City of Sutherlin

Transportation System Plan

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Chapter 1: Introduction

The City of Sutherlin is a rapidly growing city located in along I-5 and Oregon Highway 138 in Southern Oregon. In 1990, the City's population was estimated at 5,020,[1] and in 2002, the City's population was estimated at 7,180.[2] The City has not undertaken a thorough review of its transportation facilities since completion of the Sutherlin Area Transportation Study in 1995.

This Transportation System Plan (TSP) provides guidance and regulatory tools so that the City can develop its transportation system through coordinated policies and planned improvements over the next 20 years. It also identifies planned transportation facilities and services needed to support planned land uses identified in the Sutherlin Comprehensive Plan in a manner consistent with the Transportation Planning Rule (OAR 660-012) and the Oregon Transportation Plan. More generally, this TSP helps to accomplish the following goals:

- Assure adequate planned transportation facilities to support planned uses over the next 20 years;
- Provide certainty and predictability for locating new public streets, roads, highway improvements and other planned transportation improvements;
- Provide predictability for land development; and
- Help reduce the costs and maximize the efficiency of public spending on transportation facilities and services by coordinating land use and transportation decisions.

From a legal perspective, Oregon State law (Statewide Planning Goal 12, Transportation) requires that Oregon jurisdictions prepare a transportation plan to address existing and future access and circulation needs of the community[3]. The Transportation Planning Rule (TPR) further defines the specific requirements for a transportation system plan, and directs cities and counties to develop strategies that make it more convenient for people to walk, bicycle, use transit and drive less to meet their daily needs. Practically speaking, the TSP can help to avoid building unneeded, redundant, or unwanted public infrastructure and assist local officials in making short-term decisions that do not contradict future investment plans.

The transportation modes addressed in this TSP include:

- Motor vehicles (autos and trucks)
- Public Transportation
- Bicycles
- Pedestrians
- Personalized Electric Vehicles (PEVs)
- Other Modes (rail, pipelines)

Each of these modes are addressed in separate chapters of this TSP. In addition, this TSP also includes chapters on overall Goals and Policies, Existing Transportation Conditions, Estimated Project Costs, and likely Funding Sources.

[1] 1990 Census
[2] Portland State University Estimate July, 2002.
[3] Cities with population less than 10,000 and counties with population less than 25,000 may be eligible for an exemption from this requirement.

This TSP was developed during several months of extensive transportation planning and engineering analysis as summarized in Figure 1-1.

TSP Work Approach

City of Sutherlin

TSP Kick-Off

Evaluate Existing Transportation Systems

Establish/ Refine Goals

Land Use Projections

Transportation Forecast

Assess Future Needs

Develop & Evaluate Tranportation Alternative

Street Network

Functional Classification

Street Standards

Bicycles

Pedestrians

Transit

Personal Electric Vehicle

Freight

Rail

Pipelines

Preferred Alternatives

Cost & Funding

Develop Draft TSP

Final TSP

Public Hearings Adoption Process

August 2004

September 2004

October 2004

December 2004

January 2005

April 2005

June 2005

July 2005

PB 100 YEARS

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The key steps to the plan development process were:

- Inventory transportation system and collect data
- Evaluate existing conditions
- Project future travel demand
- Identify transportation deficiencies and needs by mode
- Develop draft improvement strategies
- Develop preferred action plans
- Develop cost estimates and identify funding sources
- Finalize the TSP

Throughout the plan process, the citizens of Sutherlin were given important opportunities to comment upon and shape the emerging plan through public open houses and the citizens' advisory committee meetings. A public TSP kick-off meeting was held to introduce the TSP planning process and purpose to the community and to provide an opportunity for the public to give input on the draft TSP goals and objectives and transportation issues in the City of Sutherlin. A public open house was held to present the transportation system alternatives and to give the public an opportunity to review and provide comment to the transportation system alternatives developed for the City.

In addition, a Technical Advisory Committee (TAC) met throughout the project to provide technical review and comment on TSP work products, to provide local, regional, and state policy direction; and to accept or make recommendations on project deliverables. The TAC was responsible to ensure that TSP activities are consistent with other planning efforts in the area.

A Citizens Advisory Committee (CAC) was also convened, and provided important input regarding the public viewpoint in discussions regarding the plan. Citizens and stakeholders were appointed to serve on the CAC and included members representing the general public, as well as local business and non-business interests. The CAC reviewed and commented on the TSP work products throughout the TSP process.

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Chapter 2: TSP Goals and Objectives

The TSP goals and objectives serve as the basis for the TSP for needs analysis, policy and ordinance development and project selection. These goals and objectives reflect the transportation goals of the City and the overall transportation vision for the Sutherlin area. The goals and objectives will maximize mobility, safety, efficiency and accessibility to the transportation system and will address the requirements of the Oregon Transportation Planning Rule (TPR) and the Oregon Transportation Plan (OTP). Figure 2-1 illustrates the relationship between the Sutherlin TSP goals and objectives, actions, and implementation.

Goal 1. Overall Transportation System

Provide a transportation system for the Sutherlin area that supports safe, efficient and accessible movement.

Objectives

A. Manage projected travel demand consistent with community, land use, environmental, economic and livability goals.
B. Use the Transportation System Plan as the legal basis and policy foundation for decisions involving transportation issues.
C. Ensure that adequate access for emergency services vehicles is provided throughout the City.
D. Promote transportation safety through a comprehensive program of engineering, education, and enforcement.
E. Enhance safety by prioritizing and mitigating high collision locations within the City.
F. Designate safe routes from residential areas to schools, and identify transportation improvements needed to ensure the safety of Sutherlin's school children.
G. Provide satisfactory levels of maintenance to the transportation system in order to preserve user safety, facility aesthetics, and the integrity of the system as a whole.
H. Maintain access management standards for streets consistent with City, County, and State requirements to reduce conflicts between vehicles and trucks, and between vehicles, bicycles, and pedestrians. Develop access management strategies for Central Avenue.

Goal 2. Transportation and Land Use

Maximize the efficiency of Sutherlin's transportation system through effective land use planning.

Objectives

A. Facilitate development or redevelopment on sites that are best supported by the overall transportation system and that reduce motor vehicle dependency by promoting walking, bicycling, transit and personal electric vehicle use. This may include altering land use patterns through changes to type, density, and design.
B. Plan land uses to increase opportunities for multi-purpose trips.
C. Support mixed-use development where zoning allows.
D. Integrate transportation and land use into development ordinances.

Goal 3. Enhanced Livability

Design and construct transportation facilities that enhance Sutherlin's livability while meeting federal, state, regional, and local requirements.

Objectives

A. Enhance the livability of Sutherlin through proper location and design of transportation facilities. Design streets, highways, and multi-use paths to be compatible with the existing and planned characteristics of the surrounding built, social and natural environment.
B. Locate and design recreational and multi-use paths to balance the needs of human use and enjoyment with resource conservation in areas identified in the Parks Master Plan and Comprehensive Plan.
C. Design roadways to enhance livability by ensuring that aesthetics and landscaping are an integral part of Sutherlin's transportation system.
D. Manage transportation system for adequate and efficient operations.
E. Construct all transportation facilities to meet the requirements of the Americans with Disabilities Act.

Goal 4. Street System

Provide a well planned, comprehensive street system that serves the needs of the Sutherlin area.

Objectives

A. Develop a street classification system to provide an optimal balance between mobility and accessibility for all transportation modes consistent with street function.
B. Design the street system to safely and efficiently accommodate multiple travel modes within public rights-of-way.
C. Make better use of the southern interchange by connecting an east-west route to the southern interchange on both sides of Interstate-5.
D. Identify opportunities to improve flow of people and goods east-west across I-5.
E. Identify alternative east-west routes to improve traffic flow and improve emergency vehicle access. This includes alternative routes to relieve traffic congestion on Central Avenue such as connecting 4th Avenue to 6th Avenue across the railroad tracks north of Central Avenue. Other alternative east-west routes include a connection between the southern interchange and the eastern city limits. Identify options for improved access to the Sutherlin Industrial Park.
F. Balance the needed street function for all travel modes with adjacent land uses through the use of context-sensitive street and streetscape design techniques.
G. Improve streets in the Sutherlin area to City street design standards.
H. Identify transportation demand management strategies appropriate to the City of Sutherlin to help reduce vehicle miles traveled and vehicle travel demand.

Goal 5. Balanced Transportation System

Facilitate the development of bus stops, bike lanes, sidewalks, and multi-use paths in the Sutherlin area to provide more transportation options for Sutherlin residents and visitors.

Objectives

A. Develop a safe, complete, attractive, efficient, and accessible system of pedestrian ways, bicycle ways and personal electric vehicle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks.

B. Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and the Sutherlin core city area by identifying and developing improvements that address connectivity needs.
C. Implement Sutherlin street standards that recognize the multi-purpose nature of the street right of way for utility, pedestrian, bicycle, transit, truck, and auto use, and recognize these streets as important to the community identity.
D. To the extent possible, ensure consistency between the Parks Master Plan and the Transportation System Plan – particularly in the location of multi-use paths.
E. Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
F. Anticipate the increased popularity of personal electric vehicles in the design of streets and multi-use paths.
G. Construct multi-use paths where they can be developed with satisfactory design components that address safety, security, maintainability, and acceptable uses.
H. Work with regional and local public transportation providers to identify opportunities to expand public transportation service within the City and to surrounding communities. Encourage inter-city public transportation connections for long-range public transportation. Enhance public volunteer transit system.

Goal 6. Transportation that Supports Economic Development

Facilitate the provision of a multi-modal transport system for the efficient, safe, and competitive movement of goods and services to, from, and within the Sutherlin area.

Objectives

A. Promote accessibility to transport modes that fulfill the needs of freight shippers.
B. Strive to balance the needs of moving freight with community livability.
C. Promote the appropriate location of regional pipeline systems to enhance security, local service, and efficiency.
D. Meet federal and state safety compliance standards for operation, construction, and maintenance of the rail system.
E. Provide safe routing of hazardous materials consistent with federal guidelines, and provide for public involvement in the process.
F. Designated arterial routes and freeway access are essential for efficient movement of goods. Design these facilities and adjacent land uses to reflect the needs of goods movement.
G. Railroad transportation facilities are economic development resources. Consider the needs of these facilities in land use decisions.
H. Encourage the Central Oregon & Pacific Railroad to install railroad crossing arms with indicator lights at all railroad crossings.
I. Plan for future parking in the downtown core by addressing future parking needs.
J. Manage on-street parking to assist in slowing traffic, facilitating pedestrian movement, and efficiently supporting local businesses and residences consistent with the land use and mobility goals for each street.
K. Require an appropriate supply and design of off-street parking facilities to promote economic vitality, neighborhood livability, efficient use of urban space, and reduced reliance on single occupancy motor vehicles.

Goal 7. Funding Transportation System Improvements

Implement the transportation plan by working cooperatively with federal, State, regional, and local governments, the private sector, and residents. Create a stable, flexible financial system for funding transportation improvements.

Objectives

A. Regularly update the City's System Development Charges for transportation system projects.
B. Regularly update the costs contained in the System Development Charges for transportation system projects to reflect increases in the rate of inflation.
C. Coordinate transportation projects, policy issues, and development actions with all affected governmental units in the area. Key agencies for coordination include Douglas County, Oregon Department of Transportation, Umpqua Regional Council of Governments (URCOG), and Umpqua Transit.
D. Participate in regional transportation, growth management, and air quality improvement policies. Work with agencies to assure adequate funding of transportation facilities to support these policies.
E. Maintain a current capital improvement program that establishes the City's construction and improvement priorities, and allocates the appropriate level of funding.
F. Establish rights-of-way at the time of land division or site development and, where appropriate, officially secure them by dedication of property.
G. Working in partnership with Oregon Department of Transportation, Douglas County, and other jurisdictions and agencies, develop a long-range financial strategy to make needed improvements to the transportation system and support operational and maintenance requirements.
H. Establish and provide adequate funding for maintenance of the capital investment in transportation facilities.

From Vision to Action

Sutherlin Transportation System Plan

City of Sutherlin

Simple Brief Guiding Statements

Brief Statements Which Focus on How Goals Will Be Met

Recommended Plans, Maps Improvements & Studies Which Implement Objectives

Process and Guidelines for Implementation

Goals and Objectives Relationship

PB

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Chapter 3: Review of Existing Plans, Policies, and Standards

Overview

This chapter describes existing plans, policies and standards that were reviewed to identify important transportation and land use issues relevant to the development of this TSP. A variety of transportation studies, transportation plans, and other transportation-related documents have been produced in the past. This chapter provides a synopsis of these documents, including: the *Oregon Transportation Plan*, all State modal plans, the *2004-2007 Statewide Transportation Improvement Program* (STIP), *Intercity Passenger Policy and Program*, the *Freight Moves the Oregon Economy Report*, Umpqua Regional Council of Governments and Douglas County documents, and other transportation and environmental studies. In addition, several City of Sutherlin documents were reviewed, including: the *Sutherlin Area Transportation Study*, the City of Sutherlin's *Transportation Systems Development Charge Methodology Report*, the *Public Facility Plan*, the *Comprehensive Plan* and the City's Development Code. These documents contain goals and policies for the City related to transportation. The salient components of each study are described below.

Listed below are summaries of relevant plans grouped at the State, County/Regional, and Local levels.

State Documents

Goal 12 Transportation

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 statewide planning goals. The goals express the state's policies on land use and on related topics, such as citizen involvement, housing, and natural resources.

Oregon's statewide goals are achieved through local comprehensive planning. State law requires each city and county to adopt a comprehensive plan and the zoning and land-division ordinances needed to put the plan into effect. The local comprehensive plans must be consistent with the statewide planning goals. Plans are reviewed for such consistency by the state's Land Conservation and Development Commission (LCDC). When LCDC officially approves a local government's plan, the plan is said to be "acknowledged." It then becomes the controlling document for land use in the area covered by that plan.

Transportation is covered by Goal 12. Goal 12 is to provide and encourage a safe, convenient and economic transportation system. Goal 12 states that a transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

Transportation Planning Rule (TPR) OAR 660-012

The TPR implements Oregon Statewide Planning Goal 12. The TPR directs cities and counties to develop balanced transportation systems addressing all modes of travel including motor vehicles, transit, bicycles and pedestrians. The TPR envisions development of local plans that will promote changes in land use

patterns and transportation systems that make it more convenient for people to walk, bicycle, use transit, and drive less to meet their daily needs. A fundamental issue in local and regional transportation system plans is a strategy to reduce reliance on the automobile.

The purpose of the rule is to promote safe, convenient and economic transportation systems and coordination between affected levels of government in all steps of a transportation system plan (TSP). The TPR requires jurisdictions throughout Oregon to prepare and adopt local or regional transportation plans that are incorporated into their respective comprehensive plans.

Access Management OAR 734-051 (Division 51)

Division 51 governs the permitting, management, and standards of approaches to state highways to ensure safe and efficient operation of the state highways.

The purpose of the division 51 rules is to provide a safe and efficient transportation system through the preservation of public safety, the improvement and development of transportation facilities, the protection of highway traffic from the hazards of unrestricted and unregulated entry from adjacent property, and the elimination of hazards due to highway grade intersections. These rules establish procedures and criteria used by the State 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 Oregon Revised Statutes (ORS), Oregon Administrative Rules (OAR), and the 1999 Oregon Highway Plan (OHP).

Access Management is a broad set of techniques that balance the need to provide efficient, safe and timely travel throughout the state with the ability to allow access to the individual destination. The goals of Access Management are to reduce congestion, reduce accident rates, lessen the need for highway widening, conserve energy and reduce air pollution.

State of Oregon Transportation Plan

The Oregon Department of Transportation (ODOT) utilizes several planning documents to guide transportation planning efforts and transportation system improvements in the state. The Oregon Transportation Plan (OTP) is ODOT's policy guiding document. The OTP and its modal components represent the State's Transportation System Plan and drive all transportation planning in Oregon. The plans provide a framework for cooperation between ODOT and local jurisdictions and offer guidance to cities and counties for developing local modal plans. The following table lists the different modal plans that have been established and the year the plan was adopted by the Oregon Transportation Commission (OTC).

Table 3-1. Adopted Elements of the Oregon Transportation Plan

Oregon Transportation Plan or Plan Element	Year Adopted
Oregon Transportation Plan	1992
Aviation System Plan	2000
Bicycle/Pedestrian Plan	1995
Transportation Safety and Action Plan	1995
Public Transportation Plan	1997
Highway Plan	1999
Rail Freight and Passenger Plan	2001

Oregon Transportation Plan (1992)

The Oregon Transportation Commission adopted the Oregon Transportation Plan in September 1992. The OTP has three elements: 1) Goals and Policies; 2) Transportation System; and 3) Implementation. The OTP meets a legal requirement that the OTC develop and maintain a plan for a multimodal transportation system for Oregon. Further, the OTP implements the Federal Intermodal Surface Transportation Efficiency Act (ISTEA) requirements for the state transportation plan. The OTP also meets land use planning requirements for State agency coordination and the Goal 12 Transportation Planning Rule. This rule requires ODOT, the cities, and the counties of Oregon to cooperatively plan and develop balanced transportation systems.

Oregon Aviation System Plan (2000)

The Aviation System Plan provides forecasts and inventories for public access airports in the state, and has been adopted incrementally. Sutherlin does not have its own airport. The nearest Category 2 airport is in Roseburg and the nearest Category 1 airport is in Eugene. Under Oregon law, however, cities, counties and ports are allowed to establish airports should Sutherlin choose to do so in the future.

Oregon Bicycle and Pedestrian Plan (1995)

The goal of this Plan is to provide safe, accessible and convenient bicycling and walking facilities in the state, and to support and encourage increased levels of bicycling and walking. The plan identifies policies, classification of bikeways, construction and maintenance guidelines, and suggested actions to achieve these objectives. These actions address the need to: 1) provide bikeway and walkway systems that are integrated with other transportation systems; 2) create a safe, convenient, and attractive bicycling and walking environment, and 3) develop education programs that improve bicycle and pedestrian safety.

Oregon Transportation Safety and Action Plan (1995)

The *Oregon Transportation Safety Action Plan* was developed as the safety element for the *Oregon Transportation Plan (OTP)*. It is one of several modal or multi-modal plans called for in the OTP that defines, in greater detail, system improvements, legislative needs, and financial needs. These plans provide guidance for investment decisions that will be reflected in the *Statewide Transportation Improvement Program (STIP),* the *Highway Safety Plan,* and the operating budgets of implementing agencies.

This plan established the safety priorities for Oregon by identifying 70 actions relating to all modes of transportation and the roadway, driver and vehicle aspects. Included in this plan is a specific action regarding the way safety issues should be considered in local transportation planning.

Local transportation plans, as well as modal and corridor plans should consider the following:

- Involvement in the planning process of engineering, enforcement, and emergency service personnel as well as local transportation safety groups.
- Safety objectives.
- Resolution of goal conflicts between safety and other issues.

Oregon Public Transportation Plan (1997)

The plan is primarily focused on public transportation in metropolitan and urban areas. The minimum public transportation level-of-service standards (for communities with a population of at least 2,500 located within 20 miles of an urban central city) that apply for conditions in 2015 are as follows:

- Coordinate intercity senior and disabled services with intercity bus and van services open to the general public.
- Coordinate local public transportation and senior and disabled services to intercity bus services.
- Provide an accessible ride to anyone requesting services.
- Provide at least 1.7 annual hours of public transportation service per capita with fixed-route, dial-a-ride or other service types.
- Provide at least one accessible vehicle for every 40 hours of service.
- Provide backup vehicle for every 3.5 vehicles.
- Provide daily peak hour commuter service to the core areas of the central city.
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well.
- Provide park and ride facilities along transit route corridors to meet reasonable peak and off-peak demand for such facilities.
- Maintain vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach suggested retirement age.
- Establish ridematching and demand management programs in communities of 5,000 where there are employers with 500 or more workers who are not already covered by a regional ridematching/demand management program.

In addition to public transportation, the plan also describes minimum level-of-service standards for intercity bus and passenger rail.

Oregon Highway Plan (1999)

This plan defines policies and investment strategies for Oregon's state highways for the next 20 years. It further refines the goals and policies of the Oregon Transportation Plan and is part of Oregon's Statewide Transportation Plan. The Highway Plan has three main elements:

1. 1. The Vision presents a vision for the future of the state highway system, describes economic and demographic trends in Oregon, future transportation technologies, summarizes the policy and legal context of the Highway Plan, and contains information on the current highway system.
2. 2. The Policy Element contains goals, policies, and actions in five policy areas: system definition, system management, access management, travel alternatives, and environmental and scenic resources.
3. 3. The System Element contains an analysis of state highway needs, revenue forecasts, descriptions of investment strategies, implementation strategy, and performance measures.

The Highway Plan gives policy and investment direction to corridor plans and transportation system plans that are being prepared around the state, but it leaves the responsibility for identifying specific projects and modal alternatives to these plans.

Specifically relevant to the Sutherlin area are the level of service and access management standards for Highway 99, OR 138, and Interstate 5 that are included in the Highway Plan.

Oregon Rail Plan (ORP) (2001)

The ORP is the first comprehensive assessment of the state's rail planning, freight rail, and passenger rail systems since the 1992 *Oregon Rail Passenger Policy and Plan* and the 1994 *Oregon Rail Freight Plan*. This plan provides an updated overview of the rail system in Oregon. It outlines the State rail planning process and examines specific rail lines in detail that may be eligible for State or Federal financial assistance. The plan examines the trend of service on low-density rail lines increasingly provided by the short haul (Class III) railroads. In addition, the plan describes minimum level-of-service standards for freight and passenger rail systems in Oregon.

Relative to the Sutherlin area, this plan describes use patterns of the old Southern Pacific short line route that passes through Sutherlin. The activities of the regional carrier Central Oregon & Pacific Railroad (CORP) dominate railroading in Southwestern Oregon. The Central Oregon & Pacific Railroad (CORP) is Oregon's second largest short line railroad. CORP operates in the southwestern quadrant of the state serving the southern Willamette Valley to the California border and the central Oregon coast. The main north-south line provides connections from Eugene-Springfield to Cottage Grove, Sutherlin, Roseburg, Grants Pass, Medford, Ashland and on into California. No passenger trains pass through Sutherlin. The closest AMTRAK passenger rail service is located in Eugene.

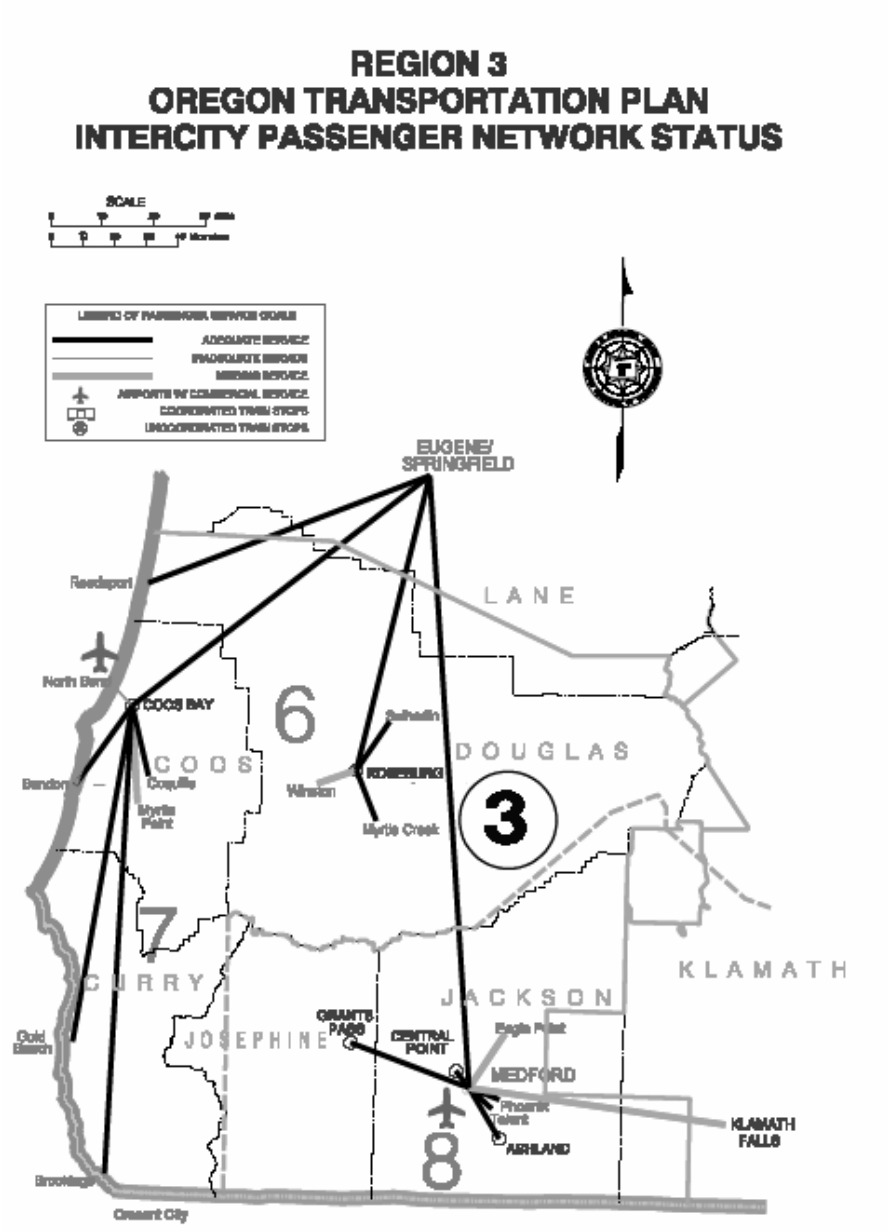
Intercity Passenger Policy and Program (2000)

The focus of the Intercity Passenger Program is on evaluating and supporting bus, rail and air intercity passenger transportation services in Oregon. The State Transportation Planning Rule requires that all communities include planning for intercity passenger facilities in their transportation system plans.

Intercity passenger facilities are those locations where passengers traveling from one city to another can transfer from one travel mode to another. Intercity facilities have multiple travel modes converging for the efficient and convenient transfer passengers. Typically, intercity passenger facilities include train stations, bus terminals, airports, and some transit transfer facilities. Intercity passenger facilities suited for the transfer of passengers between intercity travel modes and local modes such as local transit, taxis, shuttles, bikeways, sidewalks, and the automobile. Although it is most convenient to have all local and interurban travel modes serve one facility, it is not always possible given geographic, historic, or land utilization reasons.

The Oregon Department of Transportation receives federal money annually to fund transit projects around the state. Fifteen percent of this must be used to support travel among rural communities. Under the Oregon Transportation Commission's rural transportation policy, the Public Transit Division tries to ensure that all communities with populations of 2500 or more have reasonable access to round- trip-in-a-day transportation to the next largest market economy. ODOT lists three categories of service goals for the intercity passenger networks in Oregon, adequate service, inadequate service and missing service. Sutherlin is identified as having adequate service (see following map).

Figure 3-1. Region 3 Intercity Passenger Network Status



Source: Oregon Transportation Plan

As Sutherlin does not have an airport, passenger rail service or Greyhound bus service, intercity passenger facilities would likely be constituted of Umpqua Transit stops, bicycle and pedestrian facilities mixed with automobile facilities.

Statewide Transportation Improvement Program (STIP), 2004-2007

Oregon's Statewide Transportation Improvement Program is the state's transportation capital improvement program, which fulfills the requirements of the Transportation Equity Act for the 21st Century (TEA-21). The STIP lists the schedule of transportation projects for the four-year period from

2004 to 2007. It is a compilation of projects utilizing various federal and state funding programs, and includes projects on the state, county and city transportation systems as well as projects in the National Parks, National Forests, and Indian Reservations.

The improvement projects programmed in the 2004-2007 STIP for the Sutherlin area are shown in Table 3-2.

The STIP is not a planning document; it is a project prioritization and scheduling document developed through various planning processes involving local and regional governments, transportation agencies, and the interested public. Through the STIP, ODOT allocates resources to those projects that have been given the highest priority in these plans.

Table 3-2. 2004-2007 STIP – Programmed Improvement Projects for the Sutherlin Area

Project Name	Description	Total Cost	Status
Sutherlin Cr./Calaypooya St. Bridge #19B08	Replace Structure	$2,626,000	Scheduled for 2005
I-5 Bridge Modernizations Near Stearns Ln.	Replace 3 Bridges	$49,050,000	Scheduled for 2004
OR 138 @ Ft. McKay Rd.	Add Left-Turn Refuge	$250,000	Scheduled for 2004
I-5 & OR 138 Signal Rebuild	Signal Rebuild, New Phasing and Left-Turn Lane	$600,000	Scheduled for 2005
OR 138/Little Canyon Cr.	Replace Culvert	$350,000	Scheduled for 2007

I-5 State of the Interstate Report (2000)

The Oregon Department of Transportation (ODOT) completed the I-5 State of the Interstate Report in June 2000. The report provides an assessment of the existing and forecasted safety, geometric, and operating conditions along the entire length of Interstate 5 from California to Washington. The document covers a wide range of issues, including:

- Overview of related plans, policies, and studies
- Trends in population, employment, land use, and transportation
- Existing and forecasted conditions for each I-5 interchange and mainline freeway segment
- Environmental conditions and potential development impact areas
- Opportunities for short-term improvements

Within ODOT's Region 3 – which encompasses southern Oregon, including Sutherlin – the report states that travelers will experience significant congestion on I-5 by 2020. Many interchanges in this region are expected to have one or more components (i.e. ramp terminal intersection or ramp junction) operating at an unacceptable level of congestion, if no improvements are made. The problems associated with interchanges are expected to occur in the more populated portions of the corridor.

Douglas County and URCOG Documents

Douglas County Comprehensive Plan (Transportation Element)

The purpose of the Transportation Element is to address, in detail, Statewide Planning Goal 12 and to assist in the development of an effective and efficient transportation network that is compatible with the environment, local and adjacent jurisdictions, and land use planning.

The Transportation Element contains findings concerning:

- The background and existing conditions that affect Douglas County's transportation system;
- A description of Douglas County's transportation facilities;
- A County roadway network plan;
- A Bikeway Master Plan and Policies

Also contained are general transportation goals, as well as detailed discussions of the road, rail, air, waterways, pipeline, pedestrian and bicycle transportation modes, and the transportation disadvantaged.

Douglas County Transportation System Plan (2001)

The State of Oregon's Goal 12, the Transportation Planning Rule, requires ODOT, the cities, and the counties of Oregon to cooperatively plan and develop balanced transportation systems. Douglas County's TSP fulfills this planning requirement. Douglas County's TSP is comprised of compiled elements from its Comprehensive Plan as well as other supporting documents. Listed below is a synopsis of relevant sections in the County's TSP.

Douglas County Comprehensive Plan Chapter 13: Transportation Element

The Douglas County TSP provides volume-to-capacity (v/c) standards for county roads. The standards for a given route vary based on the urban or rural nature, speeds, and surrounding land use designations. The volume-to-capacity ratio is a measure of roadway congestion. This ratio is calculated by dividing the number of vehicles passing through a section of road during the peak hour by the capacity of the section. The classification system is as follows: Principle Highway, V/C = 0.70; Arterial, V/C = 0.85; Major Collector, V/C = 0.90; Minor Collector, V/C = 0.95; Necessary Local, V/C = 0.95.

Douglas County Comprehensive Plan Chapter 15: Land Use Element

The Land Use Element of the Comprehensive Plan has sections that address transportation issues for urban areas, urban unincorporated areas, and rural communities. As a part of transportation planning in urban unincorporated areas, urban area circulation plans were completed for five of the six urban unincorporated areas in Douglas County. They were completed for Gardiner, Glide, Green, Tri-City, and Winchester Bay. There were five major objectives that factored into the development of these plans:

1. Provide convenient access to all existing and future residential, commercial, industrial and public areas.
2. Ensure safety of vehicular movement.
3. Keep through traffic out of neighborhoods.
4. Ensure that streets are economically planned.
5. Ensure the adequate access of emergency vehicles to all dwellings.

In addition to the circulation plans, the Land Use Element presents the street classification system, other standards and an implementation strategy for the circulation plans.

Support Document to the Transportation Element of the Douglas County Comprehensive Plan

This document provides supplemental information in support of the Transportation Element. It provides a detailed discussion of roads, rail, air, waterways, pipeline, public transportation, pedestrian and bicycle transportation and the transportation disadvantaged. Information is also provided on vehicle trip generation by land use type. Compiled in an appendix are a list of state and county major roads and a compilation of project lists found in the TSP including needed/planned projects and desirable/future projects.

Douglas County Bikeway Master Plan
This document describes the popularity and multiple benefits of bicycling and establishes the need for long-range coordinated bicycle facilities planning. The Plan identifies, among other things, the existing bikeway system, construction guidelines, and bicycle safety education strategies.

Local Documents

City of Sutherlin Comprehensive Plan

The City's original (Post SB100) Comprehensive Plan (1982) described the general physical development of Sutherlin, specifically the land use pattern, the street system, parks, schools, and other such public facilities. It was intended to guide the City in matters of zoning, traffic routing and the location and design of public buildings and facilities. The Comprehensive Plan was intended to prepare the city for future growth, in compliance with Oregon's statewide planning goals.

The required periodic review of Sutherlin's Comprehensive Plan was completed in 1991 to account for changing local circumstances and new state laws and regulations. The Plan was expanded from the original and had six elements:

- Citizen Involvement Element
- Natural and Cultural Resources Element
- Population and Economic Element
- Public Facilities Element
- Housing Element, and
- Land Use Element

Each of these six elements had their own goal statements and policies to help achieve them. In addition, the 1991 updated Comprehensive Plan also included an industrial lands inventory with maps, a commercial lands inventory map and a copy of the 1982 urban growth management agreement between the City of Sutherlin and Douglas County.

Public Facility Plan for the City of Sutherlin (1991)

The City of Sutherlin and the Umpqua Regional Council of Governments prepared the Public Facilities Plan as a supplement to the Comprehensive Plan to help assure that urban development is guided and supported by services and facilities appropriate to the needs of the community and that infrastructure is provided in a timely, orderly and efficient manner. It is not a master plan or a detailed capital improvement program, but the Public Facility Plan does identify public facility needs, timing and funding mechanisms. The Plan's policies and concepts were designed to be a blueprint for specific actions and programs. Six categories of public facilities are identified in the Public Facility Plan.

- Water (including water treatment and storage facilities),
- Sanitary Sewer (including treatment standards and storm drainage)
- Transportation (including street ratings, bicycle and pedestrian facilities, and rail),
- Emergency Services (including fire and police protection)
- Other Services (including education, health care and libraries), and
- Utilities (including electricity, telephone and natural gas.

In addition to the funding methods, there is a set of implementation policies in the Plan designed to effectively move policies to adoption.

Sutherlin Area Transportation Study (1995)

The Sutherlin Area Transportation Study (SATS) provides a broad overview of transportation issues, facilities and needs in Sutherlin. In the SATS document existing conditions are detailed, including a facility inventory, accident data, and current facility needs. Future conditions are also detailed with some analysis provided for population and land use changes, and future traffic conditions and future facility needs are described as well.

A variety of transportation solutions were created by advisory and management teams and the public. Solutions addressed access, congestion relief, traffic flow as well as basic road geometries. Further improvements were suggested in a subsequent, unadopted TSP. Street plan improvements include capacity enhancements, bicycle and pedestrian facility improvements, and transit, rail and aviation issues were also identified. Financing options for these improvements are identified as well.

City of Sutherlin Transportation Systems Development Charge Methodology Report (1997)

Transportation planning studies completed in the mid-1990s provide the basis for the project list in the Systems Development Charge (SDC) Methodology Report. Those studies show the need for future transportation system improvements. This report defined and detailed the methodology for a transportation SDC to help fund these future improvements.

Identified improvements include new streets, street upgrades, new bridges, traffic signals and new street amenities such as sidewalks and bicycle lanes. The SDC Methodology Report estimated costs for these improvements which were categorized into short, medium and long range improvements, and provides a detailed description of the administration of SDC funds.

City of Sutherlin Draft Development Code (2003)

This draft document contains the comprehensive zoning and development code which is used to review zoning applications for all land within Sutherlin's Urban Growth Boundary (UGB). This document conforms to state law and the Sutherlin Comprehensive Plan. It contains descriptions of permitted land uses, design standards, the permitting process and means of addressing non-conforming use.

As part of the description of design standards, vehicle access and circulation are addressed as well as vehicle and bicycle parking. These standards are an important and interrelated piece of Sutherlin's transportation system development and management.

Other Transportation Documents

In addition to the aforementioned documents, other transportation studies have (infrequently) been produced addressing facilities in the Sutherlin Urban Growth Boundary. One of the most recent of these reports was reviewed to extract specific information relevant to this TSP.

"Red Road" Collector Preliminary Engineering Report (2001)

The Red Road Collector Report examined the feasibility of an east/west collector road parallel to and south of Central Avenue. Its primary function would be to divert west bound traffic around central Sutherlin, thereby reducing traffic congestion downtown. This project was identified in both the Sutherlin Area Transportation Study and the Sutherlin TSP prepared by URCOG.

The report concluded that because of potential environmental hazards and significant expense, a more detailed assessment should be completed before the City give funding priority to this project. The report

states that a new east/west collector could be an inappropriate solution, and that other, less expensive methods of addressing downtown traffic congestion may exist.

Environmental Documents

Several environmental conservation and protection policies and programs are applicable to the Sutherlin TSP. These policies and programs are administered by a range of governmental agencies, and are summarized below.

The Oregon Natural Heritage Program

The Oregon Natural Heritage Program (ORNHP) is a cooperative, interagency effort to identify the plant, animal, and plant community resources of Oregon. ORNHP maintains comprehensive data bases for Oregon biodiversity, concentrating on the rare and endangered plants, animals and ecosystems. Site specific information is available from ONRHP.

The Oregon Natural Heritage Program has three main program areas. It works to voluntarily establish natural areas in Oregon, manages the Rare and Endangered Invertebrate Program for the State of Oregon, and manages the Oregon Natural Heritage Databank, containing comprehensive information on ecologically and scientifically significant natural areas in the state.

The Oregon Natural Heritage Databank is Oregon's most comprehensive database of rare, threatened and endangered species and includes site-specific information on the occurrences, biology and status of over 2,000 species throughout Oregon. It includes the state's only database of natural vegetation, with descriptions and information on the occurrences and protected locations of all known ecosystem types. The Natural Heritage Data System provides information to guide implementation of the Natural Heritage Plan, including the selection of natural areas for registration and dedication.

When identifying future transportation projects, it will be necessary to take environmental concerns into account. The ORNH databank can inform what rare species are known to be in or near a project site. A list of threatened or endangers species known to be present in Douglas County are in the Appendix. Site-specific information is available from ONRHP.

The Oregon Department of Environmental Quality

The Oregon Department of Environmental Quality (DEQ) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ is responsible for protecting and enhancing Oregon's water and air quality, for cleaning up spills and releases of hazardous materials, and for managing the proper disposal of hazardous and solid wastes. In addition to local programs, the Environmental Protection Agency (EPA) delegates authority to DEQ to operate federal environmental programs within the state such as the Federal Clean Air, Clean Water, and Resource Conservation and Recovery Acts. The DEQ is also authorized by the EPA to regulate hazardous waste in Oregon. Proper hazardous waste management is an integral part of protecting Oregon's land, air, and water systems.

A number of fact sheets are available from the DEQ website[4] that detail what constitutes hazardous waste, how to report it and who to contact to research site specific hazardous waste.

[4] http://www.deq.state.or.us/pubs/factsheets.asp

Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife's (ODFW) mission is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. More information about the Departments regulations and restrictions can be found on ODFW's website.[5]

Statewide Planning Goal 5 – Natural Resources

The Oregon Department of Land Conservation and Development's (DLCD) Goal 5's intent is "[t]o protect natural resources and conserve scenic and historic areas and open spaces." Local governments, through their comprehensive plans, are required to address natural resource protection. It is a broad statewide planning goal that covers more than a dozen resources, including wildlife habitats, historic places, and aggregate (gravel). It was originally adopted by the Land Conservation and Development Commission (LCDC) in 1974. Goal 5 and related Oregon Administrative Rules (Chapter 660, Divisions 16 and 23) describe how cities and counties are to plan and zone land to conserve resources listed in the goal.

Goal 5 and its rules establish a five-step planning process for Oregon's cities and counties:

1. Inventory local occurrences of resources listed in Goal 5 and decide which ones are important.
2. Identify potential land uses on or near each resource site and any conflicts that might result.
3. Analyze economic, social, environmental, and energy (ESEE) consequences of such conflicts.
4. Decide whether the resource should be fully or partially protected, and justify the decision.
5. Adopt measures such as zoning to put that policy into effect.

Goal 5 requires that local governments inventory the following resources:

- Riparian corridors, including water and riparian areas and fish habitat
- Wetlands
- Wildlife Habitat
- Federal Wild and Scenic Rivers
- State Scenic Waterways
- Groundwater Resources
- Approved Oregon Recreation Trails
- Natural Areas
- Wilderness Areas
- Mineral and Aggregate Resources
- Energy sources
- Cultural areas

Goal 5 encourages local governments to maintain current inventories of the following resources:

- Historic Resources
- Open Space
- Scenic Views and Sites

Federal Endangered Species Act and Oregon Endangered Species Act

The federal Endangered Species Act[6] (ESA) was passed in 1973 to conserve, protect and recover species listed as endangered or threatened, and the ecosystems upon which they depend. Under this law, species

[5] http://www.dfw.state.or.us/

[6] http://endangered.fws.gov/ESA/ESA.html

may be listed either as ‘endangered’ with extinction or ‘threatened’ with endangerment. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened.

The federal and state ESAs are separate and independent, but somewhat parallel, regulatory programs that apply in different ways within Oregon. The Oregon ESA (1987) requires the ‘conservation’ of listed species, and defines ‘conservation’ as the use of methods and procedures necessary to bring a species to the point where measures no longer are necessary to ensure a species’ persistence over time and generations. The Oregon ESA covers plants, fish and wildlife, but does not extend to invertebrates. There are 1,261 listings under the federal ESA in the United States. Of those, 54 listings apply to animals or plants native to Oregon.

The provisions of federal law pre-empt any less protective provisions of state law. Species native to Oregon, and which are listed under the federal ESA, are subject to the provisions of federal law. Species listed by the Oregon Fish and Wildlife Commission also are protected by state law.

For any new transportation project in Sutherlin, the Oregon Natural Heritage Databank (ONHD) should be referenced. The ONHD is Oregon’s most comprehensive database of rare, threatened and endangered species and includes site-specific information on the occurrences, biology and status of over 2,000 species throughout Oregon.

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Chapter 4: Existing Transportation Conditions

Introduction

This chapter describes the existing transportation facilities for all modes of transportation within and adjacent to the City of Sutherlin's Urban Growth Boundary (UGB). As part of the planning process, an inventory of the existing transportation system was compiled. The inventory data comes from a variety of sources, and includes detailed roadway data collected in the field for many road segments in the city. This detailed roadway inventory is included in the Appendix, and includes the following information about each inventoried road segment:

- Jurisdiction
- Type of surface
- Number of lanes
- School zone designation
- Posted speed limits
- Traffic controls
- Type of median
- Presence of bike lanes, on-street parking, curbs, and sidewalks
- Type of traffic control
- Street condition

In addition, information was compiled about the freight system (rail and trucks), bridges, bicycle and pedestrian facilities, public transit, pipelines and other transportation facilities. In general, the inventory describes the capacity, condition, safety, and degree of connectivity for all modes of transportation, and provides a benchmark for future assessments of transportation conditions in the city.

Overview of Sutherlin's Transportation System

Sutherlin is bisected by Interstate 5 (I-5), which runs in a northeast to southwest direction on the west side of the downtown business core area. There are two I-5 interchanges that serve Sutherlin; Exit 136 at Highway 138/Central Avenue at the center of town (serving downtown and most of the existing commercial and residential areas in Sutherlin), and Exit 135 at Wilbur-Umpqua Road at the south end of Sutherlin, which is often used to access the southern and eastern parts of the city.

The street system in Sutherlin to the east of I-5 largely consists of a two-way street grid system. The west side of I-5 in Sutherlin has less commercial and residential development and the City's street network is less extensive and less grid-like. As most of Sutherlin's new development is occurring on the west side of I-5, this is where the majority of new streets will likely develop in the future.

Sutherlin has long had a deficiency of east-west roads, and more specifically, roads that allow motorists to navigate around downtown and/or access both sides of I-5, which acts as a travel barrier. Currently, only Highway 138/Central Avenue serves both the east and west sides of the City.

The detailed street inventory in the Appendix includes information about arterial and collector roadway segments including number of lanes, posted speeds, functional classification, on-street parking, intersection traffic control, sidewalks and bicycle facilities. This information was obtained through a combination of extensive field work, from City of Sutherlin staff and from other governmental agencies. The Umpqua Regional Council of Governments (URCOG) provided information related to transit service

in Sutherlin. Information about aviation, trucking, freight rail, and pipelines was obtained from applicable agencies.

Local Street Network

This section describes the existing street circulation system within the Sutherlin UGB, including jurisdictional ownership and maintenance responsibilities, functional classification, physical features and traffic control, and safety.

Jurisdictional Responsibilities

The Oregon Department of Transportation (ODOT), Douglas County and the City of Sutherlin maintain portions of the existing street system within the study area. There are also a number of privately maintained roads in the study area; these are not listed in the street inventory.

The following section presents a summary of the jurisdictional responsibility for the various streets and highways within the Sutherlin UGB. Included are state highways, county roads, and city streets.

State-Maintained Highways

Within the planning area, the ODOT-maintained facilities of significance include Interstate 5 (I-5) and Highway 138. In addition to these facilities, ODOT also has jurisdiction over a short segment of Dovetail Lane just north of Highway 138 and right of way behind the fast food restaurants at the NW corner of Exit 136. Table 4-1 specifies significant roads within the Sutherlin UGB maintained by the State of Oregon.

Table 4-1. State-Maintained Highways within the Sutherlin UGB

Street	From	To	Functional Classification
Interstate 5	North UGB Line	South UGB Line	Interstate
Highway 138	West UGB Line	Interstate 5	Minor Arterial
Highway 138/ Central Ave.	Interstate 5	Old Hwy 99/Calapooya Street	Minor Arterial

The Appendix lists state-maintained roads and their functional classification.

I-5 is a well-maintained, four-lane divided freeway with a posted speed of 55 miles per hour in the Sutherlin area. According to the *I-5 State of the Interstate* report, pavement conditions along I-5 are generally good. It is classified by the 1999 Oregon Highway Plan as having interstate significance and serves as the primary north and south through route for traffic traveling through the area.

