public right of ways. No provisions in the city code address providing connections to public transit.
- Section 9-01.11-30 of the Development Regulations provides for the coordinated review of land use amendments and development proposals that potentially impact the transportation system; however the City does not explicitly require notification to Columbia County Rider.

The Transit Plan recommends the City modify notification procedures to provide for coordinated review with the County transit provider. The plan includes recommended language for development standards that require accommodating planned transit facilities

and providing safe and convenient access from commercial, office, institutional, and multi-family uses to public transit stops.

The Vernonia TSP will consider the recommended projects in the Transit Plan, and will strive to be in compliance with this document as required by the TPR.

Columbia County Rural Transportation System Plan (1998)

The County TSP provides the framework to guide transportation system development by addressing needs, funding resources, and implementation requirements to respond to future employment and residential growth. The TSP considers all modes of transportation, including vehicle, freight movement, public transit, walking and bicycling, transportation disadvantaged service, railroad, air, water, and pipeline transportation.

Elements applicable to Vernonia include a short discussion about the Vernonia airport, and the possibility of funding to upgrade the airport, and potentially reclassifying it to become eligible for inclusion in the National Aviation System Plan.

Projects authorized in 1996 near Vernonia include mention of the Anderson Park – Vernonia, Banks-Vernonia State Park. The project includes a paved 8-foot-wide trail and a 12-foot-wide pedestrian/bike bridge across Rock Creek that was included in the STIP. The Banks-Vernonia State Park paved and graded 8-foot-wide path for bicyclists and pedestrians. County projects in Vernonia should be incorporated and included as potential funding sources in the TSP.

City of Vernonia Transportation System Plan (1999)

The Vernonia TSP identified existing and future transportation system deficiencies, and included a list of projects to address the future transportation needs of the City. The following are the goals and policies of the TSP:

- Goal 1: Approval Process and Coordination – Develop a coordinated process for the Transportation System Plan
- Goal 2: Operation and Safety – Preserve and improve the function, capacity, level of service, and safety of the roadway system
- Goal 3: Transportation Alternatives – Support the use of other modes of transportation (bicycles, pedestrians, equestrians, and transit) through effective transportation improvements
- Goal 4: Air Transportation – Support efforts to maintain and investigate expansion of the airport facilities.
- Goal 5: Finance – Use a sound fiscal approach to financing transportation system improvements.

Existing Conditions

The 1999 TSP analyzed existing conditions in Vernonia, including the existing functional classification, roadway condition, state highway access conditions, traffic safety, posted speeds, on street parking, activity centers, new facilities, operations, and connectivity. The

existing facilities for bicycles, pedestrians, public transportation, and Regional transportation are also included in the 1999 TSP.

The TSP update will verify that these conditions still exist and update data when necessary.

Future Conditions

The 1999 TSP analyzed future (year 2018) conditions by assuming full buildout of developable land within the current UGB land, and added the projected future trips from expected development to the traffic analysis.

The TSP update will need to consider land that has been added to the floodplain and areas that will be acquired by the City and kept as open space to mitigate future flood events. The update will also consider developments currently under consideration in the City, including the relocation of the schools, the relocation of the Western Oregon Electric Coop headquarters building, and the proposed Nehalem View Subdivision. The TSP will also evaluate the traffic impacts of a City plan to extend the Downtown Zone DT south onto Rose Avenue.

Additionally, there are some streets and other areas that have been added to the City's UGB since the last TSP, and those areas and streets will need to be considered in the TSP update. There are also a number of recommendations in the 1999 TSP that have already been implemented or may no longer be needed. Recommended projects will be updated through this TSP effort.

The TSP update will evaluate the recommendations in the 1999 Vernonia TSP, and update the existing and future traffic conditions based on recent data. The TSP update may revise or discard some of the recommendations that have been implemented or are no longer considered necessary.

