



Draft Report

# COTTAGE GROVE TRANSPORTATION SYSTEM PLAN



Prepared for



Prepared by

***DKS Associates***

TRANSPORTATION SOLUTIONS

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# 1. SUMMARY

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## Overview

This Cottage Grove Transportation System Plan (TSP) identifies projects and programs needed to support the City's Goals and Policies and to serve planned growth through the TSP horizon year (2025). The TSP builds on the previous plan that was developed in 1998 for the city, and addresses changes in local and regional growth patterns, new transportation planning policies adopted by the state, and recent changes in transit services provided to the City, among other issues. This document presents the recommended investments and priorities for the Pedestrian, Bicycle, Transit, and Motor Vehicle systems in the City of Cottage Grove along with new transportation programs to correct existing shortfalls and enhance critical services. For each travel mode, a Master Plan project map and list are identified to support the city's transportation goals and policies. The most critical elements of these Master Plans are referred to as Action Plans. The final chapter identifies the estimated plan costs and makes recommendations about potential new funding sources to support the plan.

## Plan Committees

The plan was developed in close coordination with Cottage Grove city staff and key representatives from the surrounding communities. A formal committee was formed to participate in the plan development. The committee included agency staff from Oregon Department of Transportation, South Lane Wheels, Lane County, and Cottage Grove. Several of these members participated in reviewing the technical methods and findings of the study. They helped to consider consistency with the plans and past decisions in adjoining jurisdictions, and reach consensus on new recommendations.

The committee also included representatives for citizens and community members including several Planning Commissioners, City Council members, and local business leaders. A series of meetings were held with the committee to report interim study findings and any outstanding policy issues that required their direction.

Citizen input was incorporated into the plan via public involvement efforts that included public open houses. The open houses presented TSP development and provided a forum for citizens to give input and feedback related to transportation concerns in Cottage Grove. Mailings and online postings also communicated the TSP progress.

## Plan Organization

This document is divided into ten chapters and a separate Technical Appendix. The title and focus of each chapter is summarized below:

### Chapter 1: Summary

This chapter provides a brief overview of the plan and presents the estimated funding needed to implement it.

### Chapter 2: Goals, Objectives and Policies

This chapter presents the recommended goals, objectives and policies related to transportation for adoption into the City's Comprehensive Plan.

### Chapter 3: Existing Conditions

This chapter examines the current transportation system in terms of the built facilities, how well they perform and comply with existing policies, and where outstanding deficiencies exist.

### Chapter 4: Future Demands

This chapter presents the details of how the City of Cottage Grove is expected to grow under its present Comprehensive Plan through 2025, and how travel demands on the city and regional facilities will change from general growth in the region.

### Chapter 5: Pedestrian Plan

This chapter presents strategies and plan recommendations to enhance pedestrian facilities and focus new improvements in areas with the highest concentration of activity.

### Chapter 6: Bicycle Plan

This chapter presents strategies and plan recommendations to enhance bicycle facilities and focus new improvements in areas with the highest concentration of activity.

### Chapter 7: Transit

This chapter makes recommendations to be considered by Lane Transit District and South Lane Wheels in their future enhancements to transit services.

### Chapter 8: Motor Vehicles

This chapter presents strategies and plan recommendations to provide adequate mobility and access to the city, county and state facilities as travel demands grow to 2025 levels. This chapter also addresses street design standards, access spacing standards, functional class designations, and other programs to monitor and manage the street system.

### Chapter 9: Other Modes

This chapter discusses transportation issues related to rail, air, water, and pipeline transportation.

### Chapter 10: Financing and Implementation

This chapter presents the complete estimated revenues and costs for the transportation projects and programs developed in the plan. New funding alternatives are presented to bridge the gaps between the two. New funding programs and implementation measures will be required to put this updated transportation plan into action.

### Technical Appendix

The appendices contain detailed information regarding traffic volumes, reported vehicle crash data, street and intersection operational analysis, and other background materials.



## Goals, Objectives and Policies

The City's Comprehensive Plan lays out a policy framework regarding transportation services. The proposed goals and objectives pertaining to Transportation are presented in Chapter 2. Goals are defined as brief guiding statements that describe a desired result. Objectives associated with the goals describe the actions needed to move the community in the direction of completing each goal. Policies are identified to assist in achieving goals and objectives. As a component of the Comprehensive Plan, policies have the force of law. These goals, objectives and policies were used in the development of this Transportation System Plan to develop strategies and implementing measures for each of the travel modes applied in the City of Cottage Grove. The TSP will be adopted as a refinement plan to the city's Comprehensive Plan.

## Projects and Programs

### Pedestrian

Detailed field observations and analysis was conducted on existing collector and arterial streets to identify locations where new or in-fill facilities would be most beneficial to the community. Separate considerations were made for enhancements to existing street crossings at key locations. The findings included:

- Identifying a series of sidewalk in-fill projects (Pedestrian Master Plan) to connect existing sidewalks to key major pedestrian generators, such as schools, government facilities, etc.
- Identifying critical locations along roadways where pedestrian crossings are difficult due to a lack of designated crossings along desired routes of travel.

### Bicycle

A Bicycle Master Plan was developed to provide bicycle access to all areas of the City, particularly key destinations, such as schools, community facilities, and shopping areas. The main findings included:

- Providing for key north-south and east-west routes to connect residential neighborhoods to employment centers, transit, parks, and regional trail facilities.
- Identifying program costs to expand arterial streets to provide on-street bike facilities (or off-street trails).

### Transit

A number of strategies were reviewed including increased fixed-route bus services and extended transit services in Cottage Grove. South Lane Wheels should continue to expand its service and increase public awareness. Lane Transit District should work with the City to evaluate additional bus stop amenities.

## Motor Vehicle

A comprehensive evaluation of the 2025 motor vehicle needs for city streets and affected state highway facilities was performed to understand how well current plans will serve long-term growth within the City of Cottage Grove. A package of new projects was developed to maintain mobility standards or improve safety on city and state facilities. Key findings from the Motor Vehicle chapter include:

- A number of intersections in the city will fail to meet operational standards during peak hours without capacity expansion projects. (Gateway Boulevard at Main Street, OR 99 at Main Street, OR 99 at the Cottage Grove Connector, and I-5 southbound ramps at the Cottage Grove Connector are expected to fail without significant roadway widening projects.)
- New roadway extensions including Cleveland Avenue, Gateway Boulevard, R Street and Lincoln Avenue create improved connectivity in the roadway network and relieve pressure on otherwise failing intersections in the southern portion of the city.
- A number of local, neighborhood and collector street connections were identified at strategic locations within the existing community and the edges where growth is expected. These new connections should be made, either as development occurs or funding is available to improve circulation and connectivity for all travel modes.
- The “Downtown Revitalization and Refinement Plan” should be implemented. This realigns the existing OR 99 alignment at the north side of Main Street improving sight distance and creating a more welcoming environment for pedestrians and bicycles.
- An Interchange Area Management Plan (IAMP) to be conducted with ODOT is recommended to address operational issues along the Cottage Grove Connector from OR 99 to the I-5 ramps.

Several elements of the road system will require further study to determine the preferred solution, and expected costs would change accordingly.

## Transportation Programs

Table 1-1 summarizes the elements of the plan that were not specifically defined in the recommended project lists, and explains how costs will be addressed for these elements.

**Table 1-1: Non-Auto, Pedestrian and Bicycle Costs Issues**

<b>Travel Mode</b>	<b>Issues</b>
<b>Parking</b>	The Transportation System Plan does not define specific projects. Private property owners will provide off-street parking as land develops.
<b>Neighborhood Traffic Management (NTM)</b>	Specific NTM projects are not defined. These projects will be subject to neighborhood consensus based upon City placement and design criteria. A City NTM program, if desired, should be developed with criteria and policy adopted by the City Council. Traffic humps can cost \$2,000 to \$4,000 each and traffic circles can cost \$3,000 to \$15,000 each. A speed trailer can cost about \$10,000. It is important, where appropriate, that any new development incorporate elements of NTM as part of its on-site design. The City has no allocation for NTM in the current budget.
<b>Public Transportation</b>	Lane Transit District and South Lane Wheels will continue to develop costs for implementing transit related improvements.
<b>Trucks/Freight</b>	Roadway funding will address these needs.
<b>Rail</b>	Costs to be addressed and funded by private railroad companies and the state.
<b>Air, Water, Pipeline</b>	Not required by the City
<b>Transportation Demand Management</b>	Not required by the City

## Financing

Current costs for maintaining the existing transportation system through 2025 are estimated at \$29.1 million. Estimated revenues with existing funding mechanisms fall short of this amount with \$28.1 million estimated gross revenues. Because projected revenues and maintenance costs result in an estimated \$1 million funding deficit, no capital improvement projects that provide new capacity (new roadways, turn lanes, bike lanes, etc.) would be constructed without additional revenues sources.

Therefore, to fund the capital projects identified in this plan for the City of Cottage Grove, new funding sources or programs need to be provided. A variety of funding options are discussed in detail in Chapter 10. However, one of the most common tools used by Oregon cities to construct infrastructure improvements as growth occurs is the System Development Charge (SDC). The city already has a transportation SDC in place, but it is in the process of being updated by staff. Two possible funding levels were illustrated in this plan to indicate how much buying power prospective increases to the current SDC rate could accomplish. The methodology

for SDC calculation requires that improvements serve growth and not correct existing system deficiencies. All of the projects included in this illustration are intended to serve growth. The specific SDC rate selected by the city council will also consider their perspective of a fair fee to be charged for new development in a community. Many times, councils choose lesser rates than could be justified by the technical analysis so that their community is not significantly higher than those in the surrounding region.

Doubling the SDC rate to approximately \$1,550 per PM peak hour trip (below a typical charge of \$2,000 in Oregon) would provide an additional \$5.8 million in revenues, cover the projected funding deficit, and leave approximately \$4.8 for Action Plan Projects. Under this funding assumption the Action Plan illustrated in Table 1-2 is recommended.

**Table 1-2: Cottage Grove Action Plan Projects (2007 Dollars)**

<b>Project</b>	<b>Improvement</b>	<b>Estimated City Cost</b>
<b>City Projects</b>		
Realign OR 99 at Main Street*	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	\$800,000 <sup>1</sup>
Main Street Access Management	Close Access to Main Street from Lane Street	\$10,000
Intersection Improvements	Intersection improvements at Row River Road and Jim Wright Way Intersection including full pedestrian crosswalk	\$200,000
Traffic Signal	New traffic signal at Row River Road and Thornton Road Intersection	\$200,000
Traffic Signal	New traffic signal at Mosby Creek Road and Thornton Road Intersection	\$200,000
Traffic Signal	New traffic signal at Main Street and M Street Intersection	\$200,000
Main Street at 16th Street Turn Lane	Addition of a southbound left turn lane at 16th Street and Main Street Intersection	\$400,000
Gateway Boulevard Restripe*	Restripe Gateway Boulevard to 3 lanes (and bike lanes) from Harvey Road to Cottage Grove Connector	\$10,000
East/West Bicycle Route	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19th Street and Oswald West Avenue	\$25,000

<sup>1</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005. Preferred Alternative short-term projects estimated at \$760,000 in 2005 dollars.

<b>Project</b>	<b>Improvement</b>	<b>Estimated City Cost</b>
<b>State Projects</b>		
Cottage Grove Connector - Interchange Area Management Plan*	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-
OR 99 Restriping*	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector	\$10,000
OR 99 Pedestrian Refuge*	Construct pedestrian refuge in conjunction with restripe of OR 99 from Woodson Bridge to Cottage Grove Connector	\$60,000
Intersection Improvements*	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector, including pedestrian signals and crosswalks.	\$1,000,000
<b>Private Development Projects</b>		
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue including bicycle and pedestrian facilities.	**
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln. including bicycle and pedestrian facilities.	**

\*Project would require ODOT approval.

\*\*Construction costs to be covered by private development exactions.

The total costs for the Action Plan would be approximately \$3.1 million without providing any funding for new roadways. The Action Plan focuses on projects that have already been initiated or may be completed without incurring large costs. The Action Plan at this level of funding does not provide funding for new roadways and therefore fails to address several operational issues noted in the southern portion of the city.

## 2. GOALS, OBJECTIVES AND POLICIES

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### Overview

The Cottage Grove Transportation System Plan (TSP) establishes transportation goals and objectives for the Cottage Grove area. The TSP addresses all forms or modes of transportation, focusing on motor vehicles, public transportation, bicycle and pedestrian modes. The TSP also identifies future facilities and services for the various modes which will be needed to meet the expected increase in travel demand through the year 2025.

The Cottage Grove Transportation System Plan is the guiding transportation policy document for the City of Cottage Grove, and is a component of the Cottage Grove Comprehensive Plan. It serves as a framework for the development of the future transportation system. As the TSP is a component plan of the Comprehensive Plan, its policies have the force of law.

Refinement plans to this TSP may supplement the plan with more detail and specific information on issues, policies, and project locations. These refinement plans and policies shall be consistent with the TSP.

Cottage Grove adopted a comprehensive transportation plan in 1998. Since 1998, there have been changes to state transportation plan policies and regulations that must be addressed as a part of this TSP update. In addition to retaining previously adopted goals, objectives, and policies that are still applicable, new goals, objectives and policies are included to incorporate recent initiatives within the state and county as they relate to transportation facilities. This update brings the City into compliance with the requirements of the Transportation Planning Rule and Statewide Goal 11.

Goals are statements that describe an ideal condition that the City desires to attain over time for various aspects of the transportation system. Objectives are more specific aims identified to achieve these goals. Policies are statements intended to set guidelines for implementing the Transportation System Plan in a manner that is consistent with the identified goals and objectives. Transportation System Plan policies are consistent with the local, regional and state transportation policies identified in the Background Plan and Document Review (Technical Appendix A), including the Oregon Transportation Plan and Transportation Planning Rule.

The following transportation-related goals, objectives and policies were developed with input from the City Council-appointed Technical Advisory Committee.