In 2002, ODOT recorded the I-5 Average Daily Traffic (ADT) at Exit 135 to be 26,600 vehicles in both directions and at Exit 136/OR 138 there were 23,400 vehicles in both directions.

Highway 138 is classified by the 1999 Oregon Highway Plan as having regional significance. Highway 138 runs from Elkton in the west, through Sutherlin and Roseburg, connecting to US Highway 97 to the east. Because Highway 138 connects to Highway 38 at Elkton, it is a primary connection between

seaports and recreational areas on the coast and Interstate 5. Highway 138 also provides access to the Cascade Range and Central Oregon east of Roseburg.

Photo 4-1. Highway 138

Highway 138 in Sutherlin is a two lane highway with a posted speed of 55 miles per hour (mph) west of Dovetail Lane, posted speed of 40 mph between Dovetail Lane and Dakota Street, and posted speed of 30 mph between Dakota Street, past I-5 to Ponderosa Drive. Highway 138 east of I-5 is known as Central Avenue. The speed limit on Central Avenue east to Calapooya Street is 20 mph and 30 mph.

County-Maintained Roads

Douglas County also maintains roads within the Sutherlin UGB. Table 4-2 shows the streets within the Sutherlin UGB maintained by Douglas County and their functional classification.

Table 4-2. Douglas County-Maintained Roads

Street	From	To	Functional Classification
Fort McKay Road	Highway 138	West city limits	Major Collector
Plat M Road	Fort McKay Road	West Duke Road	Local Road
West Duke Road	I-5	Plat M Road	Local Road
Duke Avenue	South Comstock Road	I-5	Local Road
South Comstock Road	Central Avenue	Wilbur-Umpqua Road	Major Collector
North Comstock Road	Central Avenue	North city limits	Local Road
Taylor Street	Hastings Avenue	South Comstock Road	Local Road
Hastings Avenue	Taylor Street	Sutherlin Creek	Local Road
Old Hwy 99/Calapooya Street	South city limits	Central Avenue	Major Collector
Central Avenue	Old Hwy 99/Calapooya Street	N. State Street	Major Collector
North State Street	Central Avenue	North city limits	Major Collector
Central Avenue	Opal Street	East city limits	Major Collector

Fort McKay Road splits from Highway 138 east of Dakota Street in Sutherlin and runs west to the town of Umpqua. It has a posted speed of 55 mph outside of city limits. Fort McKay Road was reconstructed during the summer of 2004.

Photo 4-2. Ft. McKay Road

Comstock Road runs north/south between Wilbur-Umpqua Road in the south and the Sutherlin UGB in the north. North of Central Avenue, Comstock Road has a posted speed of 20 mph in the vicinity of West Sutherlin School. Comstock Road south of Central Avenue carries traffic from downtown through several residential streets to I-5 Exit 135. Comstock Road south of Central Avenue has a posted speed of 35 mph.

Photo 4-3. Comstock Road

Old Highway 99/Calapooya Street, south of Central Avenue, runs parallel to Comstock Road and carries traffic from downtown Sutherlin to the I-5 Exit 135. Old Highway 99/Calapooya Street from Central Avenue to Hastings Avenue is posted 45 mph, and becomes 55 mph south of Hastings Avenue to Wilbur-Umpqua Road. Douglas County is scheduled to improve Old Highway 99/Calapooya Street in 2005 from the Sutherlin Creek Bridge south to the vicinity of the CORP railroad crossing. The project will eliminate the two 90 degree turns near the railroad crossing and will add sidewalks and bike lanes up to Sutherlin Creek Bridge.

Photo 4-4. Old Highway 99/Calapooya Street

Old Highway 99/North State Street, north of Central Avenue, carries traffic from downtown Sutherlin north to the town of Oakland. North State Street, north of Central Avenue has a posted speed of 55 mph.

Photo 4-5. Old Highway 99/North State Street

City-Maintained Roads

The City of Sutherlin maintains a broad network of streets. The street cross sections range from non-striped residential streets to four lane collectors with posted speeds of 20 to 45 miles per hour. The central portion of Sutherlin also contains several alley streets. There are four at-grade railroad crossings in Sutherlin, and no existing grade-separated crossings. Further detail is presented subsequently in the Rail section of this chapter.

Detailed information about the physical characteristics of the existing street system in the Sutherlin UGB is presented in the Appendix by street segment. Listed information includes presence of parking; presence and location of sidewalks; presence and location of bicycle lanes; presence and location of curbs; roadway condition; intersection traffic control; intersection turn lanes; and posted speeds.

Privately Maintained Roads

Several streets in Sutherlin are privately maintained. Most of these streets are associated with trailer parks, manufactured home parks and other planned developments. The private roads in the city are not included in the street system inventory in the Appendix.

Existing Street Functional Classification and Standards

Functional classification provides a systematic basis for determining future right of way and improvement needs, and can also be used to provide general guidance to appropriate or desired vehicular street design characteristics. Roadway functional classification is based on the relative priority of traffic mobility and access functions that are served by the street. From a design perspective, the functions of mobility and access can be incompatible since high or continuous speeds are desirable for mobility, while low speeds are more desirable for access. At one end of the spectrum of mobility and access are freeways, which emphasize moving high volumes of traffic, allowing only highly controlled access points. At the other end of the spectrum are residential cul-de-sac streets, which provide access only to parcels with direct frontage and allow no through traffic. Between the ends of this spectrum are arterials, collectors and local streets each with an increasingly greater emphasis on mobility. Arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function; and collectors offer a balance of both functions. Classifications can be further stratified into major and minor arterials and collectors.

The purpose of classifying roads within the study area is to provide a balanced transportation system that facilitates mobility for all modes at acceptable levels of service while providing sufficient access to adjacent land uses and ensuring neighborhood livability. Currently, the City of Sutherlin and Douglas County use different roadway classifications and standards for roads within the study area. The Transportation Planning Rule requires that classification of streets within the City be provided. The classification must be consistent with state and regional transportation plans for continuity between adjacent jurisdictions.

The City of Sutherlin uses the Street Functional Classification system to reserve future rights-of-way, determine street design, and develop future street improvement projects. As described in the 1996 draft Transportation System Plan for the City of Sutherlin, this system is comprised of four individual classifications including: principal highway, arterial, collector, and local streets. Figure 4-1 presents Sutherlin's current functional classification system.

> **Principal Highway** – The primary function of a principal highway is to provide a connection between communities, towns and cities. It provides through traffic movement and distribution to lower-order facilities. Access is generally limited, as is on-street parking. Right-of-way width and pavement width are characteristics of the type of facility. Principal highways are generally state-operated.
>
> **Arterial** – The primary function of an arterial is to provide through movement to traffic, distributing it to collector streets and principal highways, and providing limited land access. These streets are generally characterized by a three to five lane cross section, and should accommodate pedestrian and bicycles movements. Signalization should be provided at intersections with other arterials and collector streets, as warranted. Sutherlin's arterials are designed with large rights-of-way (68 to 100 feet wide) with pavement widths of at least 48 feet. Arterial streets have limited or controlled access to them and have little or no on-street parking. Oregon's Transportation Planning Rule requires bicycle lanes and sidewalks along arterials. Bicycle lanes are required on arterials even if they do not generate significant bicycle traffic.

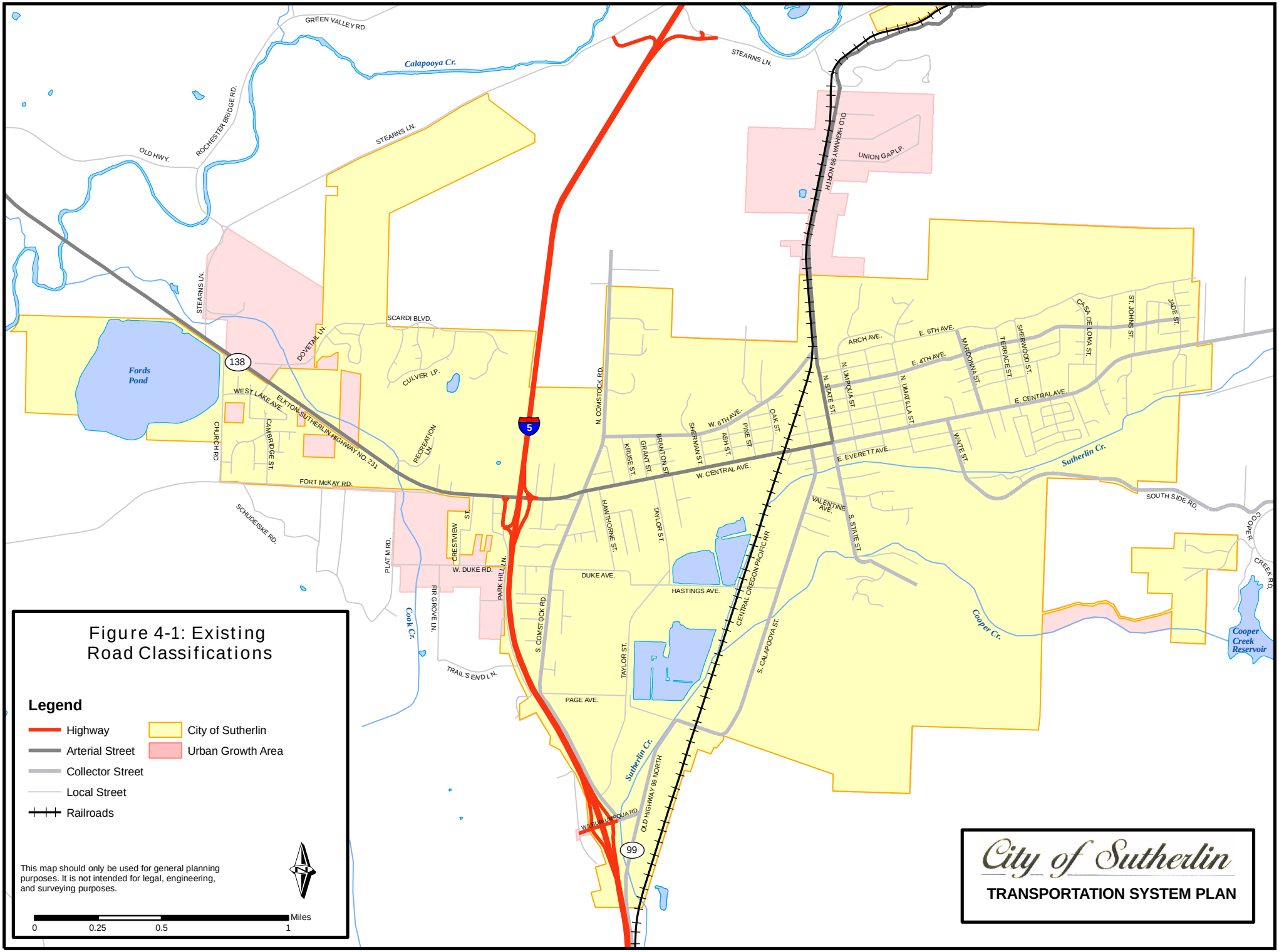
Figure 4-1: Existing Road Classifications
Legend
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
0.25
0.5
1
Miles
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Creek Reservoir
Cooper Cr.
Cook Cr.
GREEN VALLEY RD.
ROCHESTER BRIDGE RD.
OLD HWY.
STEARNS LN.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CHURCH RD.
CAMBRIDGE ST.
RECREATION LN.
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
S. COMSTOCK RD.
TAYLOR ST.
HAWTHORNE ST.
N. COMSTOCK RD.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
E. CENTRAL AVE.
E. 4TH AVE.
E. 6TH AVE.
ARCH AVE.
N. UMPQUA ST.
N. UMATILLA ST.
N. STATE ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WHITE ST.
VALENTINE AVE.
S. STATE ST.
S. CALAPOOYA ST.
CENTRAL OREGON PACIFIC RR
OLD HIGHWAY 99 NORTH
WILBUR UMPQUA RD.
SOUTH SIDE RD.
COOPER CREEK RD.
UNION GAP LP.
5
138
99

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Collector – The primary function of a collector is to move traffic between arterials and local streets, and to provide access to adjacent uses. The collector street is generally characterized by a two or three lane cross section. Oregon's Transportation Planning Rule requires bicycle lanes and sidewalks along major collectors. Bicycle lanes are required on major collectors even if they do not generate significant bicycle traffic. Intersections with other collectors and arterials may be signalized, as warranted. Sutherlin's collectors have a minimum right-of-way width of 60 feet with a minimum pavement width of 40 feet. Property access from collector streets should be discouraged.

Local Street – The function of local streets is to provide access to private dwellings and businesses. Local streets should focus on serving passenger cars, bicycles and pedestrians. Oregon's Transportation Planning Rule requires bicycle lanes along most local roads. Generally, local streets have two lanes and can include parking on one or both sides. Transit and heavy truck traffic are generally discouraged from using local streets. The standard minimum right of way for local streets in Sutherlin is 56 feet with a minimum pavement width of 36 feet.

In order to be consistent with Oregon's Transportation Planning Rule, it is required that bike lanes be included on new or reconstructed arterial and collector streets. Oregon Revised Statute 366.514 requires ODOT, counties and cities to provide walkways and bikeways on all roadway construction, reconstruction or relocation projects. "Construction, reconstruction or relocation" refers to all projects where a roadway is built or upgraded. The intent of this requirement is to provide reasonably direct routes for bicycle and pedestrian travel. Currently, the City of Sutherlin has bicycle lanes at one location, on the reconstructed southern portion of Highway 99 near the Wilbur-Umpqua Road interchange.

Different agencies in Oregon have different Functional Classification systems. Listed below are all the streets in Sutherlin that have a functional classification higher than local road according to Sutherlin's classification system. Table 4-3 presents the functional classification systems used by the City of Sutherlin and Douglas County, as well as ODOT's state highway classification system. Table 4-4 presents the functional classification for roads by jurisdiction.

Sutherlin's functional classification system identifies all streets inside city limits as a local street except the following:

Arterial:
Central Avenue west of State Street
State Street north of Central Avenue

Collector:
Central Avenue east of State Street
State Street south of Central Avenue
Calapooia Street south of Central Avenue
Comstock Road
West 6th Avenue
East 4th Avenue
Waite Street/South Side Road
Mardonna Street

Table 4-3 shows how the functional classes used by the City, County, and State relate to one another.

Table 4-3. Functional Classification Systems

City of Sutherlin	Douglas County	ODOT*
Principal Highway	Principal Highway	Interstate Highway
Arterial	Arterial	Urban Principal Arterial Urban Minor Arterial
Collector	Major Collector Minor Collector	Urban Collector Minor Collector
Local Street	Local Road	Local Road

* Urban is applied to areas with over 5,000 people.

Table 4-4. Comparison of Functional Classifications for Major Roads in Sutherlin, by Jurisdiction

Road	*City of Sutherlin*	*ODOT*	*Douglas County*
Central Avenue west of State Street	Arterial	Urban Collector	
Central Avenue east of State Street	Collector	Urban Collector	Arterial
State Street north of Central Avenue	Arterial	Urban Collector	
Calapooya Street/Hwy 99 south of Central Avenue	Collector	Urban Collector	Principal Highway
S. Comstock Road	Collector	Urban Collector	Minor Collector
Waite Street/South Side Road	Collector		Major Collector
Highway 138	Arterial	Urban Minor Arterial	Principal Highway
Stearns Lane		Minor Collector	Minor Collector

Table 4-4 shows that some roads, such as Central Avenue east of State St., currently have different functional classifications. Chapter 7 includes recommendations for future City of Sutherlin road classifications for all roads.

Pavement/Shoulder Widths and Number of Lanes

Table 4-5 below presents pavement measurements for different streets in Sutherlin. These measurements were taken during the facility inventory process for arterial, collector, and local streets. As a comparison, right-of-way widths and the existing street design standards are shown in Table 4-6 and Table 4-7, respectively.

Table 4-5. Pavement Measurements in Sutherlin

Street	Measurement Location	Measurement	Number of Lanes
Mardonna Way	(north of Second Avenue)	38 ft. wide	1
Fourth Avenue	(between Umatilla Street and Mardonna Way)	40 ft. wide	1
Umatilla Street	(north of Third Avenue)	36 ft. wide	1
Sixth Avenue	(east of State Street)	15 ft. wide	1
State Street	(south of Sixth Avenue)	11 ft. lanes, 25 ft. total	2
	(south of First Avenue)	11 ft. lanes, 44 ft. total	2
Central Avenue	(at Mardonna Way)	15 ft. lanes, 15 ft. median, 45 ft. total	2
	(at Jade Avenue)	12 ft. lanes, 10 ft. median, 40 ft. total	2
	(at Sherman Street)	16 ft. lanes, 14 ft. median, 46 ft total	2
Jade Avenue	(north of Central Avenue)	33 ft. wide	1
Waite Avenue	(south of Sea Street)	10 ft. lanes, 22 ft. total	2
Church Road	(north of Ft. McKay Road)	10 ft. lanes, 21 ft. total	2
Comstock Road	(south of Duke Street)	10 ft. lanes, 21 ft. total	2
Wilbur-Umpqua Road	(east of Comstock Road)	12 ft. lanes, 30 ft. total	2
Old Hwy 99 North	(between Rodgers Rd and Wilbur-Umpqua Road)	12 ft. lanes, 34 ft. total	3
Taylor Street	(between Hastings Avenue and Page Avenue)	18 ft. lanes, 40 ft. total	1
Hastings Avenue	(between Taylor Street and Calapooya Street)	20 ft. wide	1
Calapooya Street	(north of Hastings Avenue)	10 ft. lanes, 26 ft. total	2
Ft. McKay Road	(west of County Road No. 155)	10 ft. lanes, 22 ft. total	2
Highway 138	(west of Stearns Lane)	12 ft. lanes, 32 ft. total	2

Douglas County is scheduled to realign and widen Old Highway 99/Calapooya Street in 2005. The number of lanes for each road segment in Sutherlin can be found in the Appendix.

Chapter 7 makes recommendations regarding future functional classes and their cross-sections that will amend this draft development code.

Right-of-Way (ROW) Widths

Table 4-6 presents the ROW widths for thirteen locations along arterial and collector streets in Sutherlin. The ROW widths were measured using geographic systems analysis (GIS) data provided by the City of Sutherlin.

Table 4-6. Right-of-Way Measurements in Sutherlin

Street Name	From	To	ROW (feet)
W. Central Ave.	Taylor St.	Central Oregon Pacific RR	60
E. Central Ave.	N. State St.	N. Umatilla St.	78
E. Central Ave.	Sherwood St.	Jade St.	78
S. Comstock Rd.	Duke Ave.	W. Central Ave.	62
S. Comstock Rd.	Duke Ave.	Page Ave.	62
N. Comstock Rd.	W. Central Ave.	W. 6th Ave.	55-60
S. Calapooya St.	Valley Ct.	W. Central Ave.	62-85
S. Calapooya St.	Hastings Ave.	Central Oregon Pacific RR	62-87
S. Calapooya St.	Central Oregon Pacific RR	Wilbur-Umpqua Rd.	82
N. State St.	W. Central Ave.	E. 6th Ave.	62
E. 6th Ave.	N. State St.	N. Umatilla St.	62
Fort McKay Rd.	Church Rd.	Highway 138	60-70
Highway 138	Fort McKay Rd.	Stearns Ln.	100-125

Estimated in GIS using March 2004 parcels data provided by City of Sutherlin

Standards

Table 4-7 presents the existing City of Sutherlin's Street and Pathway Design Standards which were taken from Sutherlin's Draft *Development Code* document. Listed are the existing design standards for streets and includes required right-of-way widths, pavement widths, and curbs.

Table 4-7. City of Sutherlin – Existing Street and Pathway Design Standards from Draft Development Code, 2003

Type of Street	Avg. Daily Trips (ADT)	Right of Way Width	Curb-to-Curb Pavement Width	Within Curb-to-Curb Area				Curb on Both Sides	Planting Strip on Both sides	Sidewalks on Both Sides
				Motor Vehicle Travel Lanes	Median and/or Center Turn Lane	Bike Lane on Both sides	On-Street Parking			
Arterial Streets: *Boulevards:*	8,000 to 30,000 ADT									
2-Lane Boulevard		61'-87'	34'	11'	None	2 at 6'	8' bays	6"	7'-8'[1]	6'-10'[2]
3-Lane Boulevard		73'-99'	46'	11'	12'	2 at 6'	8' bays	6"	7'-8'[1]	6'-10'[2]
5-Lane Boulevard		95'-121'	68'	11'	12'	2 at 6'	8' bays	6"	7'-8'[1]	6'-10'[2]
Avenues:	3,000 to 10,000 ADT									
2-lane Avenue		59'-86'	32'-33'	10'-10.5'	None	2 at 6' each	8' bays	6"	7'-8'[1]	6'-10'[2]
3-lane Avenue		70.5'-97.5'	43.5'-44.5'	10'-10.5'	11.5'	2 at 6' each	8' bays	6"	7'-8'[1]	6'-10'[2]
Collector Streets: *Residential:*	1,500 to 5,000 ADT				NA	NA[3]				
No Parking		49'-51'	22'	11'			None	6"	8'	5'-6'
Parking on One Side		50'-56'	25'-27'	9'-10'			7' lanes	6"	7'-8'	5'-6'
Parking on Both Sides		57'-63'	32'-34'	9'-10'			7' lanes	6"	7'-8'	5'-6'
Commercial:										
Parallel Parking on One Side		55'-65'	28'	10'			8' lanes	6"	7'-8'[1]	6'-10'[2]
Parallel Parking on Both Sides		63'-73'	36'	10'			8' lanes	6"	7'-8'[1]	6'-10'[2]
Diagonal Parking on One Side		65'-74'	37'	10'			Varies	6"	7'-8'[1]	6'-10'[2]
Diagonal Parking on Both Sides		81'-91'	54'	10'			Varies	6"	7'-8'[1]	6'-10'[2]
Local Residential Streets[4]:	Less than 1,500 ADT				NA	NA[3]				
Parking on One Side		47'-51'	24'-28'	15'			One 7'	6"	7'-8'[1]	5'-6'
Parking on Both Sides		50'-57'	28'-30'	11'-14' Queuing			Two 7' lanes	6"	7'-8'[1]	5'-6'
Alleys:	NA	NA	16'-20'	12'-16' paved width, 1'-2' strips on both sides	NA	NA	None	None	None	None
Accessways and Multi Use Paths:	NA	NA	10'-18'	6'-12' paved width, 2'-4' strips on both sides	NA	NA	None	None	None	None

[1] Hardscape planting strip with tree wells shall be used in commercial and mixed-use development areas (where on-street parking is provided.

[2] 6' sidewalk shall be installed in residential areas, 8'-10' sidewalk shall be installed in commercial areas.

[3] Bike lanes are generally not needed on low volume (less than 3,000 ADT) and/or low travel speed (less than 25 mph) streets.

[4] Option for residential street with sidewalks or pathways seperated from roadway with drainage swale (no curb). Sidewalk installation may not be required on some existing local streets without sidewalks when existing and future traffic volumes are low; e

Source: Sutherlin DRAFT Development Code, 2003.

Pavement Type and Condition

The road pavement type in Sutherlin is almost entirely asphalt and ranges in condition from very good (new streets) to very poor (potholes and major cracking). All sidewalks and curbs are concrete. Pavement

conditions were rated using ODOT's pavement condition guidelines.[7] The ODOT pavement ratings follow.

Very Good
Pavement structure is stable, with no cracking, no patching, and no deformation evident. Roadways in this category are usually fairly new. Riding qualities are excellent. Nothing would improve the roadway at this time.

Good
Stable, minor cracking, generally hairline and hard to detect. Minor patching and possibly some minor deformation evident. Dry or light colored appearance. Very good riding qualities. Rutting less than ½."

Fair
Pavement structure is generally stable with minor areas of structural weakness evident. Cracking is easier to detect. The pavement may be patched but not excessively. Although riding qualities are good, deformation is more pronounced and easily noticed. Rutting less than ¾."

Poor
Areas of instability, marked evidence of structural deficiency, large crack patterns, heavy and numerous patches, deformation very noticeable. Riding qualities range from acceptable to poor. Rutting greater than ¾."

Very Poor
Pavement is in extremely deteriorated condition. Numerous areas of instability. Majority of section is showing structural deficiency. Riding quality is unacceptable (probably should slow down).

Table 4-8 presents a summary of the condition of Sutherlin roads from the field inventory.

Table 4-8. Summary of Street Conditions in Sutherlin

Rating	Number of Road Segments
Very Good	176
Good	460
Fair	138
Poor	74
Very Poor	8
Varies	6

Details about pavement types and condition for each road segment in Sutherlin can be found in the Appendix.

On-Street Parking and Public Parking Lots

There are only a few public parking lots in Sutherlin. A new City lot has been constructed at the northeast corner of East Everett and South Willamette Street, across from the community center in Central Park. Public parking is provided in the City lots adjacent to the Council chambers behind City Hall. The City also owns a parking lot behind the library, just east of City Hall. All the other lots in the City are privately owned.

[7] http://odot.state.or.us/otms/pavement/pavecond.cfm

There is sporadic on-street parking on local streets throughout the city. Many city streets lack curbs, so on-street parking in residential areas occurs at drivers' discretion and as each street physically allows. A complete listing of on-street parking locations in Sutherlin is provided in the Appendix. For the roads with higher functional classifications, on-street parking remains sporadic and generally exists close to the downtown core.

A summary of on-street parking for arterials and collectors follows:

- On-street parking exists on Central Avenue between Willamette Street and Pine Street.
- No on-street parking along Highway 138.
- No on-street parking on Ft. McKay Road.
- No on-street parking on Comstock Road south of Central Avenue, but sporadic on-street parking north of Central Avenue, specifically near the West Sutherlin Intermediate School.
- No on-street parking on Calapooya Street, south of Central Avenue. Areas with on-street parking is provided on Calapooya Street, north of Central Avenue to 2nd Avenue.
- There is on-street parking on State Street north of Central Avenue to 3rd Avenue.

There is striped on-street parking on South Willamette Street in front of the community center.

Posted Speed Limits

In Sutherlin, posted speeds on local streets range from 15 to 25 miles per hour and school zones are posted as 20 miles per hour. Below are the posted speeds for streets with a functional classification higher than local street.

- Comstock is generally posted 35 mph south of Central Avenue and 20 mph north of Central Avenue in the school zone between Robinson Street and Jones-Buckley Avenue.
- Highway 138 is posted 30 mph from I-5 to Dakota Street, 40 mph from Dakota Street to Dovetail Lane and 55 mph east of Dovetail Lane.
- Ft. McKay Road does not have a posted speed within the city limits.
- Calapooya Street is posted 55 mph from Wilbur-Umpqua Road to Hastings Avenue, 45 mph from Hastings to Strong Avenue and 25 mph from Strong Avenue to Central Avenue.
- N. State Street is posted 25 mph from Central Avenue to 3rd Avenue, 35 mph from 3rd Avenue to 6th Avenue, and 55 mph from 6th Avenue to the UGB. South State Street is posted 25 mph between Raintree Avenue and Central Avenue.
- Central Avenue is posted 35 mph from the west city limits to Umatilla Street, 20 mph to Kruse Street, and 30 from Kruse Street to I-5.

A complete of listing of posted speed limits in Sutherlin is provided in the Appendix.

Stop Control Devices

There are two signalized intersections in Sutherlin:

- Calapooya Street at Central Avenue, and
- State Street at Central Avenue.

In addition, a signal is being installed at the I-5 Exit 136 east side ramps.

Sutherlin's *SATS* report stated that signals may be warranted at the southbound I-5 ramps at Central Avenue in the future, and possibly at Central Avenue at Comstock Road due to capacity and truck-related issues. Sutherlin's *Public Facility Plan* noted that a traffic signal may be warranted at Central Avenue at Comstock Road.

There are several streets in the city that have stop signs and a complete list can be found in the Appendix.

During the facility inventory, eight intersections were identified as potentially needing stop signs on one or more approaches. These are:

- Crestview Street. at Highway 138
- Wilson Street at Comstock Road
- Willow Creek Lane. at Sixth Avenue
- Jones-Buckley Avenue at Comstock Road
- Foster Avenue at Comstock Road
- 3rd Avenue at Branton Street
- Beecroft Street at Center Avenue
- Unnamed road at Comstock Road between Koleno Avenue and Bebeau Lane

Crash History

Crash data was collected from ODOT and the City, each of which reports data differently. Crash data was collected in the Sutherlin area by the Sutherlin Police[8] and ODOT[9]. ODOT crashes are based on data reported to the Department of Motor Vehicles (DMV). Crash reporting to the DMV does not need to be done for crashes with little financial loss, and therefore many "minor" crashes are not reflected in this reporting. The Sutherlin Police do not use such a distinction in their reporting, and therefore provide a more accurate reflection on the total number of crashes that occur in the city. The crash data is summarized in Figure 4-2.

[8] Motor Vehicle Crash Data received August 11, 2004 from Gayla Holley with the Sutherlin Police Department
[9] Crash Summaries by year and collision type received September 7, 2004 from Sylvia Vogel with ODOT's Transportation Development Division.

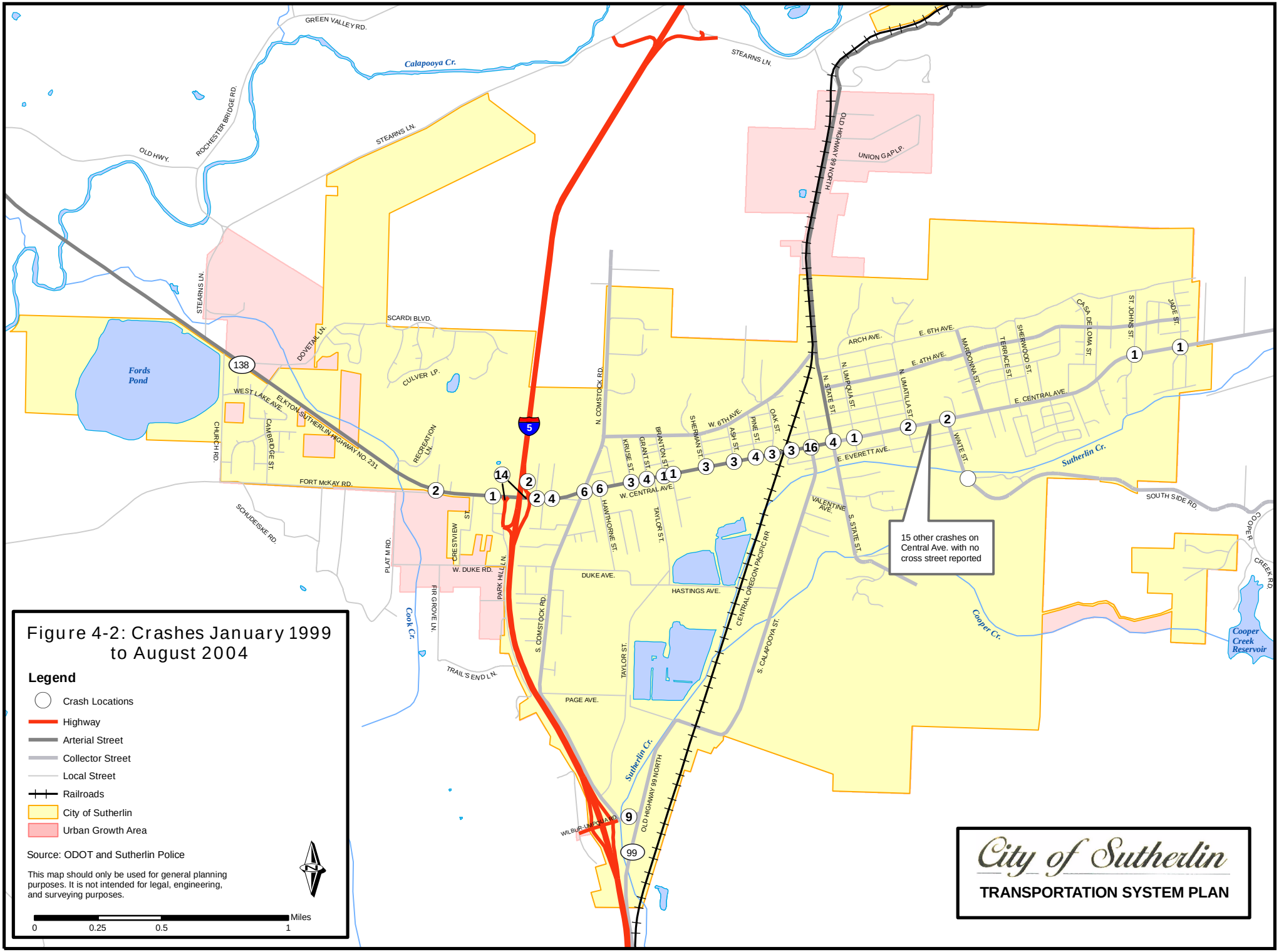
Figure 4-2: Crashes January 1999 to August 2004
Legend
Crash Locations
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
Source: ODOT and Sutherlin Police
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
Miles
0
0.25
0.5
1
15 other crashes on Central Ave. with no cross street reported
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cooper Creek Reservoir
Cook Cr.
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CHURCH RD.
CAMBRIDGE ST.
RECREATION LN.
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
WILBUR-UMPQUA RD.
N. COMSTOCK RD.
S. COMSTOCK RD.
HAWTHORNE ST.
TAYLOR ST.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
W. 6TH AVE.
W. CENTRAL AVE.
ASH ST.
PINE ST.
OAK ST.
VALENTINE AVE.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
N. STATE ST.
S. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
E. CENTRAL AVE.
E. EVERETT AVE.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WHITE ST.
SOUTH SIDE RD.
COOPER R.
CREEK RD.
5
138
99

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Crash data collected from the Sutherlin Police and ODOT show that 86% of crashes from the previous 5 ½ years, between January 1999 and August of 2004, occurred on Central Avenue. It should be noted that Central Avenue is the only east/west road that continuously runs through Sutherlin and provides access to Interstate 5 and Highway 99. Of the 119 reported crashes, 102 of them occurred on Central Avenue between Interstate 5 and the eastern city limit.

The primary crash locations in the city were in the downtown area, between Sherman Street and Waite Street, and in the area between the I-5 interchange and downtown, between I-5 and Branton Street. The highest crash location not on Central Avenue was near the I-5 interchange at Wilbur-Umpqua Road. Table 4-9 shows high crash locations in Sutherlin.

Table 4-9. Number of Crashes by Location in Sutherlin between 01/99 and 08/04

Area	# of Crashes	Location
Downtown Area	41	Between Sherman St. and Waite St. on Central Ave.
I-5 Area	43	Between Branton St. and Interstate 5 on Central Ave.
	15	On Central Ave. (No Cross Street Reported)
West Side	3	West of I-5 on Highway 138
East Side	2	East of Waite St. on Central Ave.
South Side	9	Exit 135 and Wilbur-Umpqua Road

Source: Sutherlin Police and ODOT

Most crashes in Sutherlin involve rear-ending another vehicle (43%) or a turning movement (33%). Table 4-10 shows the most frequent crash types at intersections with the highest numbers of crashes.

Table 4-10. Predominant Crash Types at High Crash Locations

Location	Predominant Crash Type
Central Ave. (no cross street given)	Rear End, Turning Movement
Central Ave./Calapooya St.	Rear End, Angle, Side Swipe
Central Ave./Comstock Rd.	Turning Movement
Central Ave./Hawthorne St.	Turning Movement
Central Ave./I-5	Various*
I-5/Wilbur Umpqua Rd.	Rear End

*Rear End, Turning Movement, Side Swipe, Angle, Fixed Object, Pedestrian

ODOT collects crash data for I-5, state highways, connecting roads, frontage roads and other locations. Crash data for the last complete, available year (2002) shows that 16 crashes happened on either Highway 99 or Highway 138. Crash data from 1999 through August 2004 shows 23 crashes on or near I-5 in the Sutherlin area. 60% of these occur at or near Exit 136 (Central Avenue) and 40% of them occur at or near Exit 135 (Umpqua-Wilbur Road). Table 4-11 shows crashes for highways and Table 4-12 shows crashes on I-5.

Table 4-11. Crashes on Highways In and Around Sutherlin (2002)

Highway	Mile Post	Description	# of Crashes
Highway 99	134.83	South City Limit to Deady Interchange/OR 235	1
Highway 138	23.53	West City Limit to I-5	7
Highway 138	24.22	I-5 to Comstock Road	2
Highway 138	24.47	Comstock Road to Calapooya Street	6

Source: ODOT

Table 4-12. Crashes on Interstate 5 in Sutherlin (1999- August 2004)

Date	*Mile Post*	*Location*	*Crash Type*	*Severity*
Crashes at or Near I-5 Exit 135				
10/1/2003	134.92	PACIFIC HY I-5 NB/ EX WLBR-UMPQA	Fixed Object	Property Only
3/17/2000	135.1	WILBUR-UMPQUA RD /SB EX WLBR-UMPQA	Rear End	Property Only
3/22/2000	135.21	WILBUR-UMPQUA RD /NB EX WLBR-UMPQA	While Turning	Property Only
11/20/2002	135.21	WILBUR-UMPQUA RD /NB EF WLBR-UMPQA	Rear End	Injury
6/25/2003	135	PACIFIC HY I-5 SB/ EF WLBR-UMPQA	Fixed Object	Property Only
11/17/2003	135.21	WILBUR-UMPQUA RD /NB EF WLBR-UMPQA	Rear End	Property Only
12/28/2003	134.87	PACIFIC HY I-5 NB /EX WLBR-UMPQA	Rear End	Property Only
6/28/2004		S. CALAPOOYA / EXIT 135		Injury
10/23/2003		S. COMSTOCK RD / WLBR-UMPQA		Property Only
Crashes at or Near I-5 Exit 136				
9/26/1999	136	PACIFIC HY I-5 /EX-EN CENTRAL	Pedestrian	Fatality
7/11/2001	4.37	CENTRAL AVE /E BN EX CENTRAL	While Turning	Property Only
9/28/2001	136.31	PACIFIC HY I-5 /EX-EN CENTRAL	Fixed Object	Property Only
4/11/2002	136.53	CENTRAL AVE /E BN EX CENTRAL	Rear End	Property Only
8/20/2002	24.43	NB ENFR CENTRAL / PACIFIC HY I-5	Fixed Object	Property Only
10/16/2002	136.53	CENTRAL AVE /E BN EX CENTRAL	Rear End	Property Only
12/5/2002	136.31	PACIFIC HY I-5 /E BN EX CENTRAL	Rear End	Property Only
5/26/2003	136.51	E BN EX CENTRALW / NB EX CENTRAL	Rear End	Property Only
5/26/2003	136.52	CENTRAL AVE W / NB EX CENTRAL	Rear End	Property Only
6/15/2003	136.7	PACIFIC HY I-5 /CENTRAL AVE	Fixed Object	Property Only
10/9/2003	136.66	PACIFIC HY I-5 /CENTRAL AVE	While Turning	Property Only
11/30/2003	136.27	PACIFIC HY I-5 /EX-EN CENTRAL	While Turning	Property Only
12/16/2003	136	PACIFIC HY I-5 E BN/ EX CENTRAL	Fixed Object	Property Only
6/7/2004		I-5 / EXIT 136		Property Only

Source: ODOT

The locations with the highest number of crashes were used to calculate crash rates per million entering vehicles. The locations with the highest crash rates are shown in Table 4-13. As shown in the table, the location with the highest crash rate per million entering vehicles in Sutherlin is at Old Highway 99 at Wilbur Umpqua Road.

Table 4-13. Sutherlin Crash Rates

Location	Number of crashes from January 1999 – August 2004	Number of crashes per year	Crash rate per MEV *
Central Avenue at Calapooya	16	2.9	0.57
Old Highway 99 at Wilbur-Umpqua Road	9	1.6	0.64
Central Avenue at Comstock	6	1.1	0.38
Central Avenue at I-5 ramp intersections	14	1.3	0.24

* MEV = million entering vehicles

Bridge Conditions

To comply with the National Bridge Inspection Standards (NBIS), Title 23, Code of Federal Regulations, Part 650, subpart C, all bridges within the United States must be inspected at two-year minimum frequency. A "bridge" is defined as a structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet. All City of Sutherlin owned and maintained bridges are inspected through a Local Agency Bridge Inspection Services contract administered by the Oregon Department of Transportation (ODOT) that complies with the NBIS. All bridges on interstate highways or state highways within Sutherlin are inspected by ODOT regional bridge inspectors.

Table 4-14 documents the status of existing bridges in the Sutherlin UGB under control of the City of Sutherlin. Included in the table is information about the location of each bridge, a description of the structure, the date of last inspection, and its National Bridge Inventory (NBI) condition rating. The NBI condition rating is a numeric evaluation of a bridge's sufficiency to remain in service. NBI Condition Ratings are used to describe the existing condition of the bridge as compared to a new condition. Ratings range from 0-9 with 9 being 'excellent condition.' The ratings are used for evaluation of the physical condition of the deck, superstructure, and substructure components of the bridge as well as the channel. The load carrying capacity is not used in assigning these condition ratings. Also, portions of the bridge that are being supported or strengthened by temporary members are rated based on their actual condition, and not the condition of the temporary member. Following is a key to the condition ratings:

9 – Excellent condition
8 – Very good condition
7 – Good condition
6 – Satisfactory condition
5 – Fair condition
4 – Poor condition
3 – Serious condition
2 – Critical condition
1 – "Imminent" failure condition
0 – Failure condition

Table 4-14. City of Sutherlin-Owned/Maintained Bridges

Bridge Number	Location	Bridge Description	Last Inspection
19B07A	Waite St over Sutherlin Creek	50', P/S Concrete Slab	7/26/2002
19B05A	Page Ave over Sutherlin Creek	62', P/S Concrete Slab	7/26/2002
19B08*	Hastings Ave over Sutherlin Creek	57', Timber Girder	7/26/2002
20186	State St over Sutherlin Creek	New in 2003	New 2003

* To be replaced in 2005

	NBI Condition Ratings				
Bridge Number	Deck	Superstructure	Substructure	Channel	Comment
19B07A	7	7	6	7	None
19B05A	7	7	7	8	None
19B08*	6	3	6	5	'3' due to crack in timber stringer; steel jump stringer installed
20186					New bridge, replaced State Street bridge in 2003

* To be replaced in 2005

In addition to the bridges owned/maintained by the City of Sutherlin, there are seven bridges within the Sutherlin's UGB that are maintained by other agencies. Douglas County maintains five bridges and ODOT maintains two bridges. Table 4-15 and Table 4-16 show the status of these bridges.

Table 4-15. Douglas County-Owned/Maintained Bridges

Bridge Number	Location	Bridge Description	Last Inspection
19C505	County Rd 154 over Sutherlin Creek	83', Reinforced Concrete Slab	5/25/2005
19C452	County Rd 388 over Cooper Creek	50', P/S Concrete Slab	5/25/2005
19061	County Rd 120 over Ditch	22', Reinforced Concrete Culvert	5/25/2005
19C451	County Rd 388 over Sutherlin Creek	44', Reinforced Concete Girder	5/25/2005
19C453	County Rd 388 over Sutherlin Creek	61', P/S Concrete Slab	5/25/2005

	NBI Condition Ratings				
Bridge Number	Deck	Superstructure	Substructure	Channel	Comment
19C505	6	7	7	6	None
19C452	7	7	5	4	'4' due to undermining below one corner of an abutment
19061	NA	NA	NA	7	None
19C451	7	6	5	5	'5' due to bank erosion and local scour
19C453	7	8	8	7	None

Table 4-16. ODOT-Owned/Maintained Bridges

Bridge Number	Location	Bridge Description	Last Inspection
07565A	I-5 over OR 138	100', Reinforced Concrete Girder	3/2/2005
09285	Exit 135 over I-5	198', P/S Concrete Girder	3/2/2005

	NBI Condition Ratings				
Bridge Number	Deck	Superstructure	Substructure	Channel	Comment
07565A	5	5	7	NA	'5' due to girder shear cracking
09285	7	8	7	NA	None

Bicycle Transportation System

Bicycle facilities can generally be categorized as bicycle lanes, shared facilities including widened shoulders, and bicycle paths (also known as multi-use paths). Bicycle lanes are defined as that portion of a street that is designated by striping and pavement markings for the preferential or exclusive use of bicyclists. Shared facilities include locations where the bicyclist and the motorist must share a travel lane, as well as roadway shoulders contiguous to a travel lane where space is shared by bicyclists, pedestrians, emergency use by vehicles and for lateral support of the roadway pavement section. Bicycle paths are physically separated from the vehicle travel lane by an open space or barrier. A bicycle path may be located within the roadway right of way or on a separate right of way. Bicycle paths are also known as multi-use paths as they can be used by bicyclists, as well as pedestrians, joggers, skaters, and other non-motorized travelers.

Oregon's Transportation Planning Rule 660-012-0045 3(B) requires bicycle lanes along arterials and major collectors even if they do not generate significant bicycle traffic. Oregon Revised Statute 366.514 requires expenditure of at least one percent of road improvement funds on bicycle and pedestrian projects. Currently, the City of Sutherlin has a bicycle lane at one location, on the reconstructed southern portion of Highway 99 near the Wilbur-Umpqua Road interchange. There are no other bicycle lanes on any arterial, collector, or local streets, nor are there multi-use paths in the city. Douglas County is scheduled to realign and widen Old Highway 99/ Calapooya Street in 2005, which will add sidewalks and bike lanes almost all the way to Central Avenue.

Existing County bicycle facilities in the vicinity of Sutherlin are all Class III or Class IIIs bikeways, meaning that they share the roadway with traffic and are identified either by sign alone (Class IIIs) or by signage and striping (Class III). Table 4-17 below presents all of the bike routes near Sutherlin. Figure 4-3 displays the current bicycle facilities in and abutting Sutherlin.

In the 1996 draft *Sutherlin Transportation System Plan* (not adopted), several recommendations were proposed to enhance the bicycle transportation system in Sutherlin which include designating the following routes as bikeways:

- Central Avenue from west city limit to east city limit (Class III) to provide connectivity between County routes using Fort McKay, Highway 138 and Nonpariel Road.
- Umatilla between the schools north of Central Avenue and Central Park (Class III).
- Fourth between State and Casa de Loma (Class III).
- Highway 99 within Sutherlin to provide the missing link in connecting the County's bicycle network which uses Oakland Shady Highway to Umpqua Community College and other

locations. (Class III, transitioning to Class IIIs south of Hastings Avenue and north of 6th Avenue).

- Comstock between Central Avenue and 6th Avenue, serving West Sutherlin School (Class III).