City of Vernonia Comprehensive Plan (1995-1996)

The City's Comprehensive Plan is the generalized, coordinated land use map and policy statement for the City. It establishes the land use planning process and policy framework to base all land use decisions and actions to ensure an adequate factual base for such decisions.

Goals of the plan include guiding development in Vernonia in a rational manner, allowing for a high quality of development in and around the City. The City supports modest growth, but the first priority is projects and programs that maintain the City's livability and friendly character. An additional goal added in response to the 1996 flooding was to emphasize the location of development out of floodways, and to remove severely damaged and obsolete structures from the floodways to create a floodway-protecting greenbelt system.

Objectives relevant to the TSP update include:

- Park and recreation sites and facilities will be improved and expanded to include:
 - Extension of the Banks-Vernonia Linear State Park to Lake Vernonia and establishment of the park's trail-head facilities at the lake
 - Establishment of a Shay railroad route with a station in downtown and supporting display, museum and operation and maintenance facilities

- Transportation facility improvements including City streets, State and County access routes and development of the City's airport will provide key support to the overall improvement of the City's economy

In addition to the objectives outlined in the Comprehensive Plan, there are also some streets specifically mentioned in the document:

- The Comprehensive Plan identifies State Street and Pebble Creek as County roads, classified as collector streets.
- City collectors within Vernonia include: Rose Avenue north of Bridge Street, Bridge Street west of Rose Avenue, Adams Avenue from Bridge Street to Anderson Park, and Cougar Avenue and 2nd Street connecting to Baker Road.
- Knott Street from OR 47 east is designated as a special combined light industrial-residential service street.
- Maple Avenue from Adams to Weed and Weed Avenue from Maple to Bridge are designated as special commercial service streets.

Street and Roads Policies include:

- Continued maintenance of OR 47 by ODOT is required. The City will coordinate with ODOT to safely accommodate heavy truck traffic through the City.
- The City supports the Banks-Vernonia Linear State Park.
- The City continues to adopt Columbia County street and road improvement standards as a means of insuring new and existing roads and streets meet the City's transportation needs.
- New road and street proposals will be in accordance with the requirements of the subdivision ordinance
- The City's zoning ordinance will host requirements for off-street parking and loading and vehicular maneuvering space.
- The Planning Commission will work with downtown business people to review and recommend changes in on-and off-street parking and loading space arrangements.

The Comprehensive Plan is in need of updating, as it is a collection of information dating from the 1970s, and should be updated to ensure that it is compatible with County, State and regional plans, along with other plans within the city itself.

The TSP update will suggest amendments to the Comprehensive Plan to bring both documents into compliance and to ensure that there are no inconsistencies between the two.

City of Vernonia Zoning Code and Public Works Standards

The City Zoning Code is the guide for the type of development that is allowed either outright or conditionally in any given zoning designation. Zoning ordinances implement Comprehensive Plan policies and preserve the nature of the community, and provide for public facilities provision to serve the population.

City of Vernonia Public Works Design Standards, Section 6 Public Works Street Standards

Section 6 lays out the design requirements of City streets, including performance standards and guidelines. Traffic analyses requirements are included, along with report contents to be submitted to the Office of Public Works. Intersection spacing, half street construction, design speed, horizontal and vertical curve standards, design, and curb requirements are also included in the standards. The standards include sidewalk width requirements on various street types and adjacent to different types of land use. Standards for wheelchair ramps, parking, bikeways, and accesses can be found in this document section. These requirements vary from the 1999 TSP and Section 9-01.11 of the City's code. The differences are described below:

- City code requires a traffic impact analysis if the proposed development will generate more than 300 trips per day, while the public works standards require a TIA if a development will generate more than 1,000 trips per day.
- Public works guidelines require exclusive left and right turns lanes provided at arterial intersections, while section 9-01.11 does not require exclusive turn lanes.
- Public works intersection spacing for collectors and local streets are 400 and 300 feet, respectively, while section 9-01.11 requires 300- and 200-foot spacing for the same types of roads.
- Parking requirements on collectors in the public works standards is higher than the requirements in section 9-01.11, and is different for local roads.
- Local street right-of-way requirements call for 40-foot right of way in the public works standards, while section 9-01.11 calls for 30-foot right of way.
- Minimum sidewalk width in the public works standards is 6 feet for an arterial, while in the 1999 TSP, the requirements are 10 feet for arterials in an urban environment, and 5 feet for rural arterials
- The minimum width for bikeways on a public street in the public works standards is 8 feet, while the TSP calls for 5-foot bikeways on streets. These also need to be compared with state bikeway standards.

Title 9 Land Use and Development

This is the Zoning Code for the City of Vernonia. There are a number of zones throughout the City, including various residential designations of differing density, commercial and downtown designations, industrial, public recreation and institutional public designations. A zoning map accompanies the zoning code to identify the location of zones within the city. Additionally, zoning lays out design standards, building setbacks, lot orientation and side and rear yard requirements.

Section 9-01 Zoning Code for the City of Vernonia

Residential Zone (R)

The Residential zone provides standards for residential purposes, and includes single family and two family uses, farming, and home occupations described in the zoning code. Conditional uses include community facilities such as churches, community buildings,

governmental use, medical services, mobile home parks, schools or colleges, public utility structures, parks or playgrounds, or bed and breakfast inns. The Residential zone expressly prohibits the use of an automobile travel trailer as a residence on individual lots.

General Residential Zone (GR)

This zone provides minimum development standards for a variety of housing opportunities in close proximity to community services in the downtown zone. Various housing types are permitted outright, including multi-family housing, boarding, lodging, or rooming house, care facilities or homes, and community gardens. Conditional uses are similar to the Residential conditional uses.

Low Density Residential Zone (LDR)

This zone provides a transition area between high density and rural areas with few natural boundaries. All development within this zone is reviewed as a Planned Development. Single family housing, farming, and home occupations are allowed outright. Conditional uses include churches, community and government uses, schools, public utilities or public parks and playgrounds.

General Commercial Zone (GC)

This zone provides for a broad range of commercial operations and services required for proper and convenient functioning of commercial centers serving large areas of the county. Permitted uses include all retail and service operations including retail or wholesale trade, repair or maintenance service, office, personal or business services, eating or drinking establishments, financial institutions, and amusement institutions. Conditional uses include public or private athletic fields, RV parks, railroad or other transportation facility passenger depot, public or semi-public buildings, single or multiple family dwelling units located on the second story of a permitted use, and a manufactured home park.

Downtown Zone (DT)

The Downtown zone exists to identify an area of the city as a vibrant commercial center with special uses, development types and design, different than the General Commercial designation. The Downtown zone is the “heart” of the community, allowing for places for people to gather, and the civic and business center. The goal is to use land and urban services efficiently, have a mixture of uses to encourage walking, and provide formal and informal community gathering places, and have a distinct storefront character that identifies the downtown zone.

Permitted uses include existing detached dwellings, multi-family dwellings attached (above or behind) to a permitted non-residential use, home occupations, bed and breakfast establishments, churches, community buildings, government offices and facilities, public buildings, private utilities, entertainment within buildings, medical and dental offices, office uses, personal and professional services, repair services, mixed-use development, and retail trade and services, except auto-dependant uses.

Conditional uses include hotels, day care, and light manufacturing or similar uses. Buildings are required to be oriented to the street and pedestrian friendly areas to create a walkable downtown. Height limits may be extended if the building is mixed-use.

Light Industrial Zone (LI)

The purpose of this zone is to provide for manufacturing, warehousing, and sales operations which do not create objectionable amounts of noise, odor, dust, glare, vibration, or track or rail traffic.

