Preface

This project was funded by the Oregon Department of Transportation (ODOT) and Jefferson County. This document does not necessarily reflect the views or policies of the State of Oregon.

The development of this Transportation System Plan (TSP) was guided by the Jefferson County Public Works and Community Development Departments, ODOT, a Technical Advisory Committee (TAC), and the Consultant Team identified below.

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The Technical Advisory Committee members devoted a substantial amount of time and effort to the development of the Transportation System Plan (TSP), and their participation was instrumental in the development of the report.

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Section 1
Introduction
Introduction

1.1 OVERVIEW

Jefferson County, in conjunction with the Oregon Department of Transportation (ODOT), initiated a study of the county’s transportation system in 2005. This Transportation System Plan (TSP) will guide the management and development of appropriate transportation facilities within the county over a twenty year planning period, until 2027. The TSP incorporates the county’s vision for its transportation system, while remaining consistent with state, regional, and local plans. The plan implements Goal 12, Transportation, in the County’s Comprehensive Plan.

Goal 12 requires cities, counties, metropolitan planning organizations, and ODOT to provide and encourage a safe, convenient, and economic transportation system. This is accomplished through development of TSPs based on inventories of local, regional and state transportation needs. Goal 12 states that transportation plans shall:

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

In April 1991, the Land Conservation and Development Commission (LCDC), with the concurrence of ODOT, adopted the Transportation Planning Rule (TPR), OAR 660 Division 12. OAR 660-012-0055(2) requires counties to complete and adopt a TSP and implementing measures by May 8, 1997. However, counties with a population under 25,000 may receive a whole or partial exemption from the TPR requirements. Jefferson County’s population is approximately 22,000. The County did not request an exemption, and hired an engineering firm who completed a draft TSP in 1996. The County was not satisfied with the draft, and it was not adopted.
1.2 PLAN REQUIREMENTS

Pursuant to OAR 660-012-0015, the County’s TSP must “establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP.” This TSP is consistent with these requirements. Although not required by the TPR for areas outside of urban growth boundaries (UGBs), this TSP also includes a review of the County’s transportation financing capability to help identify future unfunded transportation needs and potential revenue sources.

OAR 660-012-0020 contains the requirements for TSPs, as set forth below. Some of the requirements do not apply to Jefferson County’s TSP because the County’s population is less than 25,000, the County is not part of a Metropolitan Planning Organization (MPO), and does not have intercity transit service. Subsections of the OAR that are not applicable to the County’s TSP are identified by an asterisk.

(1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs.

(2) The TSP shall include the following elements:

(a) A determination of transportation needs as provided in OAR 660-012-0030;

(b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSPs shall be consistent with functional classifications of roads in state and regional TSPs and shall provide for continuity between adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-012-0045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address:
   (A) Extensions of existing streets;
   (B) Connections to existing or planned streets, including arterials and collectors; and
   (C) Connections to neighborhood destinations.

(c) A public transportation plan which:
   (A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies;
   (B) Describes intercity bus and passenger rail service and identifies the location of terminals;
   *(C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.
   *(D) For areas within an urban area containing a population greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at buildout. Where a transit system is determined to be feasible, the plan shall meet the requirements of paragraph (2)(c)(C) of this rule.

(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514;

(e) 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;

*(f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management;

*(g) A parking plan in MPO areas as provided in OAR 660-012-0045(5)(c);

(h) Policies and land use regulations for implementing the TSP as provided in OAR 660-012-0045;

*(i) For areas within an urban growth boundary containing a population greater than 2,500 persons, a transportation financing program as provided in OAR 660-012-0040.

(3) Each element identified in subsections (2)(b)-(d) of this rule shall contain:

(a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition:

(A) The transportation capacity analysis shall include information on:

(i) The capacities of existing and committed facilities;

(ii) The degree to which those capacities have been reached or surpassed on existing facilities; and

(iii) The assumptions upon which these capacities are based.

(B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency;

(C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g., very good, good, fair, poor, very poor).

(b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and performance standards.

OAR 660-012-0045, Implementation of the Transportation System Plan, requires that local governments adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors, and sites for their identified functions." The County Zoning Ordinance has been amended to comply with these requirements. Standards related to road construction and access spacing is contained in the Jefferson County Code, which are attached as Appendix III.

1.3 PLANNING AREA

Figure 1-1 shows a map of Jefferson County. The TSP covers all unincorporated areas of the county, except lands within the boundary of the Confederated Tribes of the Warm Springs Reservation of Oregon.

The study of County roads and intersections was generally limited to those with the highest classifications – collectors and arterials – as well as state highways. However, local road issues such as road connectivity, design standards and safety issues are also discussed where appropriate.
1.4  PUBLIC INVOLVEMENT

A Technical Advisory Committee (TAC) guided the planning process for the TSP. The TAC was made up of representatives from relevant state agencies, local jurisdictions, local school districts, the Sheriff’s Department and the Jefferson County Rural Fire Protection District. A full list of the TAC members is provided in the preface. The TAC was responsible for reviewing the technical aspects of the TSP and evaluating it from a policy perspective. This work included reviewing the TSP goals and policies, as well as the transportation evaluation criteria.

Three public open houses were used to inform citizens and businesses in the county of the TSP project goals and process and to obtain information from the community on transportation issues and concerns, which was incorporated into the TSP. Public hearings before the Jefferson County Planning Commission and Board of Commissioners were also held prior to adoption of the TSP.

1.5  TSP ORGANIZATION AND METHODOLOGY

Development of the TSP began with a review of the local, regional, and statewide plans and policies that guide land use and transportation planning in the County. The review provided a policy framework for the County’s transportation planning process. The TSP was developed to
be consistent with all current adopted plans and policies. The documents that were reviewed are listed and briefly summarized in Appendix 1.

Objectives for the TSP were identified, and strategies were formulated to meet those objectives, as outlined in Section 2.

A technical analysis of the existing road system was performed, which allowed for an objective assessment of the system’s existing physical characteristics, operational performance, safety, and general function, as outlined in Section 3.

Upon completion of the existing conditions analysis, implementing measures and a list of projects were identified to address road system needs. There was extensive coordination between the county and ODOT to identify transportation needs related to state highways, and between the county and City of Madras to identify projects to accommodate anticipated future growth near the city. The projects and implementing measures are contained in Section 4.

Section 5 contains the existing system analysis and transportation plans for other transportation modes, including bicycle, pedestrian, public transportation, air, rail, and pipeline and transmission systems.

Section 6, Transportation Financing Plan, provides an analysis and summary of existing transportation system funding sources, and alternative sources which potentially could be used to pay for the identified transportation system improvements.

Section 7 explains how the TSP will be implemented and amended.

Appendix II contains the Jefferson County Coordinated Human Services Transportation Plan, which is the public transportation component of the TSP. This Plan was adopted by separate ordinance and is included in the TSP for reference purposes only.

Appendix III contains the road construction and spacing standards from the Jefferson County Code, which are part of the means the County will use to implement the TSP. The road standards were adopted by separate ordinance and are included in the TSP for reference purposes only.
Section 2
Objectives and Strategies
OBJECTIVES AND STRATEGIES

Statewide planning Goal 12 requires jurisdictions to provide and encourage a safe, convenient and economic transportation system. This section lists the objectives the County feels should be met in order to comply with that Goal, and strategies that will be used to meet the objectives. The strategies will be implemented through land use regulations contained in the Jefferson County Zoning Ordinance, road construction and access spacing standards contained in the Jefferson County Code, and specific transportation projects outlined in Sections 4 and 5. The objectives and strategies listed here are not intended to be mandatory approval criteria used in making land use decisions.