### Goals

Goal 1: Enhance the Cottage Grove area's quality of life and competitive economic advantage by providing a transportation system that is:

- Accessible,

- Balanced,
- Efficient,
- Environmentally responsible,
- Financially stable,
- Interconnected, and
- Safe.

Goal 2: Develop a cost-effective transportation system that meets the needs of passengers and freight, and that serves the existing and future arrangement of land uses to the consensus of all jurisdictions involved.

Goal 3: Develop a cost-effective transportation system plan that is based on informed citizen input, professional review, and technical analysis.

Goal 4: Develop an integrated transportation and land use system that helps implement statewide transportation goals, statewide administrative rules and the Cottage Grove Comprehensive Land Use Plan

## Objectives

Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.

Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.

Objective 3: Provide for efficient movement of goods and services.

Objective 4: Provide an environmentally responsible transportation system.

Objective 5: Provide a safe transportation system.

Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.

Objective 7: Make streets as “unobtrusive” to the community as possible.

Objective 8: Require developments to address on- and off-site transportation system impacts.

Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.

Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.

Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.

Objective 12: Make full use of existing roadways by reducing demand during peak use periods and increasing operational efficiency.

## Policies

### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 2: Consider the impact of all land use decisions on the existing and planned transportation facilities.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Policy 5: Develop a street network that accommodates the safe and efficient movement of emergency service vehicles.

Policy 6: Consider the level of community interest and support in evaluating and prioritizing street improvement projects within the existing street system.

Policy 7: Coordinate with ODOT and/or Lane County on roadway projects impacting land uses outside of city limits or roadways outside of City jurisdiction.

Policy 8: Consider the funding commitment or availability and ability of project to be constructed within timeframe in evaluating and prioritizing street improvement projects within the existing street system.

### Standards

Policy 9: Consider physical community development trends (the extent to which the project complements or supports the emerging land use pattern) in evaluating and prioritizing street improvement projects within the existing street system.

Policy 10: Consider economic development potential (the extent to which the project relieves congestion and provides land use access to under-utilized and undeveloped urban lands) in evaluating and prioritizing street improvement projects within the existing street system.



Policy 11: Consider the following primary criteria in evaluating and prioritizing street improvement projects within the existing street system – average daily traffic, physical condition of street, street geometrics, and capacity/congestion (level of service).

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 13: Design streets that minimize impacts to topography and natural resources, such as streams, wetlands, and wildlife corridors.

Policy 14: Consider commercial, industrial and recreational transportation needs in decisions about access management and in construction or reconstruction of roadways.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 16: Develop a street system and infrastructure that, where appropriate, conveys and treats stormwater runoff.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

## Multi-Modal

Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.

Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Pedestrian

Policy 25: Design new streets and crossings to meet the needs of pedestrians and encourage walking as a transportation mode.

Policy 26: Develop a pedestrian network by focusing on direct, convenient, and safe pedestrian travel within and between residential areas, schools, parks, and shopping and working areas within the urban area.

Policy 27: Install sidewalks and/or pedestrian trails of suitable surfacing on all future local streets. Reconstructed and new collectors and arterials shall include sidewalks. Pedestrian facilities may be installed on or off-street to facilitate walking between significant activity areas.

Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.

Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

## Bicycle

Policy 30: Ensure consistency with the policies in the most current Bikeway Master Plan.

Policy 31: Require adequate bicycle parking in schools, parks, churches, existing shopping and working areas, and other destination areas to encourage increased use of bicycles.

Policy 32: Include bicycle facilities such as bike lanes or dedicated bikeways in the planning, design, and construction of all new and/or reconstructed collectors and arterial roads. The Oregon Bicycle and Pedestrian Plan Bike Lane Matrix for urban and suburban settings shall be used as a guide in making decisions regarding the need for bike lanes.

Policy 33: Require provision of bicycle parking facilities with new commercial and industrial development and multi-family residential development.

## Transit

Policy 34: Develop a cost effective accessible transit program that meets the needs of all potential and identified users.

Policy 35: Support provision of basic mobility services for the elderly and people with special needs.

Policy 36: All new development shall be referred to transit service providers for review and comment to determine if new transit stops are appropriate and can reasonably be provided as part of the new development.

## Rail

Policy 37: Increase economic opportunities for the State by having a viable and competitive rail system.

Policy 38: Strengthen the retention of local rail services.

Policy 39: Protect abandoned rail right-of-ways for alternative or future use.

Policy 40: Integrate rail freight considerations into land use planning process.

Policy 41: Consider adequate rail freight access for planned and existing development in the zoning of adjacent property.

Policy 42: Consult with freight rail service providers and the Oregon Department of Transportation Rail Division as appropriate, in the review of new development or other decisions that may impact freight rail lines or rail crossings.

## Air

Policy 43: The function of existing or planned general use airports shall be protected through the application of appropriate and compatible land use designations.

Policy 44: Incompatible land uses shall be prohibited on the lands adjacent to the airport. Approved uses around the airport shall be required to provide an environment that will not be adversely impacted by and will be compatible with the airport and its operations.

## 3. EXISTING CONDITIONS

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This chapter summarizes the current condition of the transportation system within the City of Cottage Grove. An inventory of each travel mode (pedestrians, bicycles, transit, motor vehicles, freight, water, air, and pipeline) was performed during the summer of 2006 to establish base year conditions for the TSP Update. Much of these data provides a benchmark of existing conditions which serve as a basis of comparison for future assessment of transportation performance in Cottage Grove relative to existing and proposed policies.

Fifteen intersections within the study area were selected for focused analysis. Traffic data was gathered at these locations and analyzed to evaluate current traffic conditions and performance for all travel modes. The study area is shown in Figure 3-1.

The City of Cottage Grove is oriented around the downtown central business district located in the center of the study area. Central Cottage Grove, located west of the Interstate 5 (I-5), is organized in a grid network of streets that are crossed by the north-south principal arterial through the center of town, the Goshen Divide Highway (OR 99). Main Street serves as the major east-west route through Cottage Grove. I-5 serves as a critical transportation route to areas north and south of the City.

The following sections describe the characteristics, usage, and performance of the existing transportation system in the City of Cottage Grove.

### Pedestrians

An inventory of sidewalks and crosswalks along arterial and collector streets and off-street trails was conducted to assess the existing pedestrian system in Cottage Grove. The location of activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible pedestrian trip generators. Figure 3-2 shows the existing pedestrian facility inventory in Cottage Grove as well as the location of major activity centers. The sidewalk inventory is not intended as an inclusive listing of sidewalks in Cottage Grove, but rather to identify sidewalks located on major roadways (arterials and collectors) as well as select local streets.

### General Observations

Main Street, the primary east-west arterial in Cottage Grove, provides consistent sidewalks on both sides of the roadway and numerous crosswalks along its length. The Goshen Divide Highway (OR 99), also known as 9<sup>th</sup> Street in central Cottage Grove, provides sidewalks on at least one side of the road in most of the central Cottage Grove area between Woodson Place and Harrison Avenue. Other arterials outside of downtown, such as River Road, Gateway Boulevard and most collectors provide adequate sidewalk connectivity with sidewalks located on at least one side of the roadways. However, there are several locations with significant gaps in the overall sidewalk system.

Pedestrian facility connectivity between residential areas south of Taylor Avenue and the major collectors and activity generators to the north is poor. This is of particular concern near Lincoln Middle School. The Cottage Grove Connector, which is designated as a principal arterial, does not provide adequate sidewalks east of the Goshen Divide Highway (OR 99). Existing gaps in the sidewalk system are detailed in Table 5-1 in the Chapter 5 pedestrian system needs assessment.

Several multi-use paths are provided in the north and east portions of the study area. These facilities are primarily used for pedestrian recreational purposes.

## Pedestrian Activity Levels

Pedestrian crossing volumes at the study intersections were counted between 6 AM and 10 PM. The 16 hour pedestrian volumes indicate the relative differences in pedestrian demand at study intersections. Although the study area vehicular evening peak hour typically occurs from 4 to 5 PM, intersections located near schools and other activity centers may experience higher pedestrian volumes earlier in the day. This is likely at the Harrison Avenue/River Road and Taylor Avenue/8<sup>th</sup> Street intersections. Pedestrian volumes at each study intersection are shown in Table 3-1.

**Table 3-1: 16-Hour Pedestrian Crossing Volumes at Study Intersections**

Intersection	North/South Pedestrian Volume	East/West Pedestrian Volume
I-5 SB Ramps/Cottage Grove Connector	1	7
I-5 NB Ramps/Row River Road	0	3
I-5 Off Ramp/6 <sup>th</sup> Street	6	1
I-5 On Ramp/6 <sup>th</sup> Street	0	0
OR 99/Cottage Grove Connector	2	0
OR 99/Woodson Bridge <sup>1</sup>	60	15
OR 99/Main Street <sup>1</sup>	102	38
OR 99/6 <sup>th</sup> Street <sup>2</sup>	30	8
OR 99/4 <sup>th</sup> Street	33	84
OR 99/S. River Road	13	12
Main Street/Gateway Boulevard <sup>3</sup>	88	48
Main Street/16 <sup>th</sup> Street <sup>3</sup>	27	37
Main Street/River Road	14	1
Main Street/R Street	10	5
Harrison Avenue/River Road	68	52
S. 8 <sup>th</sup> Street/Taylor Avenue	205	81
S. 10th Street/Monroe Avenue	51	39

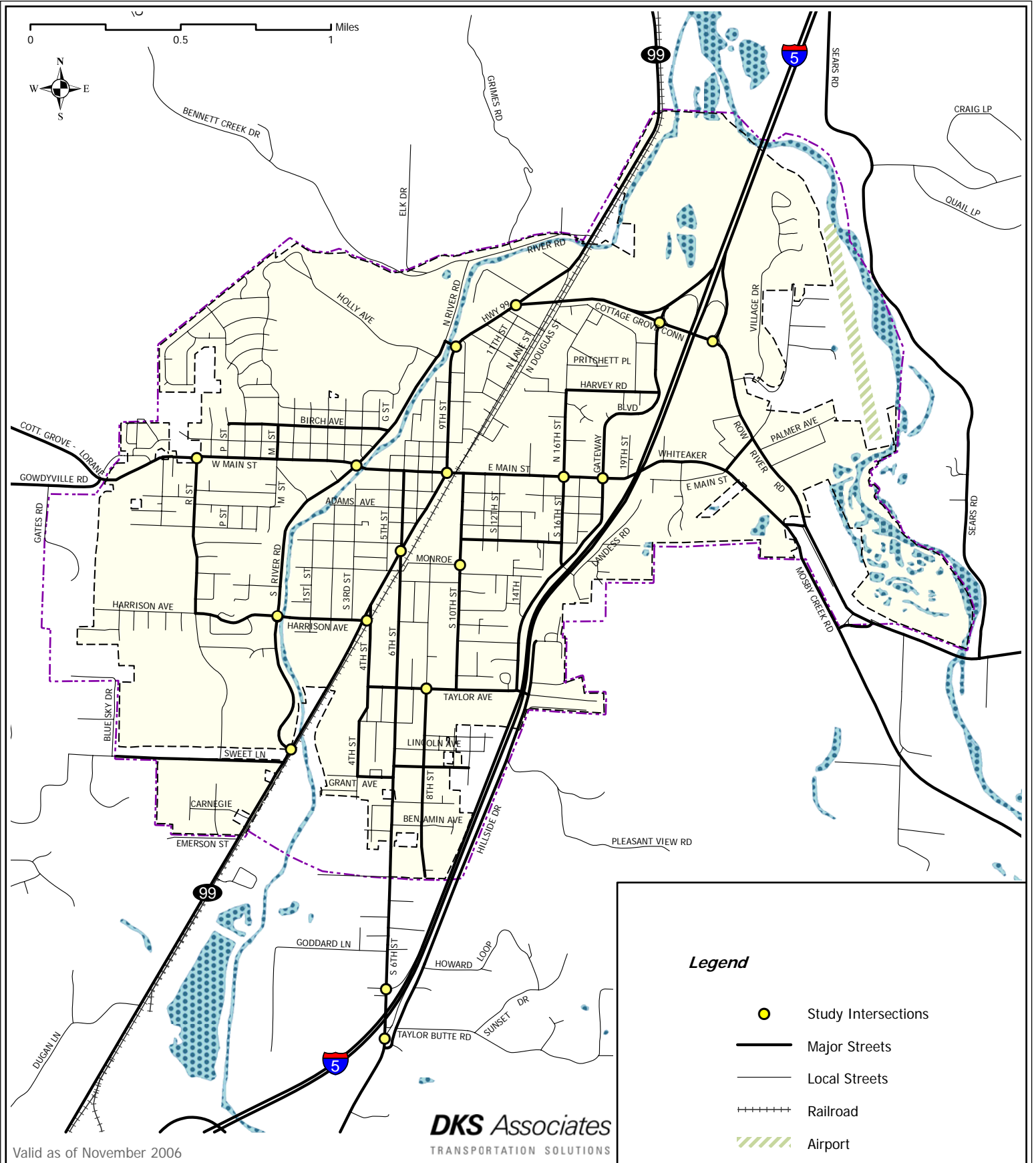
Source: ODOT Transportation System Monitoring Unit Counts, October, 2005, unless otherwise noted.

<sup>1</sup> ODOT Transportation System Monitoring Unit Counts, January, 2004.

<sup>2</sup> ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

<sup>3</sup> ODOT Transportation System Monitoring Unit Counts, February, 2006.

Typically, the highest pedestrian movements occur at intersections located near retail, recreational, and educational land uses. This trend is present in Cottage Grove, as Table 3-1 shows significant pedestrian volumes near the downtown core and schools. Lower volumes also occur where the sidewalk network is incomplete, such as along the Cottage Grove Connector.