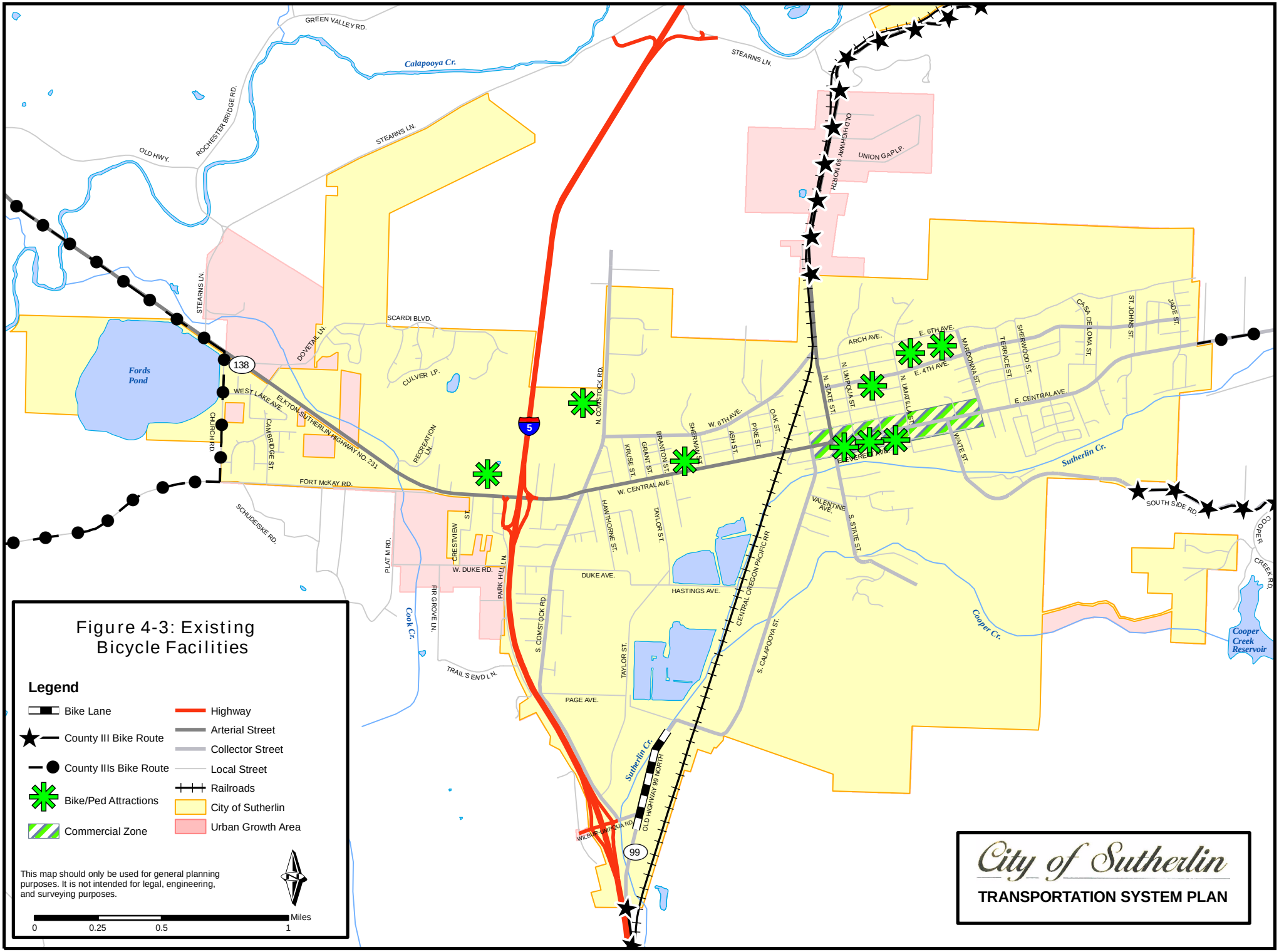
Figure 4-3: Existing Bicycle Facilities
Legend
Bike Lane
County III Bike Route
County IIIs Bike Route
Bike/Ped Attractions
Commercial Zone
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
0.25
0.5
1
Miles
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cooper Creek Reservoir
Cook Cr.
GREEN VALLEY RD.
ROCHESTER BRIDGE RD.
OLD HWY.
STEARNS LN.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
RECREATION LN.
CHURCH RD.
CAMBRIDGE ST.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
FIR GROVE LN.
TRAIL'S END LN.
CRESTVIEW ST.
W. DUKE RD.
PARK HILL LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
W. CENTRAL AVE.
E. CENTRAL AVE.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
W. 6TH AVE.
N. COMSTOCK RD.
S. COMSTOCK RD.
N. STATE ST.
S. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
OAK ST.
PINE ST.
ASH ST.
SHERMAN ST.
BRANTON ST.
GRANT ST.
KRUSE ST.
HAWTHORNE ST.
TAYLOR ST.
VALENTINE AVE.
WHITE ST.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
OLD HIGHWAY 99 NORTH
WILBUR-UMPQUA RD.
SOUTH SIDE RD.
COOPER CREEK RD.
138
5
99

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Table 4-17. Bikeway Routes in the Sutherlin Area

Road	Limits	Class	Jurisdiction
Fort McKay Road	West of Sutherlin City Limits	IIIs	County
Oakland/Shady Hwy 338	North of Sutherlin City Limits	III	State
Old Highway 99	South of Sutherlin City Limits	III	State
Church Road	Hwy 138 to Ft. McKay Road	IIIs	County
Southside Road	Southeast of Sutherlin City Limits	III	County
Nonpareil Road	East of Sutherlin City Limits	IIIs	County
Highway 138	West of Sutherlin City Limits	IIIs	State

Pedestrian Transportation System

The City of Sutherlin's sidewalk system varies widely from neighborhood to neighborhood. Sidewalks exist in most of the downtown area and provide access to such pedestrian attractors as commercial areas and employment sites. However, many of Sutherlin's neighborhoods either do not have sidewalks or have only a limited and disconnected sidewalk system. On the arterial and collector street system, the availability of sidewalks is generally erratic and incomplete. On many blocks, the sidewalks may exist on one side of the street and absent on the other side of the street, or partial sidewalks may be in place sporadically throughout the block, lacking continuity. These deficiencies should be addressed to provide safe linkage from residential areas to commercial areas and employment sites.

Oregon's Transportation Planning Rule 660-012-0045 3(B) requires sidewalks along arterials, collectors, and most local roads. Oregon Revised Statute 366.514 requires construction of pedestrian facilities as part of all roadway construction, reconstruction or relocation projects on arterials and major collectors where conditions permit, and will require expenditure of at least one percent of road improvement funds on bicycle and pedestrian projects. In addition, the City's *Development Code* Section 3.2.120 describes pedestrian access and circulation regulations in detail. Sutherlin requires sidewalk construction as part of residential subdivisions and in conjunction with nearly all new street construction or reconstruction within the city. Section 3.5.110 presents design standards for sidewalks and bike lanes. The city has existing street, sidewalk and streetscape standards to enhance the pedestrian environment for attractiveness, functionality and safety.

In the non-adopted transportation system plan,[10] several recommendations were proposed to enhance the pedestrian network in Sutherlin. The non-adopted TSP lists several key areas where pedestrian facilities were recommended for safety and continuity of the transportation system. It also describes other facilities that should be brought into compliance with street standards as new development or redevelopment occurs. The following street sections were considered high priority (some sections have subsequently been improved; see the Appendix for current sidewalk conditions):

> **Central Avenue** – The sidewalk system on Central Avenue from Fort McKay Road to Plat A Road should be completed as property develops or redevelops. Responsibilities for this improvement vary between the State, County and City, as well as with potential developers.

[10] *Sutherlin Transportation Systems Plan. City of Sutherlin and Umpqua Regional Council of Governments. June 1996.*

Umatilla Street – Sidewalks should be completed on both sides between Everett Avenue and Sixth Avenue.

Willamette Street – Sidewalks should be completed on both sides between Central Avenue and Third Avenue.

Everett Avenue – Sidewalks should be completed on both sides between Calapooya Street and Waite Street.

Fourth Avenue – Sidewalks should be completed on both sides between Jade Street and State Street.

State and Calapooya – Sidewalks on both sides of the street should be included in the proposed State Street-Calapooya Street connection (near Sixth). State Street should also have sidewalks on both sides between Sixth Avenue and Creekside Street (entry to Escapee Co-Op RV Park), and Calapooya Street between Sixth Avenue and Valentine Avenue. Responsibility for this improvement varies between the County and potential developers. Douglas County is set to realign and widen Old Highway 99/ Calapooya Street in 2005 which will add sidewalks and bike lanes almost all the way to Central Avenue.

Comstock – Sidewalks should be completed on Comstock Road between Central Avenue and Laurel Street on at least the western side of the street to access West Sutherlin School.

New Streets – New or reconstructed residential streets within the City Limits should include sidewalks on both sides. New or reconstructed streets for arterial, collector or commercial use within the City limits shall include sidewalks. Roads which are developed in the industrial park which will serve only industrial park traffic shall include shoulder space to accommodate pedestrians and bicycles.

Pedestrian-only paths – (or pedestrian/bicycle) There does not appear to be available space for a pedestrian/bicycle only path of significant value in Sutherlin. As development occurs, there will be a need to include pedestrian links between disconnected streets and cul-de-sacs, such as First Avenue, Second Avenue, and Third Avenue west of Mardonna Way.

Table 4-18 presents pedestrian counts taken as part of vehicle count data collection at select intersections in Sutherlin.

Table 4-18. Pedestrian Counts[11]

Intersection	Number of Pedestrians	Time Period	Date
Church Road at Ft. McKay Road	20	3:00 PM - 6:00 PM	8/3/2004
Comstock Road at 6th Avenue*	0	3:00 PM - 6:00 PM	8/3/2004
Calapooya Street at Hastings Avenue	0	3:00 PM - 6:00 PM	8/3/2004
Waite Street at Central Avenue	245	3:00 PM - 6:00 PM	7/28/2004
Hwy 138 at Stearns Lane	0	3:00 PM - 6:00 PM	8/3/2004
State Street at 6th Avenue	1	3:00 PM - 6:00 PM	8/3/2004
Hwy 138 at Ft. McKay Road	1	3:00 PM - 6:00 PM	10/13/2004

*Although there were no pedestrians counted at the intersection of Comstock Road and 6th Avenue in August, it should be noted that this intersection is near West Sutherlin Intermediate School, and during the school year there is significant pedestrian activity.

Figure 4-4 shows the current status of pedestrian facilities on arterials and collectors in Sutherlin. The Appendix includes a street inventory that catalogs existing sidewalks for each street segment in Sutherlin.

[11] Quality Counts data collected 7/28/2004 – 10/13/2004

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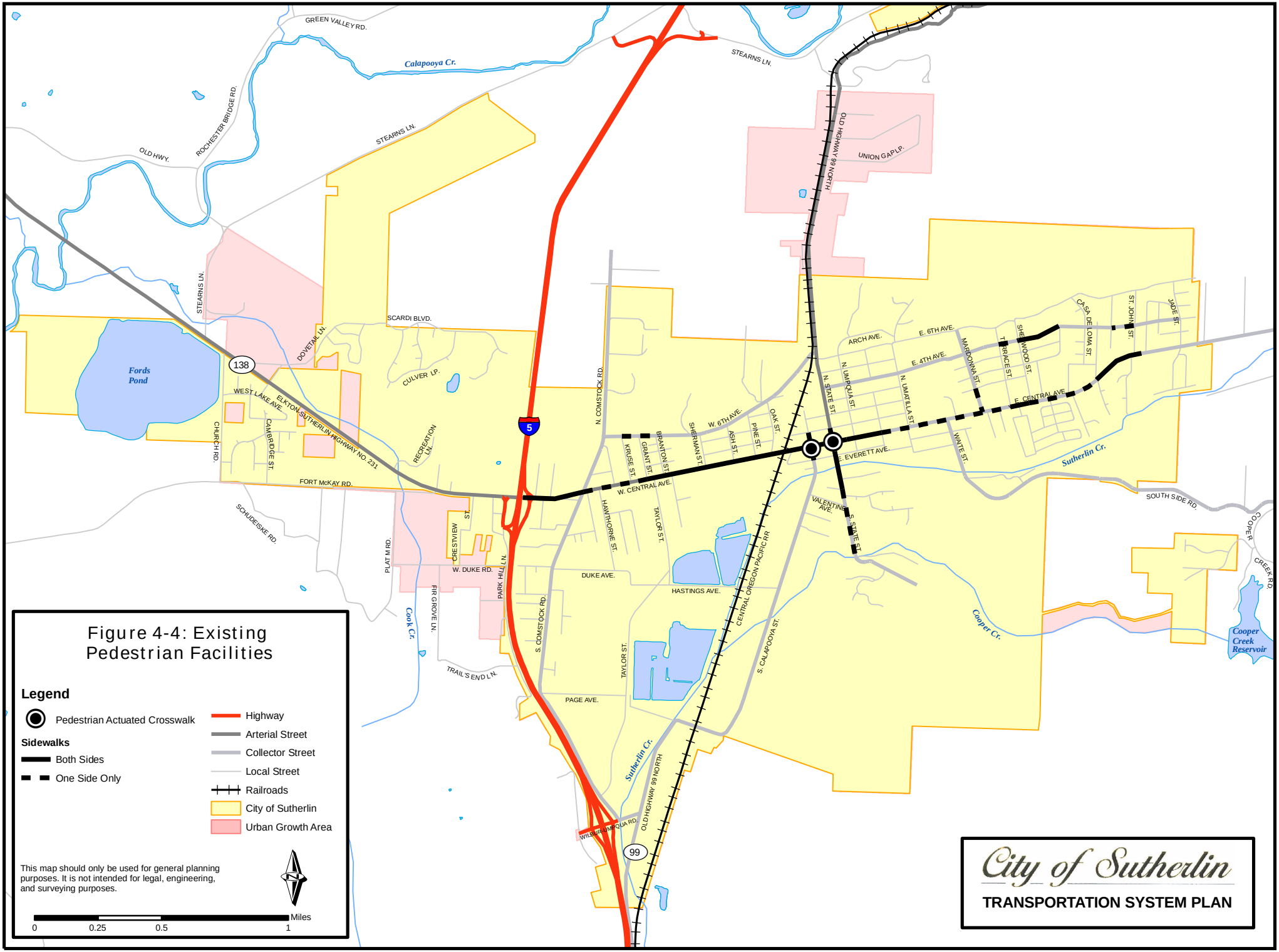
Figure 4-4: Existing Pedestrian Facilities
Legend
Pedestrian Actuated Crosswalk
Sidewalks
Both Sides
One Side Only
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
Miles
0
0.25
0.5
1
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cooper Creek Reservoir
Cook Cr.
GREEN VALLEY RD.
ROCHESTER BRIDGE RD.
OLD HWY.
STEARNS LN.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
RECREATION LN.
CHURCH RD.
CAMBRIDGE ST.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
PARK HILL LN.
FIR GROVE LN.
TRAIL'S END LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
WILLAMETTE ST.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
N. COMSTOCK RD.
S. COMSTOCK RD.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
E. CENTRAL AVE.
E. 6TH AVE.
E. 4TH AVE.
ARCH AVE.
N. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHN ST.
JADE ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
BRANTON ST.
GRANT ST.
KRUSE ST.
HAWTHORNE ST.
TAYLOR ST.
VALENTINE AVE.
S. STATE ST.
WHITE ST.
SOUTH SIDE RD.
COOPER R.
CREEK RD.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
138
5
99

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Bicycle and Pedestrian Attractors

Trip attractions can vary widely depending on the trip purpose. Employment destinations, schools, recreation facilities, and commercial areas all entice travelers for different reasons. The bicycle and pedestrian system in Sutherlin is not well developed, and destinations that may well be attractive to users of such a system are either not used or under utilized by bicyclists and pedestrians. Currently, bicyclists must compete with vehicle traffic on streets and with pedestrians on the limited sidewalk system. Also, pedestrians must walk in the street in many places throughout the city due to lack of pedestrian facilities. Because there is not a developed bicycle and pedestrian network of facilities, origin and destination studies would be impractical to conduct. Therefore, with no empirical data, the attractions listed below have been identified using anecdotal evidence and are consistent with "typical" attractions in other cities.

- Sutherlin High School
- Sutherlin Middle School
- East Sutherlin Primary School
- West Sutherlin Intermediate School
- Sutherlin Seventh Day Adventist School
- Retail shops in Downtown Sutherlin and along Central Avenue
- Central Park
- Sutherlin Community Center
- Post office
- City Hall

Other possible bicycle or pedestrian attractions include the Sutherlin Senior Center, Triangle Park, Hartley Park, retail shops in northwest Sutherlin, and neighborhood churches.

Personal Electric Vehicle Facilities and Multi-Use Paths

Currently, no personal electric vehicle/multi-use paths exist in Sutherlin other than those at the Sutherlin Knolls Golf Course.

The Sutherlin Parks and Open Space Plan,[12] currently in development, has identified several locations for off-street multi-use paths. These conceptual locations would provide miles of off-street multi-use paths that would connect to on-street bike lanes to provide a network of bicycle and pedestrian facilities. Figure 4-5 shows the location of these multi-use pathways. One potential off-street multi-use path that is not identified in this plan is to run a multi-use pathway parallel to the railroad tracks and Calapooya Street from south of Central Avenue to the south city limits, eventually connecting up with Highway 99.

An off-street multi-use path that parallels Sutherlin Creek from the railroad tracks to the eastern city boundary would serve a large residential area and could bringing recreational riders, employees and shoppers into downtown without the use of a motor vehicle.

[12] *City of Sutherlin Parks and Open Space Plan*, Satre Associates, P.C. 2004.

The Sutherlin Parks and Open Space Plan has also identified the number of miles of multi-use pathways needed to adequately serve residents. Sutherlin needs two miles of multi-use path for every 1,000 residents up to 10,000 persons, and an additional 1.5 miles for every 1,000 persons thereafter. According to the Center for Population Research and Census, Sutherlin's 2001 population was 6,990, which corresponds to 14 miles of multi-use path.

The prospective off-street multi-use path that would parallel Sutherlin Creek from the railroad tracks to the eastern city boundary, if paved from end to end would be approximately 2.5 miles long.

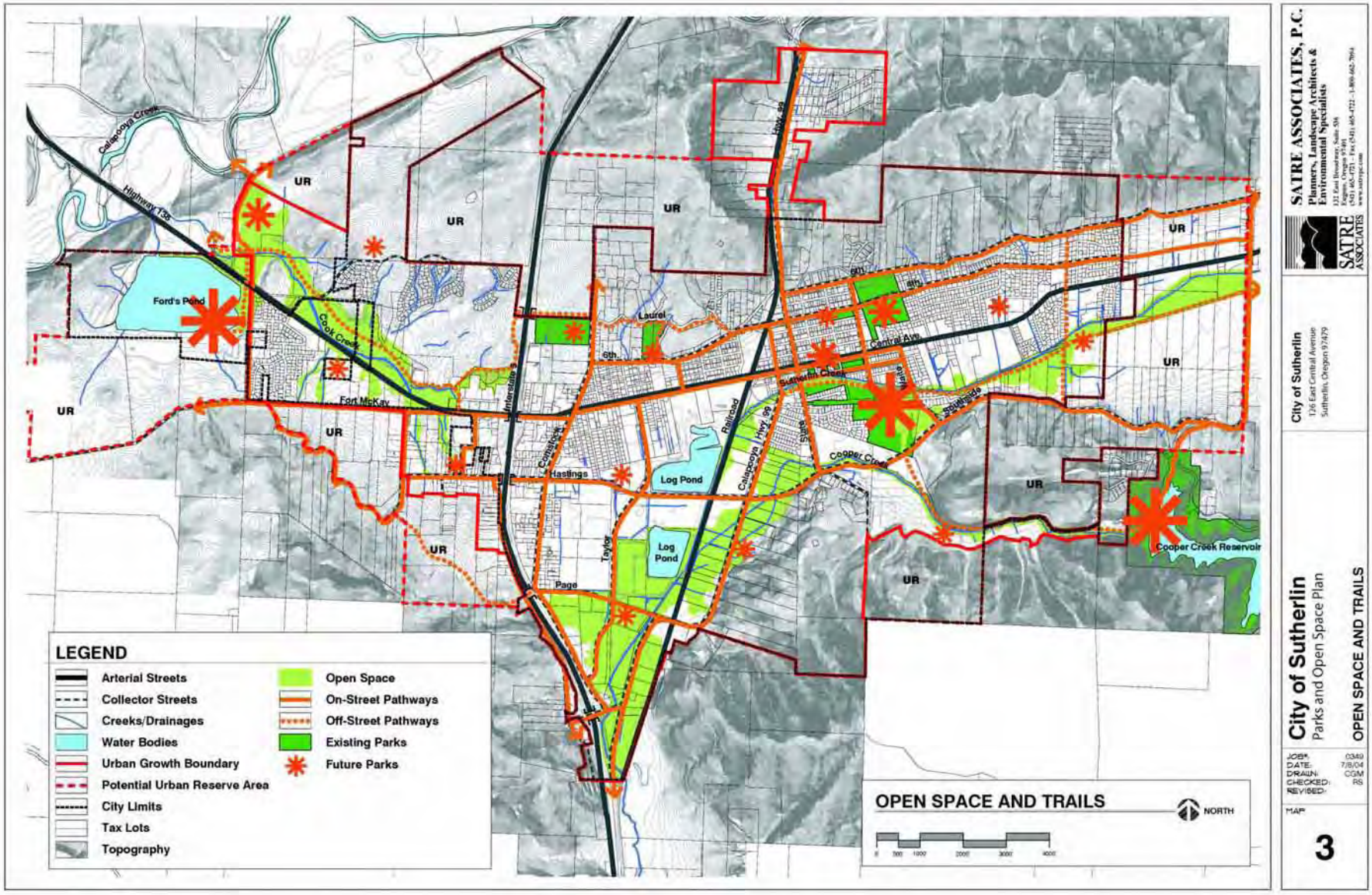

Figure 4-5. City of Sutherlin's Parks and Open Space Plan (DRAFT): Prospective Multi-Use Pathway System

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Public Transportation Services

This section describes existing public transportation services available in Sutherlin including local public transit service offered by the Umpqua Regional Council of Governments, taxi, demand/response transit, and intercity services.

Within the community, public transportation services fulfill dual roles. On one hand, these services provide transportation for those who cannot or choose not to drive their own automobile (including the transportation disadvantaged). On the other hand, the provision of good local transit service is a key measure of quality of life within a community in that, along with walking and bicycling, it provides an alternative to driving.

Sutherlin currently has limited public transportation options. The sole public transportation system in Sutherlin is operated by the Umpqua Regional Council of Governments. Umpqua Transit, a fixed-route transit system, operates three routes in and around the greater Roseburg area on a set schedule http://www.ur-cog.cog.or.us/bus_routes.htm. Sutherlin is served by the Blue Route. Buses serve approximately 50 established bus stops in several cities including three in Sutherlin. Stop locations and current schedule for the Blue Route are listed in Table 4-19. As shown in the table, the headways are every 1½ hours from 7 AM to 6 PM. Significant destinations that may be reached from Sutherlin include Roseburg and Umpqua Community College. The Blue Route service operates Monday through Friday, except holidays. One-way tickets are $1.50. Figure 4-6 displays the current fixed-route transit service in Sutherlin. It is important to note that on July 27, 2005, Douglas County adopted a transit study completed by David Raphael of Community Mobility Solutions entitled "Douglas County Coordinated Transportation Plan". This plan may precipitate changes to the public transportation options available to Sutherlin's residents.

Table 4-19. Umpqua Transit's Fixed Route Transit Stop Locations and Schedule

Umpqua Transit Stop	Schedule						
In front of Abby's Pizza	7:12	8:57	10:42	12:57	2:39	4:22	6:07
At Central Avenue and Calapooya Street	7:15	9:00	10:45	1:00	2:42	4:25	6:10
In front of Priceless grocery store	7:20	9:05	10:50	1:05	2:47	4:30	6:15

Umpqua Regional Transit also operates demand/response senior shopping trips and private vehicle medical transportation throughout Douglas County.

Another public transportation option in Sutherlin is Dial-A-Ride which is operated by volunteers and is funded by donations rather than fares. Passengers under 18 cannot ride without an adult. Service is available Monday through Friday from 8:00 a.m. to 4:00 p.m. except on holidays or during inclement weather. Dial-A-Ride operates within Sutherlin's city limits and provides limited service to Oakland, about 2.5 miles to the north.

For the month of October 2004, Dial-A-Ride provided 851 trips for Sutherlin and Oakland residents, 571 of those, or 67%, are trips for people over 60 years of age. Most of these trips take riders to medical appointments, food shopping, the senior center or to the post office. There is usually at least one round trip to and from Oakland daily. Dial-A-Ride has three vehicles. Two of these are 6-8 passenger vans, one of which is equipped to load and carry wheelchair bound passengers. The third vehicle is a Ford Taurus Wagon.

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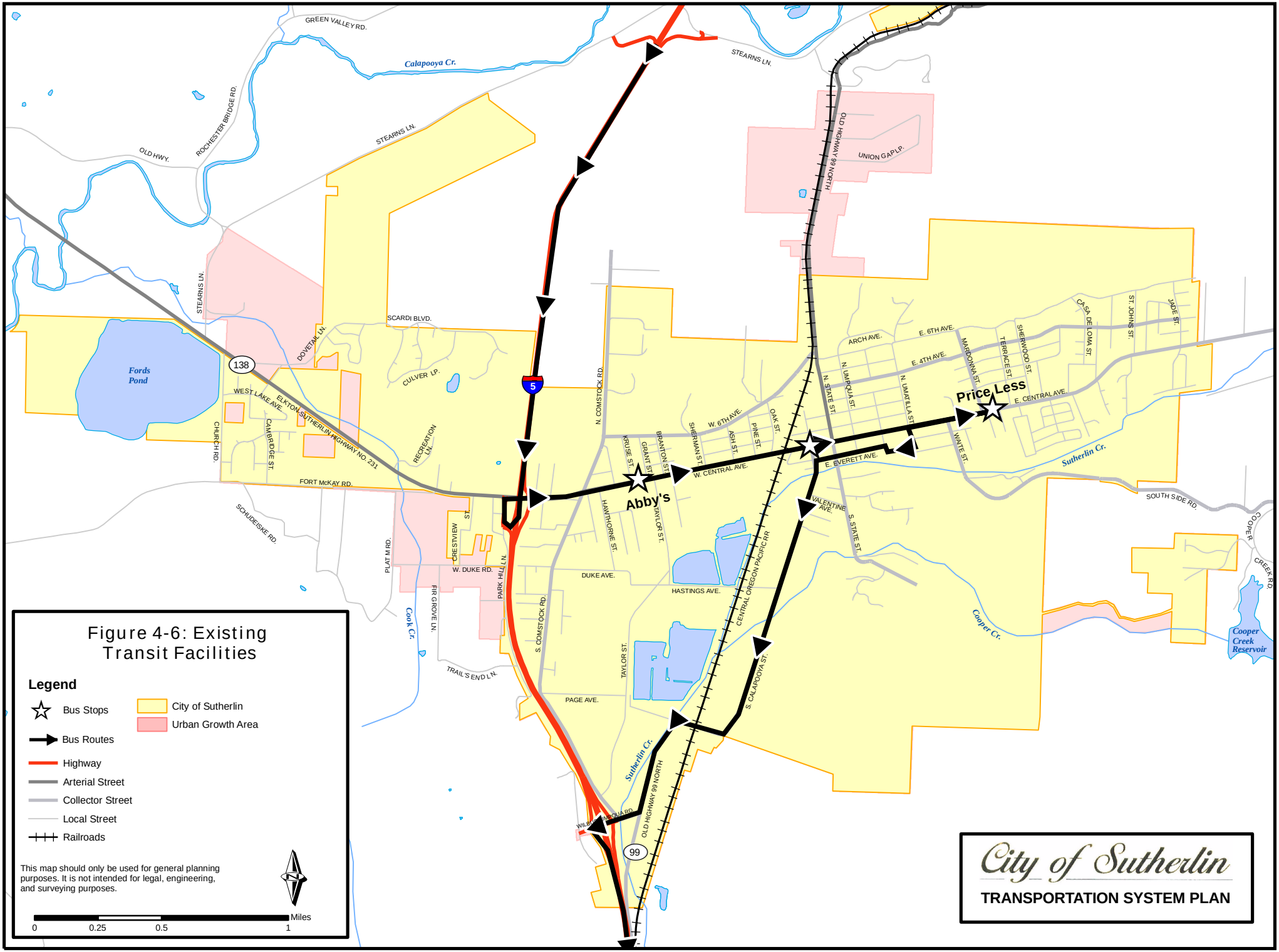
Figure 4-6: Existing Transit Facilities
Legend
Bus Stops
Bus Routes
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
Miles
0
0.25
0.5
1
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Price Less
Abby's
Fords Pond
Calapooya Cr.
Sutherlin Cr.
Cooper Cr.
Cooper Creek Reservoir
Cook Cr.
GREEN VALLEY RD.
STEARNS LN.
ROCHESTER BRIDGE RD.
OLD HWY.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
RECREATION LN.
CHURCH RD.
CAMBRIDGE ST.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
S. COMSTOCK RD.
N. COMSTOCK RD.
KRUSE ST.
GRANT ST.
BRANTON ST.
HAWTHORNE ST.
TAYLOR ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
VALENTINE AVE.
S. STATE ST.
S. CALAPOOYA ST.
CENTRAL OREGON PACIFIC RR
N. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
MARIONNA ST.
WAITE ST.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
E. CENTRAL AVE.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
SOUTH SIDE RD.
COOPER CREEK RD.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
WILBUR-ELLINGSON RD.
138
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99

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Neither Greyhound nor AMTRAK provides service to Sutherlin, though these services are available 11 miles to the south in Roseburg.

Cab service is available in Sutherlin from two companies based in Roseburg, Sunshine/Douglas County Taxi and Radical Rides.

ODOT's *Intercity Passenger Program* seeks to create or improve transportation connections between Oregon cities. The focus of the Intercity Passenger Program is evaluating and supporting bus, rail and air intercity passenger transportation services in Oregon. The State Transportation Planning Rule requires that all communities include planning for intercity passenger facilities in their transportation system plans.

Intercity passenger facilities are those locations where passengers traveling from one city to another can transfer from one travel mode to another. Intercity facilities have multiple travel modes converging for the efficient and convenient transfer passengers. Typically, intercity passenger facilities include train stations, bus terminals, airports, and some transit transfer facilities. Intercity passenger facilities suited for the transfer of passengers between intercity travel modes and local modes such as local transit, taxis, shuttles, bikeways, sidewalks, and the automobile. Although it is most convenient to have all local and interurban travel modes serve one facility, it is not always possible given geographic, historic, or land utilization reasons.

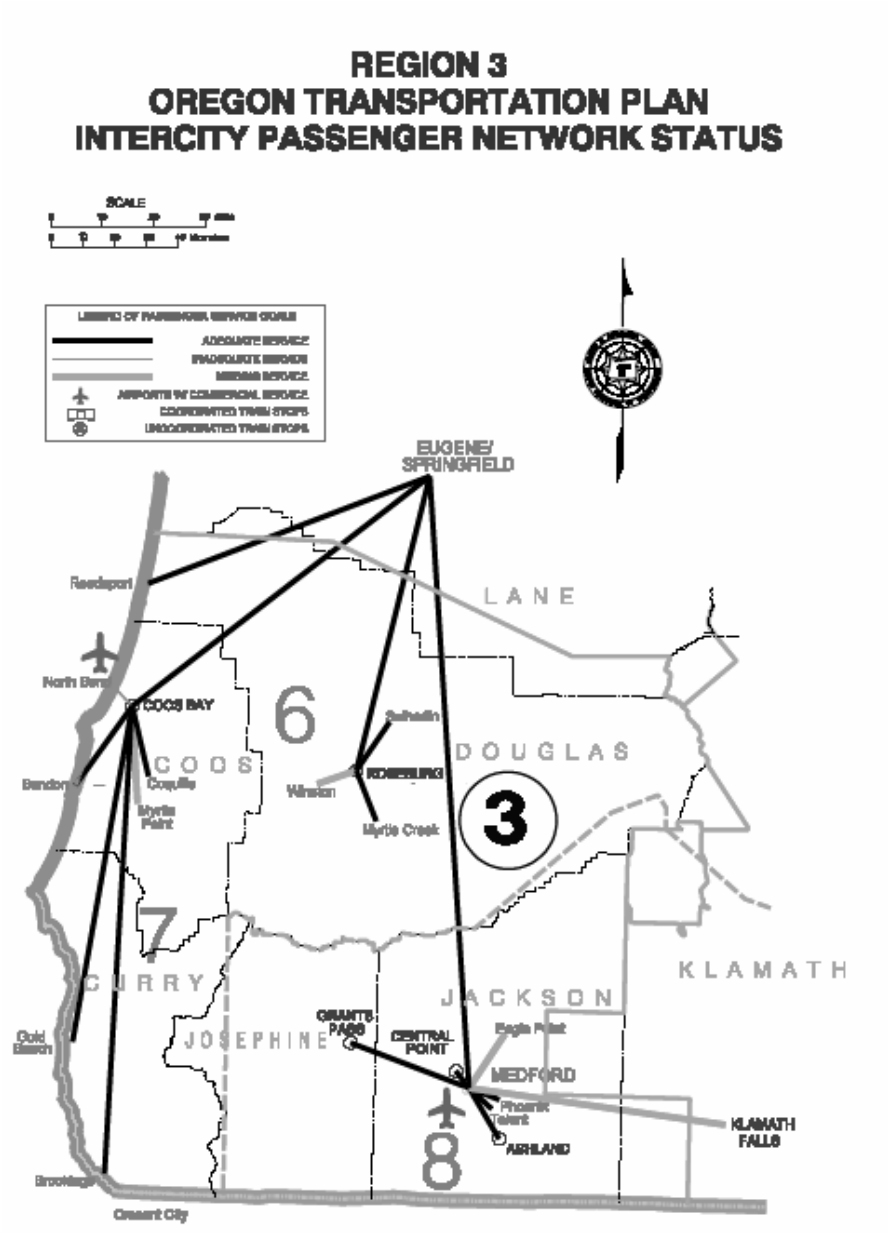
The Oregon Department of Transportation receives federal money annually to fund transit projects around the state. Fifteen percent of this must be used to support travel among rural communities. Under the Oregon Transportation Commission's rural transportation policy, the Public Transit Division tries to ensure that all communities with populations of 2,500 or more have reasonable access to round- trip-in-a-day transportation to the next largest market economy. ODOT lists three categories of service goals for the intercity passenger networks in Oregon, adequate service, inadequate service and missing service. Sutherlin, as shown in Figure 4-7, is listed as having adequate service.

As Sutherlin no longer has a municipal airport and does not have passenger rail service or Greyhound bus service, intercity passenger facilities would likely be constituted of Umpqua Transit stops, bicycle and pedestrian facilities mixed with automobile facilities.

The *Oregon Public Transportation Plan* lists several service goals in order to provide minimum levels of transit service to communities. Sutherlin meets many of these service goals, but there is one notable gap in service provision. One service goal is to provide a guaranteed ride home program to all users of the public transportation system and to publicize it well. As seen above, transit service in Sutherlin ends at about 6:00 p.m. on weekdays and there is no weekend service. This service deficiency may strand some workers or students who attend night classes at Umpqua Community College and should be addressed if possible.

Telecommuting and home-based businesses are becoming more common, as has using computers and telecommunication equipment from private residences. Use of these technologies may result in the reduction of some automobile travel for commuting purposes.

Figure 4-7. ODOT's Intercity Passenger Network Status



Source: Oregon Transportation Plan

Freight Infrastructure and Services

Truck Facilities

The movement of goods and commodities into, out of, and through the Sutherlin area is heavily dependent on the highway system, although freight movement also occurs via rail and pipeline modes. Within the Sutherlin UGB, the major truck route is Interstate 5. I-5 is the most important freight link in the region carrying 3,000 trucks per day through the Sutherlin area. Not only does it serve freight heading to destinations within the Sutherlin UGB, but also serves a significant number of trucks passing through

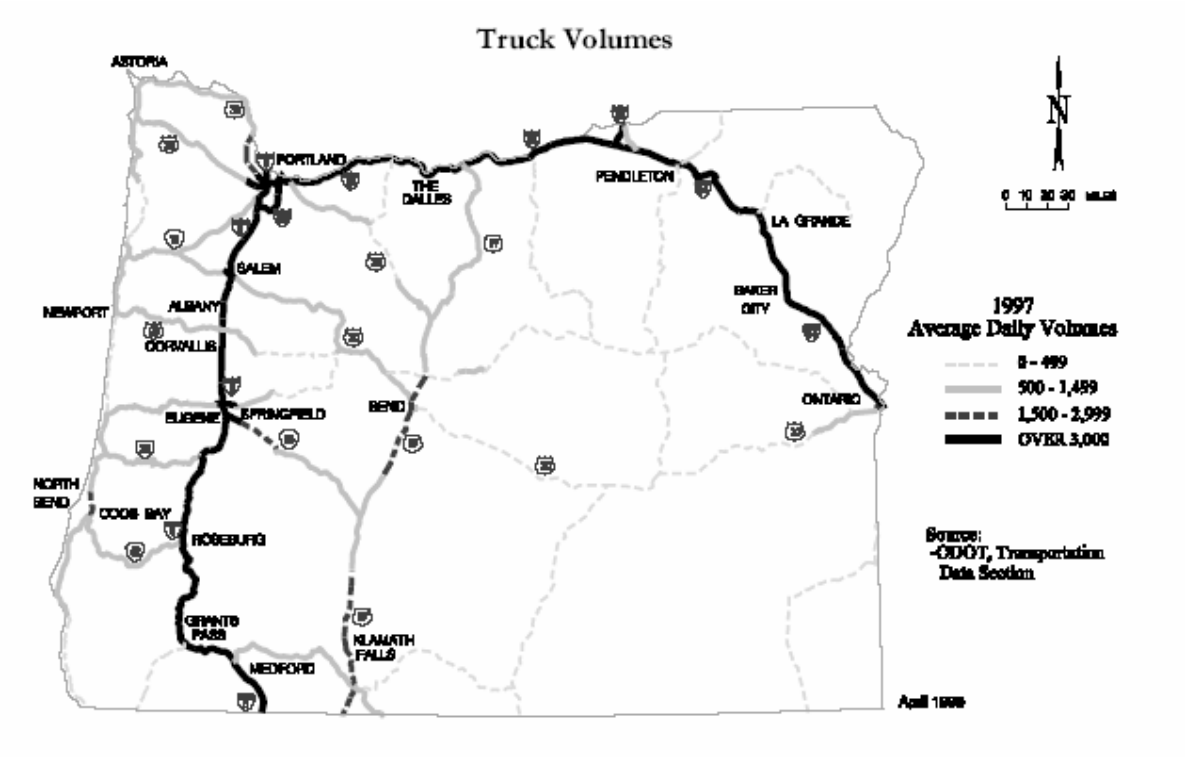
the region to destinations along the West Coast. Currently, the combined volume of freight transported over highway and rail modes in the I-5 corridor through the Sutherlin/Roseburg region is estimated at 25 million tons annually, with the majority of this freight carried on the highway system. Most of the freight shippers and receivers in Sutherlin are located within one mile of I-5. Consequently, access to I-5 is critical for freight shippers in Sutherlin. Figure 4-8 shows average daily truck volumes (1997) on I-5 through Sutherlin.

During August 2004 daily truck volumes were recorded at 18 locations in Sutherlin. Of these 18 locations, five had truck volumes comprising about a third of all traffic counted at the location. The five locations with the highest daily truck volumes as a percent of total vehicles are:

- I-5 Northbound On-Ramp at Wilbur Umpqua Road/Exit 135 (45%)
- Central Avenue 151 feet west of Comstock Road, Eastbound (31%)
- Highway 99 454 feet north of Wilbur-Umpqua Road, Northbound (30%)
- Wilbur-Umpqua (Exit 135) Interchange Eastbound Overpass (29%)
- I-5 Southbound Off-Ramp at Wilbur-Umpqua Road/Exit 135 (29%)

This data shows that Exit 135 and Wilbur-Umpqua Road are used heavily by trucks. Tracing the routes of these vehicles based on the above information, it is clear that many trucks 1) use Exit 135 to access I-5 north, presumably to bring products to the largest markets in the state, and 2) exit I-5 south at Exit 135, head east and then continue north up Highway 99 to town. Central Avenue at Comstock Road also carries significant truck traffic.

Figure 4-8. Average Daily Truck Volumes on ODOT Classified Truck Routes



Within ODOT's Region 3, which includes Sutherlin, the *I-5 State of the Interstate Report (2000)* states that travelers will experience significant congestion on I-5 by 2020. Many interchanges in this region are expected to have one or more components (i.e. ramp terminal intersection or ramp junction) operating at an unacceptable level of congestion, if no improvements are made. The problems associated with interchanges are expected to occur in the more populated portions of the corridor such as Sutherlin.

Good freight mobility within the Sutherlin UGB requires that the arterial and collector street system provide both an adequate level of service and good connectivity to intermodal facilities and inter-regional routes, such as Interstate 5 and Highway 138. Some guidance on the standard of performance necessary for freight movements is found in the 1999 *Oregon Highway Plan.* The *Highway Plan* establishes mobility standards using volume-to-capacity ratios (v/c) rather than level-of-service ratings, to identify the presence of congestion. If the v/c ratio for a highway segment exceeds the v/c ratio established in the plan, then the highway segment does not meet ODOT's minimum operating conditions. Acceptable v/c ratios are higher for urbanized areas than for rural areas, which mean that relatively greater congestion is acceptable in urbanized areas than in rural areas. Acceptable v/c ratios for freight routes are slightly lower than for other highways. This means that freight routes should be less congested than non-freight routes.

Sutherlin does not currently have any roads officially designated as a truck route. ODOT classifies Interstate 5, including the section through Sutherlin, as a truck route.

There are two major freight origin/destination sites in Sutherlin and a few smaller origination sites. The first of the two major freight traffic production sites is Murphy Plywood mill, located on West Central Avenue, which has frequent truck shipments in and out. When contacted, Murphy Plywood stated that they exclusively use Central Avenue to I-5 for all of their trucking.

The second major freight traffic production site is Orenco Systems which provides wastewater treatment service. Orenco Systems manufactures wastewater treatment equipment, which consists of water pumps, electrical control panels, PVC liners, fiberglass septic tanks and other related product usually made of PVC plastic. They receive raw manufacturing materials and ship the above products via truck. Their trucking entrance is on Taylor Street. Orenco Systems described two main freight routes for their trucks:

- From Exit 135, left onto Comstock Road, then right onto Taylor Street.
- From Exit 136, east on Central Avenue, then right onto Taylor Street.

There are several smaller companies in Sutherlin that are freight origination/destination sites. Most commercial and industrial businesses either ship or receive freight, and there are many such businesses all over Sutherlin, especially along Central Avenue. Below are examples of these businesses:

- Tech-Built (engineered trusses),
- Barnes Fuel Oil (truck & auto fuel stations),
- Robinson's Trading Post (new & used construction equipment),
- Holley Molding (wood products),
- Rife's Furniture Store, and
- various retail grocery stores.

In the TAC and CAC meetings no specific deficiencies were identified regarding truck movements (e.g., inadequate sight distance, turning radii, excessive noise, speeding trucks).

Rail Facilities

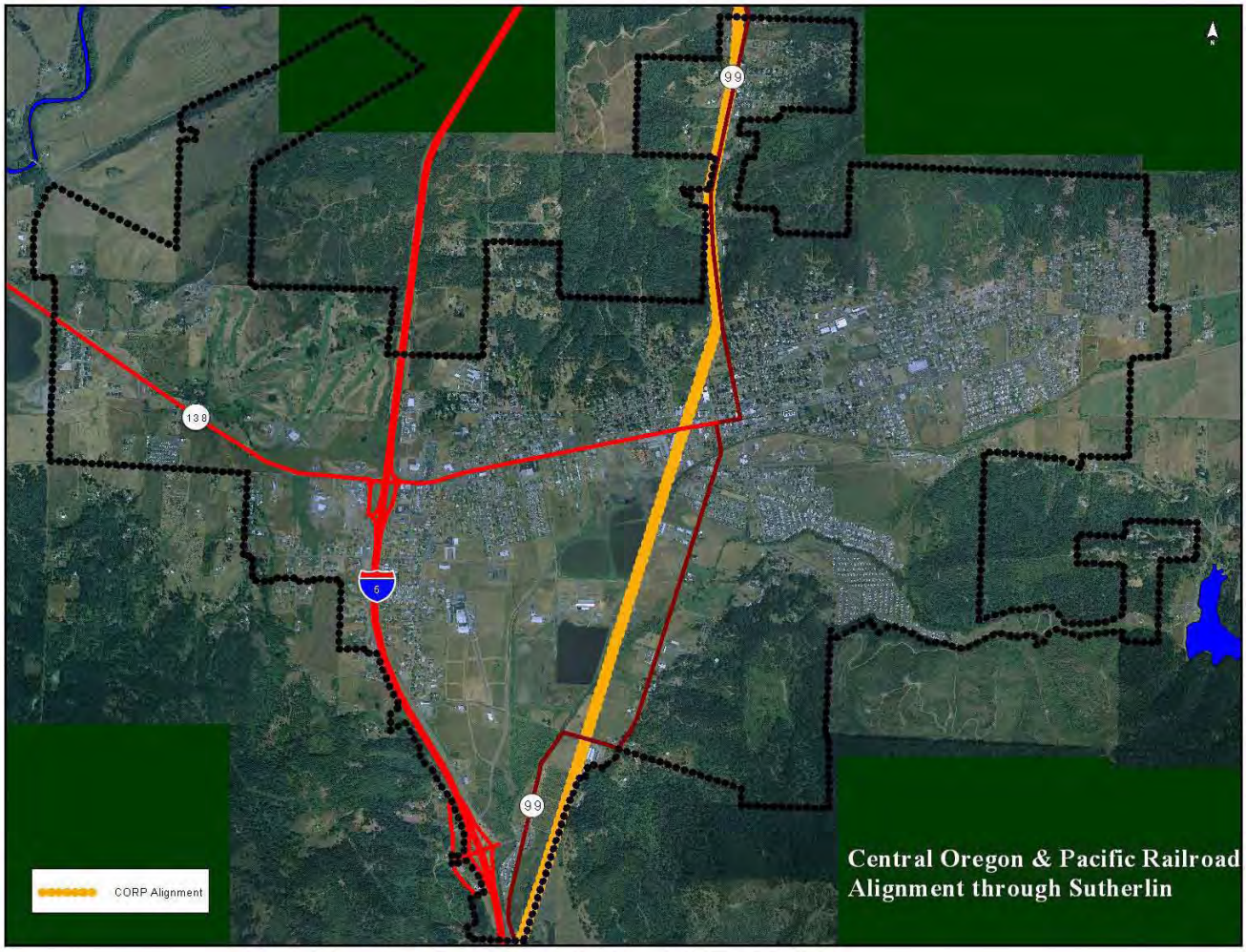
This section describes existing freight rail service and passenger rail service in Sutherlin.