Objective 1: Provide a multi-modal transportation system that will accommodate traffic generated by increased development and population growth in the County without adversely impacting existing transportation facilities.

Strategies:
1.1 Require a Traffic Impact Study when traffic from a proposed new development could impact the existing transportation system. Prohibit new development that would result in levels of travel that would reduce the Level of Service of a road or intersection below LOS C unless the developer will construct improvements to the transportation system that will maintain that Level of Service.

1.2 Applications for Comprehensive Plan amendments, rezones or amendments to land use regulations will be reviewed to verify that the allowed land uses will not change the functional classification of a road unless the TSP will either be amended to modify the function, capacity or performance standards of the transportation facility, or will be amended to provide transportation facilities, improvements or services adequate to support the proposed land uses.

Objective 2: Protect the ability of state highways to move people and goods through and within the County in a safe manner with minimal impediments to traffic flow.

2.1 Work with ODOT to increase safety and facilitate the smooth movement of traffic on state highways by limiting new access points, closing some existing road access to the highway, adding passing lanes, and providing turn lanes at intersections.

2.2 Coordinate with the City of Madras and ODOT to designate detour routes for use during emergency closures of Highways 97 and 26.

Objective 3: Make safety a primary consideration in the development of new transportation facilities and new access points on existing roads, and in the maintenance or modification of existing facilities.

Strategies:
3.1 Unsafe intersections with inadequate sight distance or skewed geometry should be closed or modified to provide right-angle intersections with adequate sight distance when roads are upgraded or new development will significantly increase the number of vehicles using the intersection.
3.2 Maintain spacing standards between access points on roads in order to increase safety and minimize conflicts with traffic flow. The spacing will be based on the functional classification of the road.

3.3 Zoning Ordinance regulations will continue to require the development and maintenance of clear-vision areas at intersections that will assure adequate sight distances.

3.4 Zoning Ordinance regulations will require adequate emergency vehicle access to all development.

3.5 Promote the identification and development of emergency evacuation routes in the event of wildfire hazard or other emergency.

Objective 4: Plan, develop and maintain an interconnected transportation system that will link people with communities and recreational areas.

Strategies: 4.1 New subdivisions will be required to provide for the continuation of the existing road network where feasible or where needed to provide access to adjoining properties.

4.2 Continue to classify roads in the County as arterials, collectors, and local roads based on their function and design, and adopt standards to maintain the road’s capacity.

4.3 Coordinate with cities in the planning, design and construction of roads to connect with the city’s road network or that would serve future urban development.

Objective 5: Continue to protect and provide for alternative means of transportation.

Strategies: 5.1 Zoning Ordinance regulations will protect present airport facilities from conflicting uses and development that would create hazards to aircraft.

5.2 Encourage the preservation of rail corridors within the County. If improvements are planned, minimize conflicts with adjoining land uses and ensure that adequate vehicular mobility is provided.

5.3 Paved shoulders will be required during the construction of new roads and the upgrading or maintenance of existing roads to provide for bicycle and pedestrian use.

5.4 Support the Central Oregon Intergovernmental Council’s efforts to meet the transportation needs of persons who are 60 and over, low income, and/or disabled, as outlined in the Jefferson County Coordinated Human Services Transportation Plan.

Objective 6: Find sources other than the County to cover the cost of transportation improvements.
Strategies:  6.1 Developers and property owners served by the road will be responsible for the construction and ongoing maintenance of new public and private roads.

6.2 Require developers to make off-site transportation improvements by upgrading substandard roads and intersections that will be impacted by a new subdivision or other development. Improvements that are required will be based on a direct nexus between the level of road impacts that will be caused by increased traffic generated by the development and the level of transportation facility improvements that are required.

6.3 Urban Growth Boundary expansions should be accompanied by an agreement to transfer jurisdiction of County roads within the UGB to the city.
Section 3
Existing Road System
Inventory And Conditions
3.1 EXISTING ROAD SYSTEM

Roads serve the largest share of trips in Jefferson County. Motor vehicles, bicycles, pedestrians, transit, and freight transportation all rely on roads to some degree. Roads also provide vehicle, bicycle, pedestrian, and transit access to air and rail facilities.

The public road system within the county is primarily owned and maintained by the following agencies or jurisdictions:

- The **United States Forest Services (USFS)** owns and maintains roads within the Deschutes National Forest, located in the southwest area of the county, and the Ochoco National Forest, in the southeast edge of the county. Most of the roads are gravel. These roads are primarily used to access logging and recreational areas and provide emergency fire access. Roads under USFS jurisdiction are not included in the TSP.

- The **Oregon Department of Transportation (ODOT)** owns and maintains 95.37 miles of road within the County, including those that are the most heavily traveled. These highways provide regional mobility within the county and serve as major transportation links to other areas of the state.

- **Jefferson County** owns and maintains approximately 621 miles of road, of which approximately 267 miles are paved. The majority of the county roads are concentrated in the central north-south portion of the County, which contains the irrigated farm lands and the population centers. The majority of county roads have two travel lanes, no bike lanes, no sidewalks, and minimum shoulders.

- The **incorporated cities** of Madras, Metolius, and Culver own and maintain the majority of the streets within their city limits, although a few roads within city limits are maintained by ODOT or the County. City streets provide local access and serve local trips.

- There are a number of **public use and local access roads** within the County. These roads are available for use by the public, but are generally not maintained by the County or other public agency. For instance, the majority of roads in Crooked River Ranch are public roads which are maintained by a special road district.

The Three Rivers Recreation Area and a few subdivisions have access from **private roads**. Private roads are maintained by the property owners who use the road or by a homeowner’s association.
3.2 STATE HIGHWAY SYSTEM

The Oregon Department of Transportation (ODOT) owns and maintains 95.37 miles of road within Jefferson County. State highways are more heavily traveled than other roads, provide regional mobility within the county, and serve as major transportation links to other areas of the state.

The following state highways lie within the County and are maintained by ODOT:

- **US 97 (The Dalles-California Highway 004)** is the main north-south route through central Oregon. It runs from the Washington state line near the Biggs Junction with Interstate 84, through the Cities of Madras, Bend, and Klamath Falls to the California state line. Approximately 36 miles of US 97 are located in Jefferson County. Highway 97 is mostly a two-lane facility providing regional mobility from the Wasco County line in the north to the Deschutes County line in the south. The highway also serves as a secondary north-south route for I-5. US 97 is approximately 10 miles shorter than the I-5 route between the California border and the Willamette Valley. In southern Oregon, US 97 passes through the Siskiyou Mountains at a lower elevation than the I-5 pass, making this a desirable secondary truck route, especially in the winter months. Several sections of the highway have passing lanes to accommodate heavy truck traffic. The 1999 Oregon Highway Plan (OHP) classifies US 97 as a statewide highway, expressway and freight route.

- **US 26 (Warm Springs Highway 053 and Madras-Prineville Highway 360)** is a two-lane highway that provides regional mobility between the northern Oregon Coast and the Oregon-Idaho border. Within Jefferson County US 26 is divided into two highways; Warm Springs Highway 053 and Madras-Prineville Highway 360. Highway 053 provides a connection from the Wasco County line to the southern fork of US 26 and US 97 south of Madras and is approximately 21 miles in length. It is classified as a statewide highway, expressway and freight route. Highway 360 connects from the southern fork of US 26 and US 97 to the Crook County line and is approximately 16 miles long. It is classified as a regional highway and freight route. US 26 is the main route for recreational and freight traffic from the Portland metro area to Central Oregon.