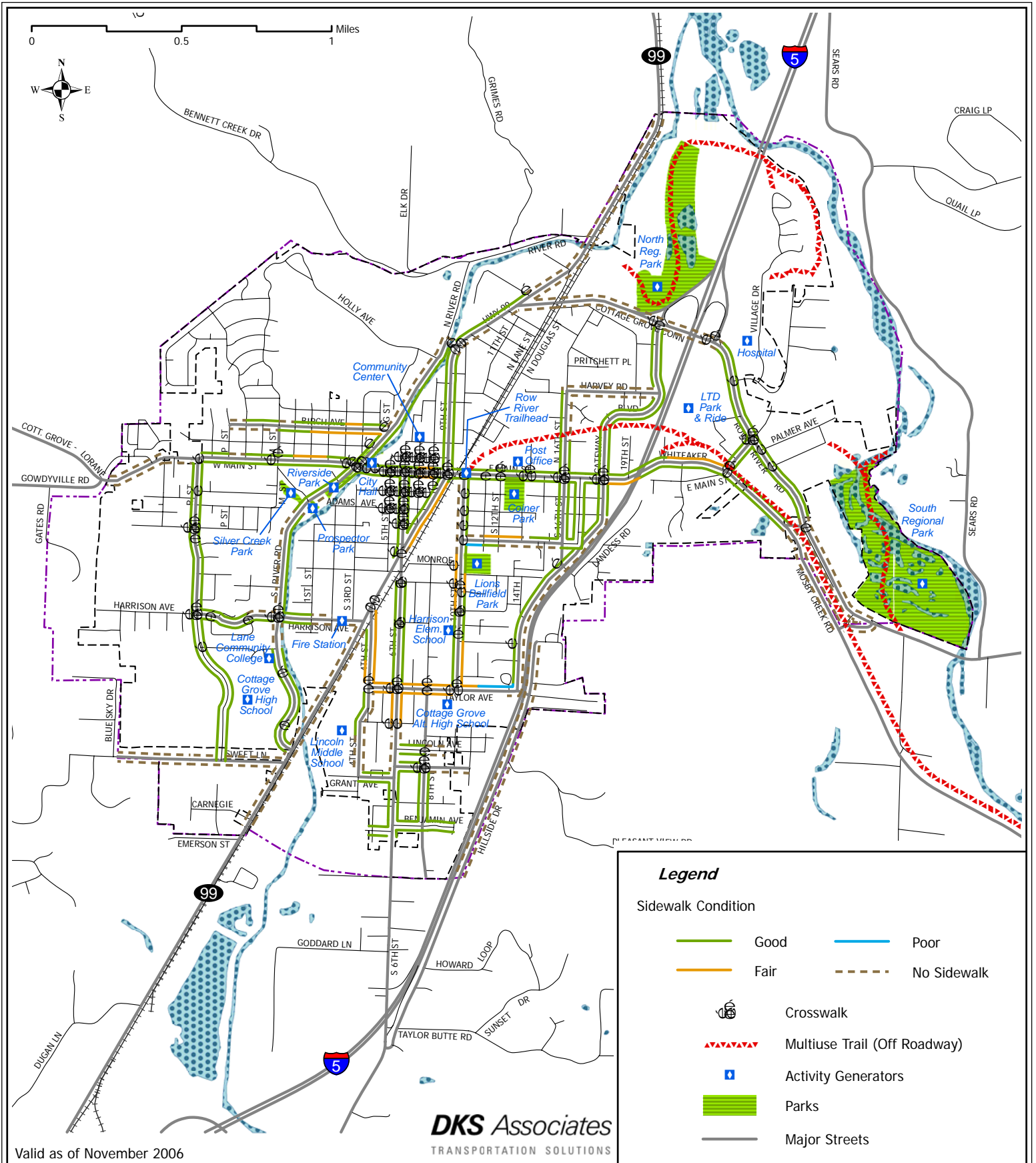


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**FIGURE 3-1**  
 Study Area



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## Transportation System Plan

### FIGURE 3-2

## Existing Pedestrian Facilities





# Bicycles

An inventory of bicycle facilities was conducted to assess the existing bicycle system in Cottage Grove. The City maintains four types of bikeways: bike lanes, multi-use paths, shared roadways, and shoulder bikeways. Figure 3-3 shows the location of existing bicycle facilities in Cottage Grove.

The Oregon Bicycle and Pedestrian Plan<sup>1</sup> defines several types of bikeways and describes the design criteria for safe travel by bicycle. According to the Oregon Bicycle and Pedestrian Plan, bike lanes exist where a portion of roadway, marked by a bike lane symbol stencil, is designated for use by bicycle riders. Multi-use paths are physically separated from motor vehicle traffic. Shared roadways are the most common bikeway and they are suitable in urban areas where traffic volumes are under 3,000 average daily vehicles and where speeds are no more than 25 miles per hour. Paved shoulders at least six feet wide are recommended for shoulder bikeways.

## General Observations

Bicycle facilities are provided throughout the study area. Portions of bike lanes are found on most minor arterials, however the bike lanes are not continuous. River Road and Main Street provide consistent bike lanes along the majority of their length. No bike lanes are provided on OR 99 and the Cottage Grove Connector which are designated as principal arterials. Other arterial and collector roadways in the study area have bike lanes that are incomplete.

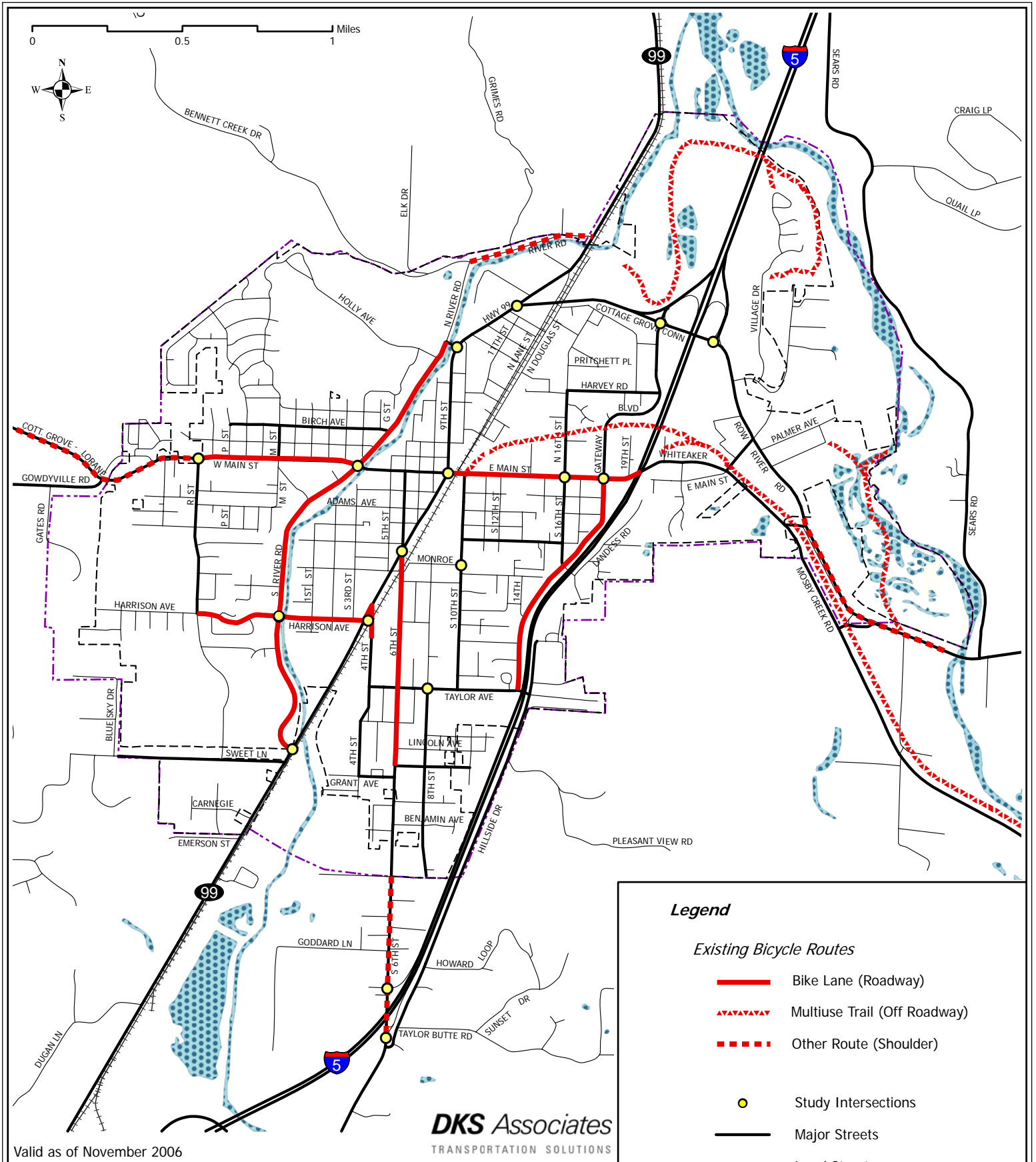
Several roadways in the study area provide shoulder bike routes including Row River Road, 6<sup>th</sup> Street and River Road. Several multi-use paths are provided in the north and east portions of the study area. These facilities are primarily used for bicycle recreational purposes.

## Bicycle Activity Levels

Bicycle counts were conducted during weekday 16 hour periods (6 AM to 10 PM) at the study intersections in Cottage Grove. The bicycle count data was obtained outside of the summer season. It is reasonable to assume that the existing bicycle volumes would increase moderately during the summer months. The 16 hour bicycle volumes at each study intersection are shown in Table 3-2. These volumes indicate the relative differences in bicycle demand between study intersections.

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<sup>1</sup> Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1995



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**FIGURE 3-3**  
Existing Bicycle Facilities

Table 3-2: 16-Hour Bicycle Crossing Volumes at Study Intersections

Intersection	North/South Bicycle Volume	East/West Bicycle Volume
I-5 SB Ramps/Cottage Grove Connector	10	1
I-5 NB Ramps/Row River Road	0	10
I-5 Off Ramp/6 <sup>th</sup> Street	8	0
I-5 On Ramp/6 <sup>th</sup> Street	4	0
OR 99/Cottage Grove Connector	11	4
OR 99/Woodson Bridge <sup>1</sup>	20	7
OR 99/Main Street <sup>1</sup>	26	3
OR 99/6 <sup>th</sup> Street <sup>2</sup>	0	0
OR 99/4 <sup>th</sup> Street	19	38
OR 99/S. River Road	5	5
Main Street/Gateway Boulevard <sup>3</sup>	15	11
Main Street/16 <sup>th</sup> Street <sup>3</sup>	6	15
Main Street/River Road	33	16
Main Street/R Street	10	30
Harrison Avenue/River Road	17	42
S. 8 <sup>th</sup> Street/Taylor Avenue	34	19
S. 10th Street/Monroe Avenue	40	22

Source: ODOT Transportation System Monitoring Unit Counts, October, 2005, unless otherwise noted.

<sup>1</sup> ODOT Transportation System Monitoring Unit Counts, January, 2004.

<sup>2</sup> ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

<sup>3</sup> ODOT Transportation System Monitoring Unit Counts, February, 2006.

Some of the highest bicycle volumes were observed at the 10th Street/Monroe Avenue intersection which is located near two schools. Both 10th Street (designated as a collector) and Monroe Avenue (designated as a local street) do not have any bicycle facilities.

# Transit

Transit service is provided in Cottage Grove by the Lane Transit District (LTD) and South Lane Wheels (SLW). LTD provides fixed route bus service between Cottage Grove and Eugene. South Lane Wheels provides both a deviated schedule route service and demand responsive service to transportation disadvantaged residents and the general public. Transit routes and stop locations are shown in Figure 3-4.

## Fixed Route Service

LTD provides service in Cottage Grove through LTD Route 98, with stops at Eugene Station, the University of Oregon Campus, Lane Community College Station, and Creswell. The one-way loop route reaches Cottage Grove via the Cottage Grove Connector, with several stops including the Village Shopping Center, Cottage Grove High School and the Lane Community College (Cottage Grove campus), Main and River Road, and the LTD Park & Ride lot near Wal-Mart.

LTD Route 98 operates seven times a day on weekdays, three times on Saturday, and twice on Sundays. Average weekday ridership statistics indicate that 120 people board Route 98 in Cottage Grove, with approximately half of those boardings taking place at the Park & Ride lot near Wal-Mart.<sup>2</sup>

## Deviated Schedule Route Service

SLW provides service to Cottage Grove through its “Route Around Town”. The route includes frequent stops throughout the City of Cottage Grove (35 total stops) including each of the six designated LTD stop locations. Special pick-up service is available at residences located within 0.75 miles of any SLW bus stop, for seniors, the disabled, and other people in need, for an additional \$0.50. This service is offered for pick-ups only.

SLW operates the route twelve times on weekdays and ten times on Saturday. There is no Sunday service. Standard fares, as of July 1, 2006, are \$1.00 for a single ride, with discounted fares available to youths, seniors and other transportation disadvantaged riders for \$0.50. Children aged five or under ride free. No historical ridership statistics are available for SLW’s Route Around Town, as the service began operation in July 2006.

## Demand Responsive Service

SLW provides door-to-door transportation to seniors, the disabled and the general public. The “Dial-a-Ride” service is provided within Cottage Grove and the surrounding area including trips to Eugene and Springfield for medical appointments. Varying fares are charged based on the distance traveled.

In addition to the door to door service, a “shopper service” provides rides to various retail locations each day of the week. A different shopping destination is set for each weekday. The shopper service is discounted, by \$2 per ride, relative to standard door-to-door service.

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<sup>2</sup> Route 98 Weekday Cottage Grove Daily Activities by Bus Stop – Spring 2006, Kenneth Augustson, Senior Transit Planner, Lane Transit District, July 2006.

The ridership statistics<sup>3</sup> for SLW door to door service shows that approximately 1,800 passengers utilize this service per month. The types of passengers include disabled people, seniors and the general public.

## Carpool Service

LTD's "Commuter Solutions" provides a contact list for potential car pool users in Lane County. The contact list is based on compatible routes and schedules and serves to help coordinate ride-sharing arrangements between commuters. In 2000, twelve percent of Cottage Grove workers aged 16 and over participated in carpools of two or more people<sup>4</sup>.

## Transit Level of Service

Table 3-3 summarizes the average time between bus arrivals at a stop (headways) and corresponding level of service<sup>5</sup> for both LTD Route 98 and SLW Route Around Town.