Permitted uses include transmitter and utilities facilities, repair and maintenance activities, animal hospitals, wholesale, trucking and storage establishment, machine and cabinet shops, building material storage yard, plumbing, heating, electrical or paint contractors storage, repair or sales shop, tire re-treading or vulcanizing shop, forest materials processing, and other uses that do not create excessive noise, smoke, odor, or gas and do not constitute a fire, explosion or other physical hazard. Conditional uses include automobile wrecking yards, junk yards, dwelling unit accessory to a permitted use, or biomass electrical generation facility.

Public Recreation Zone (PR)

This zone allows parks and playgrounds, athletic fields, swimming and wading pools, golf course, tennis courts, picnic areas, campgrounds, RV accommodations, historical displays, museums, community buildings, and open space areas, greenways and greenbelts. Conditional uses include expansion of permitted uses.

Planned Development Zone (PD)

The Planned Development zone is used only in combination with another zone, and allows the application of new technology and greater freedom in design in land development than is possible in a strict interpretation of the code. The plan should be consistent with the Comprehensive Plan for the area. Planned developments should be approved in accordance with the provisions of this section. Planned development zone may be established in combination with any other zone, however, residential uses are not permitted in an LI zone, and uses permitted in an LI zone shall not be permitted in an R, GR, LDR, DT, or GC zone.

Institutional Public Zone (IP)

This zoning district provides for major institutional and government activities such as schools, public parks, government offices, utility structures, hospitals, correctional facilities, and other similar public and quasi-public uses. All uses are considered a conditional use in the IP zone, and a number of conditional uses are allowed. The only prohibited uses are private lodges, fraternal organizations, country clubs, or similar clubs.

Section 9.01-11 Transportation Planning, Standards and Procedures

This section is applicable to the TSP update, as it provides standards and procedures to implement the TPR and local, regional, and state transportation plans. Notice is required to DLCD if there is a proposal to amend the Comprehensive Plan or zoning code.

This section also describes the access management standards applicable in Vernonia. ODOT approval is required for an access onto OR 47, and must be in compliance with the access management strategies in the 1999 Vernonia TSP. To create a new access onto a County road, property owners must notify and coordinate with the Columbia County Public Works Department, and access onto local streets must comply with the Vernonia TSP.

Minimum access spacing is included in Table 3 below:

TABLE 3
Access Spacing Standards by Roadway Functional Classification

Functional Classification	Minimum Access Spacing
Arterial	500 feet from arterial or collector
	400 feet from any other intersection (including private access)
Collector	300 feet from arterial
	150 feet from any other intersection (including private access)
Local Street	200 feet from arterial
	100 feet from any intersection with a collector, or local street
	No spacing requirements from intersections with a private access

Section 9-01.11-40 Protection of Transportation Facilities

All Comprehensive Plan and zone changes shall conform to the adopted Vernonia TSP, and should not substantially impact the functional classification or operation of transportation facilities. A traffic impact study (TIS) or a traffic impact analysis (TIA) may be required for a comprehensive plan or zone change to quantify the impacts to the local transportation system. To ensure the function of the transportation network, the City may limit allowed land uses to be consistent with the planned function, capacity and level service of the transportation facility, may amend the TSP to provide transportation facilities adequate to support the proposed land uses, or may alter land use designations, densities or design requirements to reduce demand for auto travel and meet travel needs through other modes.

Section 9-01.11-50 Transportation Improvements

No plan amendments are needed if the improvement lies within a corridor identified in the TSP. The following transportation improvements are permitted outright in any zone including normal operation, maintenance, repair, and preservation activities on transportation facilities, projects identified in the TSP not requiring further land use regulation, landscaping, and acquisition of right-of-way for public roads, highways, and other transportation projects identified in the TSP. Transportation improvements conditionally allowed include construction, reconstruction or widening of facilities not identified in the TSP or not designed and constructed as part of a subdivision or planned development.