- **US 20 (Santiam Highway 126)** is a two-lane highway that provides east-west regional mobility through Central Oregon. This road serves as a secondary east-west route to I-84; however, the Santiam Pass through the Cascade mountain range makes this route less desirable for travelers during inclement weather conditions. Approximately 10 miles of US 20 is in the southwest corner of the County running through the Camp Sherman area from the Linn County line into Deschutes County. The road is classified as a statewide highway and freight route in the OHP.

- **Culver Highway 361** serves as the major route between the City of Madras and the cities of Metolius and Culver. The highway also provides access from Highway 97 to the Cove Palisades State Park-Lake Billy Chinook Recreation Area. Highway 361 is approximately 12 miles long and runs north-south roughly parallel to and west of US 97, from Madras through the Cities of Metolius and Culver. South of Culver the highway intersects US 97 just north of Juniper Butte. The road is classified as a district highway in the OHP.
• **Antelope Highway 293** provides the connection from US 97 to the City of Antelope in Wasco County. Only 0.71 miles of the highway is located within the county. It is classified as a district highway in the OHP.

**Freight Truck Transportation**

Many of Oregon's goods and products are shipped by truck. The 1993 Oregon Commodity Flow Study found that 64 percent of the total freight value, and 76 percent of the total freight tonnage, is shipped by truck. When road and bridge infrastructure is unable to support truck movements, trucks must detour around the restricted roads, which adds to the cost of freight shipments.

Oregon has designated a State Highway Freight System that serves the majority of the intrastate and interstate freight movements. US 97 and US 26 to Madras and US 20 are the only highways on the state freight system in the county. These highways provide vital freight movement in Central Oregon. US 97 also serves as a secondary route for I-5 truck traffic, especially in winter months when the Siskiyou pass on I-5 becomes hazardous due to ice and snow conditions.

ODOT tracks truck volume percentages data for state facilities. The data is obtained from permanent Automatic Traffic Recorder (ATR) stations located across the State. The data shows that US 97 and US 26 carry between 14 and 19 percent truck traffic.

**Highway Functional Classifications**

ODOT classifies highways based on the 1999 Oregon Highway Plan. ODOT classifications are mainly based on the significance of the highway in the statewide transportation system. “Statewide Highway” is given the highest priority and is considered to be a road of statewide significance. “Regional Highway” and “District Highway” provide regional and district level mobility, respectively. The state highway classifications are provided in Table 3-1.

<table>
<thead>
<tr>
<th>Highway</th>
<th>Mile Post within County</th>
<th>Classification</th>
<th>NHS</th>
<th>Freight Route</th>
<th>Scenic Byways</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 97 - The Dalles-California Highway 04</td>
<td>74.25 –112.86</td>
<td>Statewide</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>US 26 - Warm Springs Highway 053</td>
<td>96.48 –117.58</td>
<td>Statewide</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Madras-Prineville Highway 360</td>
<td>0.00 -16.30</td>
<td>Statewide</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<td>US 20 - Santiam Highway 126</td>
<td>80.77 – 90.85</td>
<td>Statewide</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Culver Highway 361</td>
<td>0.00 - 11.62</td>
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<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Antelope Highway 293</td>
<td>0.00 – 0.71</td>
<td>District</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

NHS: National Highway System

**Highway Safety**

In 1986 ODOT developed the Safety Priority Index System (SPIS) to identify potential safety problems on Oregon’s state highways. The SPIS helps to identify areas where funds apportioned for safety issues can be spent in a manner that will achieve the highest benefit. ODOT defines a SPIS site.
as a 0.10 mile section of roadway that has three or more crashes or one or more fatal crashes over a three year period. The priority index of the roadway segments are based on frequency, severity, and crash rate. The current 2001 – 2003 SPIS rankings show two sites in unincorporated Jefferson County outside the Warm Springs Reservation - US 26 at Dover Lane, and US 97 at Milepost 106.00 (between US 97/Culver Highway 361 and SW Monroe Lane).

Based on safety data provided by the ODOT Transportation Data Section, which conducts safety crash rate analyses on state highway segments, US 20 was found to have higher than statewide average crash rates for similar facilities. This can likely be attributed to the mountainous terrain as US 20 passes through the Willamette National Forest and the Santiam Pass.

Historic crash data for the five-year period from 2000 to 2004 were examined to determine whether safety deficiencies exist at intersections of county roads and state highways. The data were analyzed at the intersection level to identify crash trends and potential safety deficiencies. The data show that the following intersections have the highest number of crashes:

- Dover Lane/US 97
- Jericho Lane/US 97
- US 97/US 26 south of Madras
- Culver Highway 361/US 97
- Culver Highway 361/Iris Lane

The majority of crash types were rear-end collision, angle and turning crashes at intersections. These types of accidents are common in high-speed rural environments where intersections are not signalized, adequate sight distance is not available for vehicles entering the highway, or an adequate deceleration or turn pocket is not available for vehicles exiting the highway.

Some intersections of county roads with state highways have skewed geometry, which creates negative operational and safety conditions. Increases in traffic volumes expected to occur in the future could potentially increase the safety risks at these locations. Based on field visits conducted in September 2005, potential safety issues have been identified at the following intersections because of the skewed intersection geometry:

- US 26/NW Gumwood Drive (both intersections)
- US 26/NW Columbia Drive
- US 26/NW Boise Drive
- US 97/SW Bear Drive
- US 97/SW Culver Highway
- US 97/NE Old US 97
- SW Culver Highway 361/SW Gem Lane
- SW Culver Highway 361/SW Iris Lane/SW Elbe Drive
Highway Traffic Capacity

Traffic volume is anticipated to grow in direct proportion to the projected population growth. For the County as a whole, population is expected to grow 3.2 percent a year until 2011, and 2.5 percent a year until 2026. The City of Madras is expected to grow at a faster rate of 4.5 percent a year until 2011, and 4.0 percent until 2026. Consequently, it is expected that there will be a greater increase in traffic volume on US 97 south of Madras than on other roads in the County since that highway segment serves traffic from Madras and the surrounding areas, as well as regional traffic to and from Deschutes County.

ODOT future volume forecasts also provide an estimate of the future traffic growth on state highways. The future volume growth rates for different sections of the highways vary based on the function and characteristics of the highway.

Based on the forecast traffic volume, most of the rural highway segments in the County will operate acceptably, with the exception of the segment of US 97 south of US 26 (MP 97.19) to the Jefferson-Deschutes County line. This roadway segment carries the highest volume of traffic in Jefferson County and is anticipated to carry approximately 22,400 to 26,700 daily vehicles in 2025. Operational improvements on this segment of the highway will be needed in the future to meet County and ODOT mobility standards.

Operation analyses were also conducted for certain highway intersections. The US 97/US 26-South intersection is anticipated to operate over a volume to capacity (v/c) of 1.0 by 2025 unless improvements are made. [V/c is a measure of traffic demand (volume) on a transportation facility compared to its traffic-carrying capacity. For example, a v/c ration of 0.7 indicates that a traffic facility is operating at 70 percent of its capacity.]