**Table 3-3: Transit Service Route Weekday Peak Period Level of Service**

Transit Route	Average Headways (minutes)			Level of Service		
	AM	Midday	PM	AM	Midday	PM
LTD #98 Cottage Grove	55	180	60	E	F	E
South Lane Wheels	60	65	60	E	F	E

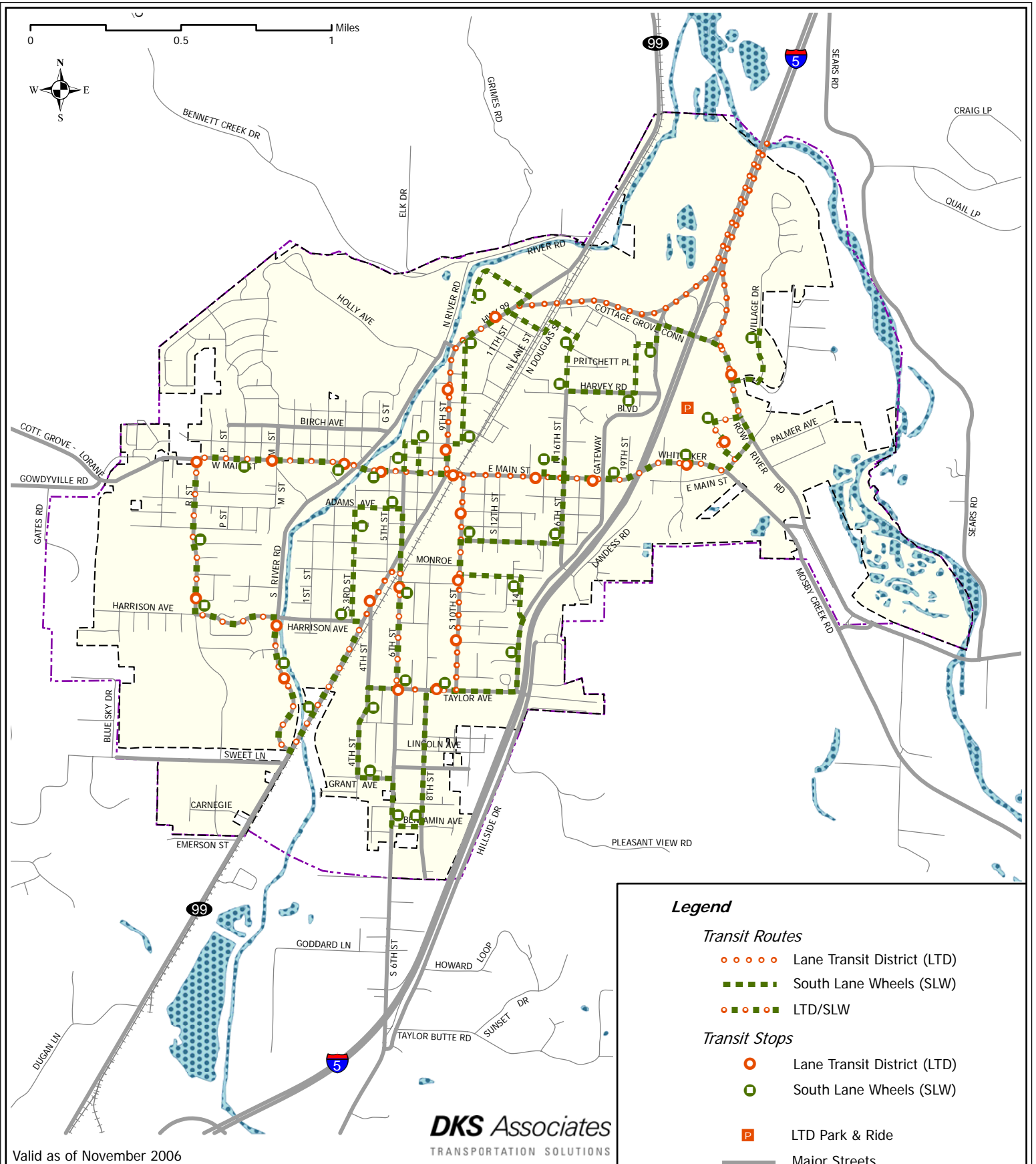
Note: AM Period = 06:00-08:30, Midday Period = 08:30-16:00, PM Period = 16:00-18:00

Level of Service for transit service based on headway: less than 10 minutes = LOS A; 10-14 minutes = LOS B; 14-19 minutes = LOS C; 20-29 minutes = LOS D; 30-60 minutes = LOS E; and greater than 60 minutes = LOS F.

<sup>3</sup> Tara Sue Salusso, Executive Director, South Lane Wheels, August 2006.

<sup>4</sup> Journey to Work: 2000, Census 2000 Summary File 4, U.S. Census Bureau.

<sup>5</sup> 2000 Highway Capacity Manual, Transportation Research Board, 2000, Chapter 27.



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**FIGURE 3-4**  
Existing Transit Routes & Stops

# Motor Vehicles

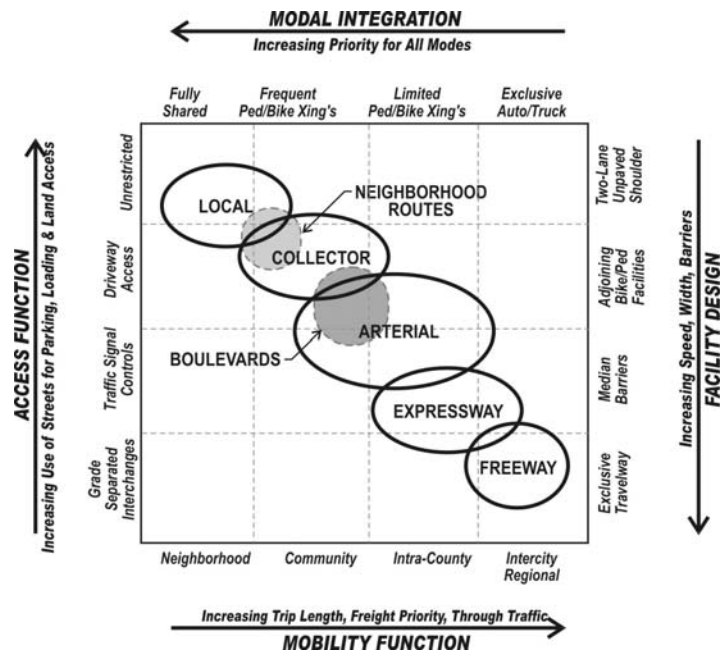
The motor vehicle system within the City of Cottage Grove includes city streets, county roadways, state highways, and an interstate freeway. This section is divided into a description of how the system has developed to date, then a more detailed review of how it is used and operated.

## Functional Classification

The functional classification system is designed to serve transport needs within the community. The schematic diagram below is useful for understanding how worthwhile objectives can have opposing effects by illustrating the competing functional nature of roadway facilities as it relates to access, mobility, multi-modal transport, and facility design. For example, as mobility is increased (bottom axis), the provision for non-motor vehicle modes (top axis) is decreased accordingly. Similarly, as access increases (left axis), the facility design (right axis) dictates slower speeds, narrower travel ways, and non-exclusive facilities. The goal of selecting functional classes for particular roadways is to provide a suitable balance of these four competing objectives.

The diagram shows that as street classes progress from local to collector to arterial to freeway (top left corner to bottom right corner) the following occurs:

- *Mobility Increases* – Longer trips between destinations, greater proportion of freight traffic movement, and a higher proportion of through traffic.
- *Integration of Pedestrian and Bicycle Decreases* – Provisions for adjoining sidewalks and bike facilities are required up through the arterial class, however, the frequency of intersection or mid-block crossings for non-motorized vehicles steadily decreases with higher functional classes. The expressway and freeway facilities typically do not allow pedestrian and bike facilities adjacent to the roadway and any crossings are grade-separated to enhance mobility and safety.
- *Access Decreases*– The shared uses for parking, loading, and direct land access is reduced. This occurs through parking regulation, access control and spacing standards (see opposite axis).



- *Facility Design Standards Increase* – Roadway design standards require increasingly wider, faster facilities leading to exclusive travelways for autos and trucks only. The opposite end of the scale is the most basic two-lane roadway with unpaved shoulders.

Two additional areas are noted on the diagram for **Neighborhood Routes** and **Boulevards** that span two conventional street classes.

The current Cottage Grove functional class system for roadway facilities is depicted in Figure 3-5. The functional class system identified is based on the functional classification plan identified in the 1998 Cottage Grove TSP.

The Oregon Highway Plan identifies the Goshen Divide Highway (OR 99) as a District highway. District highways often function as county and city arterials or collectors and provide connections between small urbanized areas, rural centers and urban hubs, while also serving local access and traffic. The ODOT management objective for District highways is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas and moderate to low-speed operation for traffic flow and pedestrian/bicycle movements in urban areas.

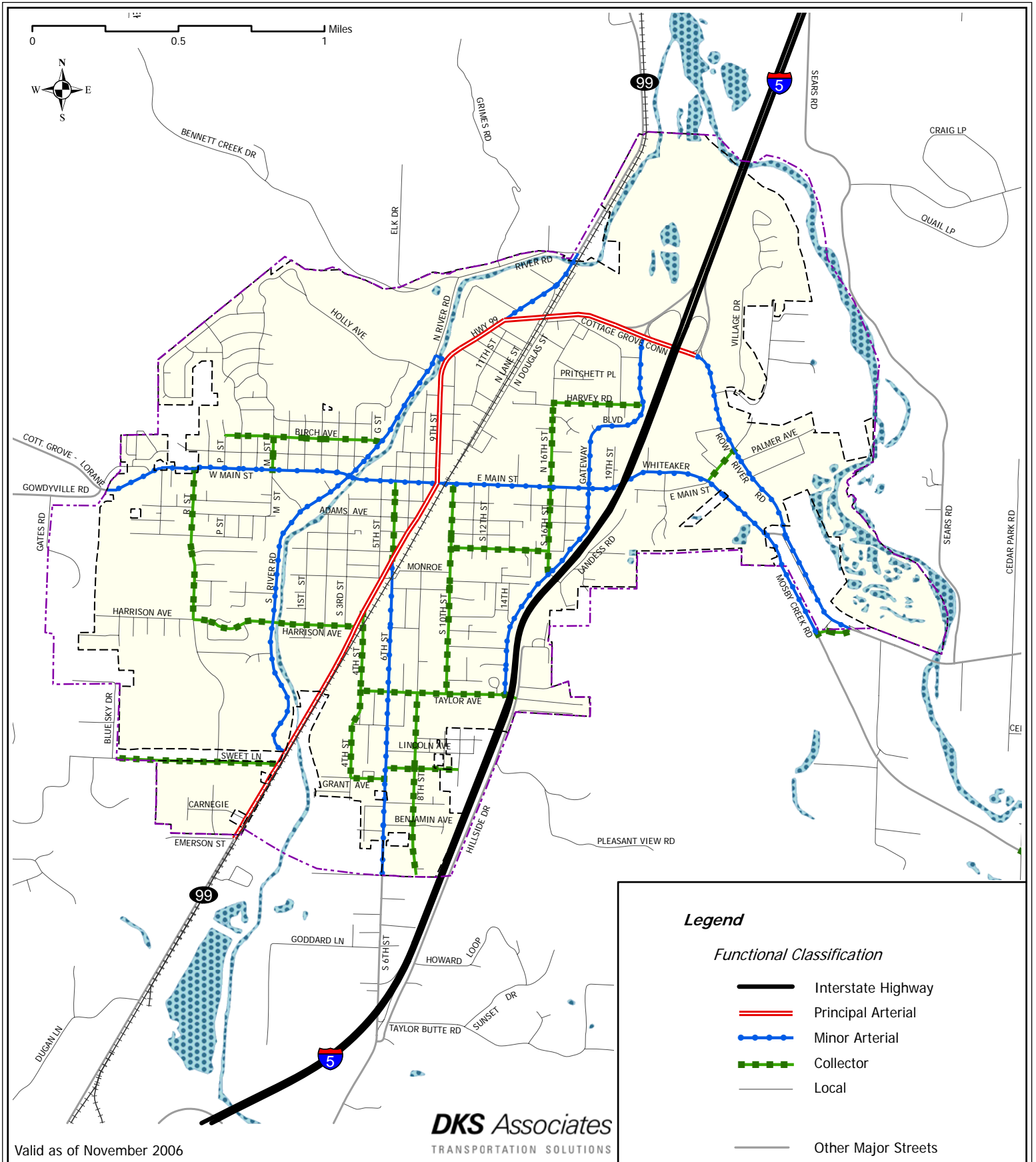
## Roadway Jurisdiction

Roadway jurisdiction (ownership and maintenance responsibilities) of collector and arterial roads in the City of Cottage Grove is identified in Figure 3-6. OR 99, the Cottage Grove Connector, and I-5 along with its entrance and exit ramps are state facilities managed by ODOT. Arterial and collector roadways outside of the Cottage Grove City limits are owned and operated by Lane County, while the City is responsible for all other arterials and collectors within city limits with the exception of portions of Cottage Grove-Lorane Road, Row River Road, Mosby Creek Road, South River Road, South 10<sup>th</sup> Street and South 6th Street. Future jurisdictional transfers are expected to put additional roadways under City jurisdiction.

## Roadway Connectivity

Interstate 5 (I-5), located on the eastern section of Cottage Grove, serves as a national facility which serves the region and is the major route of travel to the Eugene metropolitan area, located approximately 20 miles to the north. The Goshen Divide Highway (OR 99) is the primary roadway for traffic passing through downtown Cottage Grove. Access to OR 99 from I-5 is provided by the Cottage Grove Connector. OR 99 includes turn lanes at several intersections and functions as an arterial through central Cottage Grove. Main Street serves as the primary east-west arterial passing through downtown Cottage Grove. River Road serves as a northwest arterial in the western portion of the city. Gateway Boulevard and Row River Road provide arterial access west and east of I-5, respectively. The primarily residential areas south of Main Street, between I-5 and OR 99, are accessible via the 6th Street arterial.