Section 9-01.11-60 Street Standards

The City's zoning code defers to the TSP for street standards, noting that new developments shall provide for street connectivity. Street Standards are found in Table 4 below:

TABLE 4
Street Standards in TSP and referenced in Transportation Planning Standards, City Code

Street Type	Travel Lanes	Parking	Bikeways	Total Pavement	Unpaved shoulders	Planting Strip	Sidewalks	Right-of-way ¹
Urban								
New Local	2 – 9'	5' both sides		28'	5' both sides	5' both sides		50'
Local preferred retrofit	2 – 9'	6' one side		24'		5' both sides	5' both sides	46'
Local Minimum retrofit	2 – 9'			18'			5' one side	25'
Collector	2 – 10'	8' one side	5' both sides	38'		5' both sides	6' both sides	62'
Arterial	2 - 11'	8' both sides ²	5' both sides	48'			10' both sides ³	70'
Rural								
Local	2 – 9'			18'	2' both sides			30'
Collector	2 – 10'	6' one side	5' both sides	36'	4' both sides		5' both sides	62'
Arterial	2 – 12'		5' both sides	34'	4' both sides		5' both sides	60'

¹ Required right-of-way is the total of pavement, shoulders, planting strip, and sidewalks, plus 2 feet for urban roadways and 8 feet for rural roadways

² Standards for urban arterials and collectors require 8 foot parking lanes in the downtown area, where storefront commercial land uses make on-street parking desirable. Outside of downtown, parking lanes may be excluded from the cross section if adjacent land uses do not support the need (for instance, if buildings are set back from the right-of-way and off-street parking). Where on-street parking is eliminated from the cross section, total pavement width shall be reduced by the same amount.

³ The 10-foot arterial sidewalk is stipulated for downtown area and may be reduced to 6 feet elsewhere.

Section 9-01.11-70 Internal Connections

Internal connections are required as walkways from the public right-of-way or adjoining development to main building entryways. Multi-family developments and planned developments must also include internal connections, including connections to the right-of-way and adjacent developments.

Section 9-01.11-80 Bicycle Parking Facilities

Bicycle parking is required in all new multifamily, industrial, commercial, office, and institutional development. Parking must be near a primary entrance, may be located on sidewalks if there is enough width to serve both bicycles and pedestrians, and there are specific parking space requirements depending on the type of development.

Section 9-01.11-90 Traffic Impact Studies

This section establishes standards for when a land use proposal must be reviewed for potential traffic impacts, and when a TIS must be submitted as part of a development application³. A TIS is required in the event of a zoning change or plan amendment designation, the proposed development or land use action may have operational or safety concerns, and increase in traffic volume generation by 300 average daily trips or more, an increase in peak hour volume to and from a State highway by 20 percent, an increase in adjacent street use, driveway locations do not meet sight distance requirements, or a change in internal traffic that may cause safety problems.

Section 9-04 Sidewalks

The Sidewalk section defines sidewalks and instances when sidewalks are required within the City of Vernonia. It also describes when sidewalks are not required, including physical limitations, and if other surrounding property does not have sidewalks. Conditions requiring sidewalk construction include: the adjacent street has been fully developed to City standards, existing sidewalk on properties immediately adjacent to the property, the property is identified in the Comprehensive Plan as requiring a sidewalk, the presence of a school, or other public facility, in the area it would be in the interest of public safety to have a sidewalk installed, and the topography of the area would not prevent reasonable installation of a sidewalk.

Other Provisions that Could Affect the TSP Update

There are provisions related to street improvements in pre-platted areas and land divisions. Also, every lot is required to abut a street, other than an alley, for at least 25 feet. There are off-street parking and loading requirements, and owners of two or more uses are allowed to jointly utilize the same parking and loading spaces if hours of operation do not overlap.

The Vernonia TSP update may consider additions or edits to the City code to bring everything into compliance and ensure that all the standards are consistent throughout.

Vernonia School Siting Study: Comparative Assessment of Transportation Needs (2009)

In February last year, a report was written (*School Siting Comparison Report*, Kittelson & Associates, 2009) to analyze the transportation infrastructure needs of alternative sites for the Vernonia K-12 school campus. Two alternate sites were analyzed in response to the need to move the existing schools out of the floodplain. The two sites are the Northwest Corner Site and the Boot Site.