3.3 COUNTY ROAD SYSTEM

County Road Functional Classifications

The County classifies roads based on their functional role in the county’s transportation system. The function and role of the road can be described in terms of the character of service the road provides. In general, the functional classification of a road is based on the varying degree of its two primary functions: 1) providing regional mobility, and 2) promoting local accessibility. A road’s functional classification determines its intended purpose, the amount and character of traffic it is expected to carry, the degree to which non-auto travel is emphasized, and the road’s design standards, including right-of-way width, travel surface width, posted/design speed, access spacing requirements, and whether pedestrian and bicycle facilities are provided. The classification considers the adjacent land uses and the kinds of transportation modes that should be accommodated. The public right-of-way must also provide sufficient space for utilities to serve adjacent land uses.

Roads in the County are classified as Arterials, Major Collectors, Minor Collectors, and Local Roads. Table 3-2 provides a description of each category.
### TABLE 3-2 COUNTY ROAD FUNCTIONAL CLASSIFICATIONS

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Description</th>
<th>Typical ADT Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial</td>
<td>Arterials are the highest class of road. Their primary function is to carry high levels of regional through vehicular traffic at high speeds, serve interstate movement of freight, and emphasize traffic movement over local land access. Arterials are characterized by full access control, with access limited to interchanges and widely spaced access points. Arterials may have medians. Pedestrian and bicycle traffic is discouraged or prohibited.</td>
<td>5,500 - 7,500</td>
</tr>
<tr>
<td>Major Collector</td>
<td>Major collectors are the intermediate road class, carrying lower traffic volumes at slower speeds than arterials. Their primary function is to collect traffic from the local street system and distribute it to the arterial street system. Major collectors provide some access to adjacent properties, but where possible should provide extended continuous stretches of road to facilitate traffic circulation.</td>
<td>2,500 – 6,000</td>
</tr>
<tr>
<td>Minor Collector</td>
<td>The primary function of a minor collector is to connect traffic to arterials and major collectors. Minor collectors have slower speeds than major collectors and arterials, and may provide more local land access.</td>
<td>500 – 2,500</td>
</tr>
<tr>
<td>Local Road</td>
<td>Local roads are the lowest road class. Their primary function is to provide direct access to adjacent land. Local roads are characterized by low traffic volumes.</td>
<td>0 - 600</td>
</tr>
</tbody>
</table>

The only arterials in the County are state highways. Existing major and minor collectors are listed in Tables 3-3 and 3-4, and are shown in Figures 3-1 and 3-2.

### TABLE 3-3 MAJOR COLLECTORS

<table>
<thead>
<tr>
<th>Road Name</th>
<th>County Road No.</th>
<th>Begin MP</th>
<th>Description</th>
<th>End MP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Adams Drive</td>
<td>148</td>
<td>1.00</td>
<td>J Street</td>
<td>3.40</td>
<td>Highway 26</td>
</tr>
<tr>
<td>E. Ashwood Road</td>
<td>111</td>
<td>1.50</td>
<td>Bean Drive</td>
<td>2.00</td>
<td>End of park</td>
</tr>
<tr>
<td>SW Chinook Drive</td>
<td>315</td>
<td>18.52</td>
<td>Mustang</td>
<td>20.20</td>
<td>County line</td>
</tr>
<tr>
<td>SW Feather Drive</td>
<td>140</td>
<td>6.00</td>
<td>Gem Lane</td>
<td>8.00</td>
<td>Iris Lane</td>
</tr>
<tr>
<td>SW Fisch Lane</td>
<td>132</td>
<td>5.00</td>
<td>Feather Drive</td>
<td>5.50</td>
<td>Frazier Drive</td>
</tr>
<tr>
<td>SW Frazier Drive</td>
<td>104</td>
<td>6.25</td>
<td>Gem Lane</td>
<td>7.00</td>
<td>Fisch Lane</td>
</tr>
<tr>
<td>SW Gem Lane</td>
<td>118</td>
<td>3.95</td>
<td>Highway 361</td>
<td>5.50</td>
<td>Frazier Drive</td>
</tr>
<tr>
<td>SW Graham Road</td>
<td>310</td>
<td>17.37</td>
<td>Jordan Road</td>
<td>18.90</td>
<td>Three Rivers gate</td>
</tr>
<tr>
<td>SW Grizzly Road</td>
<td>109</td>
<td>0.75</td>
<td>B Street</td>
<td>1.59</td>
<td>McTaggart Road</td>
</tr>
<tr>
<td>SW Iris Lane</td>
<td>122</td>
<td>2.58</td>
<td>US 97</td>
<td>5.00</td>
<td>Feather Drive</td>
</tr>
<tr>
<td>SW Jordan Road</td>
<td>310</td>
<td>5.50</td>
<td>Frazier Drive</td>
<td>17.40</td>
<td>Graham Road</td>
</tr>
<tr>
<td>SW Mustang Road</td>
<td>315</td>
<td>5.40</td>
<td>Chinook Drive</td>
<td>6.50</td>
<td>Shad Road</td>
</tr>
<tr>
<td>SW Shad Road</td>
<td>315</td>
<td>5.40</td>
<td>Mustang Road</td>
<td>8.00</td>
<td>Cinder Drive</td>
</tr>
</tbody>
</table>
### TABLE 3-3 MINOR COLLECTORS