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**FIGURE 3-5**  
 Functional Classification

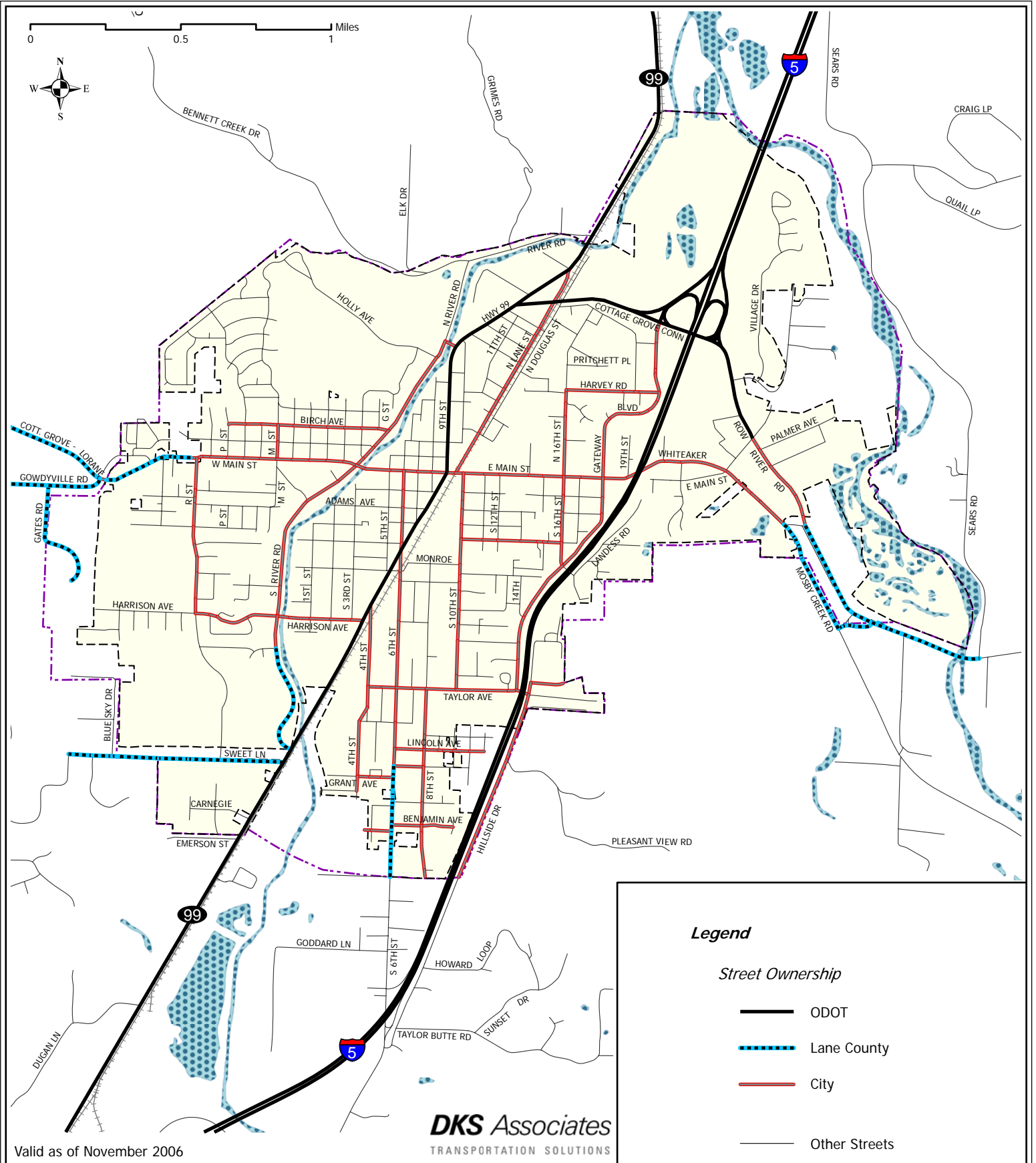
From 1998 Cottage Grove TSP

**Legend**

*Functional Classification*

- Interstate Highway
- Principal Arterial
- Minor Arterial
- Collector
- Local

- Other Major Streets
- Railroad
- Urban Growth Boundary
- City Limits
- Water



Transportation System Plan  
**FIGURE 3-6**  
 Roadway Jurisdiction



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## Roadway Characteristics

Field inventories were conducted to determine characteristics of major roadways in the TSP study area. Data collected included posted speed limits, roadway lanes, roadway widths, geometry and lane configurations, and intersection controls. These characteristics define roadway capacity and operating speeds through the street system, which affects travel path choices for drivers in Cottage Grove. The locations of designated parking spaces on city streets were also examined.

### Vehicle Speeds<sup>6</sup>

Figure 3-7 shows a focused inventory of the posted speeds in Cottage Grove. The majority of roadways in Cottage Grove are posted at 20 to 35 miles per hour (mph). Arterial roadways on the periphery of the city such as Row River Road and the Cottage Grove Connector, as well as Main Street and OR 99 segments on the fringes of the city limits, are posted at higher speeds ranging from 40 to 55 mph.

### Intersection Controls

In addition to posted speeds, Figure 3-7 illustrates the intersection control types at study intersections. Traffic signals are located at most major intersections on arterial roadways. The Cottage Grove Connector/OR 99 intersection is stop controlled with free moving traffic between the Cottage Grove Connector and the northbound approach of OR 99. All-way stop controlled intersections are located at the Harrison Avenue/South River Road and Taylor Avenue/South 8th Street intersections. All-way stops are also located at several non-study intersections including Harrison Avenue/R Street and other intersections in northwest neighborhoods.

### Roadway Cross-section<sup>7</sup>

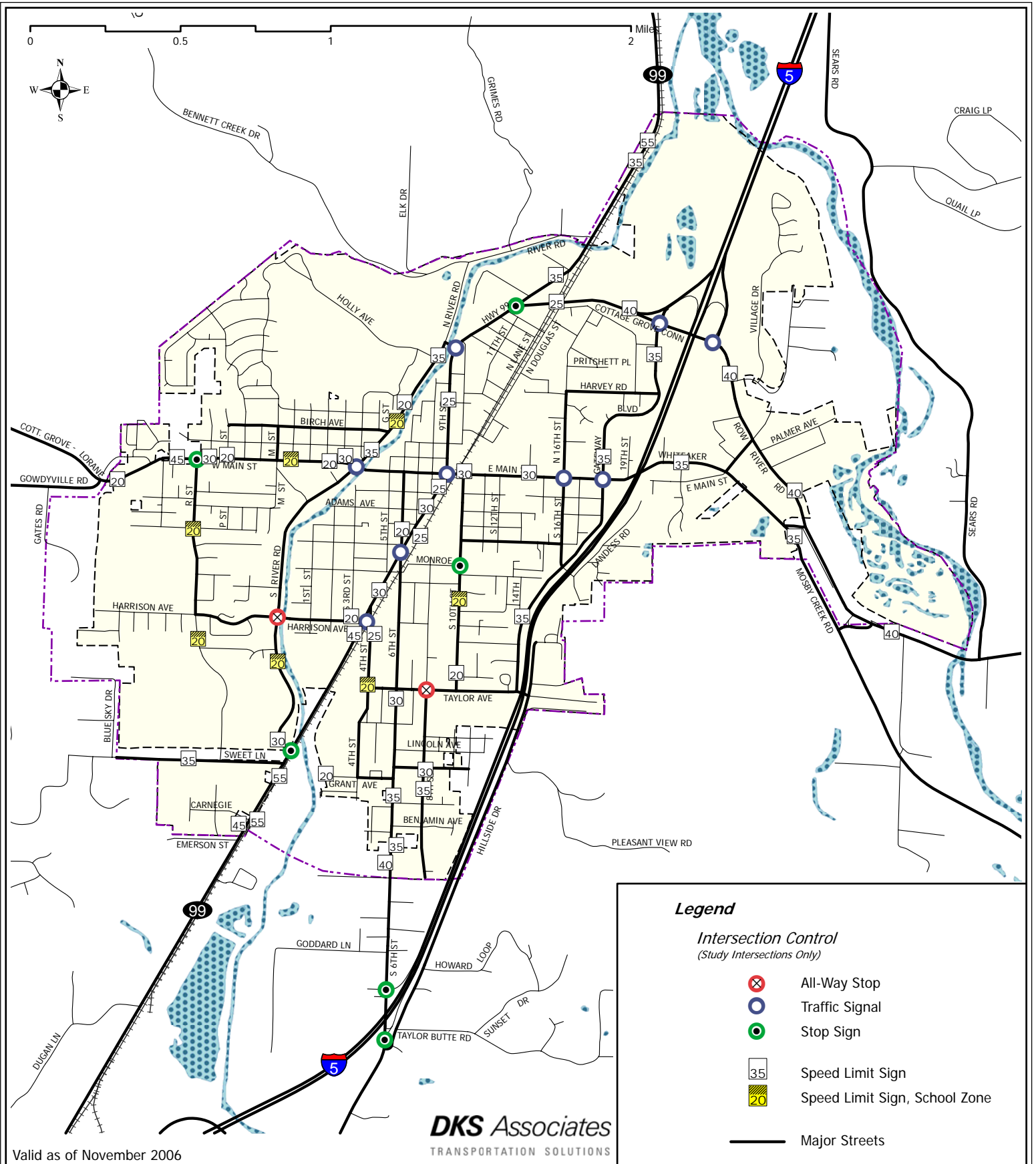
Figure 3-8 shows the existing number of lanes on each roadway in Cottage Grove. The majority of roadways in Cottage Grove are two lanes, although additional turn lanes are provided at many intersections. OR 99 has four lanes between the Cottage Grove Connector and Woodson Place and south of Main Street to Harrison Avenue. Gateway Boulevard has three lanes between Main Street and Harvey Road, with four lanes between Harvey Lane and the Cottage Grove Connector. Row River Road has three lanes between the northbound I-5 ramps and Thornton Lane. The remaining roads in the City of Cottage Grove are two lane roadways.

The key roadways in Cottage Grove were measured at various locations to determine typical cross-section widths. Some streets within the study area have new sections intermixed with older sections resulting in ranges of roadway widths depending on location.

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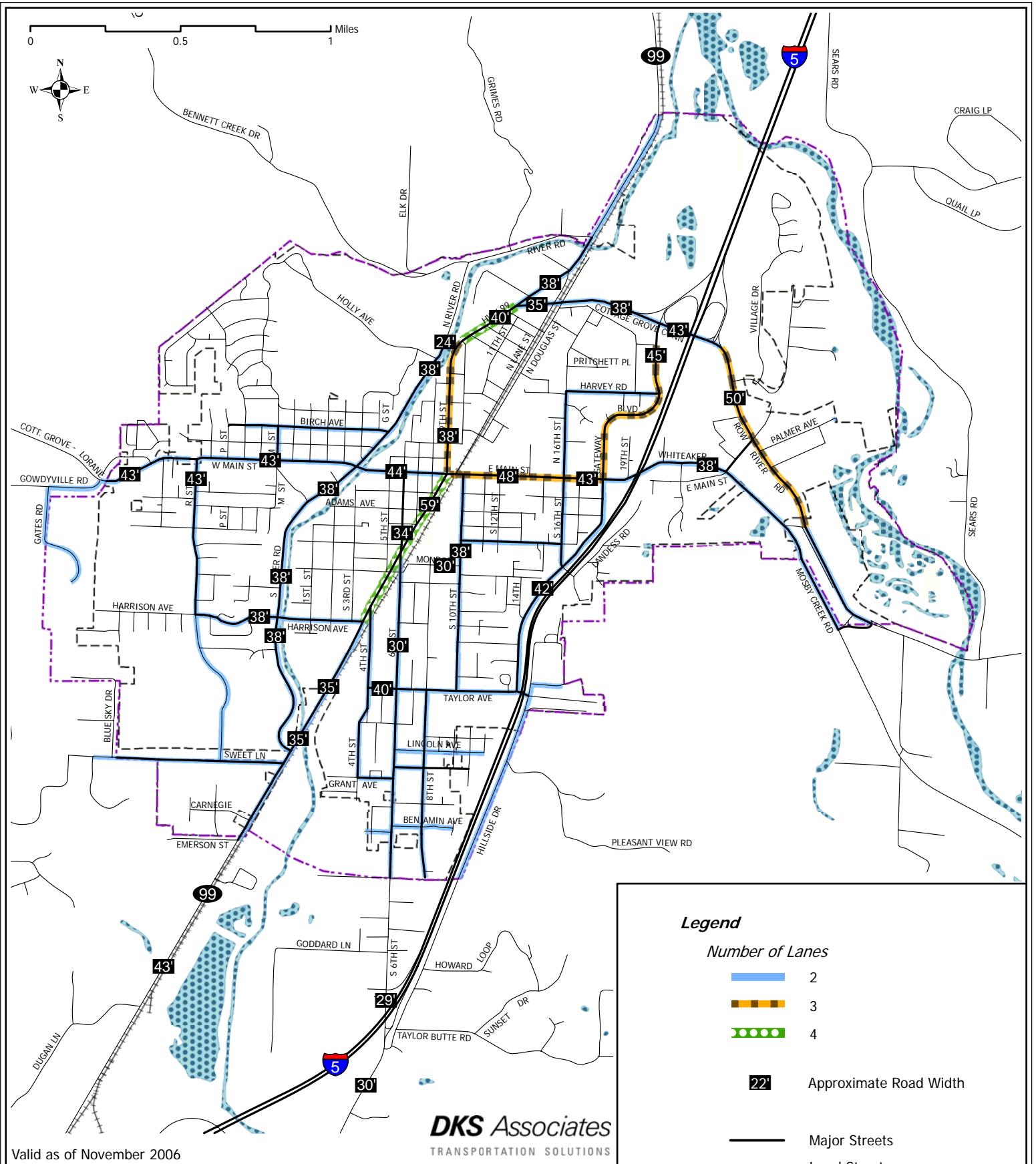
<sup>6</sup> Posted speed and data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).

<sup>7</sup> Roadway cross section data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).