Northwest Corner Site

The Northwest Corner Site is currently outside of the City's UGB boundary in the northwest corner of the city, adjacent to a cemetery and single-family housing. The site is on a hill, which is currently connected to the City by a dirt road. The site is hilly and densely forested. Two site access options were identified in the study: Bridge Street widening and Rose Avenue Extension. Both streets would need to be upgraded to support access to the potential school site, with sidewalks and bicycle facilities to allow for pedestrians and

³ Traffic Impact Analyses (TIA) and Traffic Impact Studies (TIS) are used interchangeably throughout this document. They are the same type of analysis

bicycles to share the roadway. The northwest site does not offer any pedestrian or bicycle-only transportation options, and is more remote than the existing schools, requiring more students to be dropped off or to take the bus.

The report observed that the Northwest Corner Site has very little transportation infrastructure, and major transportation improvements would be required if this site were chosen. Steep terrain and limited right-of-way could increase unforeseen costs as more detailed engineering work was completed.

Boot Site

The Boot Site is also an unincorporated section of town between Louisiana Avenue and the Nehalem River outside of the UGB. Adjacent to the site is Spencer Park, single family housing and the river. Three site access options were analyzed in the study: Missouri Avenue Widening – uses Missouri Avenue to provide the primary access; Texas Avenue Widening – uses Texas Avenue to provide primary access; and North Boot Site Access – uses State Avenue to Stoney Point Road north of Vernonia to Mellinger Road, and then south along a newly constructed road into the school site. Both Missouri and Texas Avenues would need to be widened and improved to support the Boot Site for either alternate route, and the Boot Site access would require new roads and alterations of both Mellinger and Stoney Point Roads. For all three alternatives, a left-turn pocket would be required on Bridge Street to accommodate vehicles turning on State, Missouri, or Texas Avenues.

The report notes that the Boot Site is well located and has a number of access routes for pedestrians. The Missouri and Texas Avenue options would simply require a widening to support sidewalks and bicycle lanes to the Boot Site, but the Boot Site access around the north may require a separate bicycle and pedestrian facility to be built to provide access from Bridge Street.

The report concluded that the transportation options associated with the Boot Site were more feasible, and the Boot Site was easier to access for pedestrians and bicyclists. The required access improvements for the Texas and Missouri Avenue options were relatively low cost and could be implemented.

The Vernonia TSP update recognizes that two alternatives were considered as part of the school siting process, and will consider the recommendations and issues brought up in this study.

Vernonia School Campus Transportation Impact Analysis (2010)

This traffic impact analysis (TIA) was conducted in March of 2010 in response to the potential Boot Site school location being chosen north of Bridge Street on Missouri Avenue, and based on previous work for the *School Siting Comparison Report* (Kittelson & Associates, 2009).

The study analyzed two study area intersections: Bridge Street and Missouri Avenue, and Bridge Street and Texas Avenue. The analysis found that a left-turn lane is warranted at the Bridge Street and Missouri Avenue intersection when the school is developed; however, a signal at this intersection is not warranted. The TIA found that safe and effective transportation can be provided to the site for all modes of travel.

Recommended mitigation for the school development are as follows:

Bridge Street Improvements

- Install an eastbound left-turn lane at the Bridge Street/Missouri Avenue intersection providing 100 feet of storage length in order to accommodate 95th percentile queues
- Install a pedestrian refuge on the east leg of the Bridge Street/Missouri Avenue intersection (in lieu of an opposing westbound left-turn lane)
- Eliminate parking on the southbound approach for at least 125 feet north of the Bridge Street/Missouri Avenue intersection to provide room to separate right- and left-turning traffic
- Do not install a westbound right-turn lane at the Bridge Street/Missouri Avenue, thereby promoting pedestrian safety at the intersection (by reducing the distance required to cross bridge street)
- Extend the 25-mph speed zone (which currently transitions to 35 mph on OA Hill west of Texas) to about 500 feet east of Missouri Avenue