<table>
<thead>
<tr>
<th>Road Name</th>
<th>County Road No.</th>
<th>Begin MP</th>
<th>Description</th>
<th>End MP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Ashwood Road</td>
<td>111</td>
<td>2.00</td>
<td>End of Park</td>
<td>3.90</td>
<td>Prison</td>
</tr>
<tr>
<td>NE Bean Drive</td>
<td>136</td>
<td>0.0</td>
<td>Ashwood Road</td>
<td>0.90</td>
<td>Loucks Road</td>
</tr>
<tr>
<td>SW Bear Drive</td>
<td>147</td>
<td>4.60</td>
<td>S Highway 97</td>
<td>8.25</td>
<td>Irving Lane</td>
</tr>
<tr>
<td>SW Belmont Lane</td>
<td>113</td>
<td>0.50</td>
<td>Highway 361</td>
<td>7.00</td>
<td>End</td>
</tr>
<tr>
<td>NW Boise Drive</td>
<td>229</td>
<td>3.70</td>
<td>Highway 26 N</td>
<td>9.00</td>
<td>NW Juniper Lane</td>
</tr>
<tr>
<td>NE Buckley Lane</td>
<td>232</td>
<td>8.10</td>
<td>NE Clark Drive</td>
<td>9.30</td>
<td>NE Clemens Drive</td>
</tr>
<tr>
<td>SW Camp Sherman Road</td>
<td>610</td>
<td>12.58</td>
<td>Metolius River</td>
<td>18.00</td>
<td>Highway 20</td>
</tr>
<tr>
<td>NW Cherry Lane</td>
<td>222</td>
<td>1.00</td>
<td>Highway 26 N</td>
<td>1.70</td>
<td>Airport</td>
</tr>
<tr>
<td>SW Chinook Drive</td>
<td>999</td>
<td>14.60</td>
<td>Mustang Road</td>
<td>15.58</td>
<td>Clubhouse Road</td>
</tr>
<tr>
<td>SW Cinder Drive</td>
<td>315</td>
<td>12.94</td>
<td>Peninsula Drive</td>
<td>14.95</td>
<td>Shad Road</td>
</tr>
<tr>
<td>NE Clark Drive</td>
<td>761</td>
<td>2.50</td>
<td>Highway 97 N</td>
<td>8.10</td>
<td>Buckley Lane</td>
</tr>
<tr>
<td>NE Clemens Drive</td>
<td>232</td>
<td>9.30</td>
<td>Buckley Lane</td>
<td>10.40</td>
<td>Gateway</td>
</tr>
<tr>
<td>SW Colfax Lane</td>
<td>134</td>
<td>0.90</td>
<td>Highway 97 S</td>
<td>1.10</td>
<td>Highway 361</td>
</tr>
<tr>
<td>NE Columbia Drive</td>
<td>228</td>
<td>5.50</td>
<td>Highway 26 N</td>
<td>9.00</td>
<td>NW Juniper Lane</td>
</tr>
<tr>
<td>SE Crestview Lane</td>
<td>1705</td>
<td>0</td>
<td>S Adams Drive</td>
<td>5.60</td>
<td>Sagebrush Road</td>
</tr>
<tr>
<td>SW Dover Lane</td>
<td>114</td>
<td>1.90</td>
<td>Highway 97 S</td>
<td>2.20</td>
<td>Highway 361</td>
</tr>
<tr>
<td>SE Dussault Road</td>
<td>1701</td>
<td>0</td>
<td>Rancho Lane</td>
<td>1.00</td>
<td>Crestview Lane</td>
</tr>
<tr>
<td>SW Feather Drive</td>
<td>140</td>
<td>8.00</td>
<td>Iris Lane</td>
<td>10.00</td>
<td>Irrigation canal</td>
</tr>
<tr>
<td>NE Gateway Grade</td>
<td>210</td>
<td>1.50</td>
<td>Juniper Lane</td>
<td>2.50</td>
<td>Clemens Drive</td>
</tr>
<tr>
<td>SW Glass Drive</td>
<td>157</td>
<td>0.50</td>
<td>C Street</td>
<td>1.84</td>
<td>Birch Lane</td>
</tr>
<tr>
<td>SW Graham Road</td>
<td>310</td>
<td>18.87</td>
<td>Three Rivers gate</td>
<td>21.87</td>
<td>Montgomery Road</td>
</tr>
<tr>
<td>SW Haystack Road</td>
<td>106</td>
<td>9.25</td>
<td>Jericho Lane</td>
<td>10.96</td>
<td>Springer Road</td>
</tr>
<tr>
<td>SW Hill Road</td>
<td>421</td>
<td>13.50</td>
<td>Chinook Drive</td>
<td>14.48</td>
<td>Shad Road</td>
</tr>
<tr>
<td>NE Hilltop Lane</td>
<td>1801</td>
<td>1.32</td>
<td>Highway 97 N</td>
<td>2.00</td>
<td>Clark Drive</td>
</tr>
<tr>
<td>SW Huber Lane</td>
<td>121A</td>
<td>4.50</td>
<td>C Street, Culver</td>
<td>5.00</td>
<td>Feather Drive</td>
</tr>
<tr>
<td>SW Jericho Lane</td>
<td>124</td>
<td>1.50</td>
<td>Haystack Road</td>
<td>5.00</td>
<td>Feather Drive</td>
</tr>
<tr>
<td>NE Juniper Lane</td>
<td>210</td>
<td>0</td>
<td>N Adams Drive</td>
<td>2.00</td>
<td>Columbia Drive</td>
</tr>
<tr>
<td>NW Juniper Lane</td>
<td>210</td>
<td>0</td>
<td>N Adams Drive</td>
<td>1.00</td>
<td>Gateway Grade</td>
</tr>
<tr>
<td>SE Laurel Lane</td>
<td>421</td>
<td>0.20</td>
<td>Springer Road</td>
<td>4.64</td>
<td>Highway 26</td>
</tr>
<tr>
<td>SE Lone Pine Road</td>
<td>419</td>
<td>14.00</td>
<td>Highway 26 S</td>
<td>17.79</td>
<td>County line</td>
</tr>
<tr>
<td>NE Loucks Road</td>
<td>110</td>
<td>0.45</td>
<td>Highway 97 N</td>
<td>1.41</td>
<td>Brown Drive</td>
</tr>
<tr>
<td>SE McTaggart Road</td>
<td>152</td>
<td>0.60</td>
<td>Buff Street</td>
<td>2.14</td>
<td>Grizzly Road</td>
</tr>
<tr>
<td>SW Montgomery Road</td>
<td>310</td>
<td>21.87</td>
<td>Graham Road</td>
<td>27.46</td>
<td>Perry South</td>
</tr>
<tr>
<td>SW Old Culver Highway</td>
<td>144</td>
<td>10.00</td>
<td>Highway 97 S</td>
<td>16.90</td>
<td>Highway 97 S</td>
</tr>
<tr>
<td>SW Park Lane</td>
<td>122</td>
<td>2.00</td>
<td>Old Culver Highway</td>
<td>3.50</td>
<td>Highway 97 S</td>
</tr>
<tr>
<td>Road Name</td>
<td>Mileage</td>
<td>Distance</td>
<td>Road Name</td>
<td>Mileage</td>
<td>Distance</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------</td>
<td>----------</td>
<td>-----------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>SW Peninsula Drive</td>
<td>315</td>
<td>9.00</td>
<td>Waterhole Place</td>
<td>15.20</td>
<td>15.20</td>
</tr>
<tr>
<td>NE Pony Butte Road</td>
<td>410</td>
<td>8.40</td>
<td>Highway 97 N</td>
<td>20.91</td>
<td>20.91</td>
</tr>
<tr>
<td>NE Quaale Road</td>
<td>236</td>
<td>2.00</td>
<td>Clark Drive</td>
<td>7.39</td>
<td>7.39</td>
</tr>
<tr>
<td>SE Ramms Road</td>
<td>412</td>
<td>4.13</td>
<td>Highway 26 S</td>
<td>9.83</td>
<td>9.83</td>
</tr>
<tr>
<td>SW Shad Road</td>
<td>315</td>
<td>8.00</td>
<td>Cinder Drive</td>
<td>9.50</td>
<td>9.50</td>
</tr>
<tr>
<td>SE Springer Road</td>
<td>106</td>
<td>10.96</td>
<td>Haystack Road</td>
<td>13.37</td>
<td>13.37</td>
</tr>
<tr>
<td>NE Trout Creek Road</td>
<td>515</td>
<td>7.89</td>
<td>Pony Butte Road</td>
<td>9.64</td>
<td>9.64</td>
</tr>
<tr>
<td>SE Tumbleweed Lane</td>
<td>1703</td>
<td>0.50</td>
<td>Dussault Road</td>
<td>0.85</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Jefferson County Transportation System Plan
Level of Service

County roads currently operate at an acceptable Level of Service (LOS). LOS is a measure of roadway congestion, which affects traffic speed and travel time. There are six LOS grades, ranging from LOS A, which is best, to LOS F, which is the worst or most congested. LOS can be applied to intersections as well as roads, as a measurement of queuing time. LOS grades are described as follows:

- LOS A describes a condition of free-flowing traffic, with low volumes and high speeds.
- LOS B is a reasonably free flow of traffic, with speeds beginning to be somewhat restricted by traffic conditions.
- LOS C has a stable traffic flow, but a higher volume of traffic which may limit the ability to pass, and speeds may be more restricted.
- LOS D is approaching unstable traffic flows, and speed is considerably affected, such as can occur on an urban highway during commuting times.
- LOS E has an unstable or irregular traffic flow, lower or varying speeds that rarely reach the posted speed limit, and traffic volume at or near the capacity of the road.
- LOS F is a forced traffic flow, heavy volume and stop and go traffic. Because of stoppages, the road can fall below its traffic-carrying capacity.

The County’s aim is to have all roads and intersections operate at LOS C or better.