Freight Rail

The old Southern Pacific short line route that passes through Sutherlin is now used primarily by Central Oregon & Pacific Railroad (CORP). The activities of CORP, the regional carrier, dominate railroading in Southwestern Oregon. CORP is Oregon's second largest short line railroad, operating on 391 route miles and 8 miles of trackage rights in the state. CORP operates in the southwestern quadrant of the state serving the southern Willamette Valley to the California border and the central Oregon coast. The main north-south line provides connections from Eugene-Springfield to Cottage Grove, Sutherlin, Roseburg, Grants Pass, Medford, Ashland and on into California. The entire length of CORP trackage is categorized as a Class III railroad. According to the *2001 Oregon Rail Plan*, the route miles of CORP comprise 16 percent of all route miles statewide.

CORP's trackage is characterized by steep grades and tight turns that limit operating speeds to about 25 to 35 miles per hour. The operating speed limit of trains in Sutherlin is 25 mph. Figure 4-9 illustrates the alignment of the Central Oregon & Pacific Railroad through the City of Sutherlin.

Figure 4-9. Railroad Alignment in Sutherlin



Since the Central Oregon & Pacific Railroad Company took over the former Southern Pacific Railroad's Siskiyou line in January 1995, rail service has increased and is now being offered six days per week. In 2004, four to six trains travel through Sutherlin during a 24 hour period. Service increases have led to an expansion in the number of cars available to carry freight, reaching a level of approximately 28,000 cars per year. This is a significant increase over the 12,000 cars per year carried by the Southern Pacific Railroad when it operated the line. According to the *2001 Oregon Rail Plan*, CORP carries between 1 and 5 million tons of cargo each year. CORP anticipates moving 47,000 carloads in 2004, approximately 4 million tons of goods. CORP primarily transports lumber products, primarily plywood.

Rail service provides specific advantages for various bulk commodities or loads longer than those normally permitted on highways. Lumber and other wood products are the principal commodities transported over the Central Oregon & Pacific line. However, even with recent increases in railroad traffic, the total volume of rail freight is far less than the highway freight tonnage for the region. The rail freight portion only accounts for between 5 and 10 percent of the estimated 25 million tons annually moved through the I-5 corridor. However, if the railroad were not available to carry commodities, there would likely be an impact on state freight routes in southern Oregon, particularly I-5 as commodities shift to truck transport.

Railroad Crossings

Table 4-20 presents a summary of existing railroad crossings in the Sutherlin area along with type of crossing and type of crossing protection devices.

The railroad crossing at Central Avenue is just west of Calapooya Street near downtown Sutherlin; Central Avenue is the busiest road in the city. When trains block the road, long vehicle queues can form, and there are no alternate routes for traffic or emergency vehicles to pass. This effectively cuts the city in half temporarily. In addition, because the Central Oregon & Pacific Railroad sometimes parks unused rail cars at or near the intersection, sight distances can be obscured. As Sutherlin grows and demands on the transportation system grow, this will have serious repercussions. Eventually the crossing may need to be modified to a separated-grade crossing. Figure 4-10 shows the railroad crossings in Sutherlin.

Traffic on Hastings Avenue at the railroad crossing is very light, so trains do not have a significant impact on traffic. The crossing at 6th Avenue sees more traffic, but little or no truck freight as it serves primarily local residential traffic. The crossing at Highway 99/Calapooya Street disrupts traffic on a major north/south street that runs between I-5 Exit 135 and Downtown Sutherlin.

Table 4-20. Summary of Sutherlin Railroad Grade Crossings

Street	Railroad Crossed	Type of Crossing	Warning Devices
Highway 99/ Calapooya Street	Central Oregon Pacific	At-grade	Gates
Hastings Avenue	Central Oregon Pacific	At-grade	Stop sign (to be gated in 2005)
Central Avenue	Central Oregon Pacific	At-grade	Gates
6th Avenue	Central Oregon Pacific	At-grade	Stop Sign

Figure 4-10. Central Oregon and Pacific Railroad At-Grade Crossings in Sutherlin

The *Oregon Rail Plan* identifies actions that can be taken by local governments to mitigate conflicts between rail and vehicular traffic, and to improve access to freight facilities. These actions include:

- Avoid or minimize the number of future railroad at-grade crossings when new streets are planned for growing portions of the community.
- Avoid creating intersections of major streets and railroads where possible.
- Locate new parallel streets at least 500 feet from the railroad to allow for industrial development between the tracks and the highway
- Plan community development (particularly residential uses) with sensitivity to rail noise and other potential conflicts.

Passenger Rail

Passenger rail service is not directly available in Sutherlin. Intercity passenger rail service is available in Eugene which lies on the major north/south rail line connecting California with destinations in the Willamette Valley destinations to the north. Two north/south passenger rail service routes are operated by Amtrak in the California-Oregon-Washington corridor, the Coast Starlight route and the Cascades route. The Coast Starlight a provides service from Los Angeles, California, serves destinations in the Willamette Valley and then proceeds north to Seattle, Washington. The Cascades route runs from Eugene, Oregon to Vancouver British Columbia.

The intercity passenger rail line in Oregon is part of the federally designated Pacific Northwest High Speed Rail Corridor that connects Eugene, Oregon with destinations in Washington State and with Vancouver, B.C. The federal designation gives this route preference for Federal Railroad Administration funding to develop advanced technology passenger train service. The States of Oregon and Washington, in cooperation with the Province of British Columbia, are working together to incrementally improve passenger train operations in the corridor. The Oregon Department of Transportation is developing Oregon's portion of the corridor, with the long-range goal of providing safe service at speeds of more than 100 miles per hour in rural areas. The 2001 Oregon Rail Plan provides further guidance on the development of future passenger rail service along the I-5 corridor and elsewhere in the state.

Intercity bus connections to the train service in Eugene do not exist in Sutherlin. Travelers can catch the Greyhound bus in Roseburg to get to the train station in Eugene.

Pipelines

There is one major natural gas pipeline transportation system in Sutherlin and numerous secondary natural gas distribution lines that spur off the mainline to provide gas to residences and businesses. This major pipeline crosses through west Sutherlin and crosses both Ft. McKay Road and Highway 138. It is part of a system operated by Northwest Pipeline Corporation. In addition, Avista Utilities operates a smaller pipeline transportation system in the Sutherlin area. Figure 4-11 displays pipelines in Oregon.

Northwest Pipeline Corporation

The Williams Companies' subsidiary Northwest Pipeline Corporation operates a 4,100 mile long pipeline system which carries more than 3.4 million cubic feet of natural gas to customers located between New Mexico and Washington. They supply a sizable percentage Oregon's gas supply. It also operates a gas transmission compressor station approximately halfway between Sutherlin and Roseburg.

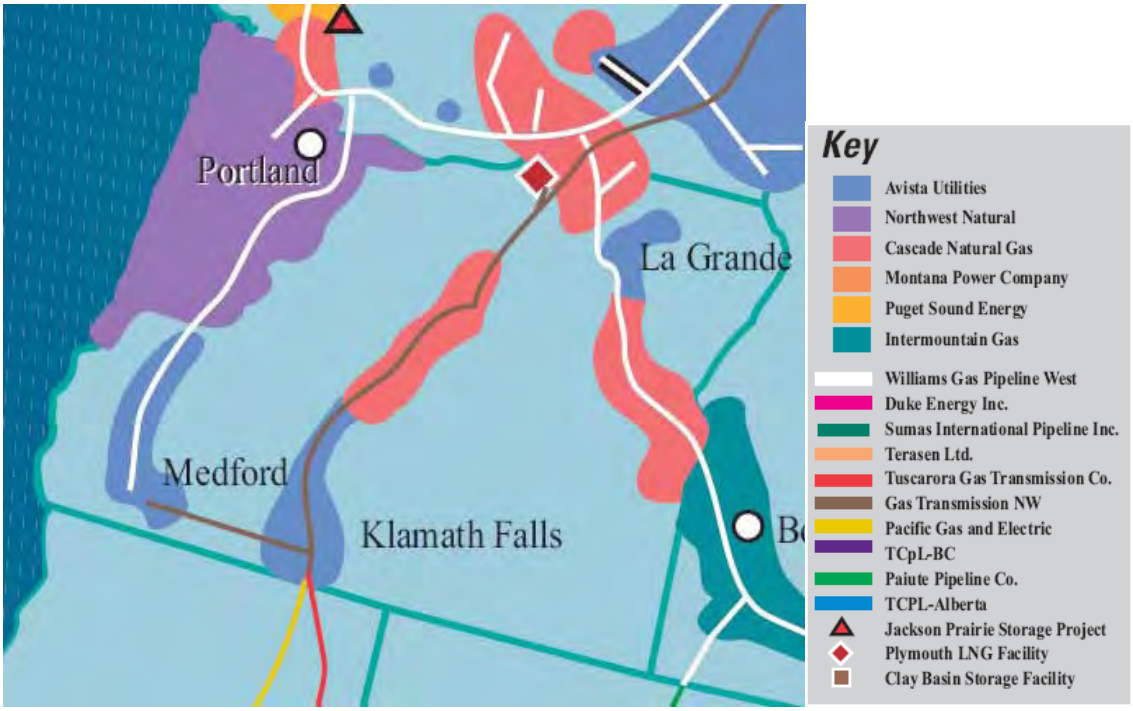
Avista Utilities

Avista Utilities South provides natural gas in Oregon and California. Douglas County is one of the five Oregon counties in Avista's natural gas service area. The South operating division consists of about 32 miles of gas transmission mains and approximately 2,000 miles of gas distribution mains. Two interstate natural gas pipelines serve the South operating division.

- Williams Pipeline – West (referred to as Northwest Pipeline Corporation), provides transportation service to access British Columbia and domestic Rocky Mountain gas.
- National Energy & Gas Transmission – Gas Transmission Northwest provides transportation service to access Alberta gas.

Avista Utilities South's Roseburg District includes service to Canyonville, Dillard, Myrtle Creek, Oakland, Riddle, Roseburg, Sutherlin and Winston.

Figure 4-11. Pipelines in Oregon



Other services in and throughout the Sutherlin area own and/or operate pipelines or transmission lines for electricity, cable television and telephone services, as well as pipeline transport of water and sanitary sewer. The demand for transmission lines will continue to grow as Sutherlin's population grows. The City's Public Facilities plan provides a framework for water and sewer services. Other services, such as telecommunications and cable television are subject to frequent technological changes, such that current technology may be obsolete by the end of the planning horizon. The City should work with the various service providers to identify service patterns and utility corridors that make the most sense at the time a need is identified.

Waterways

There are no commercially-navigable waterways in Sutherlin planning area. Therefore, no policies or recommendations in this area of transportation are provided.

Chapter 5: Transportation System Deficiencies and Needs

Introduction

This chapter describes current and future projected transportation deficiencies and needs in Sutherlin. *Deficiencies* represent the difference between an existing or future transportation system characteristic and adopted standards for that characteristic. *Needs* represent the types of measures required to mitigate the deficiencies.[13] In this chapter, transportation needs are described at a general level. More detailed recommended improvements are described in the modal plans in subsequent chapters.

This chapter is organized into the following topics:

- Existing Traffic Conditions (2004)
- Future Traffic Conditions (2025)
- Signal Warrants
- Roadway System Needs
- Parking
- Long-Term Traffic Conditions (2055)
- Bridges
- Public Transportation
- Bicycle Network
- Pedestrian Network
- Personalized Electric Vehicles and Multiuse Paths
- Freight Facilities

In addition, this chapter also describes potential transportation deficiencies 50 years from now. These problems are described more broadly and are based on growth curves that were projected beyond 2025. In all subsequent sections of this chapter, the analytic techniques that were used and important assumptions that were made are described as appropriate.

Existing Traffic Conditions (2004)

Traffic Volumes

This section describes the traffic counts conducted in Sutherlin for use in the intersection and roadway section analyses. The City of Sutherlin identified approximately twenty-four roadway segments to evaluate.

48-hour bi-directional tube counts at twelve locations were provided by ODOT. This set of counts was collected in April 2004, and included the following locations:

1. 4th Avenue (0.1 mile east of N. State)
2. 6th Avenue (0.1 mile east of N. State)
3. 6th Avenue (0.1 west of N. State)
4. Valentine Avenue (between Calapooya and State)
5. Hawthorne Street (0.1 mile south of Oregon 138/Central)
6. Comstock Road (0.1 mile south of Oregon 138/Central)
7. Duke Avenue (between Comstock and Hawthorne)

[13] ODOT Transportation System Planning Guidelines. May, 2001.

8. Taylor Street (0.1 mile north of Comstock)
9. South State Street (0.1 mile north of Cooper Creek bridge)
10. Waite Street (south of Glen)
11. South Side Road (between Sutherlin Creek bridge and Sea Street)
12. Dovetail Lane (0.1 mile north of Oregon 138)

In mid September 2004, the City of Sutherlin collected 14-hour counts at one location on I-5, just north of Wilbur-Umpqua Road interchange. In addition, Quality Counts, Inc. performed 14-hour bi-directional class counts at eleven locations during July and August of 2004. These locations include:

1. Old Highway 99 / Wilbur-Umpqua Road
2. Wilbur-Umpqua Road / NB I-5 On- Off- ramps
3. Wilbur-Umpqua Road / SB I-5 On- Off- ramps
4. Oregon 138 / Park Hill Lane
5. Oregon 138 / NB I-5 On- Off- ramps
6. W. Central Avenue / Comstock Road
7. Oregon 138 / Fort McKay Road
8. Oregon 138 / Church Road
9. Park Hill Lane / SB I-5 On- Off- ramps
10. W. Central Avenue / Calapooya Street
11. E. Central Avenue / State Street

Table 5-1 shows the existing 2004 ADT volumes and locations in Sutherlin.

On a typical day, Central Avenue is the most heavily traveled street in Sutherlin. Of the traffic entering the Sutherlin UGB from I-5, approximately 60 percent of the traffic uses the Central Avenue / Oregon 138 (Exit 136) interchange and the remaining 40 percent uses the Wilbur-Umpqua (Exit 135) interchange. ADT on Central Avenue / Oregon 138 is higher east of I-5 than west of the highway, and is highest between I-5 and Old Highway 99.

The City of Sutherlin and ODOT identified 18 intersections to evaluate; these intersections are shown in Figure 5-2. The intersections include the following:

1. Old Highway 99 / Wilbur-Umpqua Road
2. Wilbur-Umpqua Road / NB I-5 On-/Off-ramps
3. Wilbur-Umpqua Road / SB I-5 On-/Off-ramps
4. Oregon 138 / Park Hill Lane
5. Oregon 138 / NB I-5 On-/Off-ramps
6. Park Hill Lane / SB I-5 On-/Off-ramps
7. W. Central Avenue / Calapooya Street
8. E. Central Avenue / State Street
9. W. Central Avenue / Comstock Road
10. Oregon 138 / Fort McKay Road
11. Oregon 138 / Church Road
12. Fort McKay Road / Church Road
13. Comstock Road / 6th Avenue
14. Calapooya Street / Hastings Avenue
15. E. Central Avenue / Waite Street
16. Oregon 138 / Stearns Lane
17. State Street / E. 6th Avenue
18. State Street / W. 6th Avenue

Table 5-1. Average Daily Traffic – Existing Year (2004)

Location	ADT Both Directions
OR 138 (211 ft East of Ft McKay Rd)	7,100
OR 138 (176ft east of Park Hill Lane)	7,500
OR 138 (151 ft west of Comstock Rd.)	7,700
OR 138 (east of Calapooya St.)	9,750
State (north of OR 138/Central Avenue)	3,200
Hwy 99 (454 ft north of Wilbur-Umqua Rd.)	6,050
Wilbur-Umpqua Rd. Interchange Overpass	3,200
NB Off-Ramp Wilbur-Umpqua Rd.	3,100
NB On-Ramp Wilbur-Umpqua Rd.	300
SB Off-Ramp Wilbur-Umpqua Rd.	400
SB On-Ramp Wilbur-Umpqua Rd.	2,800
4th Avenue (0.1 mile east of N State St.)	980
6th Avenue (0.1 mile east of N State St.)	580
6th Avenue (0.1 west of N State St.)	2,900
Valentine (between Calapooya St. and State St.)	3,150
Hawthorne (0.1 mile south of OR 138/Central Avenue)	1,650
Comstock (0.1 mile south of OR 138/Central Avenue)	5,100
Duke (between Comstock Rd. and Hawthorne St.)	420
Taylor (0.1 mile north of Comstock Rd.)	1,750
South State St.(0.1 mile north of Cooper Creek bridge)	1,500
South Side Rd (between Sutherlin Creek bridge and Sea St)	1,300
Dovetail Lane (0.1 mile north of 138)	1,150
OR 138 (0.01 mile southeast of Church Rd.)	3,200
OR 138 (0.36 mile northwest of Fort McKay Rd.)	3,300
OR 138 (0.10 mile west of I-5)	7,900
OR 138 (0.17 mile east of I-5)	10,400
OR 138 (0.01 mile east of Comstock Rd.)	11,100
OR 138 (0.01 mile east of Sherman St.)	11,900
OR 138 (0.01 mile east of Ash St.)	11,400
OR 138 (0.01 mile west of Old Hwy 99)	11,400
I-5 Mainline (between Wilbur-Umqua Rd. and OR 138/Central Ave. Exits)	28,700
I-5 NB On- Off- ramps at Central Ave.	3,700
Central Ave. at I-5 NB On- Off- ramps	11,100
Park Hill Ln. at Central Ave.	1,800
Central Ave. at Park Hill Ln.	12,800
I-5 SB On- Off- ramps at Park Hill Ln.	1,350
Park Hill Ln. at I-5 SB On- Off- ramps	5,850
Calapooya at Central Ave.	4,400
Central Ave. at Calapooya	13,200
State St. at Central Ave.	3,600
Central Ave. at State St.	14,500
I-5 SB On- Off- ramps at Wilbur-Umpqua Rd.	430
Wilbur-Umpqua at I-5 SB On and Off- ramps	2,900
I-5 NB On- Off- ramps at Wilbur-Umpqua Rd.	3,000
Wilbur-Umpqua at I-5 NB On and Off- ramps	3,750
Wilbur-Umpqua Rd. at Old Hwy 99	3,100
Old Hwy 99 at Wilbur-Umpqua Rd.	5,450

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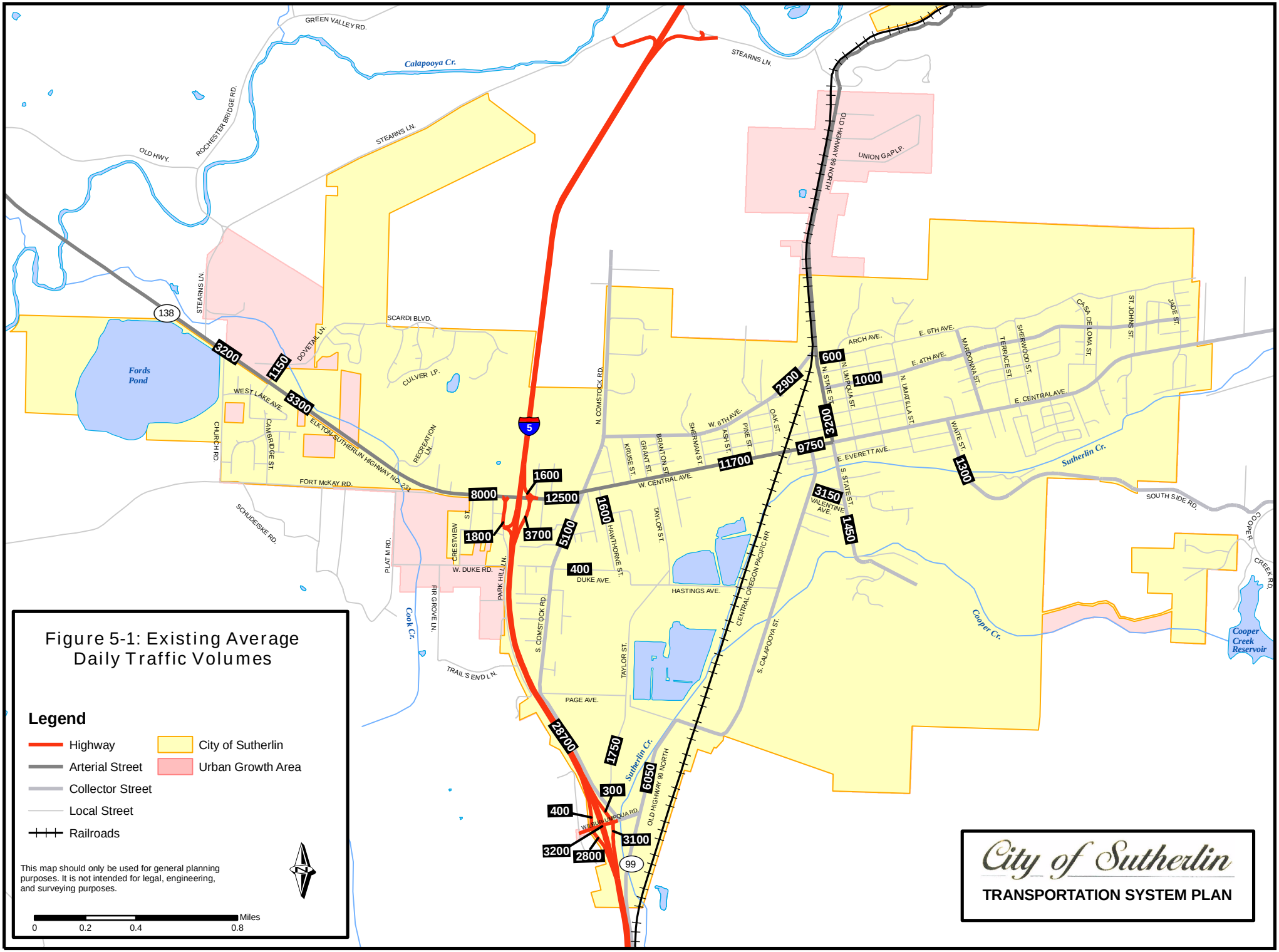
Figure 5-1: Existing Average Daily Traffic Volumes
Legend
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
Miles
0
0.2
0.4
0.8
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cooper Creek Reservoir
Cook Cr.
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
CHURCH RD.
CAMBRIDGE ST.
ELKTON-SUTHERLIN HIGHWAY NO. 231
RECREATION LN.
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
FIR GROVE LN.
TRAIL'S END LN.
CRESTVIEW ST.
W. DUKE RD.
PARK HILL LN.
N. COMSTOCK RD.
S. COMSTOCK RD.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
W. 6TH AVE.
W. CENTRAL AVE.
HAWTHORNE ST.
TAYLOR ST.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
OLD HIGHWAY 99 NORTH
WILBUR-UMPQUA RD.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
E. CENTRAL AVE.
E. EVERETT AVE.
N. STATE ST.
S. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WAITE ST.
VALENTINE AVE.
SOUTH SIDE RD.
COOPER R.
CREEK RD.
138
5
99
3200
1150
3300
8000
12500
1600
1800
3700
5100
1600
400
28700
1750
300
400
3200
2800
3100
6050
600
1000
2900
9023
9750
11700
1300
3150
1450

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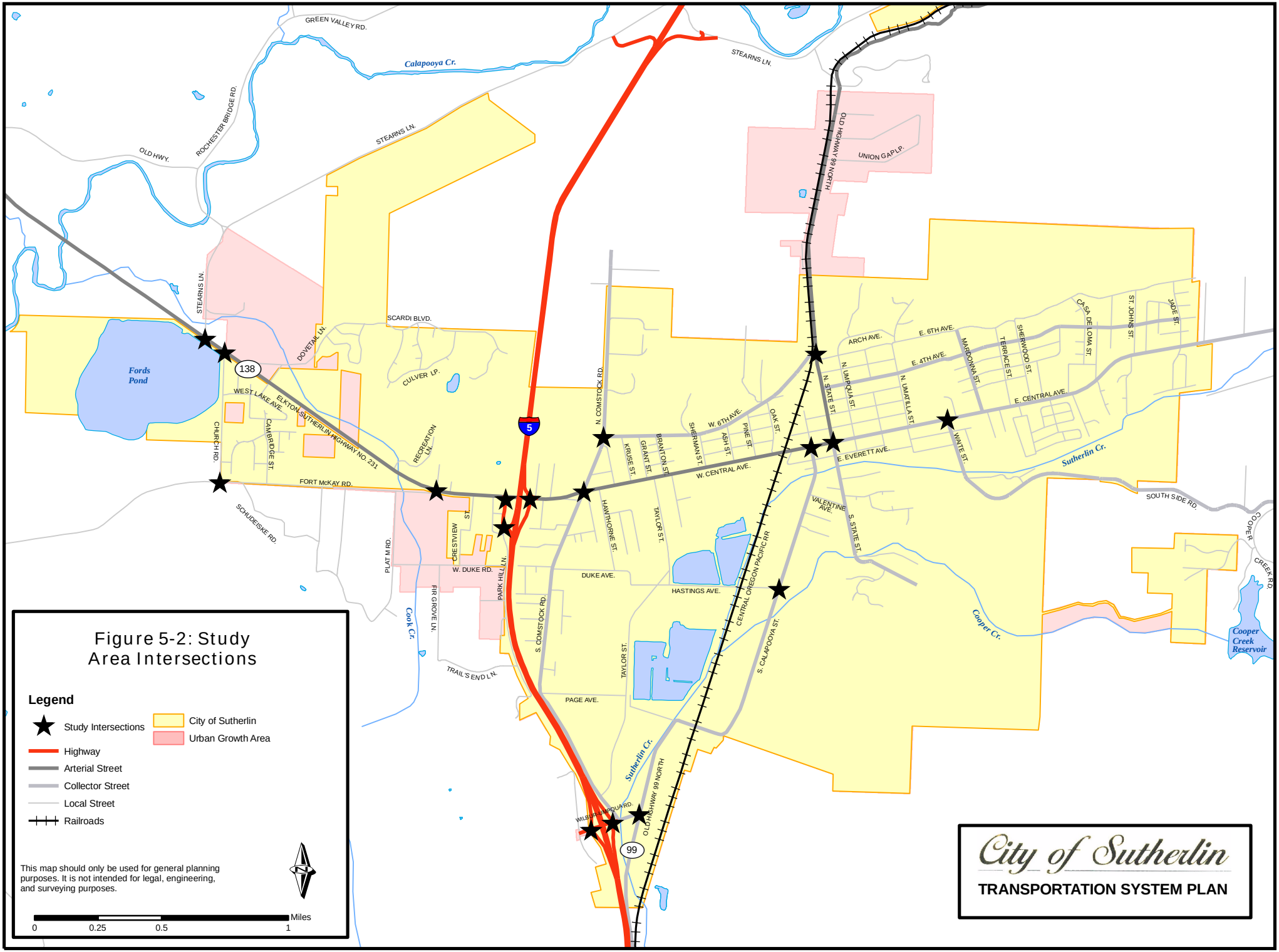
Figure 5-2: Study Area Intersections
Legend
Study Intersections
City of Sutherlin
Urban Growth Area
Highway
Arterial Street
Collector Street
Local Street
Railroads
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
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1
Miles
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Creek Reservoir
Cooper Cr.
Cook Cr.
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
DOVETAIL LN.
SCARDI BLVD.
CULVER LP.
RECREATION LN.
CHURCH RD.
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N. COMSTOCK RD.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
W. 6TH AVE.
W. CENTRAL AVE.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
VALENTINE AVE.
S. STATE ST.
N. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
E. 6TH AVE.
E. 4TH AVE.
ARCH AVE.
E. CENTRAL AVE.
E. EVERETT AVE.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WAITE ST.
SOUTH SIDE RD.
COOPER RD.
CREEK RD.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
WILBURN-UMPQUA RD.
138
5
99

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For intersections numbered 1 to 8, 14-hour class counts data were collected by the City of Sutherlin during mid September 2004. Three-hour turning movement counts for three intersections, numbered 9 to 11, were provided by ODOT and were collected during mid September 2004, and early part of October 2004. In addition, Quality Counts, Inc. performed 3-hour turning movement counts for the remaining seven intersections during last week of July and first week of August 2004.

30th Highest Hour Volumes

The traffic counts collected and the results of traffic volume trends from ODOT's automatic traffic recorders (ATR) were used to estimate the annual 30th-highest hour traffic volumes. ODOT traffic analysis procedures call for the annual 30th highest hour (30 HV) traffic volumes to be used to calculate volume-to-capacity ratios for intersections and street segments. Although most counts were taken close to the highest periods of the year and on weekdays, counts were checked for any seasonal variations. Seasonal adjustment to the traffic counts was based on factors available from the ODOT's Web site[14] for the following ATR stations:

For the I-5 mainline and ramps:

- Roseburg (10-005)
- Oakland (10-007)

For all other roads:

- Brockway (10-006)

Five years of traffic data (1998-2002) for the ATR stations was also available from the ODOT's Web site.[15] The analysis of data revealed that August was the highest traveled month for the study area. These ATR data were used in the analysis because they are the closest recorders to the study area and are representative of the study area characteristics.

ATR seasonal factors for 10-006 for the applicable dates were applied to all the roads within the study area. ATR 10-005 and 10-007 seasonal factors were also averaged and applied to I-5 traffic data. ODOT's seasonal factors table includes factors for the 1st and 15th of each month for all ATR locations. The counts were taken on dates between the 1st and the 15th and between the 15th and the 30th. Therefore interpolation was used to derive new seasonal counts for the analysis. Counts that had been conducted in the last week of July and August showed the 30th HV adjustment factor between 1.0031 and 1.0045. These factors did not significantly change the raw volumes. For all other non-freeway counts conducted in other months, a factor of 1.07 to 1.09 was applied. Freeway data collected in September was factored by 1.18.

Peak Hour Determination

After the traffic counts had been collected, one peak hour was selected for the project. Transportation Planning and Analysis Unit (TPAU), ODOT, recommends the use of one peak hour for consistency in traffic volumes and to balance between intersections. The 15-minute breakdowns in the raw traffic data were used to determine the peak hour for each count. The final selection of a peak hour was based on the majority of counts that had the same peak hour. This methodology showed that 4:45 PM to 5:45 PM was the peak hour for the study area.

[14] http://www.odot.state.or.us/tddtpau/papers/analysis/2003SeasonalFactors.pdf, <last accessed October 2004>
[15] http://www.odot.state.or.us/tdb/traffic_monitoring/02tvt/atr02_10.htm, <last accessed October 2004>

Existing (2004) PM Peak Intersection Operations Analysis

Two primary measures of effectiveness were used to assess the operation of at-grade intersections: delay and volume-to-capacity (v/c) ratios. "Delay" is the average amount of time a vehicle must wait at intersection. "Level of Service" (LOS) is a grade given to various ranges of delay, with a grade of 'A' representing ideal operations with minimal delay, and 'F' representing unacceptable conditions with high delay.

Volume-to-capacity (V/C) is the ratio of peak hour traffic volume to the maximum hourly volume of vehicles that that roadway section can accommodate (capacity). In other words, v/c measures the percentage of capacity of the roadway section that is being used during the peak hour. When the v/c exceeds 1.0, auto demand exceeds the capacity of the facility to serve that demand. The 1999 Oregon Highway Plan (OHP) states that the maximum acceptable v/c ratio for Regional Highways outside the Portland metro area (non-MPO) and not identified as a Special Transportation Area (STA) is 0.80 where non-freeway speed limit is less-than 45 mph, and is 0.75 when non-freeway speed limit is greater-than 45 mph. For District/Local Interest roads, the acceptable ratio is 0.85 non-freeway speed limit is less-than 45 mph, and is 0.80 when non-freeway speed limit is greater-than 45 mph.

Peak Hour Factor

Generally, traffic facilities are analyzed to identify the "worst" 15-minute period of the annual 30th-highest hour intersection volume. The peak 15-minute volume is calculated by dividing the 30th-highest hour traffic volumes by an applicable peak-hour factor (PHF). This PHF is defined as the 30th-highest hour volume divided by four times the maximum 15-minute volume during that hour, and is always less than or equal to 1. For base year analysis, PHF was calculated from the 30th-highest hour traffic volumes counts and varied by per intersection. Intersections along Central Avenue/Oregon 138 showed PHF ranging between 0.90 and 0.96, except at Stearns Lane where the PHF was about 0.80. Other study area intersections showed PHF ranging between 0.71 and 0.92, with lowest at SB I-5 off-ramp intersection at Wilbur-Umpqua road and the highest at N. State Street and E/W 6th Avenue. I-5 mainline showed a PHF of 0.94 during the PM peak period.

Heavy Vehicle (Truck/Bus) Traffic

From the peak hour data, heavy vehicle traffic volumes ranged between 2 percent and 33 percent of total vehicular volumes. Most intersection turning movements showed heavy vehicle percents ranging from 5 to 9 percent in the peak hour. I-5 SB off- ramp (S-E movement) at Exit 135/Wilbur-Umpqua Road showed the highest truck traffic percentage, which was about 33 percent heavy vehicles, followed by the I-5 SB off- ramp (W-S movement) at Park Hill Lane, which showed about 21 percent heavy vehicles.

Network Operations Analysis

Using ODOT's mobility criteria and the 30th highest hour traffic volumes, a traffic operations analysis was conducted using Synchro 6.0, a traffic analysis software tool that uses procedures described in the Highway Capacity Manual (HCM) for signalized and unsignalized intersections. The HCM provides a nationally accepted, standardized analysis procedure for determining average vehicle delay, LOS, and v/c ratios at signalized and unsignalized intersections.

The study area network was developed in Synchro and the intersection data were exported to *2000 Highway Capacity Software* for analysis of signalized and stop-controlled intersections. The methodology provides standardized analysis procedures for average vehicle delay (in seconds per vehicle), level of service, v/c ratios, and 95th –percentile queue lengths (for signalized intersections). Using Synchro, phase splits, cycle lengths and intersection offsets for signalized intersections were optimized to minimize

intersection and network delay. Table 5-2 shows the results of the intersection capacity analysis for the base year.

Table 5-2 shows that the highest v/c ratio and delay by turn-movement for the unsignalized intersections, and the overall v/c ratio and average delay for the signalized intersections. LOS is shown by approach for unsignalized intersections and represents overall v/c for the two signalized intersections in Sutherlin.

As shown in Table 5-2, the NB I-5 off-ramp at Oregon 138 experiences the highest delay among the study intersections with the highest v/c ratio over 1.00. This is due to heavy westbound and eastbound traffic during the PM peak hour that causes excessive delay for northbound left-turn vehicles at this two-way stop-controlled intersection. The detailed HCS operations analysis output for the study intersections is in the Appendix.

Since Oregon 138 is a Regional Highway, the acceptable v/c ratio is 0.80 where the approach speed is <45 mph, and 0.75 where the approach speed is greater. All other roadways shown in Table 5-2 fall under the District/Local Interest Roads category as identified under the OHP. As seen in Table 5-2, all District/Local Interest Roads operate at low v/c ratios.

The Douglas County TSP provides volume-to-capacity standards for county roads. The classification system is as follows: Principle Highway, V/C = 0.70; Arterial, V/C = 0.85; Major Collector, V/C = 0.90; Minor Collector, V/C = 0.95; Necessary Local, V/C = 0.95. Table 5-2 shows that the minor approach at the intersection of NB I-5 on/off ramps and Oregon 138 operates at a V/C greater than 1. All other intersections operate with acceptable V/C ratios.

Table 5-2. Existing (2004) PM Peak Hour Level of Service

Unsignalized Intersections (Major / Minor)	V/C Standard	Major / Minor LOS	Highest V/C	Highest Delay (seconds/vehicle)
Fort McKay Rd. / Church Rd.	0.90	A/A	0.06 (Major)	9.20 (Major)
N. Comstock Rd. / W. 6th Avenue	0.95	A/A	0.05 (Major)	9.10 (Minor)
Calapooya St. / Hastings Avenue	0.90	A/B	0.13 (Major)	11.50 (Minor)
E. Central Avenue / Waite St.	0.90	A/D	0.36 (Major)	25.20 (Minor)
Oregon 138 / Stearns Lane	0.75	A/B	0.12 (Major)	10.30 (Minor)
State St. / E. 6th Avenue	0.90	A/A	0.09 (Major)	9.60 (Minor)
State St. / W. 6th Avenue	0.90	A/B	0.10 (Major)	10.30 (Minor)
Old Highway 99 / Wilbur-Umpqua Rd.	0.90	A/D	0.76 (Minor)	26.20 (Minor)
Wilbur-Umpqua Rd. / NB I-5 On- Off ramps	0.90	A/B	0.44 (Minor)	11.50 (Minor)
Wilbur-Umpqua Rd. / SB I-5 On- Off ramps	0.90	A/C	0.22 (Minor)	15.10 (Minor)
Oregon 138 / Park Hill Ln.	0.80	A/C	0.29 (Major)	17.90 (Minor)
Oregon 138 / NB I-5 On- Off ramps	**0.80**	**A/F**	**1.04 (Minor)**	**82.50 (Minor)**
W. Central Avenue / Comstock Rd.	0.80	A/C	0.30 (Minor)	23.60 (Minor)
Oregon 138 / Fort McKay Rd	0.80	A/B	0.32 (Minor)	19.30 (Minor)
Oregon 138 / Church Rd.	0.75	A/A	0.09 (Minor)	9.90 (Minor)
Park Hill Ln. / SB I-5 On- Off ramps	0.90	A/A	0.18 (Major)	9.80 (Minor)
Signalized Intersections (Major/Minor)		**LOS**	**V/C**	**Delay (seconds/vehicle)**
W. Central Avenue / Calapooya St.	0.80	B	0.42	14.80
E. Central Avenue / State St.	0.80	B	0.64	17.70

Roadway Segment Operations

This section shows the results of the operational analysis for selected roadway segments, and is based on the 30th HV estimation methods described previously. Using 14- and 48- hour directional tube counts, the two-way peak hour volumes were estimated at several roadway sections using the 30th HV adjustment factor. These sections were identified by the City and ODOT for analysis and represent key roadways within the study area. The results of operations analysis were compared with the appropriate mobility standards to determine which study area roadway facilities are deficient. Table 5-3 presents the results of roadway section capacity analysis.

As shown in Table 5-3, all of the study area roadway segments are within mobility standards although sections along Oregon 138/Central Avenue are approaching the volume-to-capacity standard threshold. The state-owned highway segments include Highway 138/Central Avenue from Calapooya Street to the west city limits. These include all sections shown in Table 5-3 that fall on Highway 138, except the section east of Calapooya Street. The remaining roadway sections fall under the county/city jurisdictions. Results for city and county roads are as follows:

- Highway 138 shows the highest v/c ratios in the city. This includes the section east of Calapooya Street that is a County facility. The range of v/c ratios is 0.19 to 0.70.
- County and City roadway sections studied show low v/c ratios. The highest v/c ratio within the County roadways besides the section east of Calapooya Street is at Wilbur-Umpqua Road Interchange Overpass (0.19).

Table 5-3. Study Area Roadways Maximum V/C Ratios – Year 2004 30th HV Conditions

Facility (Location)	Mobility Standard	2004 30 HH Two-way Volume (vph)	Capacity (vph)	V/C Ratio
Hwy 138 (0.01 mile east of Sherman St)	0.80	1,184	1,700	0.70
Hwy 138 (0.01 mile east of Ash St)	0.80	1,134	1,700	0.67
Hwy 138 (0.01 mile west of Highway 99)	0.80	1,134	1,700	0.67
Hwy 138 (0.01 mile east of Comstock Rd)	0.80	1,104	1,700	0.65
Hwy 138 (0.17 mile east of I-5)	0.80	1,035	1,700	0.61
Hwy 138 (east of Calapooya St.)	0.80	970	1,700	0.57
Hwy 138 (0.10 mile west of I-5)	0.80	786	1,700	0.46
Hwy 138 (151 ft west of Comstock Rd.)	0.80	768	1,700	0.45
Hwy 138 (176ft east of Park Hill Lane)	0.80	746	1,700	0.44
Hwy 138 (211 ft east of Ft McKay Rd)	0.80	706	1,700	0.42
Hwy 99 (454 ft north of Wilbur-Umqua Rd)	0.75	600	1,700	0.35
Comstock (0.1 mile south of Hwy 138/Central Avenue)	0.85	507	1,700	0.30
Hwy 138 (0.36 mile northwest of Fort McKay Rd)	0.75	328	1,700	0.19
Wilbur-Umpqua Rd. Interchange Overpass	0.85	319	1,700	0.19
Hwy 138 (0.01 mile southeast of Church Rd.)	0.75	318	1,700	0.19
State St. (north of Hwy 138/Central Avenue)	0.85	317	1,700	0.19
Valentine Avenue (between Calapooya St. and State St.)	0.85	315	1,700	0.19
6th Avenue (0.1 west of N State St.)	0.85	291	1,700	0.17
Taylor (0.1 mile north of Comstock Rd.)	0.85	172	1,700	0.10
Hawthorne St. (0.1 mile south of Hwy 138/Central Avenue)	0.85	162	1,700	0.10
South State St. (0.1 mile north of Cooper Creek bridge)	0.85	146	1,700	0.09
South Side Rd (between Sutherlin Creek bridge and Sea St)	0.85	128	1,700	0.08
Dovetail Lane (0.1 mile north of Hwy 138)	0.85	113	1,700	0.07
4th Avenue (0.1 mile east of N State St.)	0.85	98	1,700	0.06
6th Avenue (0.1 mile east of N State St.)	0.85	58	1,700	0.03
Duke Avenue (between Comstock Rd. and Hawthorne St.)	0.85	42	1,700	0.02

Signal Warrants 2004

The City of Sutherlin has two existing signalized intersections on Central Avenue. Traffic signals are valuable devices for the control of vehicle, bicycle and pedestrian traffic. Traffic control signals, properly located and operated, can have several advantages:

- Provide for orderly movement of traffic
- Can increase the traffic handling capacity of intersections
- Reduce the frequency of certain types of crashes
- Can be coordinated to provide nearly continuous movement of traffic at a definite speed along a route
- Permit minor street traffic (vehicles and pedestrians) to enter or cross continuous traffic on a major street.

A preliminary signal warrant analysis was performed for intersections approaching v/c = 0.70 (i.e., nearing capacity). The Appendix includes background data used to perform the preliminary signal warrant analysis. Table 5-4 below presents the results for 2004 annual 30th highest hour volumes. Procedures established by ODOT's TPAU use ADT volumes for analysis of preliminary signal warrants.

Table 5-4. Signal Warrant Analysis - Warrant 1*

Intersections (Major / Minor)	Highest V/C ratio 2004	Warrant 1 Met 2004
E. Central Avenue / Waite St.	0.36 (Major)	No
Oregon 138 / Stearns Lane	0.12 (Major)	No
W. Central Avenue / Comstock Rd.	0.30 (Major)	Yes
Oregon 138 / Park Hill Ln.	0.29 (Major)	Yes
Old Highway 99 / Wilbur-Umpqua Rd.	0.76 (Minor)	No
Oregon 138 / NB I-5 On- Off ramps	1.04 (Minor)	Yes

*Note: Meeting preliminary traffic warrants does not guarantee that a signal will be installed. Signal Warrants must be met, and a full investigation be submitted to the State Traffic Engineer for approval before the installation of a signal on the state highway system.

The signal warrant 1 analysis was carried out for selected intersections with the highest traffic volumes. Table 5-4 shows that three unsignalized intersections in Sutherlin meet signal warrants. These include the following:

- Central Avenue at Comstock Road
- Central Avenue (OR 138) at I-5 NB ramps
- Oregon 138 at Park Hill Lane (I-5 SB ramps).

Sutherlin's *SATS* report also notes that signals may be warranted at the I-5 SB ramps (Park Hill Lane) on Highway 138 in the future and possibly at Central Avenue at Comstock Road due to capacity and truck-related issues. In addition, Sutherlin's *Public Facility Plan* notes that a traffic signal may be warranted at Central Avenue at Comstock Road.

Future Traffic Conditions (2025)

This section summarizes the methodology used to determine future travel demand and shows the results of the operational analyses of future conditions for intersections and roadways. The forecasted, no-build, future conditions analyses assume that the existing roadway geometry, traffic controls and lane

configurations all remain in place. A traffic signal at Oregon 138 at the I-5 NB ramps is assumed to be installed for the 2025 future traffic conditions.

Future Traffic Volume Forecasts

Future traffic volumes for the City of Sutherlin TSP were estimated using trending historical growth patterns and examination of existing and planned land uses. Land use is a key factor in developing a functional transportation system. Planned and projected land use and potential UGB expansion areas were evaluated to estimate future 20-year development growth and forecast traffic generated by future developments based on input from the City of Sutherlin. This method is effective to estimate future traffic and population growth to identify deficiencies and develop transportation solutions.

Traffic volume growth rates based on historical traffic growth were provided by ODOT, Transportation Planning Analysis Unit (TPAU). A growth rate of 2.7 percent was provided and used for intersections and road segments west of I-5, and a growth rate of 1.6 percent was provided and used for locations east of I-5. These growth rates are based on historical traffic growth in the area and establish a "future 2025 base" network for Sutherlin streets.

In addition, potential UGB expansion areas were identified by the City and a buildable lands estimate was provided by the City of Sutherlin which included future development projected to occur in the 20-year forecast horizon both east and west of I-5.[16] This projected development would add traffic, population and employment beyond the amount of base traffic growth estimated from historical traffic growth. Approximately one-third of the land use provided in the buildable lands estimate was added to the 20-year forecast as additional trips beyond the base traffic growth rate likely to occur in the 20-year planning horizon. The trips for buildable lands were estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Handbook*[17] for residential, commercial and industrial land uses. These estimated trips were added to the future 2025 base street network.

Future Intersection Operations

For future intersection operations, peak hour factors (PHF's) were prescribed in the scope of work agreed to by the City of Sutherlin and ODOT (consistent with the ODOT TSP Guidelines). The PHF of 0.85 was assumed for local and collector streets, 0.90 for minor arterials, and 0.95 for major arterials. Most of the study area intersections used a factor of either 0.90 or 0.95.