Transportation System Plan  
**FIGURE 3-7**  
 Existing Speed Limits and  
 Intersection Control





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**FIGURE 3-8**  
Existing Roadway Width & Number of Travel Lanes



### Pavement Conditions<sup>8</sup>

Pavement conditions in the City of Cottage Grove vary and include some unpaved gravel surfaces within the city limits. In general, arterials and collectors should have good pavement quality, while local streets should have good to fair pavement quality.

An inventory of pavement conditions was performed on major roadways in the City. Roadway pavement conditions were ranked as good, fair, poor, or unpaved. Good conditions mean stable pavement structure, with good ride quality. Minor surface erosion, cracking, patching or deformation may be present. Fair conditions may have minor areas with structural weakness, with cracking and deformation easier to detect. Patching may be evident but not excessive. Poor conditions describe roadways that have areas of instability, marked with evidence of structural deficiency, numerous patches, and noticeable deformations. Ride quality is poor and spot repair may be required. The pavement condition inventory is shown in Figure 3-9. Field observations during the transportation inventory indicated fair to good pavement conditions on all arterials and collectors.

## Designated Street Parking

An inventory of existing designated on-street parking was conducted for the arterial and collector roadways within the study area. Figure 3-10 shows the location of designated on-street parking in Cottage Grove. Designated parking includes locations where parking is specifically identified by pavements markings or signage. Most local streets and many collectors in Cottage Grove also allow on-street parking. The designated on-street parking is generally limited to the downtown area.

## Motor Vehicle Volumes

As part of the Cottage Grove TSP Update, fifteen study intersections were selected for focused analysis in coordination with the City of Cottage Grove and ODOT staff in order to address areas of concern along major roadways. ODOT provided 16-hour intersection turn movement counts at the study intersections to be utilized as a basis for establishing current traffic performance. The 16-hour count data was converted to 24-hour traffic volumes based on factors provided by ODOT.

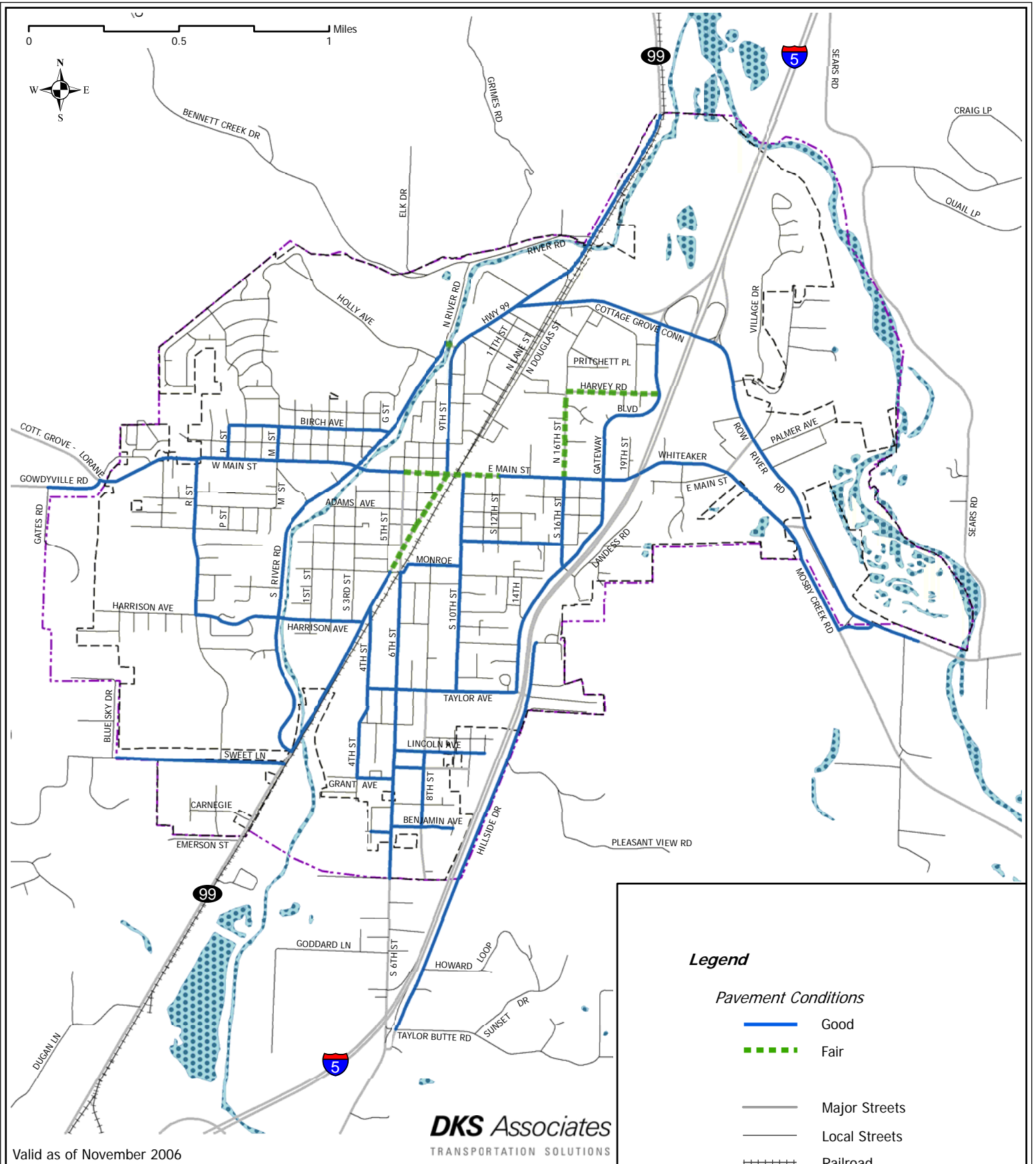
Figure 3-11 shows the average daily two-way existing traffic volumes on roadways in the Cottage Grove area. These two-way traffic volumes can vary from day to day and month to month based on weather, surrounding roadway conditions (such as construction), and holidays. In addition, seasonal recreational traffic can vary the traffic volumes in the City.

The figure indicates that the highest vehicle volumes (not including I-5) in Cottage Grove occur along the principal arterials: the Cottage Grove Connector, OR 99, and Main Street. Vehicle volumes on these roadways are over 10,000 per day. Away from the downtown area, average daily volume on OR 99 decreases to approximately 4,300 near the northern and southern city limits.

Traffic count data were used as a basis for evaluating traffic performance at the study intersections during PM peak hour conditions. To analyze operating conditions it is necessary to

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<sup>8</sup> Pavement conditions data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).

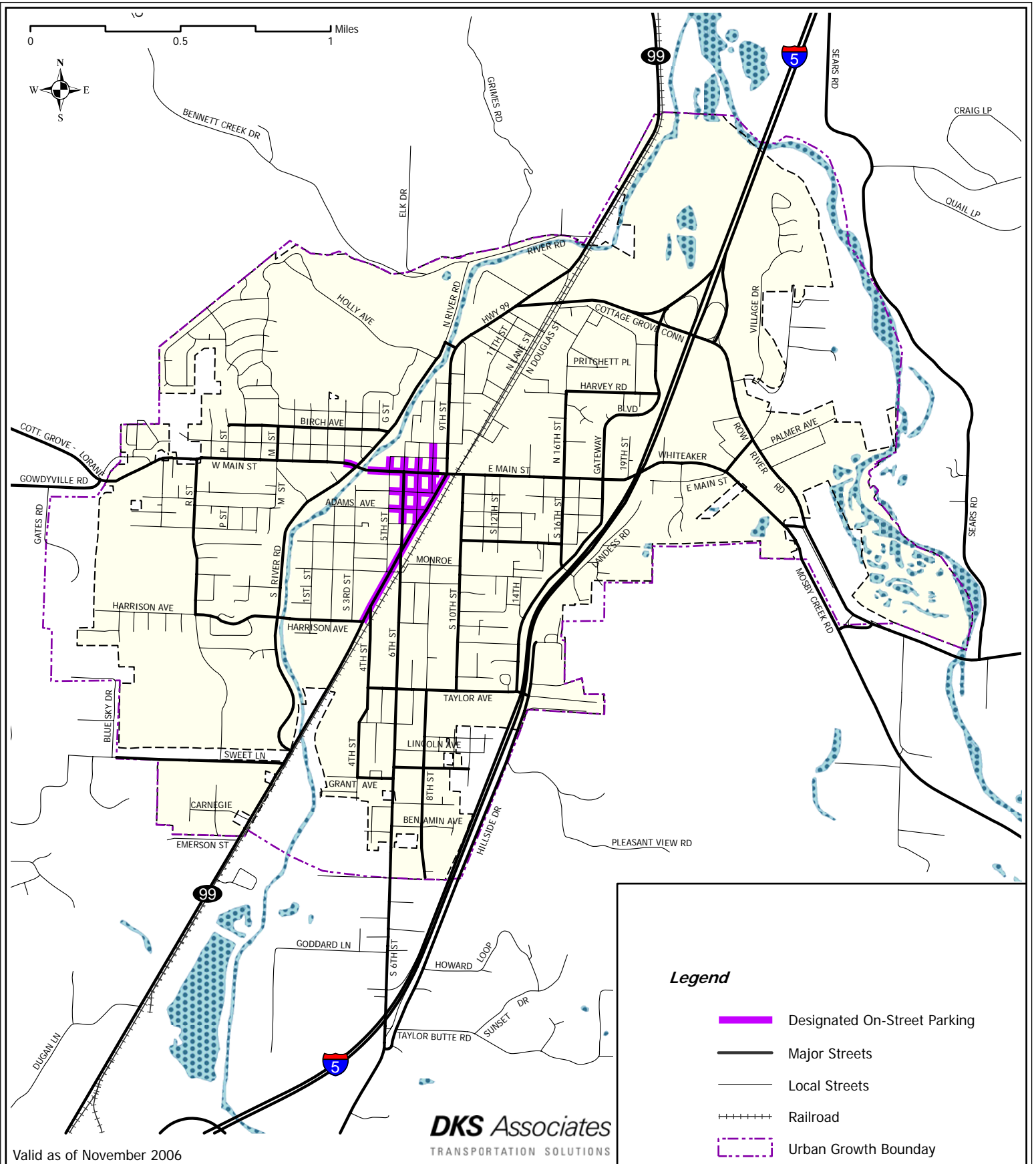


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**FIGURE 3-9**  
Pavement Conditions



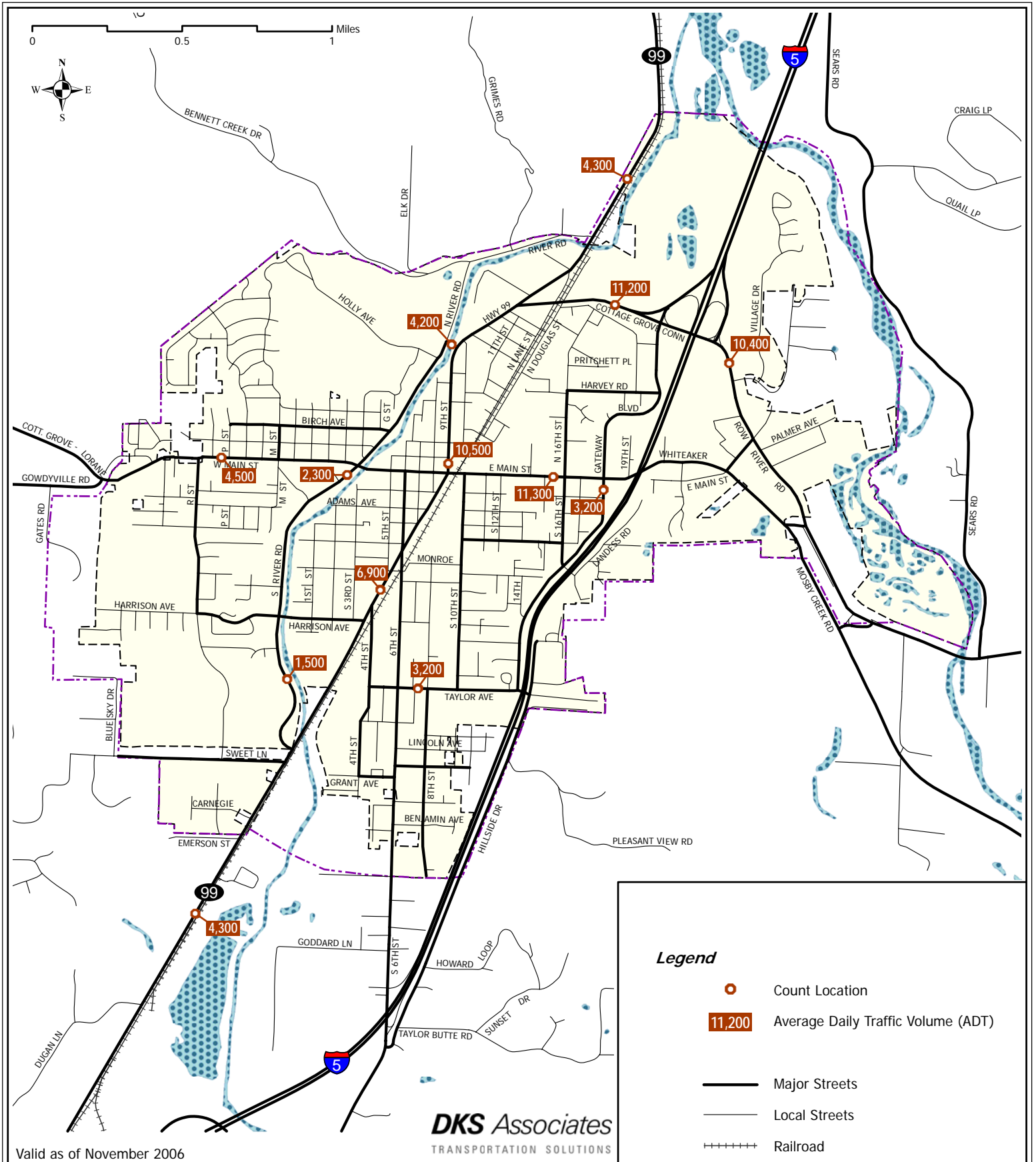


Valid as of November 2006



Transportation System Plan  
**FIGURE 3-10**  
 Designated Street Parking





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**FIGURE 3-11**  
Daily Traffic Volume

Valid as of November 2006



determine peak hour volumes for each turning movement, lane configurations, and traffic signal timings at signalized intersections. The PM peak hour traffic volumes and intersection geometry used for the operational analysis are illustrated in Technical Appendix H, Figure 1.