Bicycle and Pedestrian Improvements

- Retain bike lanes on Bridge Street between Texas and Missouri Avenue
- Install a multi-use pedestrian-bicycle path along the south side of Bridge Street between Texas and Missouri Avenues
- Provide pedestrian and bike facilities along Missouri Avenue between the new school site and Bridge Street as well as at the Bridge Street intersection
- Provide a pedestrian connection from the new school site to the city center of Vernonia
- Provide bus service to all students who reside west of Ora Bolmeier City Park and all students who live greater than one mile from campus;
- Install school zone signage and flashing beacons to alert drivers of potential pedestrians along Bridge Street in the vicinity of Missouri Avenue;
- Staff the Bridge Street crosswalk at Missouri Avenue with crossing guards before and after school, flagging traffic to protect students;
- Provide pedestrian-bicycle connectivity from the school campus via local streets to the neighborhood immediately west of the campus (state street neighborhood);
- Provide an emergency vehicle and pedestrian-bike connection linking the school campus to Texas Avenue; however, do not allow general traffic use (enforced by installing bollards), and;
- Prepare a special events plan, and coordinate with adjacent churches prior to each school year to ensure that heavily-attended events are not scheduled concurrently;

- In the future, the School District should collaborate with the City of Vernonia to further enhance pedestrian and bicycle connectivity. This should include the School District's active participation in the City's upcoming Transportation System Plan development and pursuit of grant funding through the State and federal Safe Routes to School programs.

The TSP update will consider the recommendation in the TIA and the left-turn lane recommendation for Bridge Street at Missouri Avenue. (The Planning Commission has made a final decision on school transportation improvements; these are found in the decision notice for File # CUP/SD 10-01.)

Western Oregon Electric Co-Op (WOEC) Relocation TIA (2010)

In addition to the school relocation in response to the 2007 floods, the Western Oregon Electric Co-Op will be relocating their headquarters between Weed Avenue and Rose Avenue south of Bridge Street. Per development code, they were required to complete a traffic impact study. The TIA for the WOEC relocation was prepared in May of 2010.

The TIA assumed that Cougar Street will be constructed between Weed Avenue and Rose Avenue and will serve as the major access for all development.

Other traffic assumptions include:

- Maple Street as a two-way street between Rose Avenue and Weed Avenue, maintaining a 28-foot paved width and sidewalk on the south side of the street
- Cougar Street as a two-way street between Rose Avenue and Weed Avenue to serve the future WOEC headquarters and City facilities development. At a minimum, prior to occupancy of the site, Cougar Street must be two-way from the headquarters driveway to Weed Avenue and one-way westbound from the WOEC headquarters driveway to Rose Avenue.
- Umatilla Street between Rose Avenue and Weed Avenue will be closed and possibly vacated due to sight distance issues at Umatilla Street and Rose Avenue.
- Weed Avenue will remain a one-way street between Bridge Street and Maple Street for the short term. The study recommended for the long term, plans to reopen Weed Avenue to two-way traffic, which should be incorporated into the City's Transportation System Plan update.
- The analysis assumes no new access on Rose Avenue either from WOEC headquarters or the City site.
- Cougar Street is assumed as the access road to the proposed facilities. All existing and proposed public approaches to the highway will require new access permits from ODOT.

No traffic impacts for congestion or safety issues were identified in the report as a result of the WOEC and City development, and no mitigation improvements are expected to be required.

The TSP update will consider the recommendations and expected improvements associated with the WOEC facility location and traffic impact analysis.