As explained earlier, the 1999 OHP standards were used to evaluate intersection operations for ODOT facilities, and County standards were applied to County roads. Table 5-5 shows the results of the intersection capacity analysis for 2025.

[16] This data was received from the City by the consultants on September 28, 2004, and consists of a series of GIS maps with notations indicating parcels that are likely to be developed or redeveloped. The estimates, suitable for general planning purposes only, are based on professional judgment and account for slopes, wetlands, parcelization, and likely infrastructure requirements.

[17] The ITE Trip Generation Handbook, 7th Edition

Table 5-5. 20-Year Future (2025) PM Peak Hour Level of Service

Unsignalized Intersections (Major/Minor)	V/C Standard	Major/Minor LOS	Highest V/C	Highest Delay (seconds/vehicle)
Fort McKay Rd./Church Rd.	0.90	A/B	0.16 (Minor)	10.5 (Minor)
N. Comstock Rd./W. 6th Avenue	0.95	A/B	0.30 (Minor)	11.2 (Minor)
Calapooya St./Hastings Avenue	0.90	A/C	0.25 (Minor)	20.3 (Minor)
E. Central Avenue/Waite St.	**0.90**	**A/F**	**2.0+ (Minor)**	**1667.0 (Minor)**
Oregon 138/Stearns Lane	**0.75**	**A/E**	**0.82 (Minor)**	**37.6 (Minor)**
State St./E. 6th Avenue	0.90	A/B	0.40 (Minor)	14.5 (Minor)
State St./W. 6th Avenue	0.90	A/C	0.46 (Minor)	17.3 (Minor)
Old Highway 99/Wilbur-Umpqua Rd.	**0.90**	**A/F**	**1.77 (Minor)**	**382.7 (Minor)**
Wilbur-Umpqua Rd./NB I-5 On- Off ramps	0.90	A/C	0.67 (Minor)	17.4 (Minor)
Wilbur-Umpqua Rd./SB I-5 On- Off ramps	**0.90**	**A/F**	**0.81 (Minor)**	**67.6 (Minor)**
Oregon 138/Park Hill Ln.	**0.80**	**F/F**	**2.0+ (Minor)**	**** (Minor)**
W. Central Avenue/Comstock Rd.	**0.80**	**C/F**	**2.0+ (Minor)**	**** (Minor)**
Oregon 138/Fort McKay Rd	**0.80**	**B/F**	**2.0+ (Minor)**	**** (Minor)**
Oregon 138/Church Rd.	0.75	A/C	0.31 (Major)	16.7 (Minor)
Park Hill Ln./SB I-5 On- Off ramps	**0.90**	**C/F**	**2.0+ (Minor)**	**445.2 (Minor)**
Signalized Intersections (Major/Minor)		**LOS**	**V/C**	**Average Delay (seconds/vehicle)**
W. Central Avenue/Calapooya St.	0.80	C	0.84	27.8
E. Central Avenue/State St.	**0.80**	**E**	**1.13**	**69.1**
Oregon 138/NB I-5 On- Off ramps*	**0.80**	**F**	**1.23**	**94.8**

*Assumes a traffic signal installed at the intersection of Oregon 138 at I-5 NB ramps
**Unreported. Exceeds HCM maximum

As shown in Table 5-5, several intersections do not achieve an acceptable operating level of service and volume-to-capacity ratio without transportation system improvements. These intersections include the following:

- Central Avenue at Waite Street
- Central Avenue at State Street
- Central Avenue at Comstock Road
- Oregon 138 at Park Hill Lane
- Park Hill Lane at I-5 SB ramps
- Oregon 138 at Fort McKay Road
- Oregon 138 at Stearns Lane
- Oregon 138 at I-5 NB ramps
- Wilbur-Umpqua Rd at I-5 SB ramps
- Old Highway 99 at Wilbur-Umpqua Road

Without mitigation remedies (signalization, alternative routes, additional capacity), the above intersections will fail by 2025 if all available buildable lands are developed within the City. Intersections showing a volume-to-capacity ratio of more than 1.0 will not have adequate gaps in traffic, and turning vehicles may take substandard gaps, which would greatly increase the risk of a crash.

Future Roadway Segment Operations

Table 5-6 shows the results of the roadway section capacity analysis for key roadway segments in the study area. The table compares the results with the OHP mobility standards. As shown in the table, West Central Avenue (between Comstock Road and Calapooya Street) will have volumes exceeding capacity by 2025. All other roadway segments shown in Table 5-6 are within the acceptable levels of operations.

Table 5-6. State Highway/County Roads Maximum V/C Ratios – Year 2025 30th HV Conditions

Facility (Location)	OHP Mobility Standard	2025 30 HH Two-way Volume (vph)	Capacity (vph)	V/C Ratio
W. Central Avenue (between Comstock Rd. and Calapooya St.)	0.80	1,793	1,700	1.05
Hwy 138 (between Church Rd. and Fort McKay Rd.)	0.80	1,241	1,700	0.73
Calapooia St. (between Hastings Avenue and Wilbur-Umpqua Rd.)	0.85	1,179	1,700	0.69
Hwy 138 (between State St. and Waite St.)	0.80	965	1,700	0.57
Waite St. (south of 138 / Central Avenue)	0.85	513	1,700	0.30
State St. (south of 138 / Central Avenue)	0.85	492	1,700	0.29
Comstock Rd. (south of W. Central Avenue)	0.85	291	1,700	0.17
6th Avenue (west of N State St.)	0.85	245	1,700	0.14

Signal Warrants 2025

A signal warrant analysis was conducted for year 2025 using Signal Warrant 1, 8-Hour Vehicular Volume, at intersections with estimated V/C ratios over 1.0. As seen in Table 5-7, three additional intersections meet signal warrants by year 2025 (W. Central Avenue and Comstock Rd., Oregon 138 and Park Hill Lane, and Oregon 138 and NB I-5 ramps met signal warrants for 2004). This signal warrant is met primarily due to the projected growth of the major street traffic, causing significant delay to the minor street traffic and inadequate gaps in the traffic stream.

Table 5-7. Signal Warrant Analysis - Warrant 1*

Intersections (Major / Minor)	Highest V/C ratio 2025	Warrant 1 Met 2025
E. Central Avenue / Waite St.	2.0+ (Minor)	Yes
OR 138 / Fort McKay Rd	2.0+ (Minor)	Yes
Old Highway 99 / Wilbur-Umpqua Rd.	1.77 (Minor)	Yes

*Note: Meeting preliminary traffic warrants does not guarantee that a signal will be installed. Signal Warrants must be met, and a full investigation be submitted to the State Traffic Engineer for approval before the installation of a signal on the state highway system.

Roadway System Needs

Eighty-six percent of all crashes between January 1999 and August of 2004 occurred on Central Avenue. The primary crash locations in the City were in the downtown area, between Sherman Street and Waite Avenue, and in the area between the I-5 interchange and downtown, between I-5 and Branton Street. The highest crash location away from Central Avenue was near the I-5 interchange at Wilbur-Umpqua Road. A detailed crash analysis is included in the Existing Conditions chapter of this TSP.

During the TSP Kick-Off meeting, residents commented on the following traffic issues in the City of Sutherlin:

- Speed limits are not consistent in both directions of some streets, and larger speed limit signs are needed
- Need improved signal timing on Central Avenue or new types of controls
- Some residents noted that a new traffic signal at the Post Office may be beneficial
- Traffic control devices may be needed to handle school traffic at N. Umatilla St. and N. Comstock Rd.
- Special events traffic management should be improved; closures cause too much congestion
- Bus pullouts are needed on Central Avenue
- Pedestrians have difficulty crossing from the north side of Central Avenue to the south side in the vicinity of the mill

Street Connectivity

From the TSP Goals and Objectives - Goal 4. Street System: *Provide a well planned, comprehensive street system that serves the needs of the Sutherlin area.*

Objectives

- Develop a street classification system to provide an optimal balance between mobility and accessibility for all transportation modes consistent with street function.
- Design the street system to safely and efficiently accommodate multiple travel modes within public rights-of-way.
- Make better use of the southern interchange by connecting an east-west route to the southern interchange on both sides of Interstate-5.
- Identify opportunities to improve flow of people and goods east-west across I-5.
- Identify alternative east-west routes to improve traffic flow and improve emergency vehicle access. This includes alternative routes to relieve traffic congestion on Central Avenue such as connecting 4th Avenue to 6th Avenue across the railroad tracks north of Central Avenue. Other alternative east-west routes include a connection between the southern interchange and the eastern city limits. Identify options for improved access to the Sutherlin Industrial Park.
- Balance the needed street function for all travel modes with adjacent land uses through the use of context-sensitive street and streetscape design techniques.
- Improve streets in the Sutherlin area to City street design standards.
- Identify transportation demand management strategies appropriate to the City of Sutherlin to help reduce vehicle miles traveled and vehicle travel demand.

In addition, residents have suggested that in general, subdivisions need to have more than one emergency access point. One of the TSP objectives in the Overall Transportation Goal is to ensure that adequate access for emergency services vehicles is provided throughout the City.

In reference to access management, a TSP objective is to maintain access management standards for streets consistent with City, County, and State requirements to reduce conflicts between vehicles and trucks, and between vehicles, bicycles, and pedestrians. Also, access management strategies should be developed for Central Avenue.

Other roadway issues that residents identified during the TSP Kick-Off meeting include:

- Consider a potential one-way couplet in downtown
- Realign Highway 99 to eliminate two 90-degree turns
- Widen Oregon 138 to 4 lanes, including turn lanes
- Connect Exits 135 and 136 west of I-5
- Rebuild the interchange at Exit 136. There is inadequate sight distance between the northbound exit and OR 138

Pavement Condition

As shown in Table 5-8, about 90 road segments that were inventoried in June 2004 were in poor or very poor condition. Poor pavement conditions increase wear and tear on vehicles and also increase hazardous vehicle maneuvering to avoid problem areas. Locations with poor and very poor ratings will need to be repaved.

Table 5-8. Summary of Street Conditions in Sutherlin

Rating	Number of Road Segments
Very Good	176
Good	460
Fair	138
Poor	74
Very Poor	8
Varies	6

Table 5-9 below lists the streets having one or more segments in poor or very poor condition. The Appendix includes a detailed tabulation of pavement conditions by road segment.

Table 5-9. Streets with One or More Segments in Poor or Very Poor Condition

Street Classification	Street Name
Collector	Mardonna St.
Local	1st Ave.
	2nd Ave.
	3rd Ave.
	6th Ave.
	Buttercup Ln.
	Calapooya St.
	Cedar St.
	Crestview St.
	Duke Ave.
	Foster Ave.
	Hastings Ave.
	Hutchins Wy.
	Jones Buckley Ave.
	Laurel Ave.
	Lester St.
	Magnolia St.
	Maple St.
	Okie Dokie Ln.
	Page Ave.
	Park Hill Ln.
	Primrose Dr.
	Ridge Water Dr.
	Schoon Mt. Rd.
	Sherwood St.
	Strong Ave.
	Westwood St.

Parking

TSP Goals and Objectives related to parking follow:

- Plan for future parking in the downtown core by addressing future parking needs.
- Manage on-street parking to assist in slowing traffic, facilitating pedestrian movement, and efficiently supporting local businesses and residences consistent with the land use and mobility goals for each street.
- Require an appropriate supply and design of off-street parking facilities to promote economic vitality, neighborhood livability, efficient use of urban space, and reduced reliance on single occupancy motor vehicles.

From the facilities inventory, there are few existing public parking lots in Sutherlin. In addition, there is sporadic on-street parking on local streets throughout the city. As many parts of the city street system lack

curbs, on-street parking in residential areas occurs at drivers' discretion and as each street physically allows.

On-street parking in the downtown core is insufficient, particularly on Central Avenue. This causes frustrated drivers to circle adjacent blocks looking for scarce parking. Future parking needs in the downtown core will need to be addressed, and new off-street parking lots may be warranted. Both on-street and off-street parking will need to be managed more effectively to meet the City's needs.

Extended Long-Term Traffic Conditions (2055)

The extended long-term traffic conditions (2055) were evaluated to identify transportation needs and solutions in the 50-year long term horizon. The 50-year traffic volumes were estimated using the 20-year projected traffic volumes plus the addition of future projected traffic growth from projected land use development for 50-year horizon. The 50-year future projected developments in potential UGB expansion areas were identified by the City of Sutherlin. The 50-year projected growth included about two-thirds of the buildable lands estimate and potential UGB expansion areas.

The City of Sutherlin is projected to have significant growth in traffic volumes on the west side of I-5 in the next 50 years. The results from the analysis showed that by 2055 (without mitigation) the majority of the study area intersections will fall below the acceptable operational standards. Evaluation of the 50-year projected average daily traffic volumes show that new roadway network and increase to capacity will be needed. Additionally, there will be need for considering measures to alleviate congestion and to address safety concerns that results from unsafe gaps in the traffic stream and drivers taking risky maneuvers when faced with excessive delays at the intersections.

Bridges

Table 5-10 shows the status of bridges in the Sutherlin UGB under the control of the City of Sutherlin.[18] Included in the table is information about the location of each bridge and its National Bridge Inventory (NBI) condition ratings. The NBI condition ratings reflect a bridge's sufficiency to remain in service, and are used to describe the existing, in-place condition of a bridge as compared to a new bridge. Ratings pertain to the physical condition of the deck, superstructure, and substructure components of the bridge as well as the channel.

[18] City of Sutherlin owned and maintained bridges are inspected through a Local Agency Bridge Inspection Services contract administered by the Oregon Department of Transportation (ODOT) that complies with the NBIS.

Table 5-10. City of Sutherlin Owned/Maintained Bridges

		NBI Condition Ratings July 2002				
Bridge Number	**Location**	**Deck**	**Superstructure**	**Substructure**	**Channel**	**Comment**
19B07A	Waite Ave. over Sutherlin Creek	Good	Good	Satisfactory	Good	None
19B05A	Page Ave. over Sutherlin Creek	Good	Good	Good	Very Good	None
19B08	Hastings Ave. over Sutherlin Creek	Satisfactory	Serious	Satisfactory	Fair	'3' due to crack in timber stringer; steel jump stringer installed. To be replaced in Summer 2005.
19B06	State St. over Sutherlin Creek	NA	NA	NA	NA	Replaced in 2003

Per the latest inspection reports, the current condition of all bridges warrants continued routine maintenance and inspection for the immediate future. Bridge 19B08 is scheduled for replacement in 2005. In the interim, attention should be paid to the condition of the timber girders since this bridge has a history of repairs. This bridge may also require a load rating if there are signs that the girders have been overstressed. Finally, attention should also be paid to the condition of the channel, monitoring further scour. Scour protection (riprap) may be required within 1-5 years if this condition advances.

Public Transportation

Goal 5. Balanced Transportation System: *Facilitate the development of bus stops, bike lanes, sidewalks, and multi-use paths in the Sutherlin area to provide more transportation options for Sutherlin residents and visitors.*

Objectives

- Develop a safe, complete, attractive, efficient, and accessible system of pedestrian ways, bicycle ways and personal electric vehicle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks.
- Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and the Sutherlin core city area by identifying and developing improvements that address connectivity needs.
- Implement Sutherlin street standards that recognize the multi-purpose nature of the street right of way for utility, pedestrian, bicycle, transit, truck, and auto use, and recognize these streets as important to the community identity.
- To the extent possible, ensure consistency between the Parks Master Plan and the Transportation System Plan – particularly in the location of multi-use paths.
- Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- Anticipate the increased popularity of personal electric vehicles in the design of streets and multi-use paths.
- Construct multi-use paths where they can be developed with satisfactory design components that address safety, security, maintainability, and acceptable uses.

- Work with regional and local public transportation providers to identify opportunities to expand public transportation service within the City and to surrounding communities. Encourage inter-city public transportation connections for long-range public transportation. Enhance public volunteer transit system.

Sutherlin currently has limited public transportation options. Umpqua Transit, the fixed-route transit provider, has three scheduled stops in Sutherlin on the Blue Route. The Blue Route operates Monday through Friday (except holidays) and provides regional service to Roseburg and Umpqua Community College. Umpqua Transit also operates demand/response service for seniors shopping trips and private vehicle medical transportation throughout Douglas County. Neither Greyhound nor AMTRAK provides service to Sutherlin, although these services are available 11 miles away in Roseburg.

The Blue Route is currently configured to provide regional service. All of the Blue Route stops in Sutherlin are east of I-5 on Central Avenue, and travel is one-way eastbound. The route does not serve areas west of I-5, where some commercial destinations are located. Thus the service is not really useful for local mobility. In the future, this or another service should be reconfigured to provide two-way service on Central Avenue and/or extend west of I-5. At the public workshop, some residents noted that a new bus stop at Ray's Marketplace would be useful.

Due to these deficiencies, an all-volunteer dial-a-ride service currently serves about 300 families, and has become the primary transit service in Sutherlin. This service also has limitations (it only operates weekdays from 8 am to 4 pm), and because it is currently operated by elderly volunteers, its future is uncertain. Sutherlin has a relatively large senior population that is expected to grow, and this service is particularly valuable to them.

In the future, population growth is likely to outstrip the supply of this volunteer dial-a-ride service. Thus the City should consider the following options:

- Converting the service to a traditional, publicly funded fixed route system or publicly funded, expanded dial-a-ride service
- Partnering with a private for-profit transportation company to provide this or similar service. Currently, Sutherlin has no taxi service based in the city, which is particularly problematic for seniors who may require immediate transportation (e.g., to medical facilities) at any hour. Thus, an opportunity exists to attract a local taxi firm to provide both private and publicly sponsored transportations services in the future.

Bicycle Network

Goal 5. Balanced Transportation System: *Facilitate the development of bus stops, bike lanes, sidewalks, and multi-use paths in the Sutherlin area to provide more transportation options for Sutherlin residents and visitors.*

Objectives

- Develop a safe, complete, attractive, efficient, and accessible system of pedestrian ways, bicycle ways and personal electric vehicle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks.
- Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and the Sutherlin core city area by identifying and developing improvements that address connectivity needs.

- Implement Sutherlin street standards that recognize the multi-purpose nature of the street right of way for utility, pedestrian, bicycle, transit, truck, and auto use, and recognize these streets as important to the community identity.
- To the extent possible, ensure consistency between the Parks Master Plan and the Transportation System Plan – particularly in the location of multi-use paths.
- Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- Anticipate the increased popularity of personal electric vehicles in the design of streets and multi-use paths.
- Construct multi-use paths where they can be developed with satisfactory design components that address safety, security, maintainability, and acceptable uses.
- Work with regional and local public transportation providers to identify opportunities to expand public transportation service within the City and to surrounding communities. Encourage inter-city public transportation connections for long-range public transportation. Enhance public volunteer transit system.

Currently, the City of Sutherlin has one bike facility – a bike lane on Old Highway 99 (newly constructed southern portion) near the Wilbur-Umpqua interchange. County bike facilities in the vicinity of Sutherlin are all Class III or Class IIIs bikeways that share the roadway with traffic. These are designated either by signs (Class IIIs) or by signage and striping (Class III). Both Ft. McKay Road and Central Avenue are Class IIIs signed bike routes heading out of the city to the west and east, respectively.

Due to the lack of bike facilities in and through Sutherlin, there is no connectivity between the County bikeways. Similarly, there are no facilities connecting residential neighborhoods to commercial areas and schools for local travel. As a result, those who do choose to bike often ride on the sidewalks (where they exist) rather than travel in unsafe, non-designated roadways. This, in turn, causes problems for pedestrians, commercial customers, and merchants.

In the future, bike facilities should be provided on major north-south and east-west streets (at a minimum) to facilitate local and regional bicycle travel. Current and expected residential growth on the west side of the city provides a good opportunity to add bike connections to the east side of I-5 (e.g., bike lanes on Central Ave.). As S. Calapooya Street is improved, bike lanes will also be added, terminating in the vicinity of Valley Court. Thus, adding bike lanes on N. State Street would create a nearly continuous system of north-south county bikeways.

Pedestrian Network

Goal 5. Balanced Transportation System: *Facilitate the development of bus stops, bike lanes, sidewalks, and multi-use paths in the Sutherlin area to provide more transportation options for Sutherlin residents and visitors.*

Objectives

- Develop a safe, complete, attractive, efficient, and accessible system of pedestrian ways, bicycle ways and personal electric vehicle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks.
- Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and the Sutherlin core city area by identifying and developing improvements that address connectivity needs.

- Implement Sutherlin street standards that recognize the multi-purpose nature of the street right of way for utility, pedestrian, bicycle, transit, truck, and auto use, and recognize these streets as important to the community identity.
- To the extent possible, ensure consistency between the Parks Master Plan and the Transportation System Plan – particularly in the location of multi-use paths.
- Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- Anticipate the increased popularity of personal electric vehicles in the design of streets and multi-use paths.
- Construct multi-use paths where they can be developed with satisfactory design components that address safety, security, maintainability, and acceptable uses.
- Work with regional and local public transportation providers to identify opportunities to expand public transportation service within the City and to surrounding communities. Encourage inter-city public transportation connections for long-range public transportation. Enhance public volunteer transit system.

Table 5-11 shows that about 75 percent of all the street segments that were inventoried in Sutherlin are missing sidewalks. Sidewalks exist in some portions of the downtown area and provide only limited access to commercial areas and employment sites. Most of Sutherlin's neighborhoods, however, either do not have sidewalks or have only a limited and disconnected sidewalk system.

Table 5-11. Summary of Sutherlin Sidewalk Inventory

Street Classification	Sidewalk	Street Segments
Arterial	Missing	27
	Present	23
Collector	Missing	131
	Present	36
Local	Missing	497
	Present	149
Grand Total		863

On the arterial and collector street system, sidewalks are discontinuous and incomplete. On many blocks, sidewalks may be on one side of the street but not the other, or sidewalks are sporadically located throughout the block, lacking continuity. Many arterial and collectors lack sidewalks altogether. Arterials and collectors in particular need of attention are: E. Central Ave., W. 6th Ave., E. 4th Ave., and N. State Street (S. Calapooya Street is scheduled to add sidewalks as the street is improved.). These deficiencies need to be addressed to provide safe pedestrian connections between residential areas and commercial areas, employment sites, and schools. ORS 366.514 requires construction of pedestrian facilities as part of all roadway construction, reconstruction or relocation projects on arterials and major collectors where conditions permit.

Sutherlin also requires sidewalk construction as part of residential subdivisions and in conjunction with nearly all new street construction or reconstruction within the city. As development occurs, there will be a need to include pedestrian links between disconnected streets and cul-de-sacs, such as First Avenue, Second Avenue, and Third Avenue west of Mardonna Street.

During the TSP Kick-Off meeting, residents asked for a new pedestrian-actuated signal or pedestrian overpass near Murphy's on W. Central Avenue. For safety purposes, in-pavement light flashers are

options to consider for pedestrian crosswalks and at school crossings. Audible pedestrian crossing devices should be considered for installation to assist the blind. Residents have also asked for improved street lighting in general.

Personal Electric Vehicle Facilities and Multi-Use Paths

Goal 5. Balanced Transportation System: *Facilitate the development of bus stops, bike lanes, sidewalks, and multi-use paths in the Sutherlin area to provide more transportation options for Sutherlin residents and visitors.*

Objectives

- Develop a safe, complete, attractive, efficient, and accessible system of pedestrian ways, bicycle ways and personal electric vehicle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks.
- Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and the Sutherlin core city area by identifying and developing improvements that address connectivity needs.
- Implement Sutherlin street standards that recognize the multi-purpose nature of the street right of way for utility, pedestrian, bicycle, transit, truck, and auto use, and recognize these streets as important to the community identity.
- To the extent possible, ensure consistency between the Parks Master Plan and the Transportation System Plan – particularly in the location of multi-use paths.
- Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- Anticipate the increased popularity of personal electric vehicles in the design of streets and multi-use paths.
- Construct multi-use paths where they can be developed with satisfactory design components that address safety, security, maintainability, and acceptable uses.
- Work with regional and local public transportation providers to identify opportunities to expand public transportation service within the City and to surrounding communities. Encourage inter-city public transportation connections for long-range public transportation. Enhance public volunteer transit system.

Currently, no personal electric vehicle/multi-use paths exist in Sutherlin other than those at the Sutherlin Knolls Golf Course. The Sutherlin Parks and Open Space Plan, currently in development by SATRE Associates and not yet adopted, has identified several locations for off-street multi-use paths. These conceptual locations would provide miles of off-street multi-use paths that would connect to on-street bike lanes to provide the city an extensive network of bicycle and pedestrian facilities. This plan recommends that Sutherlin provide two miles of multi-use path for every 1,000 residents up to 10,000 persons, and an additional 1.5 miles for every 1,000 persons thereafter. According to the Center for Population Research and Census, Sutherlin's 2001 population was 6,990, which would require 14 miles of multi-use paths.

One potential off-street multi-use path would parallel Sutherlin Creek from the railroad tracks to the eastern city boundary. This key path would serve a large residential area and could bring recreational riders, employees and shoppers into downtown without the use of a motor vehicle. This path, if paved from end to end, would be approximately 2.5 miles long.

Freight Infrastructure

Truck Routes

TSP objectives related to trucks:

Goal 6. Transportation that Supports Economic Development: *Facilitate the provision of a multi-modal transport system for the efficient, safe, and competitive movement of goods and services to, from, and within the Sutherlin area.*

Objectives

- Promote accessibility to transport modes that fulfill the needs of freight shippers.
- Strive to balance the needs of moving freight with community livability.
- Promote the appropriate location of regional pipeline systems to enhance security, local service, and efficiency.
- Meet federal and state safety compliance standards for operation, construction, and maintenance of the rail system.
- Provide safe routing of hazardous materials consistent with federal guidelines, and provide for public involvement in the process.
- Designated arterial routes and freeway access are essential for efficient movement of goods. Design these facilities and adjacent land uses to reflect the needs of goods movement.
- Railroad transportation facilities are economic development resources. Consider the needs of these facilities in land use decisions.
- Encourage the Central Oregon & Pacific Railroad to install railroad crossing arms with indicator lights at all railroad crossings.
- Plan for future parking in the downtown core by addressing future parking needs.
- Manage on-street parking to assist in slowing traffic, facilitating pedestrian movement, and efficiently supporting local businesses and residences consistent with the land use and mobility goals for each street.
- Require an appropriate supply and design of off-street parking facilities to promote economic vitality, neighborhood livability, efficient use of urban space, and reduced reliance on single occupancy motor vehicles.

The movement of goods and commodities into, out of, and through the Sutherlin area is heavily dependent on the highway system, and I-5 is by far the most important freight link in the region. No other truck routes are designated in Sutherlin. Most freight shippers and receivers in Sutherlin are located within one mile of I-5, and thus good access to I-5 is critical for them.

Currently, about 45 percent of all vehicles entering I-5 northbound from Wilbur-Umpqua Road are trucks. Further north on Old Highway 99, about 30 percent of all vehicles are trucks. Thus, rather than access I-5 from Central Avenue, a large number of trucks are currently traveling to I-5 via S. Calapooya Street. This could be a potential truck route into and out of Sutherlin, so that additional truck traffic does not further congest Central Avenue and the downtown core. Therefore, S. Calapooya Street could potentially be designated as a truck route in the future, and future pavement and geometry improvements should account for heavy truck volumes.

Rail Crossings

TSP objectives related to rail include:

- Railroad transportation facilities are economic development resources. Consider the needs of

these facilities in land use decisions.

- Encourage the Central Oregon & Pacific Railroad to install railroad crossing arms with indicator lights at all railroad crossings.

Railroads traveling through and stopping in Sutherlin effectively cut the city in half. These trains often have several hundred cars, and frequently disrupt auto traffic for 15 minutes or longer. The railroad crossing at Central Avenue, just west of S. Calapooya Street near downtown, disrupts the busiest road in the city, and when trains cross during periods of heavy traffic, vehicles can back up for a long distance. Traffic on other east-west streets is also stopped, and the railroad cuts the City in half during train crossings and stops.

In addition, the railroad crossing at Highway 99/Calapooya Street disrupts traffic on a major north/south street connecting Exit 135 on I-5 and the downtown area. The end result is that a significant share of all traffic in the city is temporarily halted.

The blockage of east-west traffic by long trains is a major problem for emergency vehicles, as no alternative travel routes exist. As the City grows, these problems will only become worse. Thus the City should consider installing a grade separated rail crossings at a key intersection in the future to preserve emergency vehicle access and improve general traffic flows.

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Chapter 6: Development of TSP Alternatives

Alternatives Development Process

The modal plans that appear in subsequent chapters of this TSP identify several street and intersection, bicycle, pedestrian, transit, and truck projects to meet existing and future multi-modal travel needs. These plans and projects were developed through an iterative process, and were informed by the following sources:

- A review of the system deficiencies identified during the plan process (described previously)
- Recommendations from the TAC, which were solicited during a series of meetings
- Recommendations from the CAC, which were solicited during a series of meetings
- Input from the residents of Sutherlin, which was solicited during two public workshops
- Mitigation required by various policies and regulations
- Professional judgment by City and ODOT staff, and the project consultants

Evaluation Process

Recognizing that the full set of identified needs and/or desired projects may outstrip available funding or conflict with other projects, it was important to determine which potential projects or groups of projects should be proposed for adoption and potential funding opportunities, and when the projects should be constructed. Several general issues were considered in making these determinations, and in refining the improvements:

- How critical is the need for the project(s)?
- How urgent is that need?
- Is the City meeting its benchmark commitments (e.g., increasing bicycle and pedestrian facilities on arterial and collector streets)?
- Are the projects supportive of the City's land use and other Comprehensive Plan goals?
- Does the project(s) support the City's policies for transportation, and if so, how well?
- Does the range of projects include a reasonable mix of representatives from all travel modes?

To address these larger questions, the goals and policies presented earlier in this TSP were used to develop project evaluation criteria to determine which projects would be advanced, and to group projects for short-range and longer-range implementation. These evaluation criteria are shown in Table 6-1, along with the relative importance that the TAC and CAC assigned to each criterion.

Table 6-1. TAC and CAC Priorities for Project Development

Criteria	TAC Votes	CAC Votes	Total Votes
1. Addresses Mobility Standards	5	4	9
2. Improves Safety	2	1	3
3. Improves Circulation/Provides Alternative Routes	6	4	10
4. Capital and Operations Cost	1	2	3
5. Likelihood of Funding	0	0	0
6. Land Use, Cultural and Environmental Impacts	1	0	1
- Improved Access			
- Potential Encroachments			
7. Balanced, Multi-modal Transportation System	0	4	4
8. Includes TSM and TDM Tools	2	0	2
- Traffic Signal Coordination			
- Access Management			

These criteria were "applied" to each potential (i.e., draft) improvement project, typically requiring subjective assessments. As Table 6-1 shows, the TAC and CAC placed the highest priority on projects that can improve circulation by providing alternative routes, and on projects that directly improve mobility (e.g., mitigate traffic congestion at specific locations). The plans and projects that are described in the following chapters were deemed to be most consistent with these overall priorities and with the TSP goals and objectives.

Chapter 7: Street Network Plan

Introduction

This chapter describes recommended improvements to the motor vehicle system. These improvements are directly related to transportation deficiencies identified earlier in this plan, and also reflect suggestions from stakeholders in the City of Sutherlin. Road improvements that also pertain to other modes of travel (e.g., walking, bicycling) are discussed in more detail in subsequent chapters relating to those modes. Similarly, road improvements specifically intended to improve truck mobility are discussed in a separate chapter on freight transportation.

These improvements (and other modal improvements, discussed subsequently) were developed and compared to the evaluation criteria adopted by the TAC and CAC. As described in the previous chapter, these criteria include measures of mobility, capital cost, safety, land use impacts, and environmental impacts. Draft improvements were refined in an iterative process, to become the preferred alternative presented in this chapter.

The remainder of this chapter is organized into the following topics:

- 2025 Street Improvements
  - Arterials, Collectors, and Local Streets
  - Functional Class Changes
  - Recommended Cross Sections
  - Traffic Calming
  - Transportation System Management (TSM)
  - Maintenance
  - Parking
  - Intersection Improvements
- 2055 Street Improvements
  - Arterials, Collectors, and Local Streets
- Proposed Mobility Standards
- Jurisdictional Transfers

2025 Street Improvements

This section describes recommended 20-year street improvements, including roadway transportation improvement upgrades and new proposed roads that are primarily intended to improve local traffic circulation, mobility, and relief to parallel routes.

To the extent that these road improvements also improve bicycle and pedestrian mobility, these benefits are described in other chapters of this plan.

Arterials, Parkways, Collectors, and Local Streets

Figure 7-1 shows recommended 20-year street improvements. Brief descriptions of these improvement projects follow the project map.

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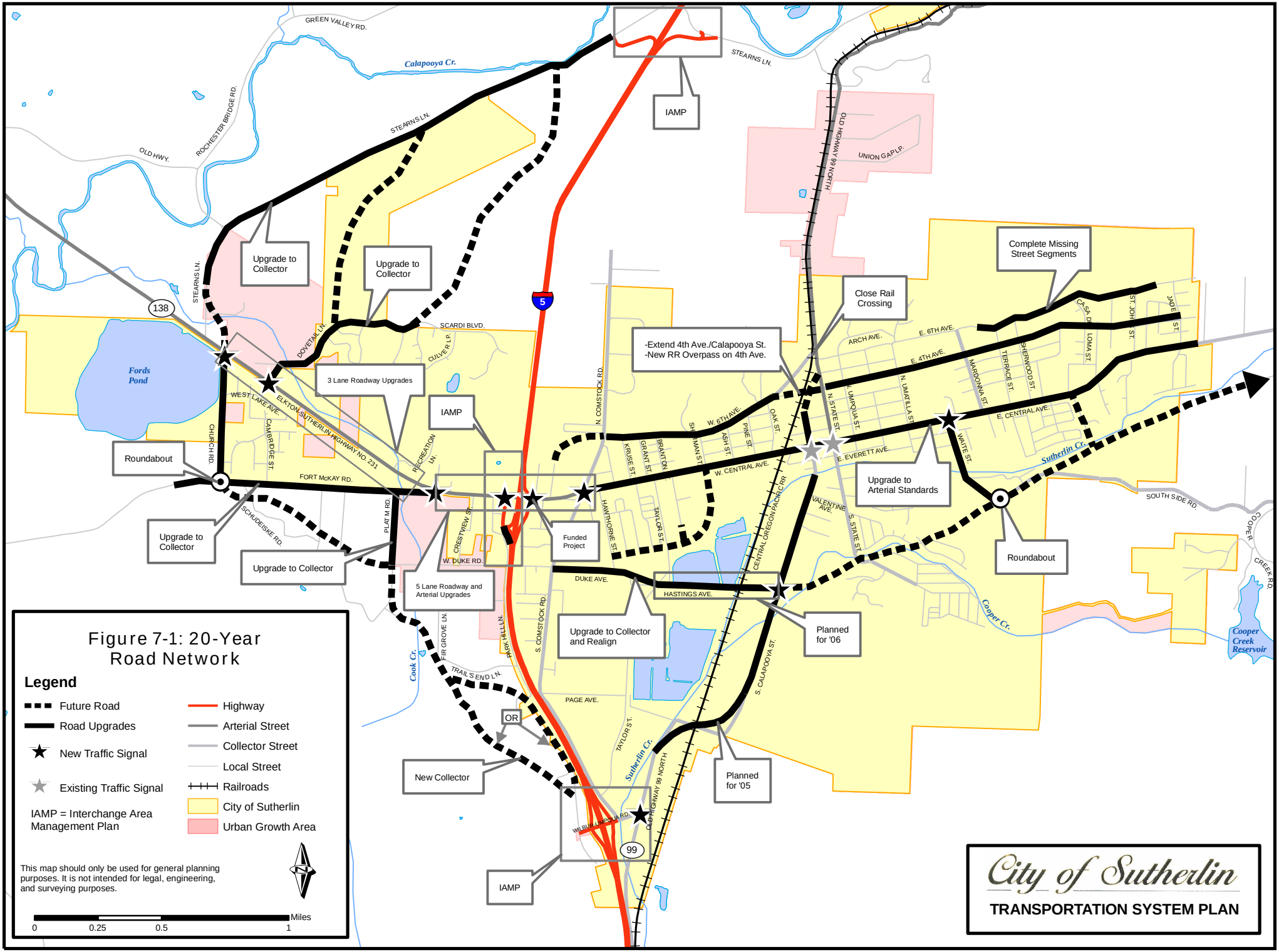
Upgrade to Collector
Upgrade to Collector
IAMP
Complete Missing Street Segments
Close Rail Crossing
-Extend 4th Ave./Calapooya St.
-New RR Overpass on 4th Ave.
3 Lane Roadway Upgrades
IAMP
Roundabout
Upgrade to Arterial Standards
Upgrade to Collector
Upgrade to Collector
Funded Project
Roundabout
5 Lane Roadway and Arterial Upgrades
Upgrade to Collector and Realign
Planned for '06
New Collector
Planned for '05
IAMP
Figure 7-1: 20-Year Road Network
Legend
Future Road
Road Upgrades
New Traffic Signal
Existing Traffic Signal
IAMP = Interchange Area Management Plan
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
Miles
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1
City of Sutherlin
TRANSPORTATION SYSTEM PLAN

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West of I-5:

- Stearns Lane: Upgrade to collector street design standards from Oregon Highway 138 to I-5, including bike lanes and sidewalks.
  Realign Stearns Lane at intersection with Oregon Highway 138 to the east at the intersection of Church Road. This realignment will improve safety along Oregon 138 by eliminating conflicting left-turn movements and consolidating access points. In addition, this realignment will provide a more continuous grid-network, improving circulation and mobility.

- Fort McKay Road: Upgrade to collector street design standards from Oregon Highway 138 to west of Church Road including bike lanes and sidewalks.

- Oregon Highway 138: Three-lane roadway improvements from Fort McKay Road to realigned Stearns Lane, including bike lanes and sidewalks. A center left-turn lane and/or median with turn lanes is proposed for Oregon 138 west of Fort McKay Road.

- Dovetail Lane/Scardi Blvd.: Upgrade to collector street design standards.
  Connect to improved Stearns Lane (as described above) via two new north-south collector roadways, traveling north from the vicinity of Eagle Loop and Sandpiper Court. With the projected growth in this area, the new collector roadways are needed to carry the projected traffic and provide circulation and mobility.

- Plat M Road: Upgrade to collector street design standards from Fort McKay Road to W. Duke Rd.

- New west-side collector from Church Road to vicinity of Wilbur-Umpqua Road (I-5 Exit 135): This new collector would provide access to the southern interchange for projected traffic traveling to and from the west side of the City of Sutherlin. This connection would provide an alternative route and help to relieve traffic congestion on Central Avenue and provide circulation for new developments west of I-5 in Sutherlin.

Vicinity of I-5/Stearns Lane Interchange:

- I-5 Interchange: Interchange Area Management Plan (IAMP) needed to study:
  - New I-5 southbound off ramp
  - New I-5 northbound on-ramp
  - Improvements to existing interchange ramps
  - Analysis of land uses around interchange

Vicinity of I-5 Exit 136 Interchange at Oregon Highway 138/Central Avenue:

- Oregon Highway 138: Five-lane roadway and arterial upgrades from Fort McKay Road to N. Comstock Road to provide adequate capacity and traffic operation along this segment of Oregon 138/Central Avenue.

- I-5 Interchange: IAMP needed at this interchange to study:
  - Improvements to I-5 on- and off-ramps
  - Park Hill Lane and Frontage Road access
  - Analysis of land uses around interchange

  There is an Agreement 19622 between ODOT and Douglas County that pertains to this interchange. Property owner access concerns and preferences for this interchange area are described in an August

18, 2005 letter from the Westside Property Owners Committee (see TSP Appendices). To ensure that property owner interests are considered, the IAMP will utilize the same public planning process which the TSP has utilized, including public hearings and public involvement of affected property owners, review and recommendation by the City Transportation Advisory Committee, and review and adoption by the Planning Commission and City Council.

Vicinity of I-5 Exit 135 Interchange at Wilbur-Umpqua Road:

- I-5 Interchange: IAMP needed at this interchange to study:
  - Access and connection to I-5 exit 136
  - Improvements to existing interchange ramps
  - Analysis of land uses around interchange

East of I-5:

- E. 6th Avenue: Maintain street functional class as a local street, and improve the section from east of Mardonna Street to east of St. John Street by completing the missing street sections. Currently, this street section has several missing segments, which inhibits east-west travel. This improvement will improve circulation and local street connectivity.

- E. 4th Avenue: Extend west to W. Sixth Avenue and upgrade to collector street standards including bike lanes and sidewalks (the street is currently designated as a collector). This project will need to evaluate travel speeds and stop control devices and locations, as two schools and residential neighborhoods are nearby.

  A new railroad overcrossing is proposed to replace the existing at-grade crossing at 6th Avenue. This improved crossing would eliminate sight distance problems for southbound travelers on Highway 99 and improve safety. In addition, this improvement will significantly improve emergency vehicle access when trains are stopped in or traveling through the city. Currently, emergency vehicles and school buses cannot get from one side of the city to the other side of the city when the trains are blocking east-west roads in Sutherlin. Figure 7-2 shows the existing railroad alignment, and Figure 7-3 provides an illustrative sketch of how the new rail overcrossing could look.

Figure 7-2. Existing Railroad

Figure 7-3. New Rail Overcrossing at 4th Avenue

- W. 6th Avenue: Extend west of N. Comstock Road to connect with Myrtle Street. The segment west of N. Comstock Rd. would be a local road. This improvement would improve circulation and local street connectivity.

- N. Calapooya Street: Extend Calapooya Street from Central Avenue north to N. State Street/Old Highway 99 to eliminate the existing dog leg on Old Highway 99 (State Street to Central Avenue to Calapooya Street). The extension would connect to Old Highway 99/State Street near 5th Avenue and upgrade to arterial street design standards. This would allow north-south travelers to have a direct route and reduce vehicle miles traveled and travel time. This improvement would reduce traffic congestion on Central Avenue between the intersections of State Street and Calapooya Street. This new connection is proposed to travel parallel to the railroad tracks under the proposed 4th Avenue extension/railroad overcrossing bridge as shown in the illustrative sketch in Figure 7-3. As part of this project, State Street is proposed to be realigned and "T" into the new Calapooya Street extension/Old Highway 99.

- S. Calapooya Street: Douglas County is scheduled to improve Old Highway 99/Calapooya Street in 2005 from the Sutherlin Creek Bridge south to the vicinity of the CORP railroad crossing. The project will eliminate the two 90 degree turns near the railroad crossing and will add sidewalks and bike lanes up to Sutherlin Creek Bridge.

- Central Avenue: This road will be upgraded to arterial street design standards from Comstock Road to the east city limit including bike lanes, continuous sidewalks, and landscaping.
  Access management strategies are proposed for Central Avenue including a median with turn lanes and consolidated accesses. Figure 7-4 shows Central Avenue as exists today, and Figure 7-5 provides an illustration of an improved Central Avenue with new medians, sidewalks, bike lanes, landscaping and other arterial treatments. Additional access management strategies are described in the Access Management section of this TSP.

Figure 7-4. Central Avenue (Existing)

Figure 7-5. Simulation of Improved Central Avenue

- New local road from Hawthorne St. to W. Central Avenue: This new road would connect to Eddy St., Johnson St., and Miller St., and then connect to W. Central Avenue near Sherman St. This would improve local street connectivity, access, and circulation.

- Duke Avenue/Hastings Avenue: Upgrade to collector street design standards and realign street connection for improved traffic flow and mobility for east-west circulation and connectivity.

- New east-west Parkway from S. Calapooya Street to the east city limit: Like the improved 4th Avenue/6th Avenue connection, this new Parkway would provide an important alternative east-west route to Central Avenue. (The new Parkway functional classification is described in a subsequent section.) The Parkway is proposed to be a three-lane "green" roadway (one lane in each direction with a landscaped median/center turn lane) with bike lanes, sidewalks, and landscaping. The proposed cross section consists of 11′ travel lanes, 12′ median/turn lane, 5′ bike lanes, bio-swale for drainage, landscaping on both sides of the street, multi-use path on one side, and sidewalk on the other side of the roadway. The east end of the new Parkway will connect to E. Central Avenue via Sunny lane, which will be improved and include a new bridge over Sutherlin Creek.

  Photo 7-1 and Photo 7-2 show parkway design examples, Figure 7-6 shows the existing area near the proposed east-west parkway, and Figure 7-7 is a conceptual sketch showing how the new Parkway might appear in the City of Sutherlin. The off-street paths and roundabout shown in these graphics are discussed in subsequent sections of the plan.