Pavement Condition

The Public Works Department maintains a pavement condition and surface type database for county roads. Based on the 2006 database, the county has a total of 121.01 miles of gravel road and 233.47 miles of road that are either gravel or native surface. Approximately 267 miles of County roads are paved. The database was analyzed to identify roads that are either in very poor pavement condition or have a gravel/native surface. None of the major collectors in the County meet either of the two conditions. However, several minor collectors have either very poor pavement condition or have a gravel/native surface type. Table 3-5 lists the high volume minor collectors that have either very poor pavement condition or a gravel/native surface. Low volume minor collectors have not been reviewed for pavement condition since they carry a low volume of traffic.

<table>
<thead>
<tr>
<th>Road</th>
<th>Mile Post</th>
<th>Length</th>
<th>Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE Buckley Lane</td>
<td>8.1 - 9.3</td>
<td>1.2</td>
<td>Asphalt</td>
</tr>
<tr>
<td>NE Clark Drive</td>
<td>2.7 – 8.1</td>
<td>5.4</td>
<td>Asphalt</td>
</tr>
<tr>
<td>NE Pony Butte Road</td>
<td>8.4 – 20.91</td>
<td>12.51</td>
<td>Asphalt</td>
</tr>
<tr>
<td>SE Laurel Lane</td>
<td>0.2 – 4.64</td>
<td>4.44</td>
<td>Gravel</td>
</tr>
<tr>
<td>SW Graham Road</td>
<td>18.87 – 21.87</td>
<td>3</td>
<td>Gravel</td>
</tr>
<tr>
<td>SW Montgomery Road</td>
<td>24.61 – 34.77</td>
<td>10.16</td>
<td>Gravel</td>
</tr>
<tr>
<td>SW Old Culver Highway</td>
<td>14.5 – 16.9</td>
<td>2.4</td>
<td>Asphalt</td>
</tr>
<tr>
<td>SE Springer Road</td>
<td>10.96 – 13.37</td>
<td>2.41</td>
<td>Gravel</td>
</tr>
</tbody>
</table>
Section 4
Road System Plan
And Projects
Road System Plan and Projects

The road improvement projects listed in this section reflect the anticipated operations and circulation needs through the year 2025, and provide guidance on how to facilitate that travel over the next 20 years. Ideally, the TSP and identified projects should be reviewed every five years and updated as needed.

Various road improvement projects have been proposed to provide new road connections, to improve roads to accommodate future traffic volumes, to improve the geometry and address the safety needs of an intersection or section of road, and to conduct corridor refinement planning to narrow down potential options. The projects have been broken down into three categories:

- Highway Projects, outlined in Table 4-1
- County Road Improvement Projects, outlined in Table 4-2
- Projects to Accommodate Future Urban Growth, outlined in Table 4-3.

Figures 4-1 to 4-4 show the location of the projects. Figures 4-5 to 4-16 provide conceptual drawings of some of the projects.

4.1 HIGHWAY PROJECTS

Highway improvement projects identified by ODOT have been proposed to accommodate future traffic volumes, to control access to state highways in order to improve mobility, to improve the geometry and address the safety needs of the intersection or section of the road, and to conduct corridor refinement planning to narrow down potential options. The projects are outlined in Table 4-1.

A primary purpose of the highway projects is to improve traffic operation and safety. Traffic operations are improved by projects that provide the capacity needed to accommodate future traffic volumes and improve traffic operations on the road. Traffic operation analyses were conducted for rural highway segments and at key intersections along state routes in the county. The analyses were conducted in accordance with the 2000 Highway Capacity Manual to identify specific future capacity and operation needs. Based on the results of the analysis, conceptual road and/or intersection improvements were identified, including the construction of passing lanes, turning lanes and turning refuges.

Projects have been proposed to enhance traffic safety by improving the geometry and/or operation of the road, especially at intersections. With the anticipated increase in traffic volume on the major highways in the future, safety issues resulting from the intersection of County roads and state highways will not only continue to be a major concern, but safety risks could potentially increase at current locations of concern if new development increases traffic trying to enter or exist the highway. The listed safety projects aim to address three main safety concerns on state highways: 1) sections of highway without passing lanes; 2) intersections with skewed geometry; and 3) lack of proper turn lanes at intersections with relatively high turning
movements. All projects on US 97 south of Madras provide interim measures to improve safety and operation of the highway before the highway is widened to four lanes in the long-term future.

In most cases, improvements to an intersection, such as the construction of turn lanes, will be coupled with the closure of county road access to the highway at a nearby intersection. This will increase safety and improve traffic flow on the highway. Accident history, ADT on county roads, cross connectivity of county roads across the highway, sight distance at intersections, existing or future location of passing lanes, and feedback from the Technical Advisory Committee were considered when determining which intersections should be improved and which should be closed. In some cases, county roads should be upgraded to higher road standards to accommodate re-routed traffic from other roads whose access to the state highway will be closed. These associated county road projects are listed in Table 4-2.

**Consideration of Alternatives**

The vast majority of the highway projects involve work within the existing right-of-way, either closing or upgrading intersections or adding travel or passing lanes. ODOT has determined that these improvements to the existing highway facility can reasonably be expected to meet highway capacity and safety needs during the near term.

A few of the highway projects will likely require the acquisition of additional right-of-way for a realignment of the existing highway facility. These projects include the US 97 truck bypass (project #13) and US 97/US 26 North and South interchange studies (projects #18 and #42). These projects will require the identification and analysis of alternatives, development of refinement plans, and a significant public involvement effort prior to any construction. Further refinement planning will also be needed for project #17, the Culver Highway 361/SW Jericho Lane safety improvements and project #25, the Culver Highway 361/SW Bear Drive safety improvements.

Preliminary alternatives have been identified for the US 97 truck bypass. Figure 4-9 illustrates these alternatives. The Figure is followed by Table 4-4, which provides the advantages and disadvantages of each alternative. The concept that currently appears to have the most advantages is Alternative 1C and Alternative 2. Alternative 1C connects to the existing US 97/US 26 North intersection. It then follows 1st Street and the Culver Highway. Alternative 2 follows the existing alignment of Culver Highway until SW Loafers Lane, after which it diverts to intersect with US 97 near the existing US 97/US 26 South intersection. The new intersection with US 97 would ultimately be a grade separated interchange. Further detailed conceptual analysis and feasibility studies will need to be conducted to determine the impact of the proposed truck by-pass and identify the preferred alternative.

Table 4-1 provides the following information on the highway improvement projects:

- Project number (referenced to Figures 4-1 through 4-4)
- Project name
- Project description (briefly describes the project)
• Source (indicates if the project is identified in the Statewide Transportation Improvement Program (STIP) or Safety Priority Index System (SPIS) or Madras TSP. If no source is identified, the project was identified as part of the cooperative planning for the TSP.)

The road improvement projects are categorized into short-, mid-, and long-term projects. Short-term projects include those improvements or deficiencies that could be addressed within the next five years. Mid-term projects include those projects that may be addressed within five to 10 years. Long-term projects will continue to be considered during planning projects, but will most likely not be implemented until after 2016 unless a specific development proposal that would cause a significant increase in traffic results in developer-financed improvements. The timeframe for the projects was primarily determined by ODOT.