Nehalem View Subdivision Traffic Impact Study (2008)

The proposed Nehalem View Subdivision is located in the northeast part of the city, west of the Nehalem River and south of the northern city limits. Access to the site will be through new streets connecting Mellinger Road from the north and Riverside Drive from the south. The subdivision will be developed in three phases, each a year apart. Phase 1 includes 24 units, phase 2 has 23, and phase 3 will be 20 units. The fully developed subdivision will be 67 single-family residential homes.

As required by City code, the subdivision completed a TIS, where future traffic related to the subdivision was analyzed and the amount of congestion determined on City roads. The study area intersections include Stoney Point Road and State Avenue (this intersection is in the county), Highway 47 and State Avenue, and Highway 47 and Riverside Drive.

The study determined that 50 new trips would be generated by the fully completed development in the morning peak hour, 67 trips during the evening peak hour, and 642 new trips daily. All of the study intersections operate within standards currently, and are projected to operate acceptably once the development is built. This additional traffic is not expected to decrease the level of service below current standards, and traffic projections show that there are no traffic concerns in the future year without the development.

According to the TIS, the Nehalem View development and associated increase in traffic meets a left-turn lane warrant on OR 47 at State Avenue. However, there is limited area available to add a turn lane, and the installation of a turn lane is recommended once properties near the intersection redevelop. Once this redevelopment occurs, the proportional share is recommended to be made part of this development.

An additional recommendation includes the removal of vegetation along OR 47 to improve sight distance for vehicles turning off of Riverside Drive. No other safety deficiencies were identified.

The recommendation to add a left-turn lane at OR 47 and State Avenue will be considered as part of the TSP update process.

City of Vernonia Local Wetland Inventory and Riparian Assessment (2000)

The assessment documents the methods and results of the City's Local Wetland Inventory (LWI). The City was required to complete the assessment as part of the requirements for the periodic land use planning review process established by State Land Use Planning Goal 5, and the City suspected wetlands existed on large areas zoned for development. The assessment used the following three criteria to determine the presence of wetlands: presence of wetland hydrology, hydrophytic vegetation (vegetation that occurs where inundation or soil saturation produce permanently or periodically saturated soils), and hydric soils (soils that are saturated, flooded, or ponded during the growing season to support hydrophytic vegetation) under normal conditions.

The study mapped 18 water resources within the UGB totaling 131.37 acres. These water resources included 15 palustrine wetlands, one lacustrine wetland, and two riverine wetlands.

Palustrine Forested wetlands include all nontidal wetlands dominated by trees, shrubs, plants, or mosses or lichens. Palustrine forested wetlands are the majority of wetlands within the UGB and vary from major stream drainages to more isolated sites in low areas or near the bottom of slopes. There is forested wetland in the northeastern corner of the city, and in some residential areas east of the Nehalem River. There are some smaller wetlands near the eastern edge of Spencer Park and east of the Washington Grade School. There are also wetlands along the Nehalem River near Vernonia Lake, west of Rock Creek, adjacent to Bear Creek in the southwestern area, and a few isolated locations west of Rock Creek.

Palustrine Emergent wetlands vary throughout the study area. The largest one is in a wet meadow area in the northeastern corner of the UGB. There is also a fringe area of emergent wetland around the edge of Vernonia Lake. A ponded section of Bear Creek in the southwestern part of the UGB, along with areas along Knickerson Creek in the northeastern part of the UGB were identified as emergent wetlands. Additionally, a northern section of Spencer Park, and an area east of Anderson Park near the water treatment facility are emergent wetland areas.

Palustrine Scrub/Shrub wetlands are located in two areas within the UGB: the northeastern area north of Knickerson Creek, and a previously identified area between the sewage treatment ponds and Vernonia Lake.

Lacustrine wetlands are associated with large standing water bodies. Within Vernonia, lacustrine limnetic open water wetland is located in Vernonia Lake.

Riverine lower perennial open water wetland is located in the channels of Nehalem River and Rock Creek. These streams are characterized by low gradient and low water velocity.

The TSP update will consider wetlands when developing projects and transportation alternatives.