Photo 7-1. Parkway Design Example 1

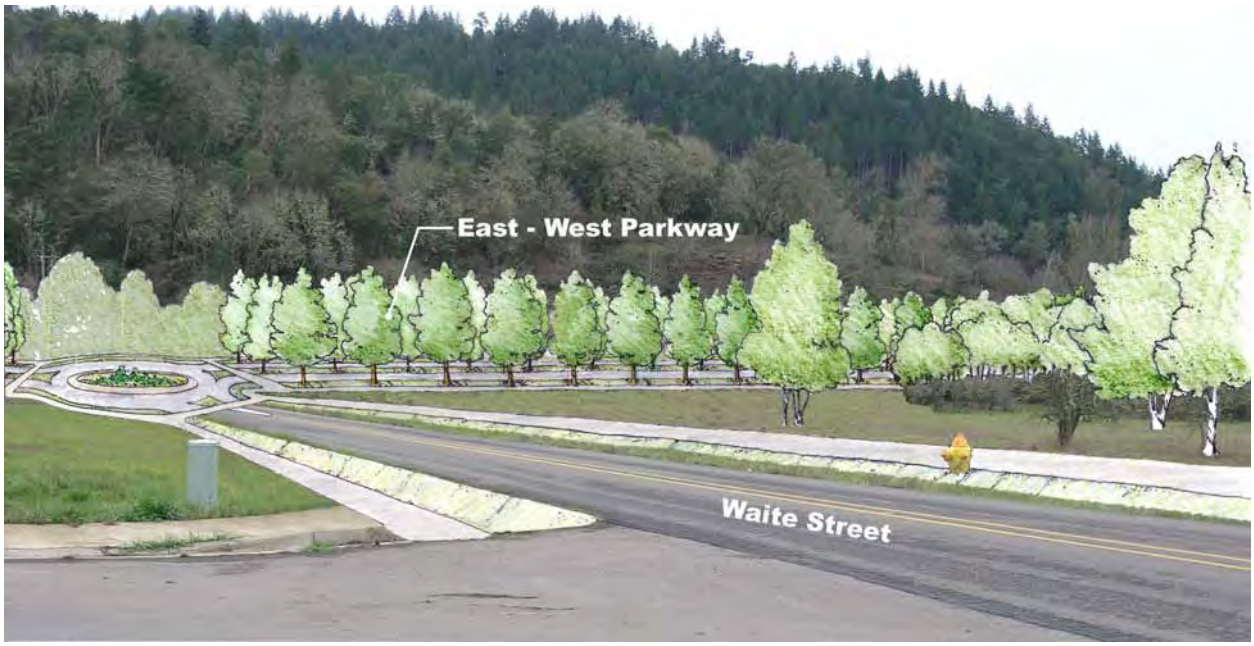
Source: Montgomery County, Maryland

Photo 7-2. Parkway Design Example 2

Source: Montgomery County, Maryland

Figure 7-6. Existing Area Near Proposed East-West Parkway

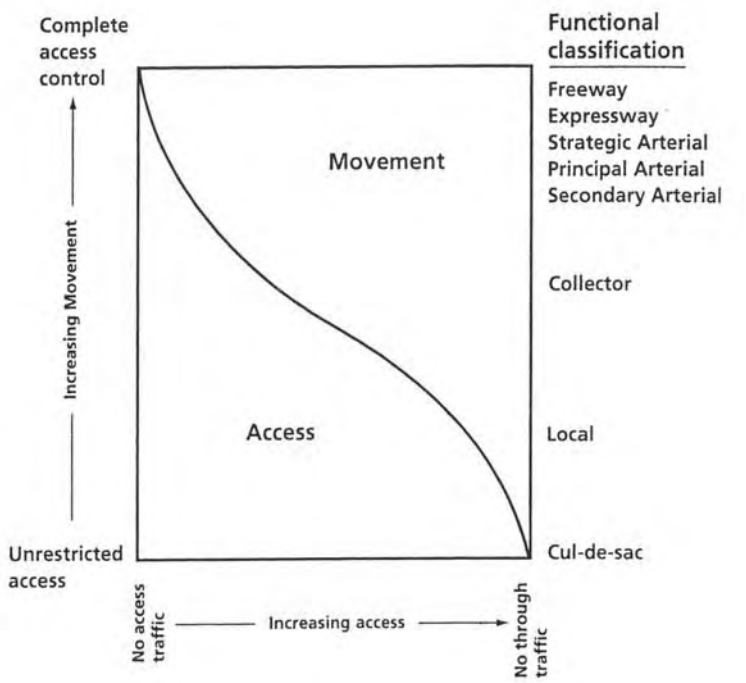
Figure 7-7. Conceptual Sketch of Proposed East-West Parkway



Roadway Functional Class

Roadways have two functions, to provide mobility and to provide access. From a design perspective, these functions can be incompatible since high or continuous speeds are desirable for mobility, while low speeds are more desirable for land access. Figure 7-8 illustrates this tradeoff. Generally speaking, arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function, and collectors offer a balance of both functions.

Figure 7-8. Relationship of Mobility and Access



Source: NCHPR Report 348, "Access Management Policies and Guidelines for Activity Centers." Metro Transportation Group. Transportation Research Board, Washington, DC 1993.

Functional classification has commonly been mistaken as a determinate for traffic volume, road size, land use and other features that collectively comprise the elements of a roadway; however, it's function. For example, the traffic on a roadway can be directly related to specific land uses, and the fact that the road carries a lot or a little traffic does not determine its function. The traffic volume, design (including access standards) and size of the roadway are outcomes of function, but do not define function.

Function can best be defined by connectivity. Without connectivity, neither mobility nor access can be served. Roadways that provide the greatest reach of connectivity are the highest level facilities. Arterials are defined by regional level connectivity. The movement of persons, goods, and services depends on an efficient arterial system. Collectors can be defined by citywide or districtwide connectivity. These routes span large areas of the city but typically do not extend significantly into adjacent jurisdictions. They are important to city circulation. All other routes are then typically defined as local streets, which provide the highest level of access to adjoining land uses, but do not connect at any significant level.

In addition to the existing functional classifications described in the Existing Conditions chapter (primary highway, arterial, collector, Local Street), the future street plan includes a new Parkway classification. Following is a description of this new classification:

> **Parkway** – The primary function of the parkway is similar to the arterial function, which is to provide through movement to traffic, distributing it to collector streets and principal highways, and providing limited land access. The parkway classification is generally characterized by a three- to five-lane cross section, and accommodates pedestrian and bicycles movements. Signalization or roundabouts should be provided at intersections

with other arterials and collector streets, as warranted and appropriate. The parkway is proposed to have limited or controlled access with a landscaped median/center left-turn lane at key intersections and accesses. Bicycle lanes and sidewalks/multi-use paths are proposed for the parkway along with landscaping and green bio-swales.

Table 7-1 lists the existing roads in Sutherlin that have proposed changes to their functional classification, and Figure 7-9 shows the future road classification of all roads in the city.

Table 7-1. Functional Class Changes to Existing Roads

Street	From Street	To Street	Current Class	Future Class
E. Central Ave.	State Street	east city limit	Collector	Arterial
S. Calapooya St.	Wilbur-Umpqua Rd.	W. Central Ave.	Collector	Arterial
N. State St.	Central Ave.	E. 4th Ave.	Arterial	Collector
N. Umatilla St.	E. 6th Ave	E. Central Ave.	Local	Collector
Taylor St.	W. Central Ave.	S. Comstock Rd.	Local	Collector
Duke Ave.	S. Comstock Rd.	Taylor St.	Local	Collector
Hastings Ave.	Taylor St.	S. Calapooya St.	Local	Collector
Plat M Rd.	Fort McKay Rd.	W. Duke Rd.	Local	Collector
Fort McKay Rd.	west of Church Rd.	Oregon Hwy 138	Local	Collector
Church Rd.	Oregon Hwy 138	Fort McKay Rd.	Local	Collector
Stearns Ln.	Oregon Hwy 138	I-5	Local	Collector
Dovetail Ln./Scardi Blvd.	Oregon Hwy 138	Divot Lp.	Local	Collector

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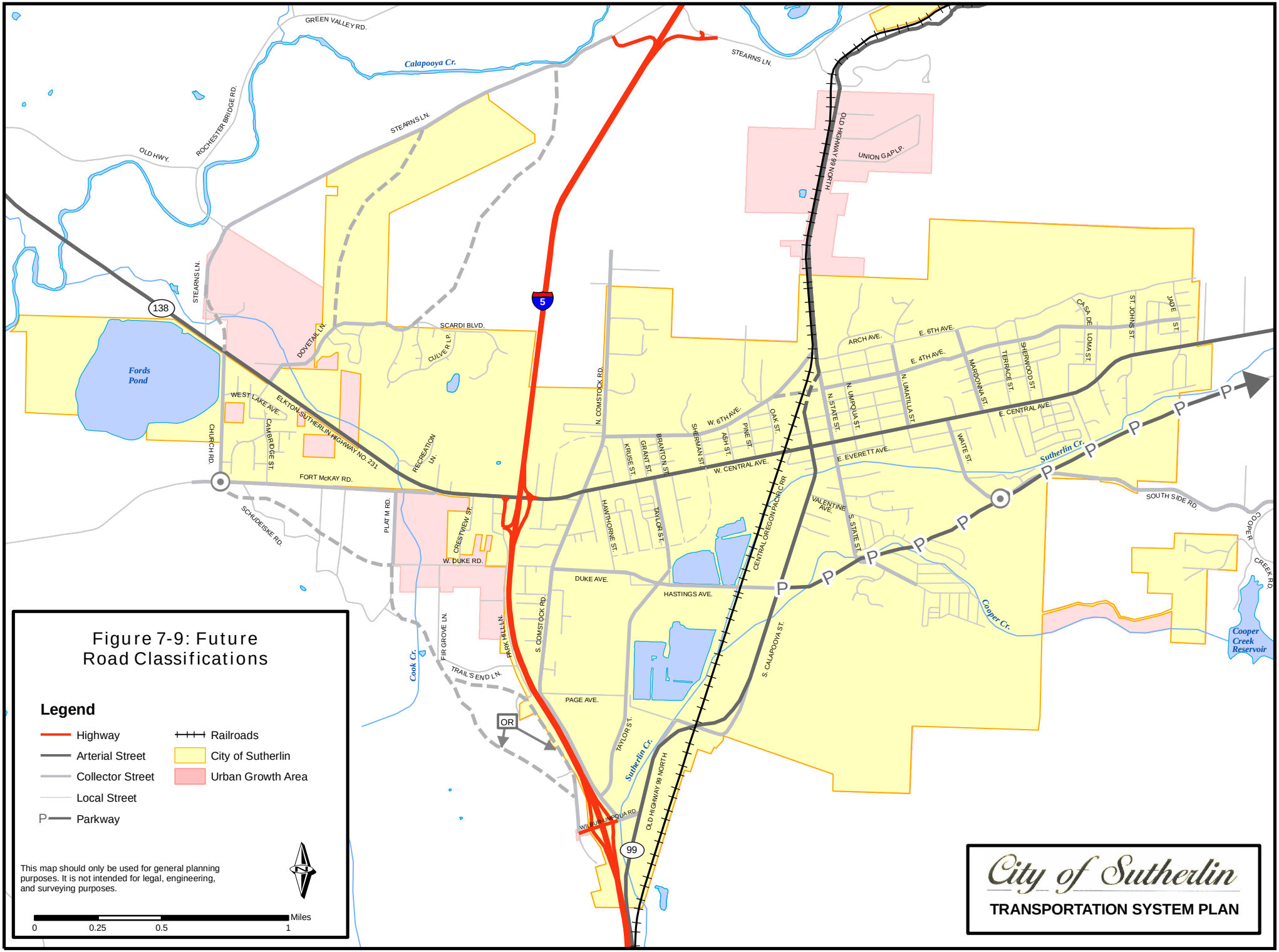
Figure 7-9: Future Road Classifications
Legend
Highway
Arterial Street
Collector Street
Local Street
Parkway
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
Miles
0
0.25
0.5
1
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cook Cr.
Cooper Creek Reservoir
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CHURCH RD.
CAMBRIDGE ST.
RECREATION LN.
FORT McKAY RD.
SCHUBEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
S. COMSTOCK RD.
N. COMSTOCK RD.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
HAWTHORNE ST.
TAYLOR ST.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
E. CENTRAL AVE.
E. 4TH AVE.
E. 6TH AVE.
ARCH AVE.
N. STATE ST.
N. UMPQUA ST.
N. UMATILLA ST.
MARDONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WAITE ST.
VALENTINE AVE.
S. STATE ST.
S. CALAPOOYA ST.
CENTRAL OREGON PACIFIC RR
OLD HIGHWAY 99 NORTH
WILBUR-UMPQUA RD.
UNION GAP LP.
STEARNS LN.
SOUTH SIDE RD.
COOPER R.
CREEK RD.
OR
138
5
99

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Typical Street Cross Sections

Design characteristics of streets in Sutherlin were developed to meet the function and demand for each facility type. Because the final design of the roadway can vary from segment to segment due to adjacent land uses and demands, the objective was to develop a system that allows standardization of key characteristics to provide consistency and to provide criteria for application that provides some flexibility while meeting standards. For state facilities, design standards should match those described in the current Highway Design Manual.

Figures 7-10 to 7-20 provide typical street cross sections for arterials, parkway, collectors, and local streets. Key notes that correspond to the typical street cross sections follow:

- Selection of placement of sidewalk and landscaping strip are specific to application. Cross sections show choices for reference.
- Width of six-inch curb is included in sidewalk or planter strip when adjacent to street.
- Cross sections show the desirable applications given the number of lanes plus minimum standards that can be applied case by case.
- Actual width of street, sidewalk, and landscape area can be adjusted within the right of way based on modal priorities and adjacent land use.
- Encourage use of curb extensions along arterials and collectors at intersections in commercial areas and on any pedestrian routes.

The following abbreviations are used to identify the lane types in the cross sections:

- T = travel lane
- P = parking
- B = bike lane
- S'Walk = sidewalk

Figure 7-10. Two-Lane Arterial – Parking Both Sides

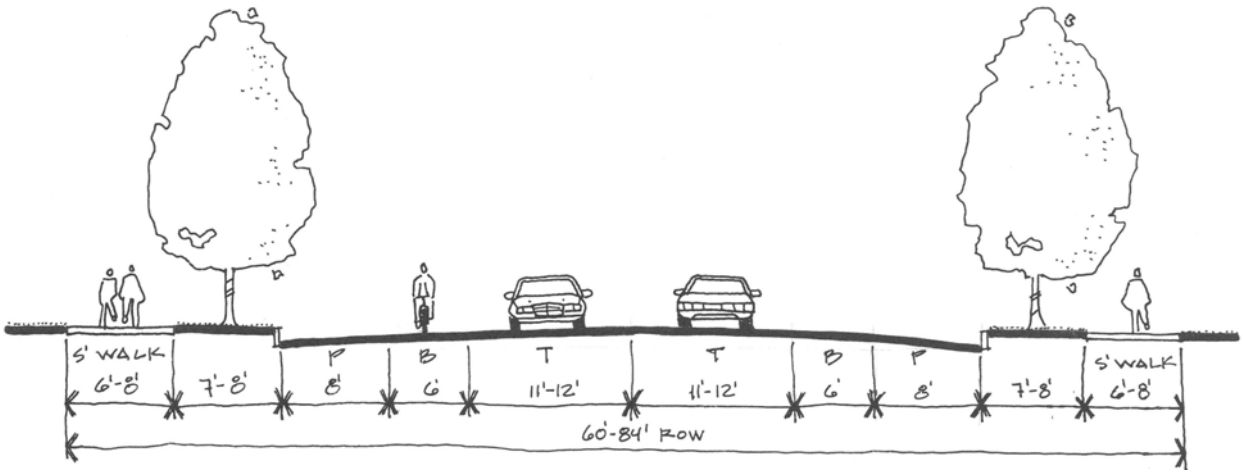

Figure 7-11. Three-Lane Arterial

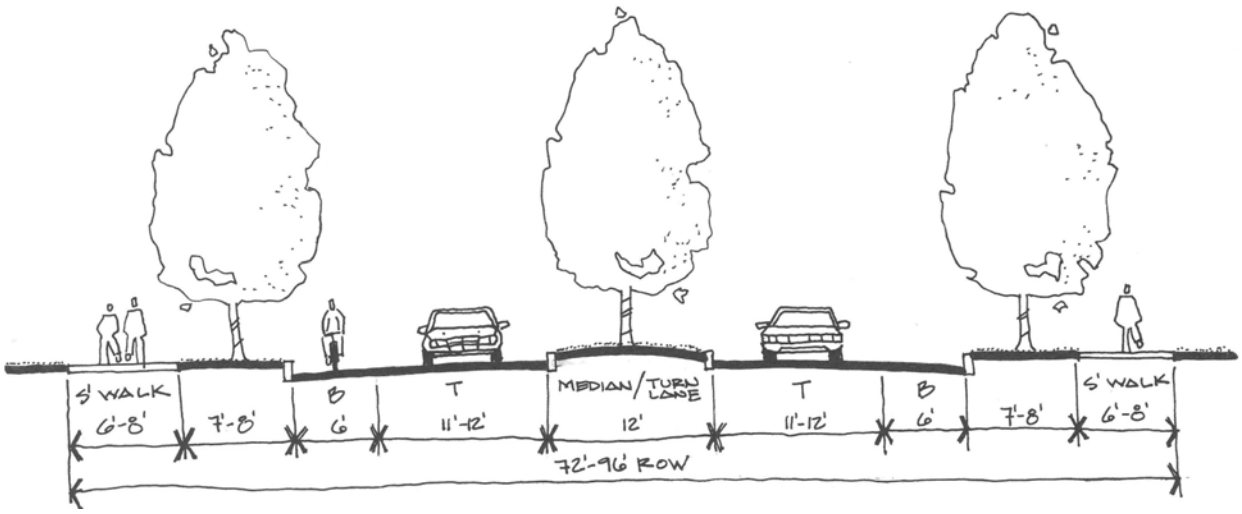

Figure 7-12. Five-Lane Arterial

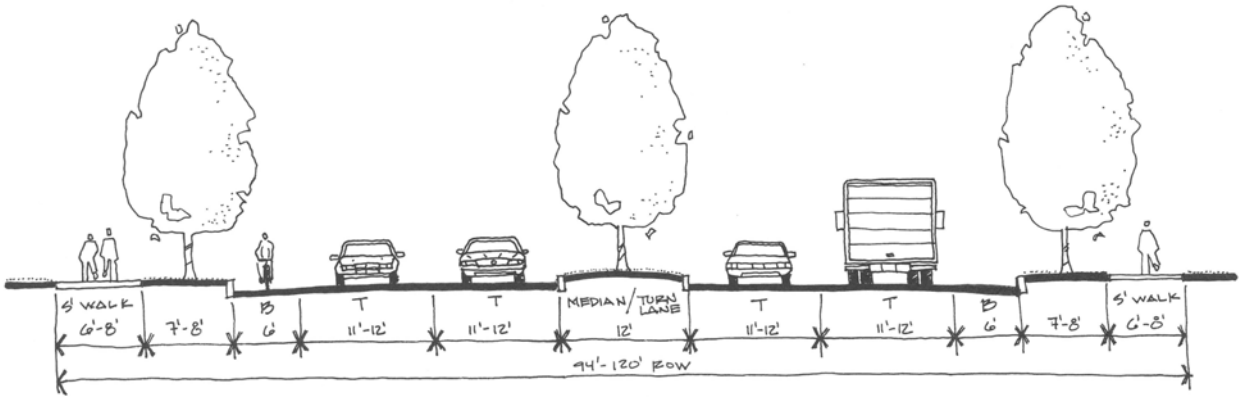

Figure 7-13. Parkway

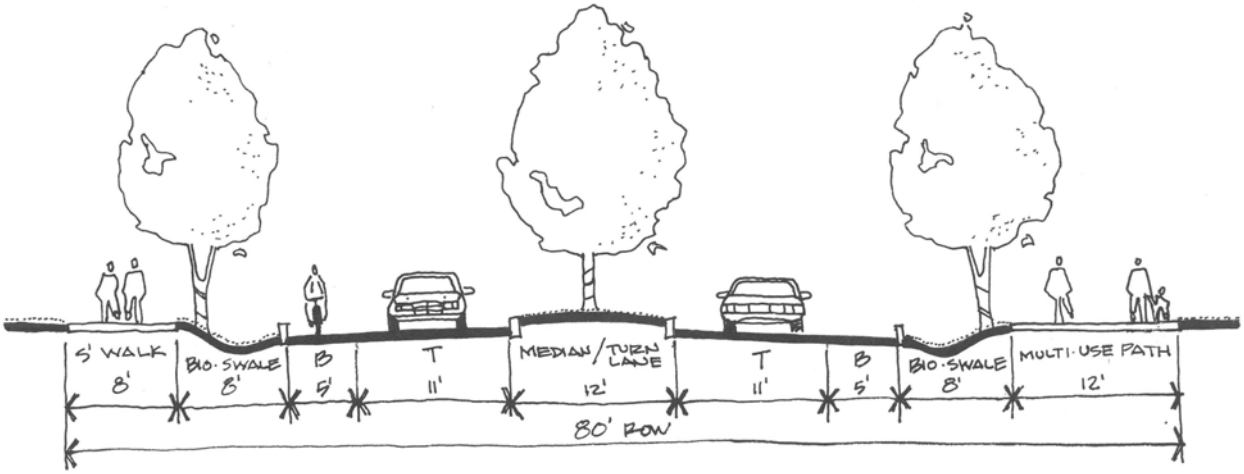

Figure 7-14. Three-Lane Collector – Parking Both Sides

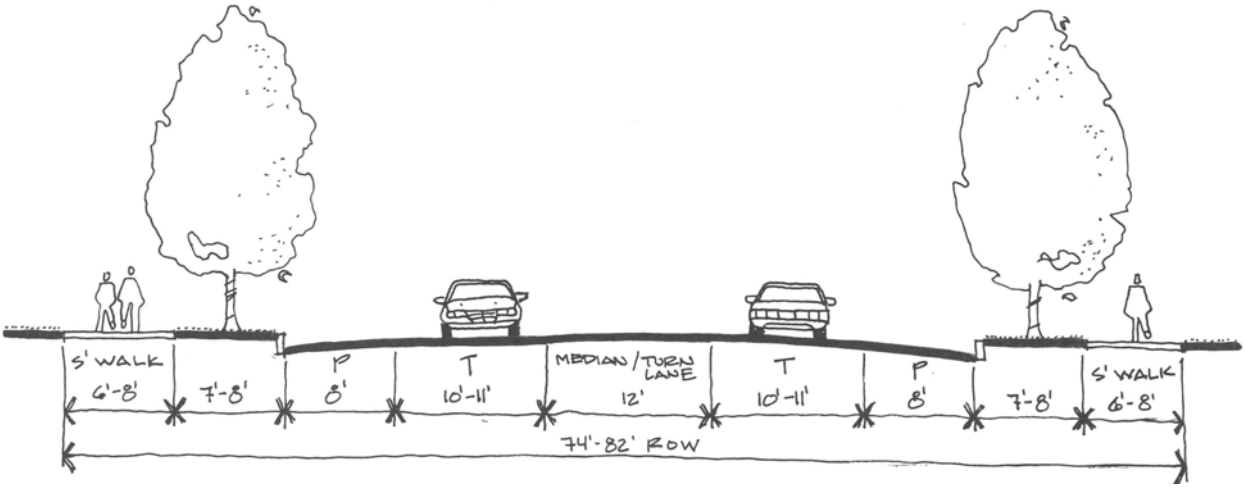

Figure 7-15. Commercial / Industrial Collector – Parking Both Sides

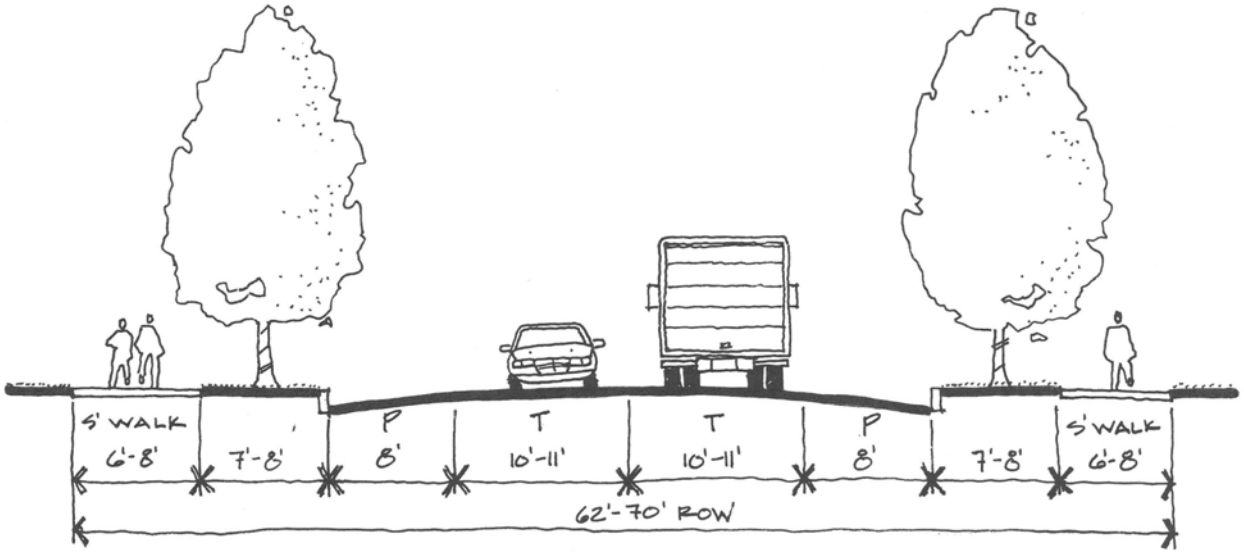

Figure 7-16. Commercial / Industrial Collector – Parking One Side

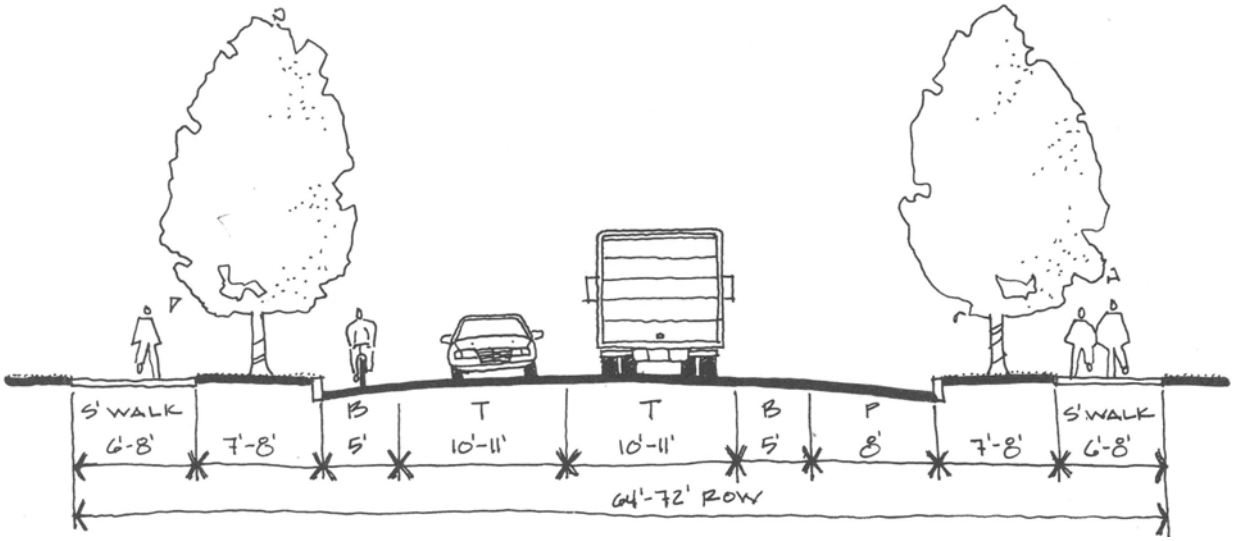

Figure 7-17. Commercial / Mixed-Use Collector – Parking Both Sides

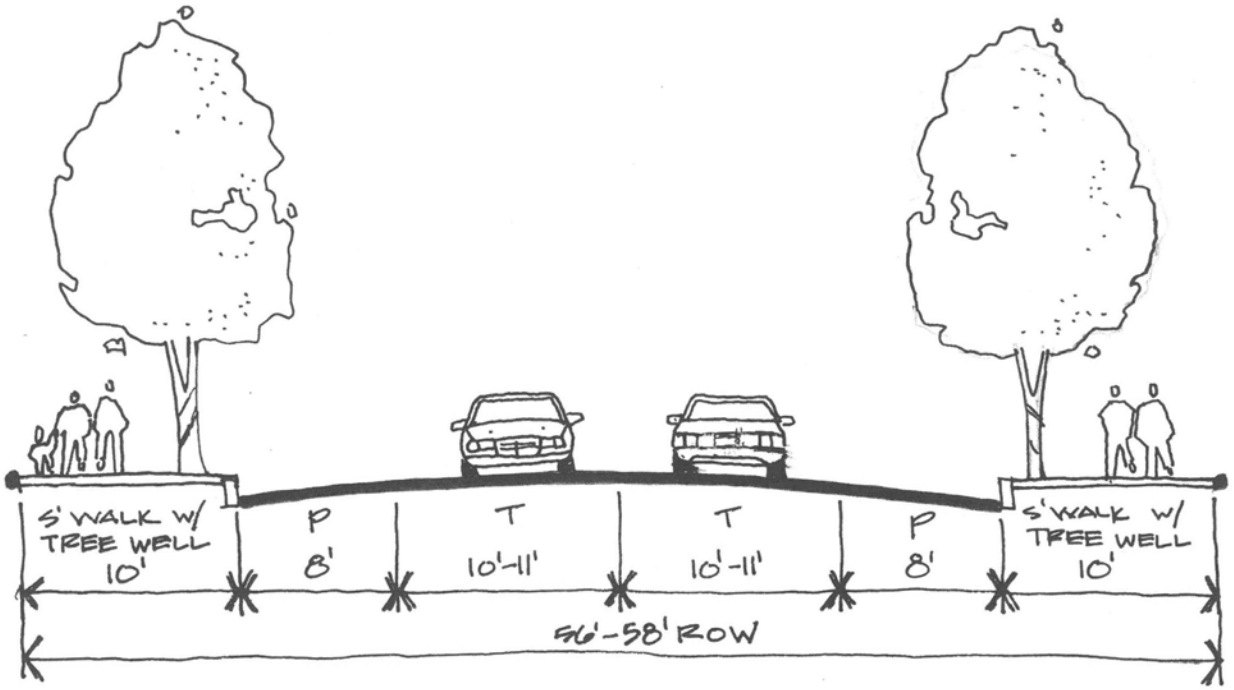

Figure 7-18. Residential Collector

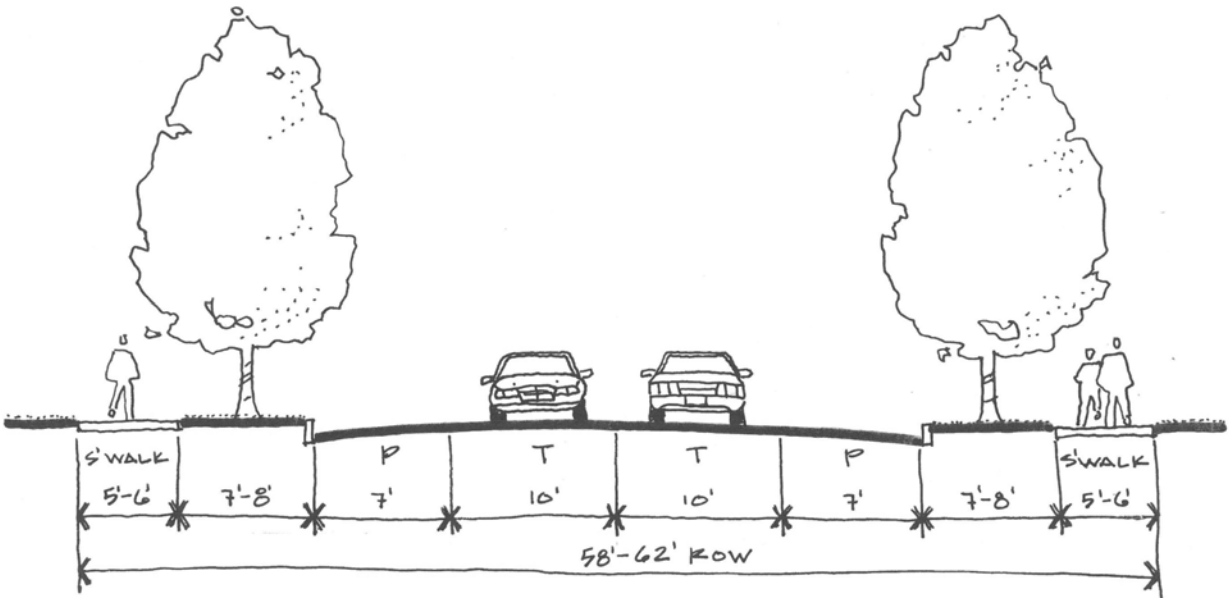

Figure 7-19. Local Residential Street – Parking One Side

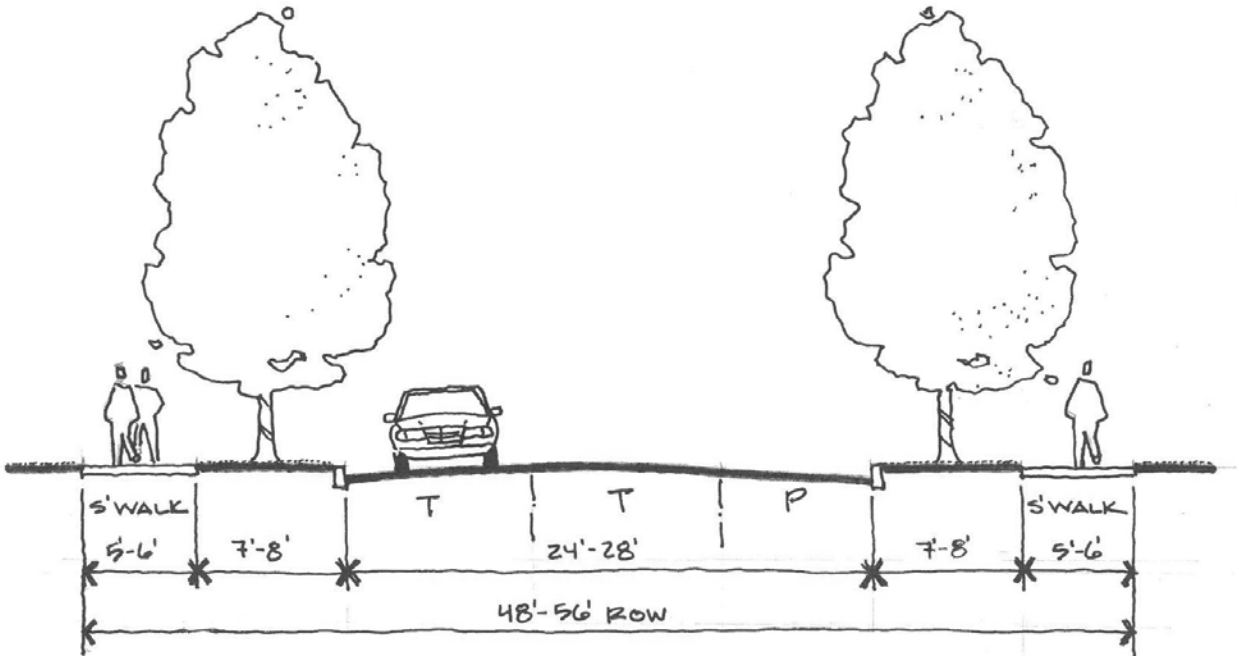

Figure 7-20. Local Residential Street– Parking Both Sides

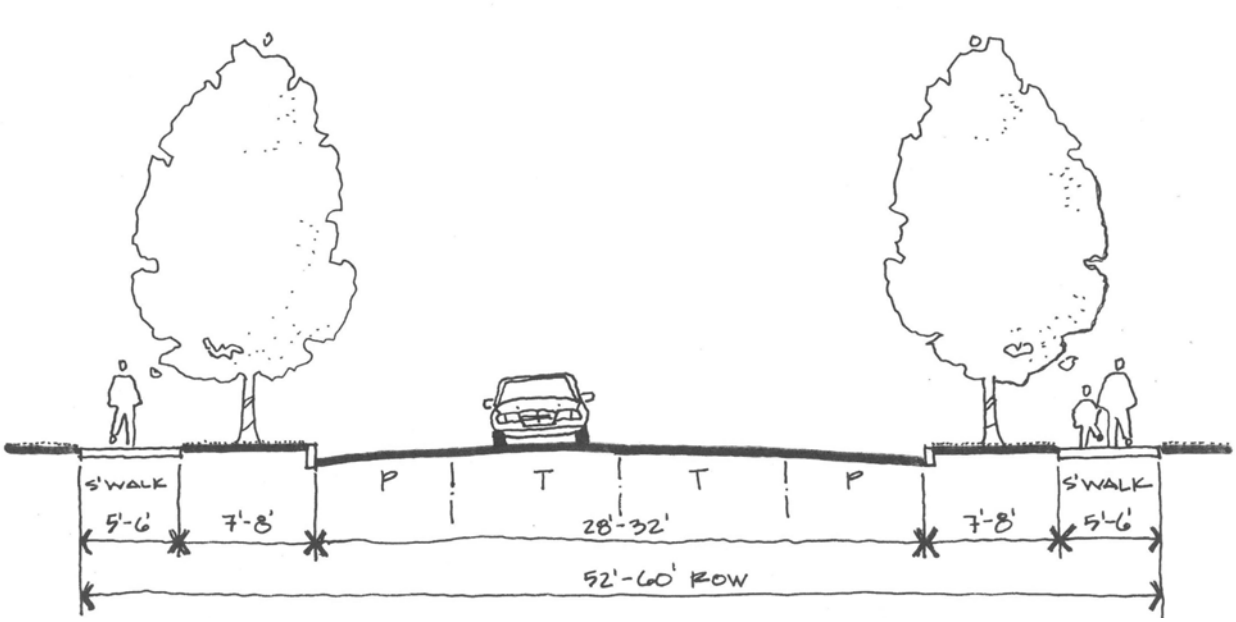

Table 7-2 provides a summary of key street characteristics, design criteria, and applications.

Table 7-2. Proposed Street Characteristics and Design Criteria

Vehicle Lane Widths: (minimum widths)	Truck Route = 12 feet Bus Route = 11 feet Arterial = 11-12 feet Parkway = 11 feet Collector = 10-11 feet Local = 9-10 feet Turn Lane = 10-12 feet (12 feet for arterials and truck routes)
On-Street Parking:	Residential = 7 feet Commercial/Industrial = 8 feet
Bicycle Lanes: (minimum widths)	Arterials = 6 feet Parkway = 5 feet Collectors = 5 feet
Sidewalks:	Arterials = 6-10 feet Parkway = 6-10 feet Commercial/Industrial Collectors = 6-10 feet Residential Collector = 5-6 feet Local = 5-6 feet
Curb Extensions for Pedestrians	Consider on any Pedestrian Plan Route
Landscape Strips:	Arterial/Collector = Preferred/Desirable Parkway = 8 feet minimum Local = Optional
Medians:	5 Lanes = Required 3 Lanes = Optional
Neighborhood Traffic Management/Traffic Calming:	Arterials = Only Under Special Conditions Commercial/Industrial Collectors = Under Special Conditions Residential Collectors = Should Consider Local = Under Special Conditions
Turn Lanes:	When warranted
Access Control:	TSP Goal 1, Objective H

Access Management

Access management is important, particularly on high volume roadways, for maintaining traffic flows, mobility, and safety. Whereas local and neighborhood streets primarily function to provide access, collector and arterial streets typically serve greater traffic volumes. Numerous driveways or street intersections increase the number of conflicts and potential for accidents, and decrease mobility and traffic flow. Sutherlin needs a balance of streets that provide access and streets that provide mobility.

Following are several access management strategies that the city could implement to ensure that access and mobility are both considered and maintained:

- Prohibit new single family access to arterials and collectors
- Establish new city access management standards for all routes on new development using maximums and minimums
- Work with land use development applications to consolidate driveways
- Use medians on arterial routes to limit access
- Provide right in, right out driveways on arterials or collectors where appropriate
- Pedestrian refuge islands on arterials and collectors
- Consolidate access points within 1,320 feet of freeway interchanges, as possible
- Allow no new access within 1,320 feet of freeway interchange ramps
- Develop minimum traffic signal spacing on arterials and collectors in coordination with Douglas County and ODOT

In particular, these strategies should be considered for Central Avenue.

Access spacing standards for freeways and state highways are specified in the Oregon Highway Plan and Oregon Administrative Rules (Chapter 734, Division 51). The amount of access and how it is allowed to a state highway is a critical factor in determining how long the facility can remain functional and safe. Driveways located too close to highway intersections, or an uncontrolled number of driveways or connecting public roads, for instance, can impede smooth traffic flows and reduce a highway's capacity to safely carry people and freight. Thus, access standards were developed to manage the location, spacing, and type of road intersections and approach roads.

State highways are classified as statewide, regional or district highways, and these highways can also be designated as expressways. Oregon Highway 138 is classified as a regional highway, but not an expressway. Expressways are intended to provide links to regions within the state, and between small urbanized areas and large population centers. Other highways provide links to expressways, statewide highways, and freeways. Table 7-3 and Table 7-4 show the minimal allowable distances between driveways and approach roads along regional and district highways[19].

[19] Refer to the Oregon Highway Plan for additional notes pertaining to exceptions, approach roads consolidation, and potentially landlocked properties.

Table 7-3. Access Management Spacing Standards for Regional Highways (Feet[a])

Posted Speed	Rural		Urban			
	Expressway[b]	Other	Expressway[b]	Other	UBA[c]	STA[d]
≥55	5280	990	2640	990		
50	5280	830	2640	830		
40 & 45	5280	750	2640	750		
30 & 35		600		600	425	Note 1
≤25		450		450	350	Note 1

a - Measurement of the approach road spacing is from center to center on the same side of the roadway.

b - Spacing for at-grade intersections only.

c - Urban Business Area

d - Special Transportation Area

Table 7-4. Access Management Spacing Standards for District Highways (Feet[a])

Posted Speed	Rural		Urban			
	Expressway[b]	Other	Expressway[b]	Other	UBA[c]	STA[d]
≥55	5280	700	2640	700		
50	5280	550	2640	550		
40 & 45	5280	500	2640	500		
30 & 35		400		400	350	Note 1
≤25		400		400	350	Note 1

a - Measurement of the approach road spacing is from center to center on the same side of the roadway.

b - Spacing for at-grade intersections only.

c - Urban Business Area

d - Special Transportation Area

Douglas County does not have adopted roadway spacing standards. Instead, each new proposed roadway or driveway is evaluated individually, and design changes are implemented as necessary based on professional judgment so that general traffic safety principles are followed.

Table 7-5 shows proposed access management spacing standards (minimum) for roadway segments under jurisdiction of the City of Sutherlin.

Table 7-5. Proposed City of Sutherlin Access Management – Minimum Spacing Standards

Functional Class	Minimum Spacing (Feet)
Arterial	500
Parkway	400
Collector	250
Local	25

Neighborhood Traffic Management/Traffic Calming

Neighborhood traffic management is used to describe traffic control devices typically used in residential neighborhoods to slow and "calm" traffic. The City does not have a formalized neighborhood traffic management program.

The following are examples of neighborhood traffic management/traffic calming measures:

- Speed humps
- Chokers
- Pavement texturing
- Chicanes
- Curb extensions
- Traffic circles
- Medians
- Landscaping
- Narrow streets
- Photo radar
- On-street parking
- Selective enforcement
- Neighborhood watch
- Speed wagon

Photo 7-3 shows two examples of curb extensions, and Photo 7-4 shows an example of a chicane used as a traffic calming measure.

Photo 7-3. Example of Curb Extensions

Photo 7-4. Example of a Chicane

Neighborhood traffic management should be considered in an areawide manner to avoid shift impacts between areas and only be applied where a majority of neighborhood residents agree that it should be done. Traffic calming seeks to reduce speeds on neighborhood routes, thus improving livability. Research of traffic calming measures demonstrates their effectiveness in reducing vehicle speeds.

It is recommended that the City of Sutherlin consider developing a neighborhood traffic management program. This program can be used to prioritize implementation and address issues on a systematic basis. Criteria may be established for the appropriate applications of traffic calming in the city.

Transportation Systems Management (TSM)

TSM focuses on low cost strategies to enhance operational performance of the transportation system. Measures that can optimize performance include signal improvements, intersection channelization, access management (as noted in prior section), rapid incident response, and programs that smooth transit operations. The tool that typically delivers the largest benefits is traffic signal coordination. Traffic signal improvements can potentially reduce the number of stops by 35 percent, and delay by 20 to 30 percent.

All traffic signals on Central Avenue should be coordinated to improve the flow of traffic and efficiency. This will require traffic signal interconnect technologies between the traffic signals.

In addition, an access management and refinement plan is recommended for Central Avenue. This plan needs to address access issues on Central Avenue and recommend modifications to the existing access to improve safety and traffic flow on Central Avenue. Specific design improvements such as streetscape improvements are also recommended for Central Avenue as part of a future refinement plan.

Maintenance

Preservation, maintenance, and operation are essential to protect the city investment in transportation. With increasing road inventory and the need for greater maintenance of older facilities, protecting and expanding funds for maintenance is critical.

A pavement management program is a systematic method of organizing and analyzing information about pavement conditions to develop the most cost-effective maintenance treatments and strategies. A

pavement management program can be a major factor in improving performance in an environment of limited revenues. As a management tool, it enables public works to determine the most cost-effective maintenance program. The concept behind a pavement management system is to identify the optimal rehabilitation time and to pinpoint the type of repair that makes the most sense.

Parking

On-street parking in the downtown core is insufficient, particularly on Central Avenue, where many street sections lack curbs. This causes frustrated drivers to circle adjacent blocks looking for scarce parking. As Central Avenue is improved to arterial status, new curbs and sidewalks will be constructed. This will increase the supply of on-street parking, and thereby help to slow down adjacent traffic, facilitate pedestrian mobility, and support local businesses.

There are currently few public parking lots in Sutherlin. In the future (beyond 2025), new off-street parking lots may be needed as the city grows, and thus the City may want to identify potential locations to locate new parking. Additional public parking lots could help to promote economic vitality, neighborhood livability (by reducing traffic searching for on-street parking), and utilize land more efficiently.

Intersection Improvements

This section provides a summary of the 2025 operations analysis with the proposed transportation improvements, proposed traffic signals, and brief descriptions of the proposed 20-year forecast intersection improvements.

The same methodology used to evaluate the 2025 no-build condition as described in previous chapters was used to evaluate the impacts of the aforementioned street and traffic signal improvements (i.e., the Build Road Network Alternative).

For the 2025 Build Alternative, traffic from both the existing and future land use was distributed/assigned to the new roadway network alternative based on location, access and trip distribution. This trip re-assignment alleviated some of the estimated future traffic congestion on East and West Central Avenue.

With the extension of N. Calapooya St. (Old Highway 99), which eliminates the existing dog leg of traffic traveling north and south on State Street and Calapooya Street, the through north and south traffic was assumed to shift from State Street to the new extension of Highway 99.

Traffic Signals

As described in previous chapters, the signal warrant analysis conducted for existing year 2004 conditions revealed that traffic signal warrant 1 for the 30th highest hour are met at the following locations:

- Central Avenue at Comstock Road.
- Oregon 138 (Central Avenue) at I-5 Northbound ramps. *This project is currently funded for construction in 2005.*
- Oregon 138 at I-5 Southbound ramps (Park Hill Lane).

In addition, analysis of year 2025 traffic conditions revealed that the following intersections will meet signal warrants by 2025:

- Oregon 138 at Fort McKay Road
- E. Central Avenue at Waite Street
- Wilbur-Umpqua Road at Highway 99

- Oregon 138 at Stearns Lane/Church Road (new Stearns alignment)
- Oregon 138 at Dovetail Lane
- Calapooya Street at New East-West Connection/Hasting Avenue

The signal warrant analysis for the above intersections was carried out as part of the current year and 2025 no-build analysis. Signalizing these intersections was found to reduce delay and improve the LOS at these intersections to meet ODOT mobility standards for regional highways, district highways and local roads.