### TABLE 4-1 HIGHWAY PROJECT LIST

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Name</th>
<th>Project Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US 97/ SW Iris Lane Intersection Improvements</td>
<td>Construct NBLT, SBLT, and SBRT lanes at the US 97/ SW Iris Lane intersection.</td>
<td>STIP</td>
</tr>
<tr>
<td>2</td>
<td>SW Highland Lane Closures</td>
<td>Close SW Highland Lane on east and west sides of intersection with US 97 in conjunction with improvements at US 97/ SW Iris Lane intersection (project 1). Alternate highway access will be provided via SW Iris Lane and SW Ford Lane.</td>
<td>STIP</td>
</tr>
<tr>
<td>3</td>
<td>US 97/ SW Jericho Lane Intersection Improvements</td>
<td>Construct NBLT, NBRT, SBLT, and SBRT lanes at the US 97/ SW Jericho Lane intersection.</td>
<td>STIP</td>
</tr>
<tr>
<td>4</td>
<td>Culver Highway 361/ US 97/ Old Culver Highway Intersection Improvements (See Figure 4-5)</td>
<td>Close Culver Highway 361 on west side of intersection with US 97 in conjunction with intersection improvements at US 97/ SW Jericho Lane (project 3). Convert Old Culver Highway on east side of US 97 to a right-out and left-in access.</td>
<td>SPIS List</td>
</tr>
<tr>
<td>5</td>
<td>US 97/ SW Dover Lane Intersection Improvements</td>
<td>Construct NBLT, NBRT, SBLT, and SBRT lanes at the US 97/ SW Dover Lane intersection.</td>
<td>SPIS List</td>
</tr>
<tr>
<td>6</td>
<td>US 26/ SE Dover Lane Intersection Improvements</td>
<td>Install larger STOP signs, thermal plastic stop bar, and guide signs for Madras and Prineville to improve visibility of intersection and desired routes. Add appropriate channelization for turning vehicles.</td>
<td>SPIS List</td>
</tr>
<tr>
<td>7</td>
<td>Old Culver Highway Emergency Detour Route</td>
<td>Upgrade Old Culver Highway as Emergency Detour Route in case of closure of US 97.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>8</td>
<td>NW Gumwood Lane Closure (See Figure 4-6)</td>
<td>Close NW Gumwood Lane access on US 26 just east of Deschutes Drive.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>9</td>
<td>NW Gumwood Lane Closure (See Figure 4-7)</td>
<td>Close NW Gumwood Lane access on US 26 just west of Columbia Drive in conjunction with intersection improvements at US 26/ NW Columbia Drive.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>10</td>
<td>US 26/ NW Columbia Drive Intersection Improvements (See Figure 4-7)</td>
<td>Close NW Columbia Drive access to US 26 on south side of highway. Realign NW Columbia Drive access to US 26 on north side of highway to intersect at right-angle.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>11</td>
<td>US 97/ NE Cherry Lane Intersection Improvements</td>
<td>Realign or close Cherry Lane access to US 97 on the east side of the highway. Add appropriate channelization for vehicles turning west.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>12</td>
<td>Culver Highway 361/ SW Gem Lane Improvements (See Figure 4-8)</td>
<td>Provide larger turn radius on Culver Highway 361, realign SW Elbe Drive to the west of the intersection to improve geometry and queue distance from rail crossing.</td>
<td>Draft STIP</td>
</tr>
<tr>
<td>No.</td>
<td>Project Name</td>
<td>Project Description</td>
<td>Source</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>13</td>
<td>US 97 Truck Bypass Study (See Figure 4-9)</td>
<td>Conduct pre-NEPA analysis and environmental assessments on alternative alignments of future US 97 by-pass to divert truck traffic from downtown Madras.</td>
<td>Madras TSP</td>
</tr>
<tr>
<td>14</td>
<td>US 97 Passing Lanes - South of SW Dover Lane</td>
<td>Provide passing lanes south of SW Dover Lane and connect to SW Eureka Lane.</td>
<td>US 97 Corridor Strategy</td>
</tr>
<tr>
<td>15</td>
<td>US 97 Passing Lanes - South of SW Norris Lane to Deschutes County Line</td>
<td>Provide passing lanes south of SW Norris Lane (south of bridge) to SW Park Lane.</td>
<td>US 97 Corridor Strategy</td>
</tr>
<tr>
<td>16</td>
<td>US 97 Passing Lane - From SW Ford Lane to SW Highland Lane</td>
<td>Provide passing lanes on US 97 from SW Ford Lane to SW Highland Lane.</td>
<td>US 97 Corridor Strategy</td>
</tr>
<tr>
<td>17</td>
<td>Culver Highway 361/SW Jericho Lane Safety Improvements</td>
<td>Identify safety issues and provide appropriate mitigations.</td>
<td>STIP</td>
</tr>
<tr>
<td>18</td>
<td>US 97/US 26 South Interchange Study</td>
<td>Prepare Interchange Area Management Plan (IAMP) for the future interchange at the US 97/US 26 south intersection with the proposed US 97 truck bypass.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Mid-Term (5-10 years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>NE Bean Drive/US 97 Intersection (See Figure 4-10)</td>
<td>Construct a new channelized intersection on US 97 in conjunction with the extension of NE Bean Drive and the new NE Meadowlark Lane connection (projects 67 and 70) and the closure of NE Meadowlark Lane and NE Brown Drive (projects 20 and 21).</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>US 97/NE Meadowlark Lane Closure (See Figure 4-11)</td>
<td>Close the northern NE Meadowlark Lane access to US 97 on the east and west sides of the highway in conjunction with construction of a new intersection to the south at NE Bean Drive extension (see projects 67 and 70).</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>US 97/NE Brown Drive Closure (See Figure 4-11)</td>
<td>Close the NE Brown Drive access to US 97.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>US 97/NE Cora Drive Closure (See Figure 4-12)</td>
<td>Close the NE Cora Drive access to US 97.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>US 97/NE Clark Drive Intersection Improvements (See Figure 4-12)</td>
<td>Realign NE Clark Drive to intersect US 97 at right-angle and provide appropriate channelization for turning vehicles.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Culver Highway 361/SW Bear Drive Safety Improvements</td>
<td>Evaluate the Culver Highway 361/SW Bear Drive intersection to identify safety issues and provide appropriate mitigations.</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>SW Eureka Lane Closure (See Figure 4-13)</td>
<td>Close SW Eureka Lane access to US 97 on the west side of the highway.</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>US 97/SW Bear Drive Intersection Improvements (See Figure 4-13)</td>
<td>Realign SW Bear Drive on the west side of US 97 to intersect at right-angles with the highway. Realign and extend SW Bear Drive on the east side of US 97 to intersect at right-angles with the highway, in line with the intersection of SW Bear Drive on the west side of highway.</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>SW Falcon Lane Closures</td>
<td>Close SW Falcon Lane access to US 97 on east side of highway. Alternate access will be provided via SW Ford Lane and SW Bear Drive.</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>US 97/SW Ford Lane Intersection Improvements</td>
<td>Add appropriate intersection channelization to accommodate turning vehicles at the intersection of US 97/SW Ford Lane.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Project Name</td>
<td>Project Description</td>
<td>Source</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>30</td>
<td>Culver Highway 361/SW Iris Lane/SW Elbe Drive Intersection Improvements</td>
<td>Realign SW Elbe Drive to intersect at right-angle to Culver Highway 361, south of SW Iris Lane. Construct a roundabout at Culver Highway 361/SW Iris Lane intersection.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>SW Norris Lane Closure</td>
<td>Close SW Norris Lane access to US 97 on east and west sides of highway. Alternate highway access will be provided via SW Monroe Lane, SW Park Lane and Old Culver Highway.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>SW Opal Lane Closures</td>
<td>Close SW Opal Lane access to US 97 on east side of highway. Alternate highway access will be provided via SW Park Lane and Old Culver Highway.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>US 20 Safety Improvements</td>
<td>Conduct safety audit of the highway section within the county.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Long-Term (10-20 years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>US 26/NW Fir Lane Intersection Improvements</td>
<td>Provide SBRT and NBRT slip lanes at the US 26/NW Fir Lane intersection.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>US 26/NW Boise Drive Intersection Improvements</td>
<td>Close NW Elm Lane access to US 26 on east side of highway. Convert NW Boise Drive to one T-intersection. Close NW Boise Drive access to US 26 on south side of highway.</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>US 26/NW Dogwood Lane Intersection Improvements</td>
<td>Provide NBLT, NBRT, SBLT, and NBRT slip lanes at US 26/NW Dogwood Lane intersection.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>US 26/S Adams Drive Intersection Improvements</td>
<td>Realign S Adams Drive access to US 26 on south side of highway to intersect US 26 at a right-angle. Close S Adams Drive access to US 26 on north side of highway.</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Culver Highway 361/SW Deschutes Drive Intersection Improvements</td>
<td>Realign SW Deschutes Drive to intersect Culver Highway 361 at right-angle.</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>US 97/NE Quaale Road Intersection Improvements</td>
<td>Realign NE Quaale Road to intersect US 97 at right-angle and add appropriate channelization for turning vehicles.</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>US 97/Old US 97 Intersection Improvements</td>
<td>Realign Old US 97 to intersect US 97 at right-angle and add appropriate channelization for turning vehicles.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>US 97/US 293 Highway Intersection Improvements</td>
<td>Provide proper channelization at the intersection to accommodate turning vehicles.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>US 26/US 97 North Interchange Study</td>
<td>Evaluate the need for an interchange at the north intersection of US 26/US 97.</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>US 97 Widening</td>
<td>Widen US 97 to four lanes from Madras to Deschutes County line. Provide appropriate channelization at intersections with major collectors.</td>
<td></td>
</tr>
</tbody>
</table>