Based on an evaluation of the count data, the evening peak hour for the operational analysis was determined to be from 4:00 to 5:00 PM for most study intersections. Four intersections located on OR 99 south of Main Street indicated a peak hour of 3:00 to 4:00 PM to reflect peak traffic conditions along that corridor. The peak hour traffic volumes were further refined to reflect the 30th highest annual hour volumes (30HV), which are commonly used in operational analysis. These factored volumes account for seasonal variations in traffic and generally represent the levels of congestion present during the weekday PM peak hour in the summer time, when volumes are at their highest.

## Traffic Operations

### Definition of Traffic Level of Service

Level of Service (LOS) and volume to capacity ( $v/c$ ) ratios are both used as measures of effectiveness for intersection operation. LOS is similar to a “report card” rating based upon average vehicle delay. Level of Service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of Service D and E are progressively worse peak hour operating conditions. Level of Service F represents conditions where average vehicle delay exceeds 80 seconds per vehicle entering a signalized intersection and demand has exceeded capacity. This condition is typically evident in long queues and delays. Unsignalized intersections specify levels of service for major and minor street turning movements. For this reason, LOS E and even LOS F can occur for a specific turning movement; however, the majority of traffic may not be delayed (in cases where major street traffic is not required to stop). LOS E or F conditions at unsignalized intersections generally provide a basis to study intersections further to determine availability of acceptable gaps, safety and traffic signal warrants.

A volume to capacity ratio ( $v/c$ ) is the peak hour traffic volume at an intersection divided by the maximum volume that intersection can handle. For example, when a  $v/c$  is 0.80, peak hour traffic is using 80 percent of the intersection capacity. If traffic volumes exceed capacity, queues will form and will lengthen until demand subsides below the available capacity. When the  $v/c$  approaches 1.0, intersection operation becomes unstable and small disruptions can cause traffic flow to break down.

As performance measures of intersection performance, LOS and  $v/c$  often correspond. However, they do not necessarily have a direct correlation. Depending on control type, operating characteristics, geometries, and specific movement volumes one of the measures may raise concerns about performance while the other does not.

### Operating Standards

Level of Service, delay and volume to capacity ratios are used as measures of effectiveness for study intersection performance. The intersection operational standards for Lane County and ODOT are summarized below.

**Lane County Performance Standard<sup>9</sup>** — Requires county roads inside an urban growth boundary (UGB) to operate at LOS D or better and below a maximum volume to capacity ratio dependent on posted speed during the peak hour as specified in Table 3-4.

**Table 3-4: Lane County Operating Standard for County Roads Inside UGB**

Posted Speed (MPH)	>=45	<45
Volume to Capacity Ratio (v/c)	0.75	0.85

**ODOT Performance Standard<sup>10</sup>** — Requires District Highways inside a UGB to operate below a maximum volume to capacity ratio dependent on posted speed during the peak hour as shown in Table 3-5.

**Table 3-5: ODOT Operating Standards**

Posted Speed (MPH)	>=45	40	<=35
Volume to Capacity Ratio (v/c)	0.80	0.85	0.90

ODOT performance standards apply along all ODOT facilities including OR 99 as well as I-5 ramp interchanges (where a v/c of either 0.85 or a lower value of the intersecting street is used). Lane County has jurisdiction on S. River Road and South 6<sup>th</sup> Street. No city operational standards are specified in the 1998 Cottage Grove TSP or current Comprehensive Plan. As such, new performance standards are recommended for use on city street intersections.

The suggested standard for city facilities is a volume-to-capacity ratio of 0.90 during the peak hours of operation. This would apply to streets and intersections controlled by traffic signals. Intersections that have stop sign controls (two-way or all-way stop controlled) would be allowed to drop to Level of Service E conditions, as defined by the latest *Highway Capacity Manual* for the minor side street approach. The jurisdiction and applicable performance standard for each study intersection is identified in Technical Appendix L.

Existing Operating Conditions

The 30HV intersection volumes for the PM peak hour were used to determine the existing study intersection operating conditions based on the 2000 Highway Capacity Manual methodology for signalized and unsignalized intersections<sup>11</sup>. Traffic volumes and level of service calculation sheets can be found in Technical Appendix C. Table 3-6 summarizes the existing (2006) weekday PM peak hour intersection operation at study intersections. Each of the study intersections operates at a LOS of D or better. The intersection of the I-5 SB ramp interchange with the Cottage Grove Connector and Gateway Boulevard has a v/c ratio of 0.88, which exceeds the ODOT performance

<sup>9</sup> Lane County Transportation System Plan, Lane County Public Works, June 2004

<sup>10</sup> 1999 Oregon Highway Plan - Amendment, The Oregon Department of Transportation, July 2005.

<sup>11</sup> 2000 Highway Capacity Manual, Transportation Research Board, 2000.

standard of 0.85. All other intersections have an acceptable v/c ratio based on ODOT and Lane County standards. In order to represent operating conditions adequately at the Cottage Grove Connector/OR 99 intersection, the approaches were separated into three smaller intersections for analysis purposes.

Table 3-6: Existing Weekday PM Peak Hour Intersection Level of Service

Intersection	Level of Service	Average Delay (Sec)	Volume / Capacity	Standard Met?
<i>Signalized Intersections</i>				
I-5 SB Ramp/Cottage Grove Connector	D	44	<b>0.88</b>	<b>No</b>
I-5 NB Ramp/Row River Road	B	14	0.53	Yes
OR 99/Woodson Place	A	10	0.58	Yes
OR 99/Main Street	D	50	0.71	Yes
OR 99/6 <sup>th</sup> Street	B	11	0.33	Yes
OR 99/4 <sup>th</sup> Street	B	19	0.33	Yes
Main Street/River Road	B	17	0.41	Yes
Main Street/16 <sup>th</sup> Street	B	17	0.59	Yes
Main Street/Gateway Boulevard	C	28	0.78	Yes
<i>Unsignalized Intersections</i>				
OR 99/River Road	A / B	3	0.03 / 0.23	Yes
Harrison Avenue/River Road*	A	9	0.22	Yes
Main Street/R Street	A / B	3	0.05 / 0.10	Yes
Monroe Avenue/10 <sup>th</sup> Street	A / B	2	0.01 / 0.06	Yes
Taylor Avenue/8 <sup>th</sup> Street*	A	8	0.18	Yes
I-5/6 <sup>th</sup> Street (southbound off ramp)	A / B	5	0.00 / 0.23	Yes
I-5 NB Ramp OFF Ramp (Southbound Right) /Row River Road	A / B	1	0.00 / 0.12	Yes
OR 99/Cottage Grove Connector (OR 99 northbound & southbound)	A / C	5	0.00 / 0.31	Yes
OR 99/Cottage Grove Connector (CGC northbound right turn)	A / A	3	0.03 / 0.09	Yes
OR 99/Cottage Grove Connector (OR 99 eastbound left turn)	A / C	1	0.00 / 0.17	Yes

Notes: Unsignalized Intersection Operations:

A/A = Major street turn LOS / Minor street turn LOS

##/# = Major street turn v/c / Minor street turn v/c

Signalized and All-Way Stop Intersections:

Delay = Average vehicle delay in the peak hour for entire intersection in seconds.

\* All-Way Stop Intersection

## Railroad Crossings

There are six at-grade railroad crossings in the study area. Five are located within the city limits of Cottage Grove with an additional crossing located south of the City limits at Rachel Road. The railway intersections at Main Street and South 4<sup>th</sup> Street are flashing-light signals with an overhead cantilever structure and automatic gates. The railway intersection at 6<sup>th</sup> Street includes post-mounted flashing-light signals and automatic gates. The three remaining at-grade rail crossings in Cottage Grove are stop controlled with no signals or gates present. The location of rail crossings in Cottage Grove is illustrated in Figure 3-12.

Feedback from city residents indicates that significant delays exist at railroad crossings due to trains stopping for durations as long as 40 minutes. Blockage of at-grade crossings presents significant delays for emergency response crews who must reroute to railroad overpasses, school buses, and other vehicles, pedestrians, and bicyclists. Public railroad crossings may not be blocked for longer than 15 minutes between 10 PM and 6 AM, with 10 minute limits between 6 AM and 10 PM, except for continuously moving trains. Blockage complaints are handled by ODOT Rail Division which may fine rail operators for blockage infractions.

## Traffic Safety

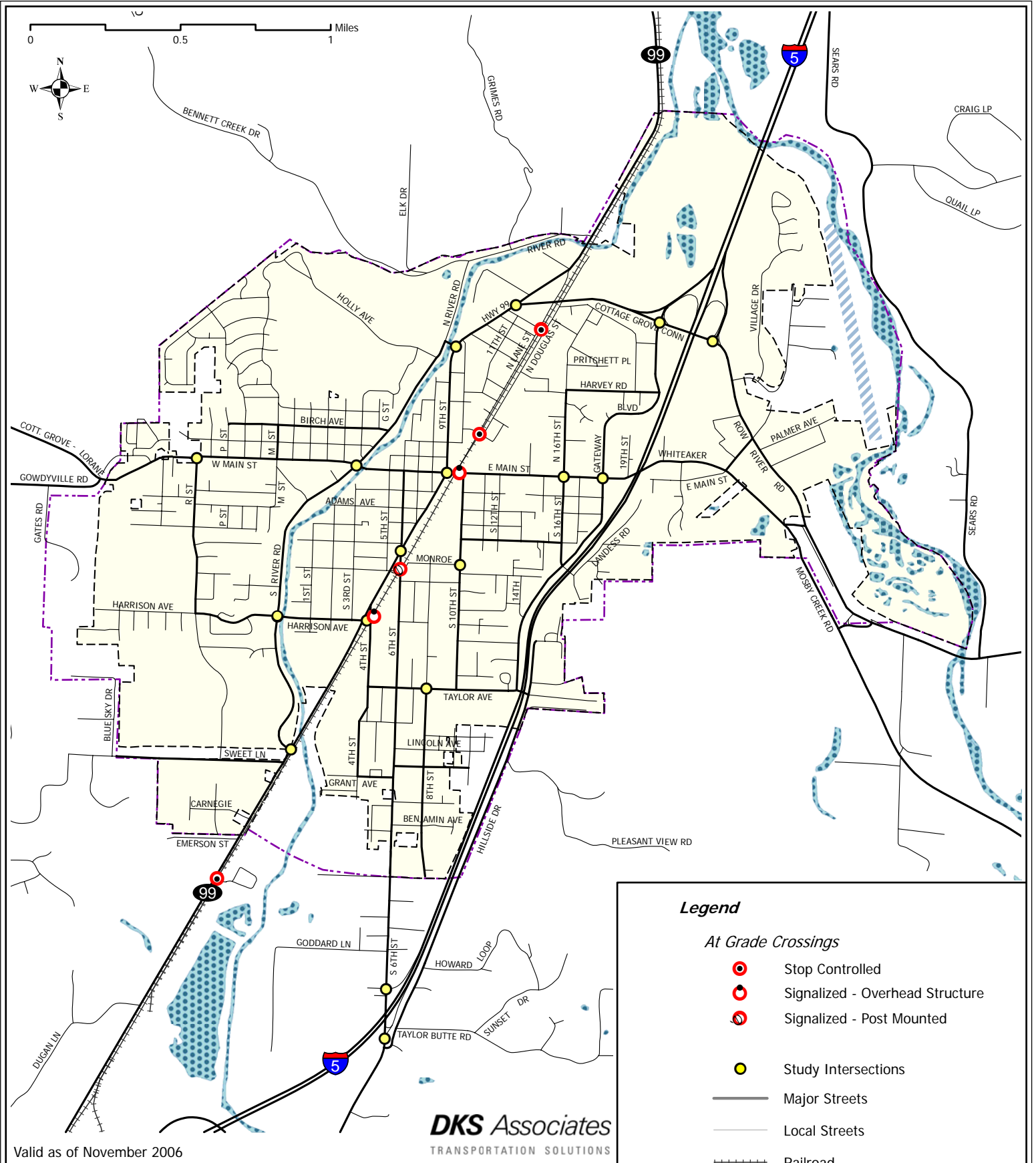
Five years of available collision data (2000 through 2004) were obtained from ODOT to identify areas of traffic safety concern within Cottage Grove. The analysis of collision data was separated into a review of past highway performance (specifically along OR 99) and past city street performance.

The collision data assessment indicated that three fatalities occurred within Cottage Grove from 2000 through 2004. The fatal collisions occurred on 8<sup>th</sup> Street near Taylor Avenue which involved a sideswiped parked car, at Gateway Street and Harvey Road which involved a turning movement and on the I-5 mainline (within Cottage Grove) which involved a pedestrian. No fatalities were reported at the study intersections.

### OR 99 Performance

To assess the significance of collisions that have occurred along OR 99, collision rates by intersection, as well as by highway segments, were calculated to relate collision frequencies with the volume of traffic served. Within the study area, 59 collisions have occurred on OR 99 over the five year period. Of these incidents, 31 collisions occurred within 100 feet of a study intersection. These incidents were primarily rear end (52%) and turning (32%) collision types.

Table 3-7 summarizes the collisions experienced along study intersections on OR 99 within the five-year period examined, as well as the resulting collision rate which calculates the number of collisions per million vehicles entering the intersection. Collision rates of 1.0 or greater are generally used as indicators that specific intersections should be investigated further for potential safety enhancements. As shown, all study intersections maintain collision rates well below 1.0. In addition, the intersection of OR 99 with Harrison Avenue and 4<sup>th</sup> Street has recently been signalized resulting in improved traffic safety.