Traffic signalization is recommended at the intersections listed above by year 2025 when signal warrants are met. All of these new signals should be actuated traffic signals with pedestrian push buttons and audible chirps, and are shown in Figure 7-1.

2025 Intersection Improvements Summary

The 2025 analysis for the roadway network alternative showed that the following improvements were needed for the intersections to operate adequately and meet mobility standards for volume-to-capacity ratios (intersections with LOS of D or worse):

- West Central Avenue/Oregon 138 is recommended to be a five-lane section between Comstock Road and Fort McKay Road.
- Improved signal coordination on Central Avenue in the Sutherlin downtown core.
- Add southbound left-turn lane and westbound right-turn lane at the E. Central Avenue and State St. intersection.
- Add northbound left-turn lane at West Central Avenue and Comstock Rd. Also, add an eastbound right-turn lane at this intersection.
- Add northbound left-turn lane and eastbound right-turn lane at Oregon 138 and Fort McKay Road intersection.
- Add southbound left-turn lane at Oregon 138 and Stearns Lane (to be realigned with Church Rd.).
- Add westbound right-turn lane at Oregon 138 and Stearns Lane (to be realigned with Church Rd.).
- Add northbound right-turn lane and southbound left-turn lane at Calapooya St. and Hastings Avenue intersection. This site would carry higher traffic volumes with the construction of the new southern east-west connection in 2025.
- Add eastbound right-turn lane at Old Highway 99 and Wilbur-Umpqua Road intersection.
- Add southbound left-turn lane at Wilbur-Umpqua Rd and SB I-5 on-/off-ramp intersection.
- Add westbound right-turn lane at West Central Avenue and NB I-5 on-/off-ramp intersection. *This improvement is planned and programmed for construction in 2005.*
- At the interchange of Oregon 138 and I-5, an interchange access management plan (IAMP) will identify improvement alternatives for the southbound ramps, northbound ramps, Park Hill Lane, Oregon 138, and the impacted study area.

2025 Operations Analysis

Three primary measures of effectiveness were used to assess the operation of at-grade intersections: LOS (level of service), volume-to-capacity (v/c) ratios and delay. “Level of Service” (LOS) is a grade given to various ranges of traffic operation, with a grade of ‘A’ representing ideal operations with minimal delay, and ‘F’ representing unacceptable conditions with high delay. Volume-to-capacity (V/C) is the ratio of peak hour traffic volume to the maximum hourly volume of vehicles that that roadway section can accommodate (capacity). V/C measures the percentage of capacity of the roadway section that is being

used during the peak hour. When the v/c exceeds 1.0, auto demand exceeds the capacity of the facility to serve that demand. "Delay" is the average amount of time a vehicle must wait at intersection.

Table 7-6 shows how intersection operations are expected to change based on the proposed improvements. LOS is shown by approach for unsignalized intersections and represents overall v/c for the two signalized intersections in Sutherlin. Table 7-6 shows the highest v/c ratio and delay by turn-movement for the unsignalized intersections, and the overall v/c ratio and average delay for the signalized intersections.

Table 7-6. Future (2025) PM Peak Hour Level of Service for Roadway Network Alternative

Unsignalized Intersections (Major/Minor)	Highest V/C	Major/Minor LOS	Highest Delay (seconds/vehicle)
Fort McKay Rd./Church Rd.*	0.25 (Minor)	-	-
Comstock Rd./6th Avenue	0.35 (Minor)	A/B	10.00 (Minor)
State St./E. 6th Avenue	0.25 (Minor)	A/B	10.00 (Minor)
Wilbur-Umpqua Rd./NB I-5 On- Off ramps	0.70 (Minor)	A/C	20.00 (Minor)
Wilbur-Umpqua Rd./SB I-5 On- Off ramps**	0.70 (Major)	C/B	20.00 (Major)
Signalized Intersections (Major/Minor)	**V/C**	**LOS**	**Average Delay (seconds/vehicle)**
W. Central Avenue/Calapooya St.	0.65	C	25.00
E. Central Avenue/State St.	0.69	C	20.00
E. Central Avenue/Waite St.	0.73	B	15.00
Old Highway 99/Wilbur-Umpqua Rd.	0.56	A	10.00
Oregon 138/Fort McKay Rd	0.71	B	15.00
W. Central Avenue/Comstock Rd.	0.68	B	15.00
Calapooya St./Hastings Avenue	0.75	C	25.00
Oregon 138/Stearns Lane/Church Rd.	0.50	A	10.00
Oregon 138/SB I-5 On- Off ramps	0.48	A	5.00
Oregon 138/NB I-5 On- Off ramps	0.69	B	15.00

* Roundabout

**All Way Stop Controlled

Analysis and mitigation of state facilities used the 20-Year Design Mobility Standards in the 2003 Highway Design Manual (Table 10-1, p. 10-38), which are more stringent than the Highway Mobility Standards in the Oregon Highway Plan. Intersection operations were optimized and intersection designs were changed until acceptable V/C ratios were obtained. For Regional Highways (e.g., Central Ave.), a V/C threshold of 0.75 was used. For District/Local Interest Roads, the V/C threshold was 0.80 where the speed limit is less than 45 mph, and 0.75 where the speed limit equals or is greater than 45 mph.

Comparing the 2025 no-build intersections that showed LOS of D or worse with the proposed improvements in the 2025 Build Alternative, the following improvements are observed:

1. The V/C ratio at E. Central Avenue and Waite Street changed from 2.0+ in the no-build scenario to 0.73. This can be attributed to both the addition of a traffic signal at this intersection and the addition of the east-west connection. A right-turn, two-vehicle short lane would also be needed to maintain acceptable operations at this intersection (below v/c of 0.75).
2. Church Road and Stearns Lane were aligned to act as one north-south roadway. Under the no-build scenario, Stearns Lane (minor street) at Oregon 138 operated at LOS E with a V/C ratio of 0.82. Church Road and Oregon 138 operated at the highest V/C ratio of 0.31 (major street). Both Stearns Lane and Church Road were stop-controlled intersections. In the build alternative, the Oregon 138 and Church Road/Stearns Lane intersection improved to an average intersection V/C ratio of about 0.50. This can be attributed to the addition of a traffic signal at this intersection.
3. The V/C ratio at Old Highway 99 and Wilbur-Umpqua Road improved from 1.77 in the no-build scenario to 0.56. This resulted from the addition of a traffic signal and separate eastbound right-turn lane at this intersection.
4. The intersection of Oregon 138, Park Hill Lane and the I-5 SB on- and off-ramp was significantly modified and realigned from the no-build scenario. This includes a 5-lane cross section of Oregon 138, new turn lanes, major intersection improvements, and a traffic signal at the SB ramps to accommodate 20-year traffic forecasts. The overall improvements resulted in LOS A at the SB I-5 ramps approach.
5. E. Central Avenue and State Street improved from LOS E in the no-build scenario to LOS C, and the V/C ratio improved from 1.13 to 0.69. Improvements included adding a southbound left-turn lane and a westbound right-turn lane at this intersection, along with optimizing the traffic signal cycle lengths and splits. In addition, the new connection of Highway 99/Calapooya, which eliminated the dog leg, improved traffic operations.
6. The intersection of Oregon 138 and NB I-5 on- and off- ramps improved from LOS F to LOS B, and the V/C ratios improved from 1.23 to 0.69 respectively. Improvements included addition of a westbound right-turn lane at this intersection *(planned for construction in 2005).* Also, W. Central Avenue/Oregon 138 was improved to a five-lane section between Comstock Road and Fort McKay Road.
7. In the no-build scenario Central Avenue/Oregon 138 and Fort McKay Road operated at LOS F (minor street) with a V/C ratio exceeding 2.0. Signalizing this intersection and adding turn lanes improved operations to LOS B, and the V/C ratio decreased to 0.71.
8. Wilbur-Umpqua Rd. and the I-5 SB on-/off-ramps operated at V/C ratio of 0.81 and LOS F (minor street) in the no-build scenario. Under the build alternative, this intersection also has eastbound traffic connecting from a new collector road south of Plat M. Road and Church Road. Due to increased traffic, this intersection will need to be at least all-way stop controlled (AWSC) with a westbound left-turn storage lane of about 8 vehicles. Westbound through traffic and left turns will also need to use a shared lane.
9. Although the Calapooya Street/Hastings Avenue and Wilbur-Umpqua Road/I-5 NB on-/off-ramps intersections operated within the acceptable LOS and V/C ratios under the no-build scenario, approach lane and control-type modifications will be necessary for these intersections to meet acceptable V/C ratio standards in the build alternative. A traffic signal will be needed at Calapooya Street and Hastings Avenue along with separate right-turn lanes at the westbound approach (2-3 vehicle capacity) and eastbound approach (3-4 vehicle capacity). At Wilbur-Umpqua Road and I-5 NB on-/off-ramps intersection, a left-turn lane with storage capacity of around three vehicles may be added to meet the V/C ratio standards.

In general, mitigation along Calapooya Street, Hastings Avenue, and Wilbur-Umpqua Road would be necessary because new corridors parallel to Central Avenue/Oregon 138 would divert some east-west traffic (as intended), leading to comparatively deteriorated traffic operations.

2055 Street Improvements

Arterials, Collectors, and Local Streets

Figure 7-21 shows recommended 50-year street improvements to address traffic needs during the 50-year horizon. These improvements are:

- West Duke Road: Upgrade to collector from Plat M Road to South Comstock Road and build I-5 underpass. In conjunction with the aforementioned improvements to Duke Avenue/Hastings Avenue and the new parkway, this would provide an important east-west travel route connecting the west and east halves of the city.

- New east-west collector from Stearns Lane to N. Comstock Road: This new road would include an I-5 overpass and provide an important connection from the northwest quadrant of the city to the east side, thereby reducing traffic on Oregon Highway 138.

- New north-south collector from Oregon Highway 138 to Fort McKay Road: This new road would be west of Ford's Pond and serve expected residential growth to the far west of the city. South of Ford's Pond, a new east-west collector would connect Church Rd. to the new north-south road. The new east-west road would provide additional access to Ford's Pond and planned park development near Church Road.

Traffic was forecasted using the methodology described in Chapter 5. The City of Sutherlin is projected to have significant growth in traffic volumes on the west side of I-5 in the next 50 years. The 2055 traffic forecasting methodology assumed future UGB expansions and regional growth in the Sutherlin-Roseburg area. The City of Sutherlin is projected to have significant growth in ADT's on the west side of I-5 in the next 50 years.

The road projects described above will provide additional traffic circulation between the east and west sides of the city, and create continuous routes across I-5 to relieve traffic on Central Avenue. These projects will not only serve to distribute traffic on the roadway system, but will also provide important opportunities for land development.

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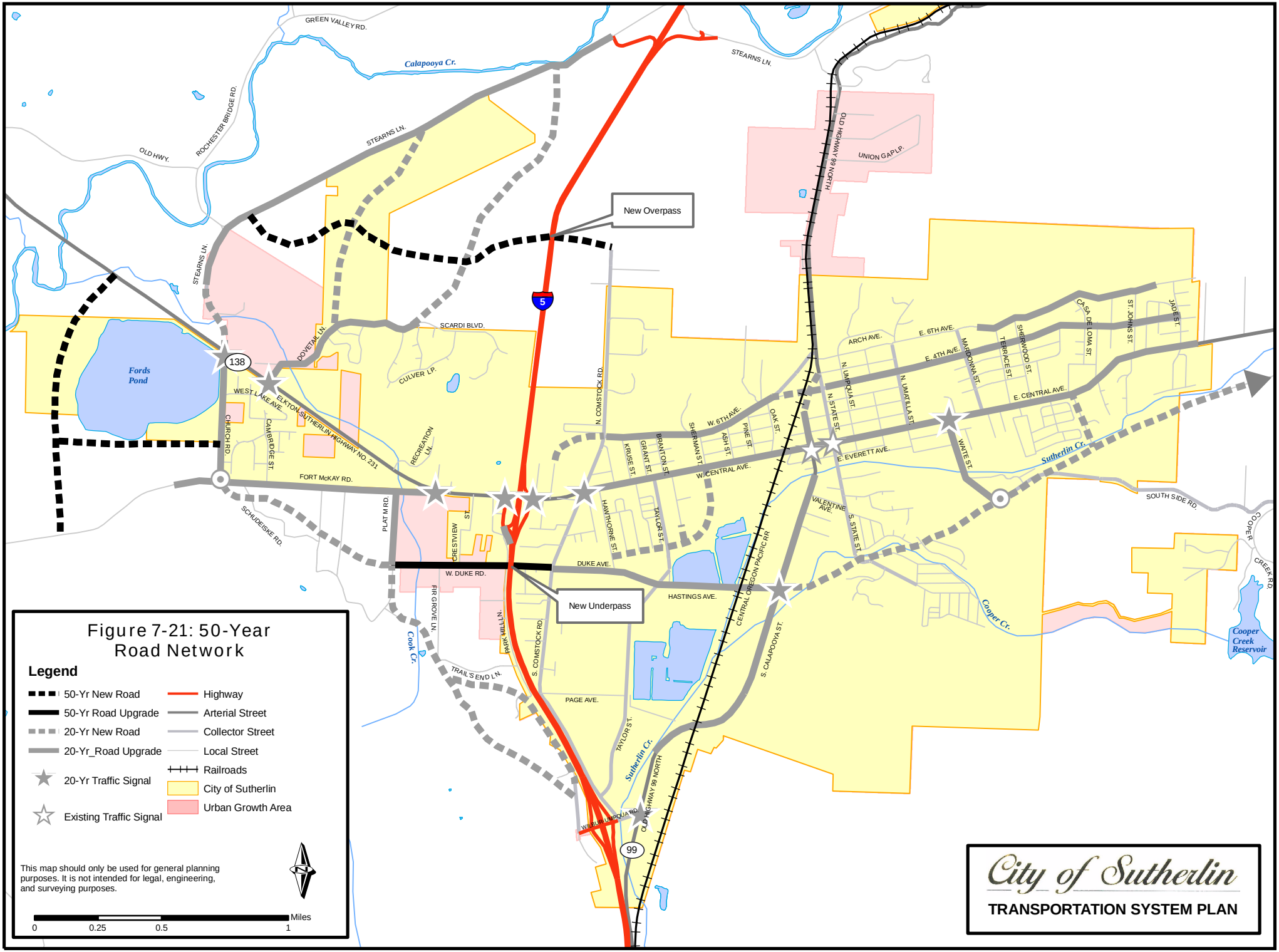
New Overpass
New Underpass
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cook Cr.
Cooper Creek Reservoir
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
DOVETAIL LN.
SCARDI BLVD.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CHURCH RD.
CAMBRIDGE ST.
RECREATION LN.
FORT McKAY RD.
SCHUBEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
DUKE AVE.
HASTINGS AVE.
FIR GROVE LN.
TRAIL'S END LN.
PAGE AVE.
TAYLOR ST.
PARK HILL LN.
S. COMSTOCK RD.
N. COMSTOCK RD.
WILBUR UMPQUA RD.
OLD HIGHWAY 99 NORTH
OLD HIGHWAY 99 NORTH
UNION GAP LP.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
E. CENTRAL AVE.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
SHERMAN ST.
GRANT ST.
BRANTON ST.
KRUSE ST.
ASH ST.
PINE ST.
OAK ST.
N. UMPQUA ST.
N. STATE ST.
N. UMATILLA ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WATE ST.
VALENTINE AVE.
S. 5TH ST.
S. CALAPOOYA ST.
CENTRAL OREGON PACIFIC RR
SOUTH SIDE RD.
COOPER R.
CREEK RD.
138
5
99
Figure 7-21: 50-Year Road Network
Legend
50-Yr New Road
50-Yr Road Upgrade
20-Yr New Road
20-Yr_Road Upgrade
20-Yr Traffic Signal
Existing Traffic Signal
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
0.25
0.5
1
Miles
City of Sutherlin
TRANSPORTATION SYSTEM PLAN

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Proposed Mobility Standards

Currently, the City of Sutherlin does not have operational mobility standards.

For roadway facilities under state and county jurisdiction, the mobility standards from the 1999 Oregon Highway Plan (OHP) for state facilities and Douglas County for County facilities should be used as the standard. ODOT and Douglas County use volume-to-capacity ratios for their performance standard which vary by type of facility.

> *The OHP states that the maximum acceptable v/c ratio for Regional Highways outside the Portland metro area (non-MPO) and not identified as a Special Transportation Area (STA) is 0.80 where non-freeway speed limit is less-than 45 mph, and is 0.75 when non-freeway speed limit is greater-than 45 mph. For District/Local Interest roads, the acceptable ratio is 0.85 non-freeway speed limit is less-than 45 mph, and is 0.80 when non-freeway speed limit is greater-than 45 mph.*
>
> *The Douglas County performance standards for a given route vary based on the urban or rural nature, speeds, and surrounding land use designations. The County's v/c performance standards by roadway classification follows: Principle Highway, V/C = 0.70; Arterial, V/C = 0.85; Major Collector, V/C = 0.90; Minor Collector, V/C = 0.95; Necessary Local, V/C = 0.95.*

In addition to the County and State mobility standards, it is proposed that a level-of-service standard of "D" as defined in the Highway Capacity Manual is adopted as the operational mobility performance standard for all intersections in the City of Sutherlin.

For city streets, a dual transportation performance measure standard with a volume-to-capacity ratio standard and level-of-service standard is proposed. The proposed volume-to-capacity ratio standard is 0.90 and proposed level-of-service standard of D is proposed for the City of Sutherlin.

> *Volume-to-capacity (V/C) is the ratio of peak hour traffic volume to the maximum hourly volume of vehicles that that roadway section can accommodate (capacity). In other words, v/c measures the percentage of capacity of the roadway section that is being used during the peak hour. When the v/c exceeds 1.0, auto demand exceeds the capacity of the facility to serve that demand.*
>
> *Level of service (LOS) is a grade given to various ranges of delay, with a grade of 'A' representing ideal operations with minimal delay, and 'F' representing unacceptable conditions with high delay. For at-grade signalized intersections, level of service is measured by average delay which is the average amount of time a vehicle must wait at intersection.*

Jurisdictional Transfers

The City of Sutherlin and the County agree in principle that except for state highways, it is most appropriate for all streets within the city limits to be under the jurisdiction and maintenance responsibility of the City. However, it is also recognized by both parties that the City has limited funding, staff, and equipment to maintain or construct streets. Thus, the State and County should look for opportunities to transfer street jurisdiction to the City and develop methods for financing and providing street maintenance and/or construction. In particular, agreements should address needed improvements such as:

- Additional right of way
- Additional lanes or medians
- Signalization
- Storm drainage
- Beautification

- Sidewalks
- Bike lanes

Street sections that should be considered for jurisdictional transfer from the County to the City are shown in Table 7-7.

Table 7-7. County Roadways to be Considered for Jurisdictional Transfer

Street	From	To
Fort McKay Road	Highway 138	West city limits
Plat M Road	Fort McKay Road	West Duke Road
West Duke Road	I-5	Plat M Road
Duke Avenue	South Comstock Road	I-5
South Comstock Road	Central Avenue	Wilbur-Umpqua Road
North Comstock Road	Central Avenue	North city limits
Taylor Street	Hastings Avenue	South Comstock Road
Hastings Avenue	Taylor Street	Sutherlin Creek
Old Hwy 99/Calapooya Street	South city limits	Central Avenue
Central Avenue	Old Hwy 99/Calapooya Street	N. State Street
North State Street	Central Avenue	North city limits
Central Avenue	Opal Street	East city limits

In addition, the City of Sutherlin and ODOT have held discussions regarding transferring jurisdiction of Central Avenue, from Calapooya St. west to I-5, from ODOT to the City. The City should consider jurisdictional transfer of Central Avenue.

Ultimately, any jurisdictional transfer between the City and the County or ODOT will require a detailed negotiated agreement specific to the individual facility in question. The following general guidelines should be adhered to:

- General Policy: The City should neither accept nor maintain any County road within the City unless and until it meets the applicable adopted road standard described in this TSP. Prior to the City's acceptance of a road, the County and City should jointly complete minor maintenance of the road, and share these costs. The types of maintenance to be performed should be agreed upon by County and City Public Works officials.
- Annexation: In accordance with the above General Policy, when property is annexed into the City, the entire width of any contiguous County street right of way should be transferred to the City unless the City determines that such a change should be deferred.
- Land Use Actions: In accordance with the above General Policy, when a land use action is approved by the City, the entire width of any contiguous County street right of way should be transferred to the City unless the City determines that such a change should be deferred. As part of such land use action, the City could require as a condition of approval:
  - Street improvements along the property frontage that are consistent with the street standards adopted by the City, or
  - Covenant to participate in a Local Improvement District, or
  - Execution of an irrevocable consent agreement, which obligates present and future property owners to participate in financing street improvements in the future.

- Funding: This TSP describes several street improvement projects that should be completed over the next 20 years. Funding will be difficult to obtain for all of these projects, and could also delay the transfer of facilities. Thus, the City and County should commit to work together to obtain funding to complete the capital improvement program. Potential funding methods are described in the Financial Plan of this TSP.

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Chapter 8: Public Transportation Plan

Fixed Route Transit

The Blue Route operated by Umpqua Transit is currently configured to provide regional service and will remain that way for the foreseeable future. The Blue Route has three scheduled stops in Sutherlin, all of which are east of I-5 on Central Avenue, and travel is one-way eastbound.

As noted in the *Public Transit and Special Transit Comprehensive System Assessment and Enhancement Plan for Douglas County* (January 2002), the current days and hours of operation appear to be adequate for the short-term. Similarly, the frequency of service (approximately every one and one-half hours, or about seven trips per day) is not likely to change soon, especially in light of current funding constraints. The report notes that should additional funding become available, one-hour service headways should become a goal to improve service. Umpqua Transit should also strive to provide service later into the evening (until 7:00 or 8:00pm) to better serve students and commuters that need to work late.

Umpqua Transit's efforts to improve service will likely focus on improving bus stop locations for access and safety reasons, and bus stop signage (i.e., official designations). Problems that have been noted regarding the current stop locations include:

- Abby's (Grant and W. Central Avenue): This stop is in a parking lot on the north side of the street, requiring buses to cross traffic on a major road to get back on its route. As traffic grows on Central Avenue, safety and route scheduling will increasingly be compromised.
- W. Central Avenue and Calapooya Street: This is another parking lot stop where bus turning movements can interfere with auto traffic. Residents desire a downtown stop on Central Avenue, although perhaps at another location. Moving this stop to the vicinity of S. Umpqua St. and E. Everett Ave., for instance, would improve the connection with the dial-a-ride service.

The City of Sutherlin and its citizens should continue to work with Umpqua Transit through its regular service planning process to assess the appropriateness of current stops and scheduling issues. In addition, the City should work with Umpqua Transit to consider additional stops at the following locations in the future:

- Ray's Market just west of I-5 on Oregon Highway 138: This is one the city's larger commercial areas and could be a logical passenger collection point as the city's population continues to grow to the west of I-5.
- E. Everett Avenue in the vicinity of N. Umpqua Street: This location would serve the Rodeo and Festival Grounds, several parks and athletic fields, and a seniors housing facility.

Figure 8-1 shows the locations of the recommended new transit stops. Importantly, access to the fixed route transit system will also be improved via improved sidewalks. These improvements are discussed in a subsequent chapter.

Dial-A-Ride

The Blue Route is currently configured to provide regional service, and is not very useful for local mobility. Sutherlin's expected growth, however, is not likely to warrant a local fixed route system, and point-to-point, dial-a-ride service can continue to serve the city well into the future. The current all-volunteer dial-a-ride service currently serves about 300 families, and has become the primary transit

service in Sutherlin. Sutherlin has a relatively large senior population that is expected to grow, and this service is particularly valuable to them.

The future of this service is uncertain, as it is currently operated by elderly volunteers, and is funded entirely through donations. Thus, the City should consider converting this service to a publicly funded, expanded dial-a-ride service. In this case, the City would likely pay a private operator to run the service, potentially utilizing state small transit system grants. The Finance chapter of this TSP describes potential funding mechanisms for local transit service.

Over time, this primarily seniors-oriented service could be configured to serve more diverse trip purposes in the following ways (as funding allows):

- Change the weekday service span from 8:00 am - 4:00 pm to 7:00 am - 6:00 pm. This would make commuting to work by transit more feasible for those who choose not to use autos by choice or necessity.
- If a major industrial employer does locate in Sutherlin, this might warrant additional peak-hour, circulator/"fixed-route" shuttle service. Depending on the magnitude and location of rider demand, this service could still utilize smaller vehicles (e.g., vans) and pick riders up at their homes on a scheduled basis (similar to a traditional vanpool).

Currently, the dial-a-ride service provides about 900 rides per month (annual ridership in 2004 was about 10,400). If current demographic trends continue (67% of all riders are age 60 or older), the City expects to provide about 18,000 rides when the population reaches 15,000 residents, and 24,000 rides when population reaches 20,000.[20]

The City does not expect to reach 10,000 population for another ten years.[21] Thus, in the short-term future, the service could still use vans or other smaller vehicles, but may need to add vehicles (including a spare) and full-time drivers and administrative staff.

[20] Source: City of Sutherlin estimates developed in February, 2004.
[21] In 1990, the City's population was estimated at 5,020, and in 2002, the City's population was estimated at 7,180.

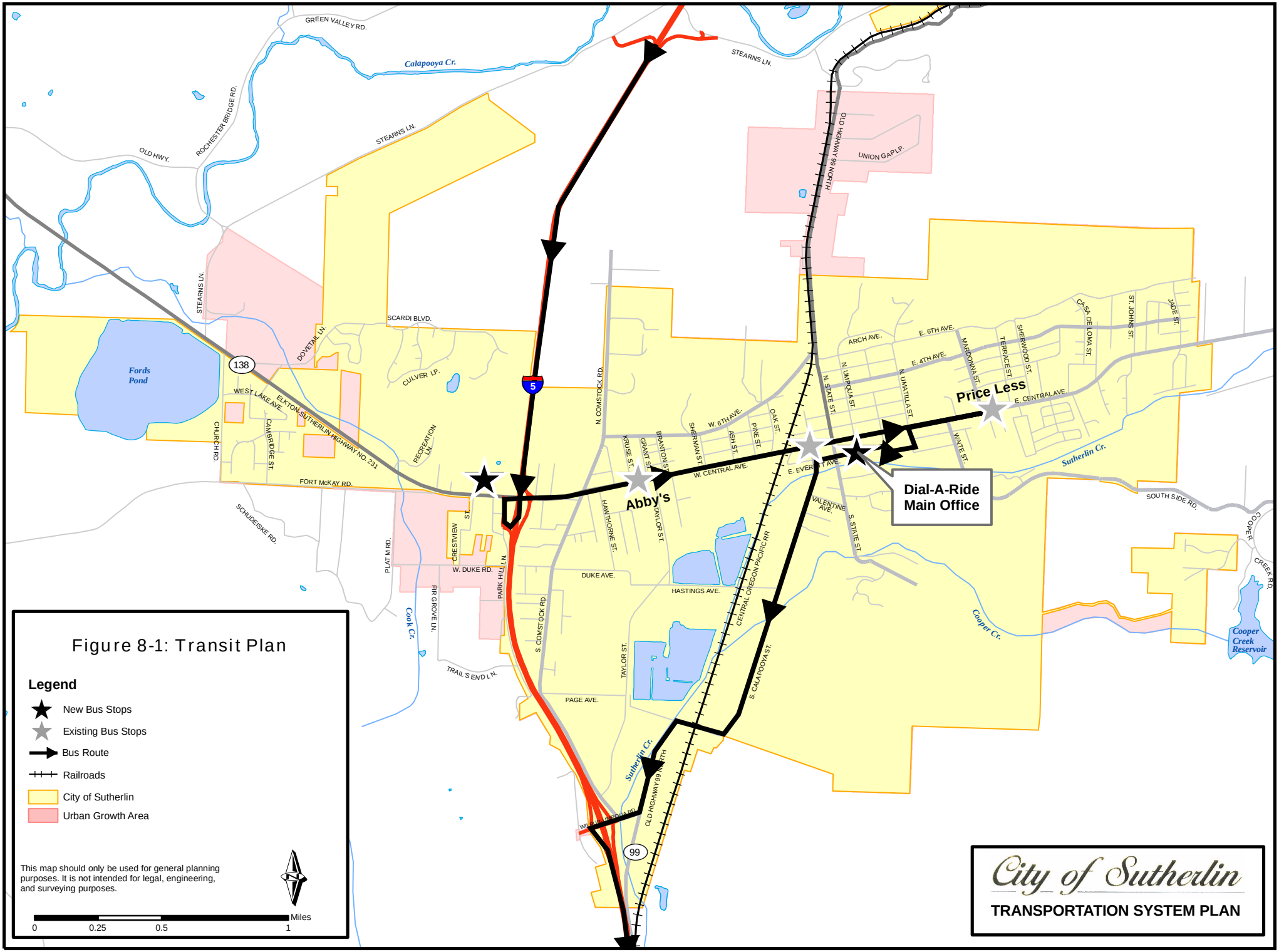
Figure 8-1: Transit Plan
Legend
New Bus Stops
Existing Bus Stops
Bus Route
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
0.25
0.5
1
Miles
Price Less
Abby's
Dial-A-Ride Main Office
Calapooya Cr.
Sutherlin Cr.
Cooper Cr.
Cook Cr.
Fords Pond
Cooper Creek Reservoir
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
RECREATION LN.
CHURCH RD.
CAMBRIDGE ST.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
FORT McKAY RD.
SCHUDEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
S. COMSTOCK RD.
TAYLOR ST.
HAWTHORNE ST.
KRUSE ST.
GRANT ST.
BRANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
N. COMSTOCK RD.
W. 6TH AVE.
W. CENTRAL AVE.
E. EVERETT AVE.
VALENTINE AVE.
S. STATE ST.
S. CALAPOOYA ST.
CENTRAL OREGON PACIFIC RR
OLD HIGHWAY 99 NORTH
OLD HIGHWAY 99 SOUTH
WILLAMETTE BOULEVARD
UNION GAP LP.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
N. UMPQUA ST.
N. UMATILLA ST.
N. STATE ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
E. CENTRAL AVE.
WHITE ST.
SOUTH SIDE RD.
COOPER R.
CREEK RD.
138
5
99
City of Sutherlin
TRANSPORTATION SYSTEM PLAN

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Chapter 9: Bicycle Plan

Bicycle Network

The Transportation Planning Rule (TPR) requires the cities and counties of Oregon to develop balanced transportation systems, including bicycle facilities. Furthermore, Oregon Revised Statue (ORS) 366.514 requires the provision of bicycle and pedestrian facilities on all arterial and major collector construction, reconstruction, or relocation projects where conditions permit. Additionally, in any fiscal year, at least one percent of road improvement funds in a jurisdiction must be allocated for bicycle/pedestrian projects.

Currently, the City of Sutherlin has one bike facility – a bike lane on Highway 99/S. Calapooya St. (newly constructed southern portion) near the Wilbur-Umpqua interchange. County bike facilities at the edges of the city are all Class III or Class IIIs bikeways that share the roadway with traffic.

Continuity and connectivity are key issues for bicyclists. Without connectivity, this mode of travel is significantly limited (similar to a road system with numerous cul-de-sacs). Due to the lack of bike facilities in and through Sutherlin, there is no connectivity between the County bikeways. In addition, no facilities connect residential neighborhoods to commercial areas and schools for convenient and safe local bicycle travel.

In the future, bike facilities should be provided on major north-south and east-west streets to facilitate local and regional bicycle travel. In general, new bicycle lanes should be constructed as part of the roadway improvement projects described in Chapter 7. In some cases, bicycle lanes should be retrofitted onto existing arterial and collector streets. Specific recommended bicycle projects are listed below and are shown in Figure 9-1:

- W. 6th Avenue/E. 4th Avenue: Add bike lanes from N. Comstock Road to Jade Street when these roads are connected.
- Mardonna Street: Add bike lanes from E. 4th Avenue to E. Central Avenue.
- Calapooya Street: Bike lanes will be added to S. Calapooya Street as it is improved in 2005. Bike lanes should also extend north to N. State Street at 5th Avenue as the road is extended.
- Oregon 138/Central Avenue: Add bike lanes from the west city limit through the City to the east city limit to connect to the County bikeway system.
- Duke Avenue/Hastings Avenue: Add bike lanes when upgraded to collectors.
- New east-west Parkway from S. Calapooya Street to the east city limit: Include bike lanes.
- State Street: Add bike lanes from north city limit to new east-west Parkway.
- Waite Street: Add bike lanes from E. Central Avenue to the new east-west Parkway.
- Taylor Street: Add bike lanes from W. Central Avenue to S. Comstock Road.
- Comstock Road: Add bike lanes from W. 6th Avenue to Wilbur-Umpqua Road.
- Church Road/Fort McKay Road: Add bike lanes when upgraded to collectors.

- Stearns Lane: Add bike lanes from Oregon 138 to I-5 when upgraded to collector.

- Dovetail Lane/Scardi Blvd.: Add bike lanes when upgraded to collector. Include bike lanes on two north-south roads connecting to Stearns Lane.

- New west-side collector from Church Road to vicinity of Wilbur-Umpqua Road (I-5 Exit 136): Include bike lanes.

The effectiveness of the bicycle network can be enhanced via complementing land development actions. The TPR also requires the bicycle parking facilities be provided as part of new residential developments of four units or more, and new retail, office and institutional developments.[22] And as new development occurs, it is important that connections or accessways be provided to link the development to existing and planned bicycle and pedestrian facilities as directly as possible.

Off-Street Path System

The enhanced bicycle network would also connect to a system of off-street multi-use paths, providing improved bicycle access to city open spaces and parks. The proposed multi-use path system is also shown in Figure 9-1, and would include facilities in the following general locations:

- North of Cook Creek from Stearns Lane to Oregon 138
- From Stearns Lane to Fords Pond area (across Cook Creek and Oregon 138)
- West of Cook Creek from Oregon 138 to vicinity of Trail's End Lane, where the path would continue east to link to connect to Park Hill Lane
- East from Recreation Lane to near Ray's Marketplace, where the path would continue north through Sutherlin Knolls golf course to access West Sutherlin Elementary School via an I-5 underpass
- East from West Sutherlin Elementary School to W. 6th Avenue in the vicinity of Oak Street
- South of Page Avenue, from South Comstock Road to South Calapooya Street
- Following Sutherlin Creek east from South Calapooya Street, and paralleling the new east-west Parkway
- Following Cooper Creek from the new east-west Parkway to Cooper Creek Reservoir

The proposed multi-use path cross section is shown in Figure 9-2.Currently, no multi-use paths exist in Sutherlin. The Sutherlin Parks and Open Space Plan, currently being developed by SATRE Associates, has identified several locations for off-street multi-use paths. The paths shown in Figure 9-1 are generally consistent with conceptual paths identified by SATRE Associates, and would provide approximately 8 miles of off-street paths. These paths would also be built to accommodate personal electric vehicles (discussed in a subsequent chapter).

[22] Bike parking is also required at transit transfer stations and park and ride lots, should these ever be developed in Sutherlin for inter-city travel.

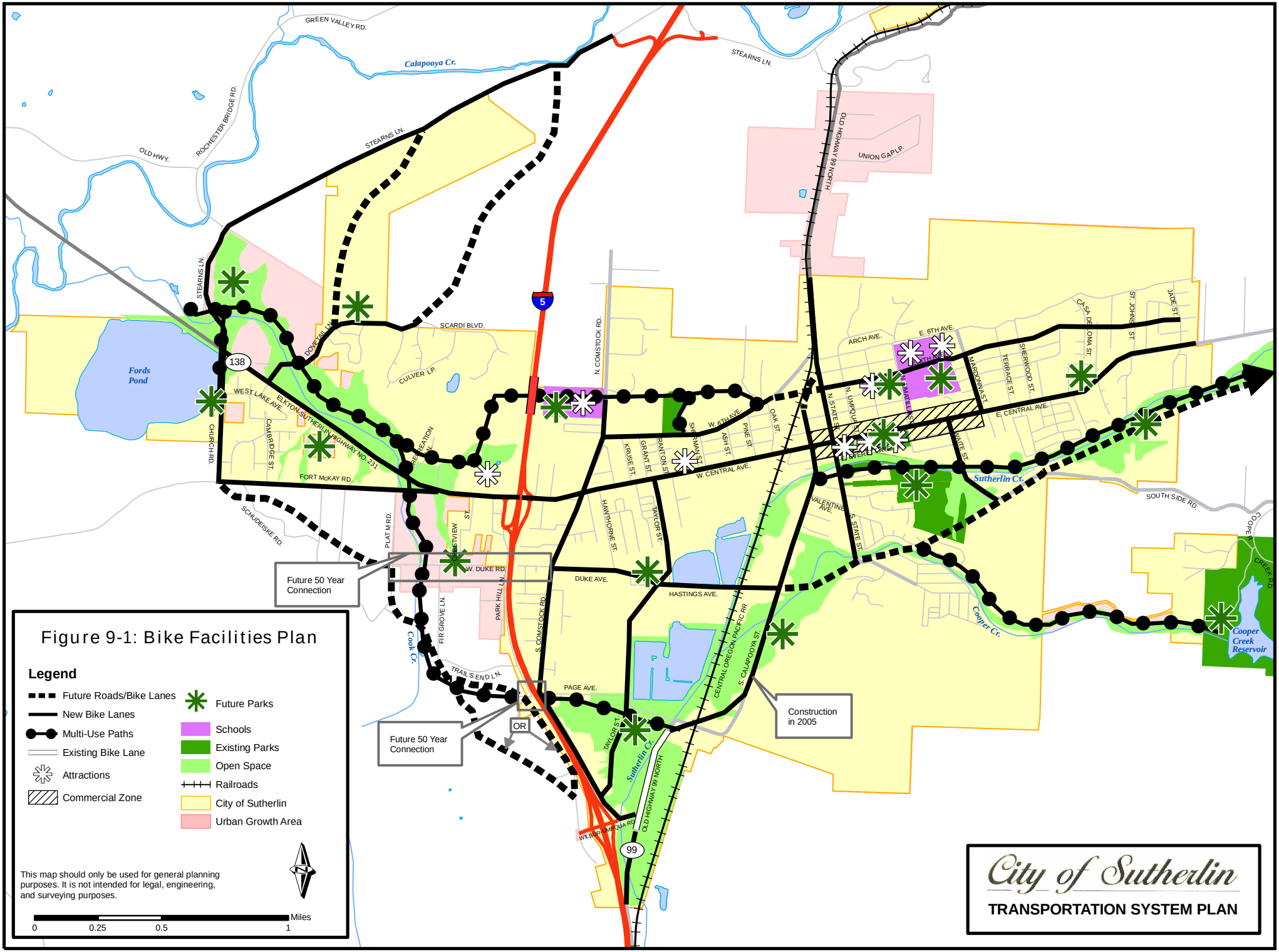
Figure 9-1: Bike Facilities Plan
Legend
Future Roads/Bike Lanes
New Bike Lanes
Multi-Use Paths
Existing Bike Lane
Attractions
Commercial Zone
Future Parks
Schools
Existing Parks
Open Space
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
Miles
0
0.25
0.5
1
Future 50 Year Connection
Future 50 Year Connection
Construction in 2005
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Creek Reservoir
Cooper Cr.
Cook Cr.
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
FORT McKAY RD.
CHURCH RD.
CAMBRIDGE ST.
SCHUBEISKE RD.
PLAT M RD.
CHESTVIEW ST.
W. DUKE RD.
PARK HILL LN.
FIR GROVE LN.
TRAIL'S END LN.
PAGE AVE.
DUKE AVE.
HASTINGS AVE.
W. CENTRAL AVE.
E. CENTRAL AVE.
W. 6TH AVE.
E. 6TH AVE.
ARCH AVE.
N. COMSTOCK RD.
S. COMSTOCK RD.
KRUSE ST.
GRANT ST.
RANTON ST.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
HAWTHORNE ST.
TAYLOR ST.
N. STATE ST.
S. STATE ST.
VALENTINE AVE.
MARGOWAN ST.
TERRACE ST.
SHERWOOD ST.
CASA DE OMA ST.
ST. JOHNS ST.
JADE ST.
UNION GAP LP.
OLD HIGHWAY 99 NORTH
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
SOUTH SIDE RD.
COOPER CREEK RD.
WILBUR-UMPQUA RD.
OR
138
99
5

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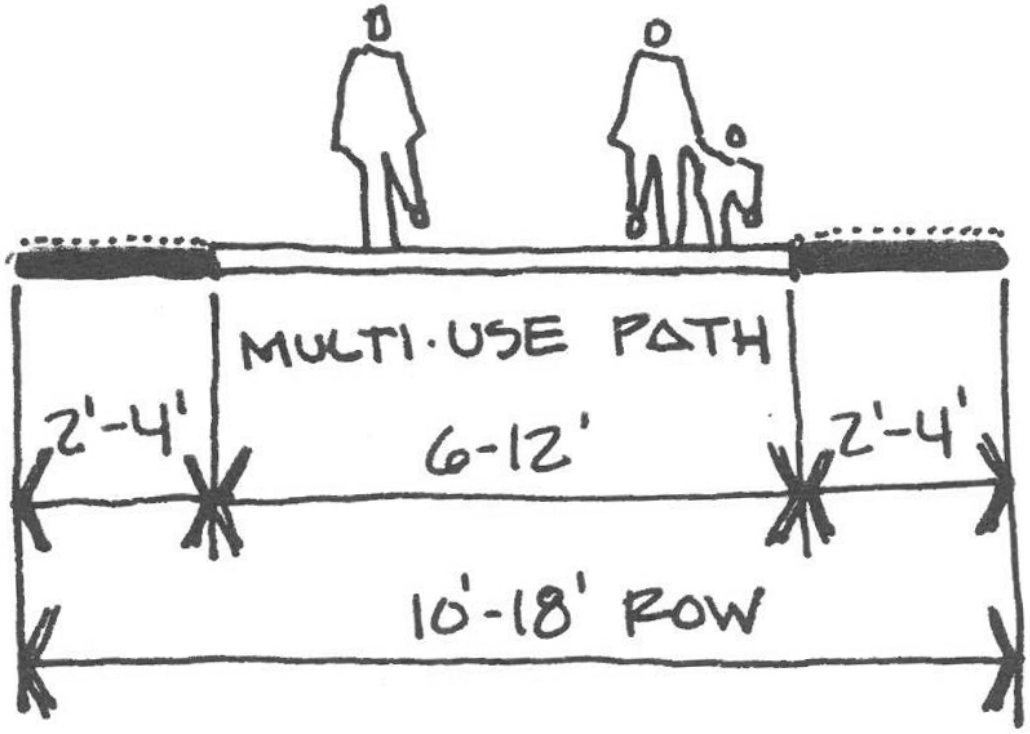
Figure 9-2. Multi-Use Path Cross Section



Multi-Use Path

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Chapter 10: Pedestrian Plan

Pedestrian Network

Sidewalks currently exist in some areas of the downtown area and provide only limited access to commercial areas and employment sites. On the arterial and collector street system, sidewalks are discontinuous and incomplete, and some arterial and collectors lack sidewalks altogether (refer to Figure 4-4 for a map of existing sidewalks). Sidewalks are also lacking along roads providing access to school sites. Arterials and collectors in particular need of attention are: E. Central Avenue, W. 6th Avenue, E. 4th Avenue, and N. State Street (S. Calapooya Street is scheduled to add sidewalks as the street is improved.).

In the future, sidewalks should be provided on all major north-south and east-west streets to facilitate local pedestrian travel. In general, new sidewalks will be constructed as part of the roadway improvement projects described in chapter 7, although in some cases, sidewalks should be retrofitted onto existing arterial and collector streets. Recommended pedestrian projects are listed below and are shown in Figure 10-1:

- W. 6th Avenue/E. 4th Avenue: Add sidewalks from N. Comstock Road to Jade Street when these roads are connected.
- Mardonna Street: Add sidewalks from E. 4th Avenue to E. Central Avenue.
- Calapooya Street: Sidewalks will be added to S. Calapooya Street as it is improved in 2005. Sidewalks should also extend north to N. State Street at 5th Avenue as the road is extended.
- Oregon 138/Central Avenue: Add sidewalks from the west city limit through the City to the east city limit.
- Duke Avenue/Hastings Avenue: Add sidewalks when upgraded to collectors.
- New east-west Parkway from S. Calapooya Street to the east city limit: Include sidewalks. Also add sidewalks to the improved Sunny Lane, which would connect the Parkway to E. Central Avenue.
- State Street: Add sidewalks from north city limit to the new east-west Parkway.
- Waite Street: Add sidewalks from E. Central Avenue to the new east-west Parkway.
- Comstock Road: Add sidewalks from W. 6th Avenue to Page Avenue.
- Church Road/Fort McKay Road: Add sidewalks when upgraded to collectors.
- Stearns Lane: Add sidewalks from Oregon 138 to I-5 when upgraded to collector.
- Dovetail Lane/Scardi Blvd.: Add sidewalks when upgraded to collector. Include sidewalks on two north-south roads connecting to Stearns Lane.
- New west-side collector from Church Road to vicinity of Wilbur-Umpqua Road (I-5 Exit 136): Include sidewalks.

In the downtown area, the City should consider installing in-pavement lights in crosswalks to improve pedestrian visibility. Figure 10-2 shows an example of in-pavement lights. Pedestrian enhancements should be considered for the area around Murphy's in particular, as this area experiences high pedestrian traffic.

Off-Street Path System

The aforementioned sidewalk improvements would provide safe pedestrian connections between residential areas and commercial areas, employment sites, and schools. The enhanced sidewalk network would also connect to a system of off-street multi-use paths, providing improved pedestrian access to city open spaces and parks. The proposed multi-use path system is also shown in Figure 10-1, and would include facilities in the following general locations:

- North of Cook Creek from Stearns Lane to Oregon 138
- From Stearns Lane to Fords Pond area (across Cook Creek and Oregon 138)
- West of Cook Creek from Oregon 138 to vicinity of Trail's End Lane, where the path would continue east to link to connect to Park Hill Lane
- East from Recreation Lane to near Ray's Marketplace, where the path would continue north through Sutherlin Knolls golf course to access West Sutherlin Elementary School via an I-5 underpass
- East from West Sutherlin Elementary School to W. 6th Avenue in the vicinity of Oak Street
- South of Page Avenue, from South Comstock Road to South Calapooya Street
- Following Sutherlin Creek east from South Calapooya Street, and paralleling the new east-west Parkway
- Following Cooper Creek from the new east-west Parkway to Cooper Creek Reservoir

Currently, no multi-use paths exist in Sutherlin. The Sutherlin Parks and Open Space Plan, currently being developed by SATRE Associates, has identified several locations for off-street multi-use paths. The paths shown in Figure 10-1 are generally consistent with conceptual paths identified by SATRE Associates, and would provide approximately 8 miles of off-street paths. These paths would also be built to accommodate personal electric vehicles (discussed in a subsequent chapter). A typical cross section of the multi-use paths is shown in Figure 9-2.