STIP: Statewide Transportation Improvement Program
NBLT: Northbound Left Turn
SBLT: Southbound Left Turn
NBRT: Northbound Right Turn
SBRT: Southbound Right Turn
4.2 COUNTY ROAD IMPROVEMENT PROJECTS

Table 4-2 lists road projects involving County roads. The projects were identified to address four issues: road connectivity, traffic operation, safety, and pavement condition.

Connectivity projects provide links between existing roads or areas of the county.

Operation projects provide the capacity needed to accommodate future traffic volumes and improve traffic operations on the road. In some cases, existing roads need to be upgraded to higher road standards to accommodate re-routed traffic from other roads whose access to the state highway will be closed, as identified in the state highway projects listed in Table 4-1. These projects also will enhance traffic safety by improving the geometry and/or operation of the road.

Pavement projects are to improve the condition of the existing road.

Consideration of Alternatives

All but three of the proposed projects listed in Table 4-2 involve existing roads, and should not require the acquisition of any additional right-of-way unless an existing road segment has inadequate right-of-way width or the road needs to be realigned to remove curves or to address grade issues. Many of the projects involve upgrades to existing roads in order to accommodate rerouted traffic from proposed highway intersection closures. Improvements and upgrades to the existing road system is the preferred alternative chosen by the County in order to minimize the costs associated with acquiring new rights-of-way, and to limit impacts to farm land.

In the case of project #49, the SW Deschutes Drive connection, additional right-of-way will be needed to fill in a 1¼ mile gap in the road between SW Ford Lane and SW Highland Lane. The new road segment will run north-south along the section line, aligned with the portions of SW Deschutes Drive to the north and south. Although a portion of the new road segment will cross an area of class 2 soils that are high-value farmland, alignment with the existing road will use the least amount of land and is the most feasible alternative.

The other two projects that will require additional right-of-way, project #46 Crooked River Ranch secondary access study, and project #47 SW Eureka Lane extension, are conceptual only. Any potential alignment of a future road will depend on design requirements, land use, and physical and environmental constraints. Identification and analysis of alternatives, refinement studies and public involvement will occur before either project is constructed.

The proposed projects to address pavement condition were identified as priorities apart from the regular maintenance program of the County. There are eight minor collector county roads with poor pavement condition or gravel/native surface, as listed in Table 3-5. Five of these roads have been identified as proposed pavement projects (NE Buckley Lane and NE Clark Drive, project #55; SE Laurel Lane and SE Springer Road, project #52; and SW Old Culver Highway, project #7). These five roads were selected to be upgraded because they contribute to the regional traffic flow. The other three minor collector roads with poor pavement condition or gravel/native surface (NE Pony Butte, SW Graham Road and SW Montgomery Road) either have a low ADT volume or would be cost prohibitive to pave because of their length and the lack of County road funds. One non-collector road was included on the list of pavement projects.
(NW Hickory Lane, project #51) because it currently is in poor condition and it provides one of the few, widely spaced east – west connections in the area.

Table 4-2 provides the following information:

- Project number (referenced to Figures 4-1 through 4-4)
- Project name
- Project description (briefly describes the project)
- Project category (categorizes the project based on the major issue that it addresses).
- Cost Estimate (provides a preliminary cost estimate based on 2005 material prices, but not including right-of-way or structure cost)

The project description in Table 4-2 indicates that some projects are in conjunction with associated highway access closures or intersection improvements. However, the county road projects and highway projects will not necessarily be completed at the same time. Each project will be completed when and if funding becomes available.

The projects were categorized into short-, mid- and long-term based on the timeframe for associated highway projects, safety, and the amount of traffic served by the road.

**TABLE 4-2 COUNTY ROAD PROJECTS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Name</th>
<th>Project Description</th>
<th>Category</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>SW Columbia Drive Improvements</td>
<td>Upgrade SW Columbia Drive between SW Highland Drive and SW Iris Lane to accommodate re-routed traffic from Highland Drive/US 97 closure (project 2).</td>
<td>Operation</td>
<td>$2,100,000</td>
</tr>
<tr>
<td>45</td>
<td>SW Deschutes Drive Improvements (south of SW Highland Drive)</td>
<td>Upgrade SW Deschutes Drive to minor collector road standards between SW Highland Drive and SW Iris Lane to accommodate re-routed traffic from Highland Drive/US 97 closure (project 2).</td>
<td>Operation</td>
<td>$2,100,000</td>
</tr>
<tr>
<td>46</td>
<td>Crooked River Ranch Secondary Access Study</td>
<td>Conduct alternatives analysis and engineering feasibility study to identify possible secondary emergency access to Crooked River Ranch.</td>
<td>Connectivity</td>
<td>$150,000</td>
</tr>
<tr>
<td>47</td>
<td>SW Eureka Lane Extension (See Figure 4-13)</td>
<td>Construct a frontage road parallel to and east of US 97 from SW Eureka Lane to connect with future SW Bear Drive extension to provide alternative access to US 97 (projects 26 and 27).</td>
<td>Connectivity, Operation</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>48</td>
<td>SW Bear Drive Improvements (See Figure 4-13)</td>
<td>Upgrade SW Bear Drive between SW Eureka Lane and SW Ford Drive to accommodate re-routed traffic from access closures on US 97 (projects 26, 27, and 28).</td>
<td>Operation</td>
<td>$2,100,000</td>
</tr>
<tr>
<td>49</td>
<td>SW Deschutes Drive Connection</td>
<td>Acquire right-of-way and construct SW Deschutes Drive to minor collector road standards from SW Ford Lane to SW Highland Lane to provide an additional north-south road connection west of US 97.</td>
<td>Connectivity, Operation</td>
<td>$3,000,000</td>
</tr>
</tbody>
</table>