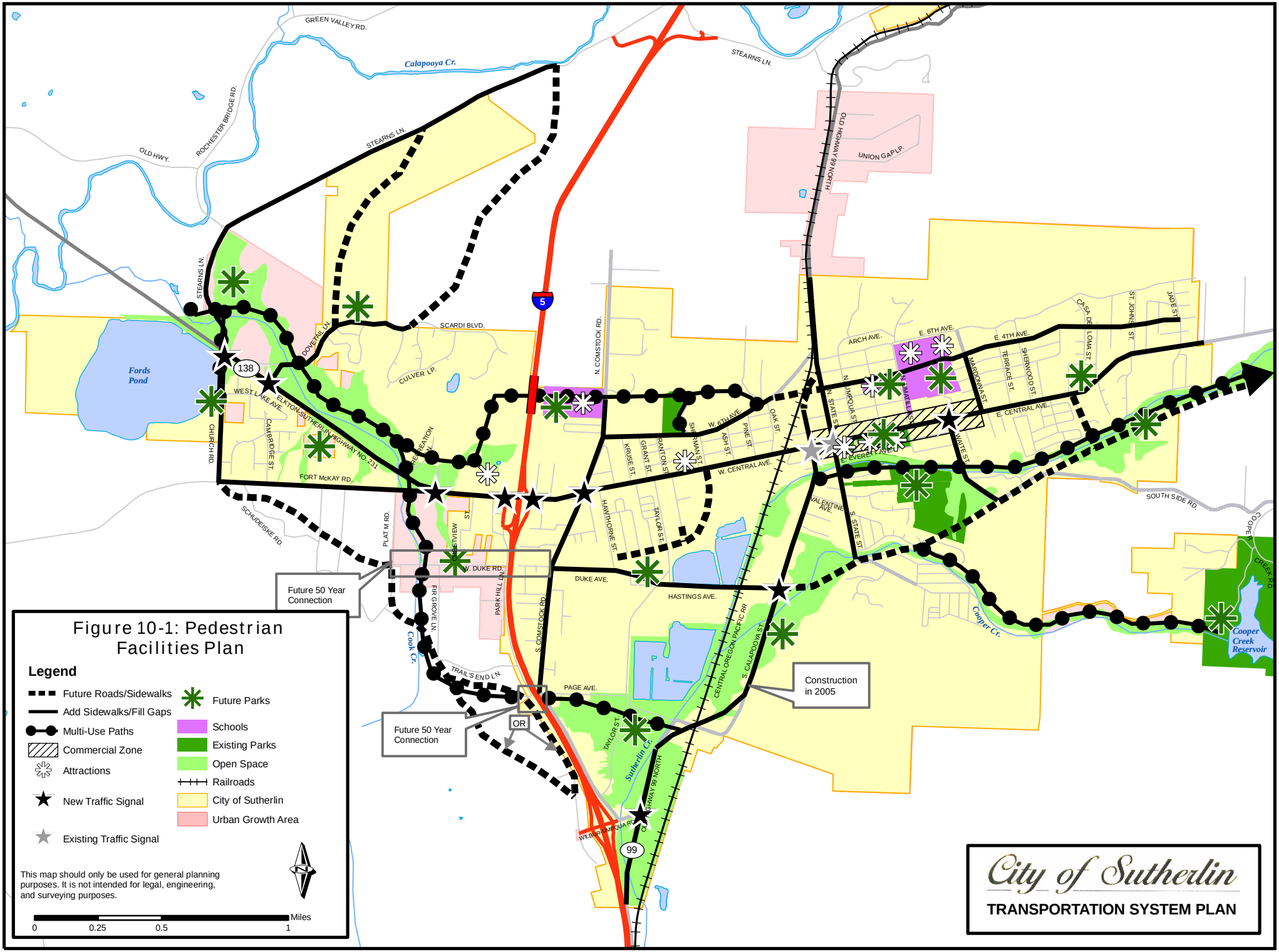
Figure 10-1: Pedestrian Facilities Plan
Legend
Future Roads/Sidewalks
Add Sidewalks/Fill Gaps
Multi-Use Paths
Commercial Zone
Attractions
New Traffic Signal
Existing Traffic Signal
Future Parks
Schools
Existing Parks
Open Space
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
0
0.25
0.5
1
Miles
Future 50 Year Connection
Future 50 Year Connection
Construction in 2005
City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Cooper Creek Reservoir
Cooper Cr.
Cook Cr.
Sutherlin Cr.
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVER HILL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CAMBRIDGE ST.
CHURCH RD.
FORT McKAY RD.
SCHUBEISKE RD.
PLAT M RD.
CHESTNUT ST.
W. DUKE RD.
FIR GROVE LN.
PARK HILL LN.
TRAIL'S END LN.
N. COMSTOCK RD.
S. COMSTOCK RD.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
W. CENTRAL AVE.
W. 6TH AVE.
KRUSE ST.
GRANT ST.
TAYLOR ST.
HAWTHORNE ST.
SHERMAN ST.
RANTON ST.
ASH ST.
PINE ST.
OAK ST.
N. STATE ST.
S. STATE ST.
VALENTINE AVE.
E. CENTRAL AVE.
BEVERLY AVE.
WAITE ST.
N. UMPQUA ST.
MARIGNAN ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
ARCH AVE.
E. 6TH AVE.
E. 4TH AVE.
SOUTH SIDE RD.
COOPER CREEK RD.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
HIGHWAY 99 NORTH
WILBUR-UMPQUA RD.
OR
138
5
99

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Figure 10-2. In-Pavement Lights

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Chapter 11: Personal Electric Vehicle Plan

Personal Electric Vehicle (PEV) Facilities

Currently, no personal electric vehicle or multi-use paths exist in Sutherlin other than those at the Sutherlin Knolls Golf Course. In some communities with large senior citizens populations, PEVs are widely used over an off-street network to access shopping, medical, and recreational destinations on a daily basis. This type of system gives seniors who prefer not to drive, walk or bike additional mobility options.

The planned off-street, multi-use path system would provide bike and pedestrian connections to several local creeks, parks and open spaces, and could be used by PEVs as well. The proposed multi-use path/PEV system is shown in Figure 11-1, and would include facilities in the following general locations:

- North of Cook Creek from Stearns Lane to Oregon 138
- From Stearns Lane to Fords Pond area (across Cook Creek and Oregon 138)
- West of Cook Creek from Oregon 138 to vicinity of Trail's End Lane, where the path would continue east to link to connect to Park Hill Lane
- East from Recreation Lane to near Ray's Marketplace, where the path would continue north through Sutherlin Knolls golf course to access West Sutherlin Elementary School via an I-5 underpass
- East from West Sutherlin Elementary School to W. 6th Avenue in the vicinity of Oak Street
- South of Page Avenue, from South Comstock Road to South Calapooya Street
- Following Sutherlin Creek east from South Calapooya Street, and paralleling the new east-west Parkway
- Following Cooper Creek from the new east-west Parkway to Cooper Creek Reservoir

Figure 11-1 also shows how the multi-use path system could be further expanded to provide improved access for PEVs to commercial destinations and parks from neighborhoods, in particular. Key features of this expanded system include:

- Dedicated PEV parking facilities near Ray's Marketplace west of I-5
- Dedicated PEV parking facilities near the downtown core
- A new PEV pathway from W. Sixth Avenue to N. Umatilla Street via E. 4th Avenue, and then connecting to the downtown core on E. Central Avenue
- A new north-south PEV pathway either west of the railroad tracks or east of S. Calapooya Street (following Sutherlin Creek or Cooper Creek) to connect with the downtown core area

Importantly, except for motorized wheelchairs, PEVs are not permitted to operate on city streets or sidewalks except to cross them. As golf-cart like vehicles cannot use the sidewalk system, more detailed studies would be needed to locate dedicated pathways in the more developed parts of the city, in order to better connect individual neighborhoods to the downtown core. Furthermore, some key destinations may need to have special PEV accesses built.

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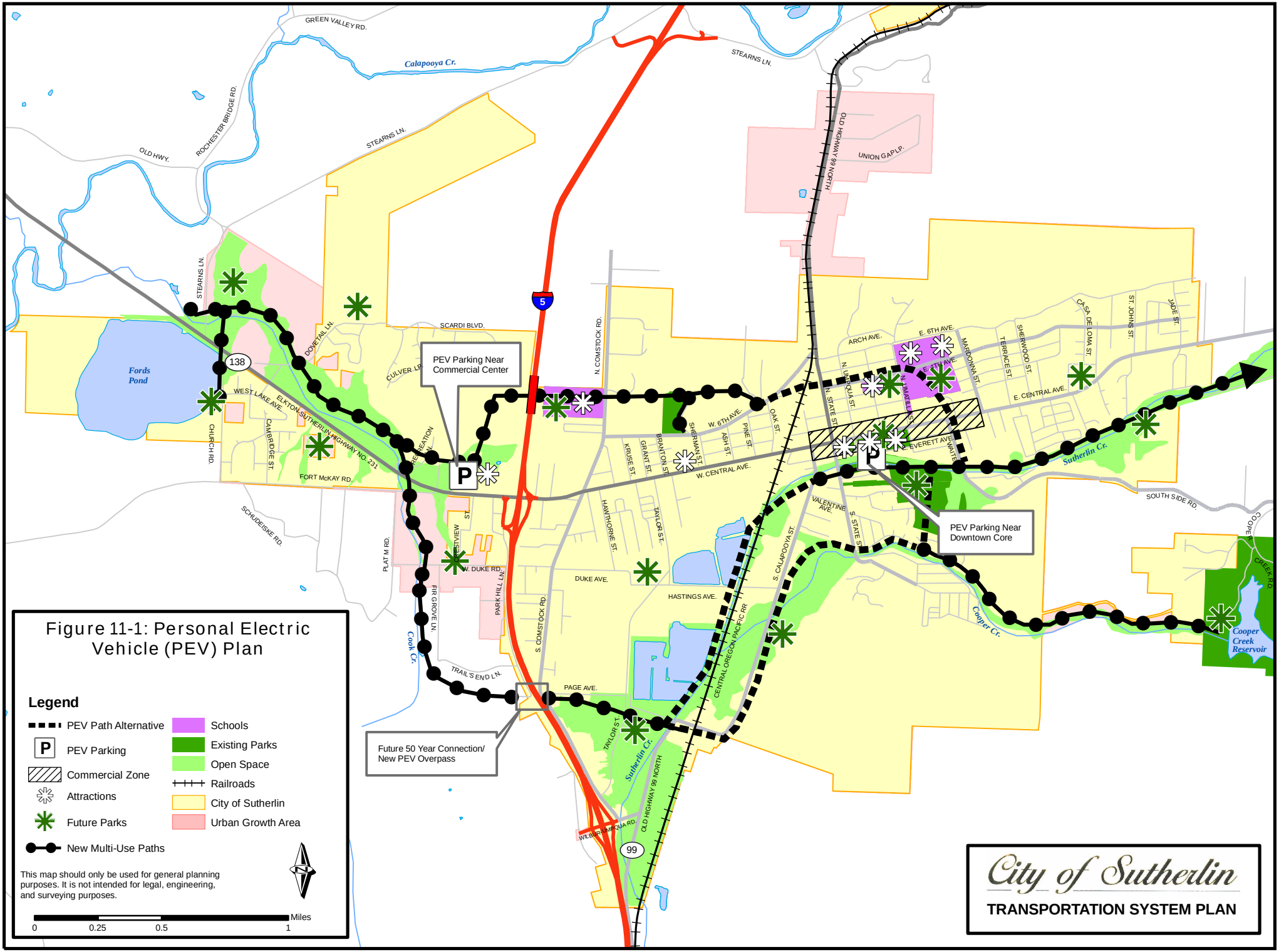
PEV Parking Near Commercial Center
PEV Parking Near Downtown Core
Future 50 Year Connection/ New PEV Overpass
Calapooya Cr.
Sutherlin Cr.
Cooper Cr.
Cook Cr.
Fords Pond
Cooper Creek Reservoir
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
SCARDI BLVD.
DOVETAIL LN.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CHURCH RD.
CAMBRIDGE ST.
FORT McKAY RD.
SCHUBEISKE RD.
PLAT M RD.
FIR GROVE LN.
TRAIL'S END LN.
PARK HILL LN.
W. DUKE RD.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
N. COMSTOCK RD.
S. COMSTOCK RD.
W. 6TH AVE.
W. CENTRAL AVE.
SHERMAN ST.
BRANTON ST.
GRANT ST.
KRUSE ST.
ASH ST.
PINE ST.
OAK ST.
HAWTHORNE ST.
TAYLOR ST.
ARCH AVE.
E. 6TH AVE.
E. CENTRAL AVE.
N. UMPQUA ST.
N. STATE ST.
N. MYRTLE ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
E. EVERETT AVE.
VALENTINE AVE.
S. STATE ST.
S. CALAPOOYA ST.
SOUTH SIDE RD.
COOPER CREEK RD.
CENTRAL OREGON PACIFIC RR
OLD HIGHWAY 99 NORTH
WILBUR-UMPQUA RD.
UNION GAP LP.
138
5
99
P
Figure 11-1: Personal Electric Vehicle (PEV) Plan
Legend
PEV Path Alternative
PEV Parking
Commercial Zone
Attractions
Future Parks
New Multi-Use Paths
Schools
Existing Parks
Open Space
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
Miles
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0.25
0.5
1
City of Sutherlin
TRANSPORTATION SYSTEM PLAN

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Figure 11-2. Personal Electric Vehicle – Typical Vehicle Type

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Chapter 12: Freight Plan

Trucks

Efficient truck movement plays an important role in the economical movement of raw materials and finished products. Established truck routes can provide for this efficient movement, while at the same time maintaining public safety and reducing maintenance costs of the roadway system. As population and employment grow in Sutherlin, it will be important to maintain and improve the road system to ensure adequate freight mobility.

The designation of a city freight route system is a useful tool for identifying and prioritizing project locations that affect freight movement. The truck freight transportation system consists of streets and highways where the demand for access and circulation by large vehicles is expected to be the highest. The truck freight network should provide access to local freight-dependent commercial and industrial destinations, and facilitate truck movements through and beyond the city.

I-5 is designated as a statewide freight system route in the *Oregon Transportation Plan* and is the most important freight link in the region. Not only does I-5 serve local freight destinations along Central Avenue and Calapooya St., but it also serves a large number of trucks continuing both north and south to destinations along the West Coast.

Good freight mobility requires that the local roadway system provide both an adequate level of service and good connectivity to regional routes such as I-5. Most freight shippers and receivers in Sutherlin are located within one mile of I-5, and thus good access to I-5 is critical for them. Currently, W. Central Avenue and S. Calapooya St. are heavily used by trucks. About 45 percent of all vehicles entering I-5 northbound from Wilbur-Umpqua Road are trucks, and further north on Old Highway 99, about 30 percent of all vehicles are trucks. West Central Avenue is also heavily used by trucks making deliveries to the commercial core of the city.

In the future, trucks will need improved access to the west side of the city to serve expected commercial growth along Oregon 138 and industrial lands near Stearns Lane. Trucks will also need direct access to west-side destinations from the southern Exit 135 I-5 interchange. Figure 12-1 shows the planned truck route street network in Sutherlin. These routes are:

- Stearns Lane from Oregon 138 to I-5
- Church Rd. from Oregon 138 to Fort McKay Rd.
- New west-side collector from Church Rd. to vicinity of Wilbur-Umpqua Rd. (I-5 Exit 136)
- Oregon 138/Central Avenue from the west city limit to the east city limit
- Highway 99/Calapooya St. from the north Urban Growth Boundary to the south city limit
- Wilbur-Umpqua Rd. from S. Calapooya St. to S. Comstock Rd.
- Taylor St. from Hastings Ave. to S. Comstock Rd.
- Hastings Ave. from Taylor St. to S. Calapooya St.

In addition, an eastbound right turn lane is recommended from Central Avenue into the Murphy's Plywood site for trucks and industrial freight deliveries. As traffic on Central Avenue grows in the future, trucks will find it increasingly difficult to access Murphy's from the south and west. A new turn lane will improve truck access and help to reduce congestion on Central Avenue.

In the 50-year timeframe, an alternative east-west truck route should be completed to reduce truck traffic on Central Avenue and better connect west-side commercial/industrial development to industrial areas in the vicinity of Hastings Avenue. This route should be:

- W. Duke Rd./Duke Ave. from Plat M Rd. to Hastings Ave., via a new I-5 underpass

By designating these streets as local freight routes, the city could ensure that future pavement and geometry improvements account for heavy truck movements. In developing this system, it is important to note that city truck route designations will not affect localized truck circulation for business access and deliveries. Rather, the truck routes are meant to direct through truck trips (e.g., regional truck trips, or trips starting/ending at more peripheral parts of the city) to facilities where truck traffic is more appropriate, considering factors such as expected traffic volumes, roadway widths, pavement designs, and surrounding land uses. As shown in Table 7-2, the minimum lane width for a proposed designated truck route is 12 feet. The appropriate design vehicle needs be used along truck routes during design of roadway improvements, and curb radii need to accommodate truck turning movements.

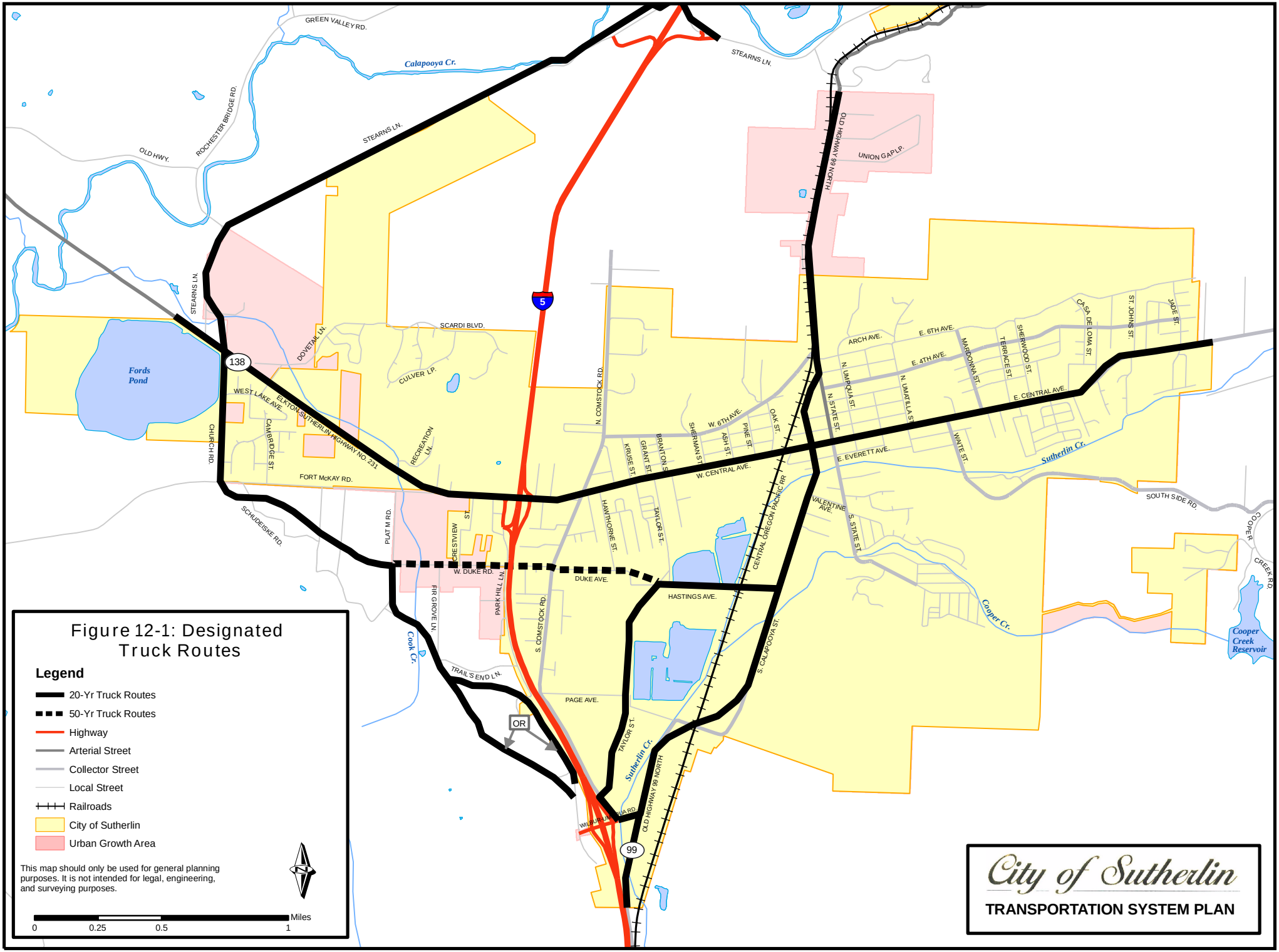
Figure 12-1: Designated Truck Routes
Legend
20-Yr Truck Routes
50-Yr Truck Routes
Highway
Arterial Street
Collector Street
Local Street
Railroads
City of Sutherlin
Urban Growth Area
This map should only be used for general planning purposes. It is not intended for legal, engineering, and surveying purposes.
N
Miles
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City of Sutherlin
TRANSPORTATION SYSTEM PLAN
Calapooya Cr.
Fords Pond
Sutherlin Cr.
Cooper Cr.
Cook Cr.
Cooper Creek Reservoir
GREEN VALLEY RD.
STEARNS LN.
OLD HWY.
ROCHESTER BRIDGE RD.
DOVETAIL LN.
SCARDI BLVD.
CULVER LP.
WEST LAKE AVE.
ELKTON-SUTHERLIN HIGHWAY NO. 231
CAMBRIDGE ST.
CHURCH RD.
RECREATION LN.
FORT McKAY RD.
SCHUBEISKE RD.
PLAT M RD.
CRESTVIEW ST.
W. DUKE RD.
FIR GROVE LN.
PARK HILL LN.
TRAIL'S END LN.
DUKE AVE.
HASTINGS AVE.
PAGE AVE.
WILBUR LOOP RD.
OLD HIGHWAY 99 NORTH
UNION GAP LP.
N. COMSTOCK RD.
S. COMSTOCK RD.
W. 6TH AVE.
SHERMAN ST.
ASH ST.
PINE ST.
OAK ST.
KRUSE ST.
GRANT ST.
BRANTON ST.
HAWTHORNE ST.
TAYLOR ST.
W. CENTRAL AVE.
E. CENTRAL AVE.
E. EVERETT AVE.
E. 4TH AVE.
E. 6TH AVE.
ARCH AVE.
N. UMPQUA ST.
N. UMATILLA ST.
N. STATE ST.
MARIONNA ST.
TERRACE ST.
SHERWOOD ST.
CASA DE LOMA ST.
ST. JOHNS ST.
JADE ST.
WHITE ST.
VALENTINE AVE.
S. 5TH ST.
SOUTH SIDE RD.
COOPER R.
COOPER CREEK RD.
CENTRAL OREGON PACIFIC RR
S. CALAPOOYA ST.
5
138
99
OR

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Rail

Freight service in Sutherlin will continue to be provided by CORP for the foreseeable future, and CORP has no immediate plans to expand or upgrade facilities in Sutherlin. New rail sidings would be negotiated by a private business and the rail operator.

Obstructed railroad crossings pose a major problem for emergency vehicles, as railroads currently traveling through and stopping in Sutherlin effectively cut the city in half. These trains often have several hundred cars, and can disrupt auto traffic for 15 minutes or longer. The railroad crossing at West Central Avenue disrupts the busiest road in the city, and traffic on other east-west streets is also stopped. In addition, trains crossing Highway 99/Calapooya Street disrupt traffic on a major north/south street connecting I-5 and the downtown core.

As described in the Street Plan chapter, an extension of 4th Avenue to connect with West 6th Avenue would include a new railroad overpass, partially mitigating this deficiency. This would improve both emergency vehicle access and general traffic flows.

Currently, intercity passenger service is provided by Amtrak on tracks to the east of Sutherlin, and changes to that service would not impact Sutherlin directly. It is possible, however, that private rail operators may approach CORP to offer tourism-based services in the future (e.g., tourist dinner trains traveling through southern Oregon). If this occurs, the City should work with CORP and the service provider to identify needed rail improvements and passenger facilities (e.g., station buildings and platforms).

Pipelines

The only major pipeline facilities running through Sutherlin are high pressure natural gas lines owned and operated by Avista utilities. There are no future plans to upgrade or expand the pipeline facilities within the Sutherlin area.

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Chapter 13: Financial Plan

Introduction

This chapter describes various funding sources that could be used to meet the needs of the transportation system in Sutherlin. Costs for individual elements of the transportation system plan are outlined and compared to potential revenue sources. Subsequently, options for balancing plan costs and revenues are discussed.

Capital Improvements List

Cost estimates were developed for the projects identified in the roadway, bicycle, pedestrian and transit elements of this plan. Project costs were estimated using typical unit costs for transportation improvements based upon current construction cost indexes (2005), and do not reflect unique project costs such as significant environmental mitigation. Development of more detailed project costs (and additional financial analysis) could be prepared in the future as these projects are further studied and refined. Since many of the projects address multiple transportation modes (e.g., autos and bikes), projects costs were developed by project and include all elements of each relevant mode.

Table 13-1 shows for each project the total capital cost, the responsible funding partners (e.g., City, County, and/or State), and the City's estimated share of project costs. The State of Oregon and Douglas County would be responsible for many of the roadways, bicycle facilities, and pedestrian facilities in the plan. The total estimated cost for all projects is about $112.5 million in 2005 dollars. The City's share of these projects would range from $59.4 million, or about 53 percent of the total cost.

The City's funding of these projects likely will require additional revenue sources. A review of the City's current funding ability shows why new sources are needed.

Table 13-1. Capital Improvements List & City Funding

Project Name	Cost	Primary Funding Responsibility	City Funding % of Total	City Funding City Share of Cost*
Stearns Lane - Improvement and realignment	8,269,952	County/Developer	0%	-
Dovetail Lane Improvement	2,439,293	City/Developer*	100%	2,439,293
Dovetail Lane - New Connection (east)	8,092,857	City/Developer*	100%	8,092,857
Dovetail Lane - New Connection (west)	6,026,051	City/Developer*	100%	6,026,051
Church Road - Improvement	1,432,090	City	100%	1,432,090
Fort McKay Road - Improvement	3,635,487	County	0%	-
New Collector (Church to Plat M Rd.)	5,356,799	County	0%	-
Plat M Road - Upgrade and New collector to S. Interchange	9,181,152	County	0%	-
N. Calapooya St. (Improvement and Realignment)	2,549,354	State/City	20%	509,871
Duke-Hastings Avenue - Improvement	2,355,822	County	0%	-
New East-West Parkway	13,829,512	City	100%	13,829,512
E. Central Avenue - Improvements from Comstock to east city limits	4,635,362	State/County	0%	-
Waite St. Improvements	1,081,698	City	100%	1,081,698
E. 4th Avenue Improvements (State St to Jade St)	4,056,261	City	100%	4,056,261
W. 6th Avenue Improvements and New Bridge/RR overpass	13,302,848	City/State	34%	4,499,919
New Road (Hawthorne-W. Central at Sherman)	4,687,012	City	100%	4,687,012
E. 6th Avenue - Improvements/complete missing segments	2,163,611	City	100%	2,163,611
Oregon Hwy. 138 - 5 lane upgrade from Ft McKay to Comstock	3,406,698	State	0%	-
Oregon Hwy. 138 - 3 lane upgrade from Ft McKay to Church	3,229,927	State	0%	-
I-5 Interchange - west side of IC at Oregon 138	2,192,667	State	0%	-
Connection from New Parkway to Central	1,506,566	City	100%	1,506,566
Total Roadway Improvements	103,431,019		48%	50,324,741
Pedestrian Plan Improvements**	6,620,789	City	100%	6,620,789
PEV - additional multi-use paths***	3,939,515	City	100%	3,939,515
Grand Totals	113,991,323			60,885,045

* These costs may be shared by the City and private developers, developer activity in lieu of fees, or included as part of the system development charge.

** Includes "base" multi-use path system shown in bicycle and pedestrian plans, and sidewalk additions/improvements that are not part of roadway projects.

*** Includes additional multi-use paths needed to connect the "base" network to key PEV destinations.

Project Priorities

The capital improvements list has been prioritized based on the priorities from the TSP technical advisory committee, TSP citizen advisory committee, public meeting input, and assessment of current and future transportation deficiencies and needs. The capital improvement projects shown in Table 13-1 have been prioritized as high (0 to 9 years), medium (10-15 years), and low (16-20 years). These recommended priorities for the projects can be modified and move up or down based upon actual development growth that occurs in the City of Sutherlin.

The following projects have been prioritized and recommended as high priorities (0 to 9 years) and can change priority level based upon actual growth that occurs in the City:

- Implement a Transportation System Development Charge (SDC)
- Interchange Access Management Plan for I-5 Exit 135 and I-5 Exit 136
- I-5 Interchange - west side of IC at Oregon 138
- West 6th Avenue Improvements and new connection/bridge/RR overpass from 4th Avenue
- East 4th Avenue Improvements (State Street to Jade Street)
- N. Calapooya Street (Improvement and Realignment)
- New East-West Parkway (includes traffic signalization at Calapooya Street and New East-West Parkway)
- Waite St. Improvements (includes traffic signalization at Central Avenue and Waite Street)
- Duke-Hastings Avenue – Improvement
- Central Avenue - Improvements from Comstock to east city limits (includes traffic signalization at Comstock Road and Central Avenue)
- Stearns Lane - Improvement and realignment
- Dovetail Lane Improvement
- Dovetail Lane - New Connection (west)
- Oregon Hwy. 138 - 3 lane upgrade from Ft McKay to Church (includes traffic signalization at Central Avenue and Stearns/Church and at Central and Fort McKay Road)
- Plat M Road - Upgrade and New collector to S. Interchange at I-5 Exit 135 (stated preference of Westside Property Owners Committee is to construct the roadway just west of and alongside I-5)
- Pedestrian Plan Improvements

The following projects have been prioritized and recommended as medium priorities (10-15 years) and can change priority level based upon actual growth that occurs in the City:

- Church Road – Improvement
- Fort McKay Road – Improvement
- New Collector (Church to Plat M Rd.)
- E. 6th Avenue - Improvements/complete missing segments
- New Road (Hawthorne-W. Central at Sherman)
- PEV - additional multi-use paths

The following projects have been prioritized and recommended as low priorities (16-20 years) and can change priority level based upon actual growth that occurs in the City:

- Oregon Hwy. 138 - 5 lane upgrade from Ft McKay to Comstock
- Dovetail Lane - New Connection (east)
- Connection from New Parkway to Central

Current Sources of Funding

Table 13-2 shows the combined cash flows of the City's three transportation-related funds for fiscal year 2003-04 (audited results). Figures in parenthesis () indicate expenditures or net losses. The City received $967,942 in revenue to pay for operating costs and capital improvements. Forty-nine percent came from state-shared motor fuel taxes collected by the State of Oregon and shared on a formula basis with all cities (and counties) in Oregon. These revenues are available for operating and maintenance (O&M) expenses and for capital expenditures. Nearly as much revenue, 43 percent, came from federal and state grants. All

of these funds are dedicated to a particular capital project and generally are not available for ongoing O&M expenses. The remaining 9 percent come from system development charges (SDC's, 7.2 percent), interest earnings (0.9 percent), and other sources. SDC revenues are one-time charges on new or expanded real estate developments to fund the cost of new transportation projects needed to serve growth.

Table 13-2. 2004 Cash Flow for Transportation-Related Funds

	State Street Tax	Street Construction	Bicycle & Footpath	Combined	% of Revenue
Sources of Revenue					
SDC		70,122		**70,122**	7.2%
State Shared Motor Fuel Tax	471,017			**471,017**	48.7%
County Receipts				**0**	
				0	
Grants & Donations	32,578	380,653		**413,231**	42.7%
Charges for Services	4,010			**4,010**	0.4%
Interest Earnings	5,153	3,196	583	**8,932**	0.9%
Miscellaneous	630			**630**	0.1%
Total	513,388	453,971	583	**967,942**	100.0%
Transfers	(149,000)	100,000	5,000	**(44,000)**	4.5%
Uses of Revenue					
Personal services	(177,954)			**(177,954)**	18.4%
Materials & services	(128,638)			**(128,638)**	13.3%
Capital outlays	(2,924)	(459,717)	(24,194)	**(486,835)**	50.3%
Total	(309,516)	(459,717)	(24,194)	**(793,427)**	82.0%
Net Revenue	54,872	94,254	(18,611)	**130,515**	13.5%
Beginning Fund Balance	234,381	214,017	40,780	**489,178**	
Ending Fund Balance	289,253	308,271	22,169	**619,693**	64.0%

About 4.5 percent of total revenues are transferred to the General Fund to pay for City overhead expenses. The remaining 95.5 percent is used for O&M and capital improvements. O&M expenses are for personal services (18.4 percent of total revenues) and materials and services (13.3 percent).

About 50 percent of total revenue is used for capital outlays. These outlays are predominately for major repairs of existing roadways. In the future, some of these expenditures may include projects in Table 13-1.

The remaining 13.5 percent of total revenue is held over as net revenue for the next year. The transportation funds are not in debt—they do not have any outstanding bonds. The City has accumulated $619,693 in cash reserves for future capital improvements or unusual O&M expenses.

Table 13-2 is a one-year reference point for financing that can be used to estimate future cash flows. If, for instance, the City accumulates cash at the rate of $130,515 per year and builds upon its current cash reserves ($619,695), then assuming no inflation or appreciation of revenue sources, over the next 20 years

the City would accumulate an additional $2.6 million ($130,515 x 20 years). This amount plus the current cash balance ($619,695), however, only amounts to $3.2 million—or about 5 percent of the cost of the planned projects in Table 13-1. The other 95 percent would have to come from other sources.

Other Sources of City Funding

System Development Charges

Oregon statutes permit Sutherlin to charge each new real estate development in the City a transportation system development charge. The amount of the SDC is comprised of two fees—a reimbursement fee and an improvement fee. If the transportation system has excess capacity already built into it, then the City can calculate and charge a reimbursement fee to the new development. If no excess capacity exists, then the City may charge an SDC for roadways to be built that partially or wholly benefit future development.

The methodology to calculate the total SDC (with reimbursement and improvement fees) requires that each roadway in the system be evaluated to determine how much benefit each proposed roadway improvement will benefit future development and determine a cost per future trip. In general terms, the SDC is the price one has to pay to purchase the capital assets needed to provide transportation services to a particular development. The amount that each new development pays varies proportionately with the amount of traffic the development is expected to produce.

In a perfect world where the City can precisely forecast future traffic, roadway capacity, and the cost of proposed projects, SDC charges will produce just enough money over time to pay the cost of building proposed roadways (i.e., development pays its way). In this scenario, SDC can provide a reasonable estimate of future capital costs and revenues resulting from growth.

Table 13-3 includes an estimate of the proportion of each project that is attributable (i.e., allocable) to future growth. The percentage not included in the SDC would provide capacity for the current population who use roadways that are deficient. As Table 13-3 shows, the City can assess SDCs for up to $40.8 million of the $59.4 million in total City projects. Assuming the amount of the SDC did not in itself become a deterrent to development, then over the next 20 to 30 years SDC's could pay for about 69 percent of the capital improvements costs. In a rigorous SDC study, these percentages would be refined using a more thorough evaluation of current and future roadway utilization.

Table 13-3. Allocation of City Projects to System Development Charge

Project Name	City Share of Cost	% Benefiting Future Development	Cost Basis for SDC Improvement Fee
Dovetail Lane Improvement	2,439,293	80%	1,951,434
Dovetail Lane - New Connection (east)	8,092,857	80%	6,474,286
Dovetail Lane - New Connection (west)	6,026,051	100%	6,026,051
Church Road - Improvement	1,432,090	75%	1,074,068
N. Calapooya St. (Improvement and Realignment)	509,871	80%	407,897
New East-West Parkway	13,829,512	90%	12,446,561
Waite St. Improvements	1,081,698	90%	973,528
E. 4th Avenue Improvements (State St to Jade St)	4,056,261	15%	608,439
W. 6th Avenue Improvements and New Bridge/RR overpass	4,499,919	25%	1,124,980
New Road (Hawthorne-W. Central at Sherman)	4,687,012	50%	2,343,506
E. 6th Avenue - Improvements/complete missing segments	2,163,611	50%	1,081,806
Connection from New Parkway to Central	1,506,566	50%	753,283
Total Roadway Improvements	50,324,741		35,265,839
Pedestrian Plan Improvements	6,620,789	60%	3,972,473
PEV - additional multi-use paths	3,939,515	60%	2,363,709
Grand Totals	60,885,045		41,602,021

Street User Fee

The City can enact a street user fee to generate new revenues from existing development. The fee would work in the same way that sewer and water rates are charged. The usage factor would be trips per day and would vary by type and size of development. Many cities and counties in Oregon have adopted street user fees, but most of the revenues are used for street maintenance and cleaning, and less for capital expenditures.

This fee can be implemented by establishing the Street Tax Fund or a new fund as an enterprise fund that assesses, collects, and uses the revenue from a street user fee.

Motor Fuel Tax

The City could adopt a local option fuel tax that would be in addition to the federal and state motor fuel taxes. This type of tax is charged by a minority of cities and counties in Oregon, though they collect a significant amount of money for roadway improvements as shown in a 1997 survey summarized in Table 13-4.

Table 13-4. Gas Tax Revenues

		Tax Rate $/gallon	Annual Revenue	Gallons (Est.)
Cities				
	The Dalles	$0.03	$323,253	10,775,100
	Tillamook	$0.02	$115,000	7,666,667
	Woodburn	$0.01	$105,360	10,536,000
	Sutherlin, Est.	$0.01	$70,518	7,051,767
Counties				
	Multnomah	$0.03	$7,857,000	261,900,000
	Washington	$0.01	$1,684,000	168,400,000

Without knowing the amount of motor fuel pumped by service stations in Sutherlin, one cannot accurately predict the amount of revenue it would generate at various tax rates. Using population to extrapolate the tax revenues realized in other cities, a rough estimate shows that a $0.01 per gallon tax would produce about $70,500 annually in Sutherlin.

Since service stations can move or develop in neighboring cities or unincorporated service areas, a tax on Sutherlin service stations may limit the number of future service stations or drive those who are currently there to other locations. If the City keeps the tax to a few cents per gallon, the incentive to relocate from Sutherlin would be small.

Bond Issues

The City of Sutherlin could issue tax-based bonds to construct projects on the capital improvement list. Voters would need to approve a general obligation bond at a general election. In odd numbered years, a double majority is required to approve a tax measure such as a bond. That is, a majority of voters would have to cast ballots, and a majority of those would have to approve the bond. In even numbered years only a majority of cast ballots is needed to approve a bond measure. Revenues from a general obligation bond could be used only for capital improvements including major repairs to roadways.

The City's current assessed value is $322,075,148. It has been growing about 5 percent to 7 percent per year. A general obligation bond of $1,000,000 repaid over a 20 year period at 5.5 percent interest would require a tax of $0.21 per $1,000 of assessed value to pay annual debt service. A property (house) with an assessed value of $150,000 would pay annual taxes of $31.50. The tax rate would decrease as assessed value increases. Growth in population and employment would distribute the fixed annual taxes over a broader base of tax payers, thus lessening the burden for all tax payers.

Table 13-5. Growth of Taxable Assessed Value

Tax year	Assessed Value	Growth
2002	286,469,330	NA
2003	306,373,773	6.9%
2004	322,075,148	5.1%

The City could consider asking voters to approve general obligation bonds periodically for a specific project or group of projects on the capital improvements list.

Serial Levy

Another form of taxing over time for capital improvements is the serial levy. Voter approval is required to levy a tax for up to 5 years for non-capital or capital expenditures (operating or major repair and replacement), and up to 10 years for certain capital improvements. Once approved by voters, the City may levy a property tax that is outside the limitation imposed by section 11 (3), Article XI, Oregon Constitution ($10 per $1,000 of assessed value) for the number of years specified. Voters must approve either a uniform amount to be levied each year (e.g., $2,000,000 per year for 5 years), or a dollar rate per $1,000 assessed value (e.g., $2.00 per $1,000 of assessed value for 5 years). The voters must approve the purpose for which the money is to be spent, and the City can use the money only for that purpose.

The voters may approve and the City may issue bonds that are payable from the serial levy, except that the "[voters'] approval shall not entitle the taxing district to collect a greater amount of tax than the taxing district would have been entitled to collect if the ballot measure only authorized local option taxes and did not authorize bonds." In other words, the combination of principal and interest payments cannot exceed the annual amount of the levy.

Also, if the levy is to be used to purchase capital assets and the levy is from 6 years to 10 years, then the weighted average life of the assets to be purchased have to exceed the life of the levy. The Oregon Department of Revenue has rules to follow in determining if the capital improvement qualifies for a 10-year levy.

Summary

The plan lists about $114 million of capital improvements. Of this amount, the State of Oregon and Douglas County likely will be responsible for about $53.1 million (47 percent), leaving the City to fund about $60.9 million in 2005 dollars (53 percent).

New development that occurs within the City's urban growth boundary over the next 20 to 25 years may pay as much as $41.6 million (36 percent of total cost) through a transportation system development charge (SDC). This will require the City to update its current SDC based on the planned improvements and to charge 100 percent of the maximum amount of the SDC and adjust the SDC for inflation each year (as provided by the statutes). It is recommended that the City update and implement its SDC methodology as soon as practicable. To implement it by December 31, 2005, the City will have to schedule a public hearing, and at least 90 days before the hearing the City must notify those on a list of persons who have expressed interest in the SDCs. Also, the City must have available the updated methodology for the SDC at least 60 days before the public hearing. For example, if the public hearing is scheduled for December 31, 2005, then the City would have to send the notice out by October 1, 2005 and the updated methodology would have to be completed and available by November 1, 2005.

Current levels of state motor fuel tax revenues and federal/state grants will pay for less than $3.2 million (3 percent of total cost) of the improvements. These revenues are highly speculative, as the state Legislature can change the motor fuel tax or the formula for allocating the money to municipalities. Similarly, the federal and state governments can increase or decrease the current level of grant funding to the City.

Other potential sources of funding include user fees, bonding, or a local option motor-fuel tax. These can all be significant sources of local funding for capital improvements. A detailed analysis of one or more of these sources could help to gain insights regarding voter preferences and financial feasibility.

Chapter 14: Implementation Policies and Ordinances

Full implementation of the TSP will also require selected amendments to the Sutherlin Comprehensive Plan and Development Code. The amendments are also intended to be consistent with the Oregon Transportation Planning Rule (TPR). The city's Comprehensive Plan and Development Code must be supportive of the TSP and TPR particularly by:

- Protecting street operations including implementing access controls and conditions on new development;
- Land use densities and intensities that are consistent with the functions, capacities and levels of service for the facilities identified in the TSP;
- Allowing mixed land uses to reduce the number and length of automobile trips and to encourage walking, bicycling, and transit;
- Safe and convenient pedestrian and bicycle circulation; and
- Reduced parking requirements where possible.

Two general types of plan and ordinance amendments address the transportation system and supportive land use. They are either required by the TPR or they are recommended to enhance the performance of the transportation system for Sutherlin. The recommended amendments should be considered for adoption in addition to the TSP. The majority of the TPR provisions that relate to the plan and ordinance amendments can be found in Section 660-12-0045 of the Rule.

Transportation System

These amendments pertain to the location and design of the transportation system improvements, which are generally located within public rights-of-way. Requirements regarding cul-de-sac use, location of streets, and design and location of pedestrian and bicycle facilities are examples of these plan and code provisions.

Comprehensive Plan for the City of Sutherlin

The Comprehensive Plan for the City of Sutherlin, 1991, was reviewed for consistency with the Transportation Planning Rule (TPR). The plan generally provides appropriate policy guidance that supports the TPR. Only one recommendation is suggested to achieve full compliance with the TPR. *Policy B. 2. of the Public Facilities Element* should be amended to allow a wider range of street design widths. In particular, it should be amended to refer to the Transportation System Plan and the Development Code Standards.

Sutherlin Development Code

The June 2003 draft of the Development Code was used for this analysis. The draft appears to comply with all of the TPR requirements. The recommendations, which follow, are intended to further support the TSP Goals and Objectives.

Section 3.2.110 L. Street Connectivity and Formation of Blocks Required contains appropriate standards for block lengths and perimeters. In addition to these standards, a neighborhood circulation plan should be required as part of a subdivision review. Such a plan would show how the proposed street and pedestrian system for the development would fit in with surrounding developed and undeveloped properties. The purpose of this exercise is to think on a neighborhood scale, which will help ensure a functional local street system that minimizes cul-de-sacs and enhances daily and emergency access.

Supportive Land Use

These recommendations relate to property outside of the public street right of way. The city's land use policies and draft ordinance standards are consistent with the TSP and TPR. The following recommendations are intended to further enhance the effectiveness of the Comprehensive Plan and TSP.

Comprehensive Plan for the City of Sutherlin

The policy guidance in the plan is consistent with the TSP and TPR, and there are no recommended changes pertaining to land use.

Sutherlin Development Code

Section 2.2.120 Development Standards should be amended to include minimum density standards for the R-1 and R-2 zones. In addition, the minimum density requirement for the R-3 zone of 8 units per acre should be increased (Table 2.2.120). The city should consider a minimum density of 60-80% of the allowed maximum. This type of amendment will yield more predictable densities as properties develop and will promote more efficient use of land within the urbanized area.

Section 2.5.110 Permitted Uses should be amended to include "personal and professional services" in the M2 zone as either a conditional or permitted use. This activity is a conditional use in the M1 zone. It is very possible the city should include some limitation regarding the size and overall level of this activity in an area intended primarily for industrial uses. The importance of this type of use in an industrial zone is to allow a complementary mixture of uses, which help reduce automobile trips to go to lunch, drop off children at day care, run small errands, etc.

Section 3.4.110 Vehicle Parking Standards requires two on-site parking spaces for single family residences. It is recommended that this minimum standard be reduced to one space.

Section 3.4.130 Bicycle Parking Standards meet the TPR requirements. However, they should be enhanced by adding standards for the distance between the bicycle parking and building entrance (preferably around a 50-foot maximum) and design standards for the bicycle racks to ensure proper clearances and secure locking.