**Legend**

*At Grade Crossings*

- Stop Controlled
- Signalized - Overhead Structure
- Signalized - Post Mounted

- Study Intersections

Major Streets

Local Streets

Railroad

Airport

Urban Growth Bounday

City Limits

Water

Valid as of November 2006

**DKS Associates**  
TRANSPORTATION SOLUTIONS

**Transportation System Plan**

**FIGURE 3-12**

**Railroad Crossings**



Table 3-7: OR 99 Collisions (2000-2004)

Intersection on OR 99	Fatal	Non-Fatal Injury	Property Damage Only	Total Collisions	Collision Rate
Cottage Grove Connector	0	1	2	3	0.13
Woodson Place	0	0	4	4	0.17
Main street	0	3	8	11	0.31
6 <sup>th</sup> Street	0	1	3	4	0.20
Harrison Avenue / 4 <sup>th</sup> Street	0	2	7	9	0.58
South River Road	0	0	0	0	0.00

Source: ODOT - Transportation Data Section - Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Cottage Grove, 2000-2004.

Other (non-study) intersections located along OR 99 had six collisions at most over the five year period. Even with conservatively low average daily traffic volume estimates, these non-study intersections indicate collisions rates well below the 1.0 threshold. The fairly even geographical distribution of collisions along the corridor and low collision rates indicate that areas outside of study intersections on OR 99 would not present a significant traffic safety concern.

Collision rates identifying the number of crashes per million vehicle-miles traveled on specified sections of OR 99, as well as statewide average crash rates for various facility types, were obtained from ODOT's 2004 State Highway Crash Rate Tables<sup>12</sup>. Highway sections analyzed in these tables are categorized by area type and functional classification to provide a basis for comparison between various facilities. For this analysis OR 99 within Cottage Grove city limits was categorized as "Suburban city". Table 3-8 summarizes the ODOT crash rates and statewide average rates for similar environments for each of the five years in the analysis period. As shown, the crash rate experienced on OR 99 for the last five years has been well below the statewide average crash rate for similar facilities.

Table 3-8: OR 99 Segment Crash Rates

Facility	2000	2001	2002	2003	2004
OR 99	1.81	2.47	2.13	2.81	1.32
Statewide Average*	3.37	3.50	2.86	3.14	2.05

\* Based on state highways in suburban cities

The analysis of the highway crash history was supplemented by reviewing ODOT's Safety Priority Index System (SPIS) listing for locations in the study corridor ranked

<sup>12</sup> 2004 State Highway Crash Rate Table, Oregon Department of Transportation, 2004.



among the state's top ten percent of hazardous locations. The SPIS is a method developed by ODOT for identifying potential hazardous locations on state highways. The SPIS score is based on three years of crash data and considers crash frequency, crash rate, and crash severity. ODOT bases its SPIS on 0.10 mile segments to account for variances in how crash locations are reported. This information is a general comparison of the overall safety of the highway based on the crash information for all sections throughout the state. After reviewing this list for Cottage Grove through the study area, it was found that SPIS ratings are relatively low with no locations in the top 10% of hazardous locations over the past five years.

City Street Performance

The last five years (2000 through 2004) of available collision data was reviewed for the remaining study intersections on city streets. The data found 53 collisions occurred over the five year period within 100 feet of the study intersections not located on OR 99. Table 3-9 summarizes the study intersection collision data by crash type. As shown, the majority of collisions were categorized as turning movement (42%), rear end (26%) and angle (23%).

**Table 3-9: City Study Intersection Collision Data by Type**

Intersection	Backing	Parking Maneuver	Pedestrian	Angle	Head-On	Side-swipe/Over-taking	Rear-End	Turning Movement	Fixed Object	Total
I-5 (SB) / Gateway Blvd/Cottage Grove Connector	1	-	-	2	-	-	1	5	-	9
I-5 (NB)/Row River Road/Cottage Grove Connector	-	-	-	-	-	-	-	5	-	5
Main Street/River Road	-	-	-	2	-	-	2	2	-	6
Main Street/16th Street	-	-	-	2	-	1	2	6	-	11
Main Street/Gateway Boulevard	1	-	-	3	-	1	9	2	1	17
Harrison Avenue/River Road	-	-	-	3	-	-	-	2	-	5
Main Street/R Street	-	-	-	-	-	-	-	-	-	-
Monroe Avenue/10th Street	-	-	-	-	-	-	-	-	-	-
Taylor Avenue/8th Street	-	-	-	-	-	-	-	-	-	-
I-5/6th Street	-	-	-	-	-	-	-	-	-	-
<b>Total Collisions</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>12</b>	<b>-</b>	<b>2</b>	<b>14</b>	<b>22</b>	<b>1</b>	<b>53</b>

Source: ODOT - Transportation Data Section - Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Cottage Grove, 2000-2004.

Table 3-10 illustrates the collision rates for study intersections on city streets. All of the study intersections are well below a collision rate of 1.0 and therefore do not identify an immediate traffic safety concern.

Table 3-10: City Study Intersection Collisions (2000-2004)

Intersection on OR 99	Fatal	Non-Fatal Injury	Property Damage Only	Total Collisions	Collision Rate
I-5 (SB)/Gateway Blvd/Cottage Grove Connector	0	5	4	9	0.24
I-5 (NB)/Row River Road	0	1	4	5	0.18
Main Street/River Road	0	1	5	6	0.36
Main Street/16 <sup>th</sup> Street	0	6	5	11	0.46
Main Street/Gateway Boulevard	0	6	11	17	0.63
Harrison Avenue/River Road	0	3	2	5	0.52
Main Street/R Street	0	0	0	0	0.00
Monroe Avenue/10 <sup>th</sup> Street	0	0	0	0	0.00
Taylor Avenue/8 <sup>th</sup> Street	0	0	0	0	0.00
I-5/6 <sup>th</sup> Street	0	0	0	0	0.00

Source: ODOT – Transportation Data Section – Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Cottage Grove, 2000-2004.

Although historical crash data may not indicate that an immediate safety concern exists at a particular intersection, the location may be hazardous or difficult to maneuver for travelers. Public dissatisfaction due to perceived safety risk exists at the following locations:

- The intersection of Woodson Place and OR 99 due to narrow roadway width and queuing that develops on the Woodson Bridge.
- The intersection of the Cottage Grove Connector and OR 99 due to the unusual intersection design.
- The intersection of Main Street and OR 99, as discussed in the Cottage Grove Downtown Revitalization and Refinement Plan.<sup>13</sup>

## Access Management

Proper roadway access spacing is important to maintain operating characteristics and safety. Typically, each parcel is allowed access to the nearby roadway. However, when roadway access points are located too frequently along a roadway, action may need to be taken. Access management practices can include the closure, consolidation or relocation of accesses.

The ODOT access management standards for District Highways, as defined in OAR 734-051, call for minimum distances between access points on the same side of the road. The standards vary depending on posted speed on the roadway, as shown in Table 3-11. The ODOT access management standards apply to OR 99.

<sup>13</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2M Hill, Alta Planning & Design, Angelo Eaton & Associates, June 2005.

**Table 3-11: ODOT Access Management Standards (feet)**

Facility	Posted Speed (MPH)			
	55 or greater	50	40,45	35 or less
District Highway	700'	550'	500'	350'

Source: Oregon Highway Plan, Table 15, ODOT (1999)

The Lane County access management standards are described in Table 3-12. Like ODOT standards, the required minimum spacing varies depending on posted speed on the roadway. Spacing standards for county roads classified as local require 20 feet for residential dwellings no larger than a triplex, and 100 feet for other uses. No access spacing standards are identified in the Cottage Grove Comprehensive Plan or 1998 Cottage Grove TSP. However, access spacing standards will be defined in the Development Code.

**Table 3-12: Lane County Approach Spacing Standards**

Facility	Posted Speed Limit (MPH)				
	55 or greater	50	40, 45	30, 35	25 or less
Principal Arterial	700'	550'	500'	400'	400'
Minor Arterial or Major Collector	475'	475'	400'	275'	200'
Minor Collector	325'	325'	325'	220'	150'

Source: Lane County Code, Chapter 15 – Roads, Lane Code 15.138

An access inventory was conducted along OR 99 within the Cottage Grove UGB and along Main Street between R Street and Gateway Boulevard. Both roadways and driveways were considered access points. Table 3-13 identifies approximate average distances between access points on OR 99 and Main Street within Cottage Grove. The approximate locations and densities of access points on Main Street and OR 99 are illustrated in Technical Appendix G, Figure 2.

**Table 3-13: Existing Access Spacing Along Select Roadway Segments**

Roadway	From	To	Average Access Spacing	Access Spacing Standard	Standard Met?
OR 99	North UGB Limits	River Road	500'	350'	Yes
OR 99	River Road	Cottage Grove Conn.	<150'	350'	No
OR 99	Cottage Grove Conn.	Woodson Place	<150'	350'	No
OR 99	Woodson Place	Main Street	<150'	350'	No
OR 99	Main Street	Harrison Avenue	<150'	350'	No
OR 99	Harrison Avenue	River Road	850'	500'	Yes

Roadway	From	To	Average Access Spacing	Access Spacing Standard	Standard Met?
OR 99	River Road	Emerson Lane	250'	700'	No
Main Street	R Street	River Road	<150'	na	na
Main Street	River Road	Main Street	150'	na	na
Main Street	Main Street	12 <sup>th</sup> Street	<150'	na	na
Main Street	12 <sup>th</sup> Street	Gateway Boulevard	<150'	na	na

Most segments of OR 99 do not meet ODOT access spacing standards as a result of frequent roadway intersections or driveways located along the highway as it passes through residential areas. An exception is the segment between North River Road and the UGB limits to the north. The posted speed limit is 35 mph along most of the segment and therefore the 350 foot ODOT access spacing standard is met. Access management considerations along OR 99 include:

- Between North River Road and the Cottage Grove Connector, there are both residential and commercial land uses, with residential roadways constituting most of the access points on the western side of the roadway and commercial land uses on the eastern side.
- South of the Cottage Grove Connector to Woodson Place, land uses are primarily commercial to the west of the highway and residential to the east. Access point consolidation may be considered along this segment.
- The segment of OR 99 (9th Street) between Woodson Place and Main Street is primarily single family residential, therefore access improvements are unlikely.
- OR 99 between Main Street and Harrison Avenue includes a high frequency of driveways which are primarily for commercial land use. This segment of roadway has potential locations for implementation of access management practices.
- Between Harrison Road and South River Road there are few access points, as the roadway is bordered by primarily undeveloped land to the west and the railroad right of way to the east. Future development along this segment should take into account access management principles.
- South of Harrison Avenue to Emerson Lane, OR 99 has moderate access density despite being bordered by the railroad right of way to the east side. Driveways corresponding to individual tax lots and roadways make up the majority of access points along this segment. With limited access to other nearby roadways in the area, changes to access along this segment may be limited.

Main Street is under city jurisdiction, however, given the lack of spacing standards in place for the city, Lane County standards are used to assess the existing access spacing. For a minor arterial the Lane County spacing standard is 275 feet where posted speed limits are 30 mph, and 200 feet where speed limits are less than 25 mph. The density of roadways as well as residential and commercial driveways along Main Street result in each of the segments not meeting the County spacing standards identified.

- Between R Street and River Road, Main Street is surrounded by primarily single family residential land use. Changes to access are unlikely unless redevelopment occurs.
- Between River Road and OR 99 (9th Street), the access points on Main Street are primarily from roadways in the downtown core. Changes to access are unexpected to the area.
- Main Street east of OR 99 (9th Street) to 12th Street and from 12th Street to Gateway Boulevard is primarily commercial land use and has a high frequency of access points. These segments of roadway are potential locations for access management practices.

## Trucks

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. ODOT does not designate OR 99 as a truck route. The only ODOT designated truck route in Cottage Grove is I-5. Lane County and the City of Cottage Grove do not identify any truck routes within the Cottage Grove UGB. However, OR 99 has been used as a temporary truck route while capital improvements are performed on I-5 bridges.

Truck (heavy vehicle) volumes and percentages of the traffic stream were collected as part of the intersection turn movement counts and were used in traffic level of service calculations. Truck volumes and percentages at the study intersections are illustrated in Table 3-14.

**Table 3-14: 16-Hour Count Truck Volumes at Study Intersections**

Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic
I-5 SB Ramps/Cottage Grove Connector	1,200	6%
I-5 NB Ramps/Row River Road	1,030	7%
I-5 Off Ramp/6 <sup>th</sup> Street	300	9%
I-5 On Ramp/6 <sup>th</sup> Street	510	12%
OR 99/Cottage Grove Connector	450	2%
OR 99/Woodson Bridge <sup>1</sup>	370	3%
OR 99/Main Street <sup>1</sup>	470	3%
OR 99/6 <sup>th</sup> Street <sup>2</sup>	260	3%
OR 99/4 <sup>th</sup> Street	290	4%
OR 99/S. River Road	370	7%
Main Street/Gateway Boulevard <sup>3</sup>	280	2%
Main Street/16 <sup>th</sup> Street <sup>3</sup>	200	2%
Main Street/River Road	220	3%
Main Street/R Street	160	4%
Harrison Avenue/River Road	70	2%

Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic
S. 8 <sup>th</sup> Street/Taylor Avenue	100	3%
S. 10th Street/Monroe Avenue	30	1%

Source: ODOT Transportation System Monitoring Unit Counts, October, 2005, unless otherwise noted.

<sup>1</sup> ODOT Transportation System Monitoring Unit Counts, January, 2004.

<sup>2</sup> ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

<sup>3</sup> ODOT Transportation System Monitoring Unit Counts, February, 2006.

## Other Travel Modes

There are four other modes of transportation included in the TSP Update: rail, pipeline, air, and water. Existing transportation systems for these modes are considered adequate for the current needs of the Cottage Grove community.

### Waterway

While the Coast Fork Willamette River travels through Cottage Grove and the Row River borders the city on the east side, no waterways are used for transportation purposes within the UGB.

### Railroads

A short line freight railroad owned by Central Oregon & Pacific Railroad runs through the City of Cottage Grove. The rail line, known as the Siskiyou Line, runs parallel to OR 99 throughout most of the City. The Siskiyou Line track is maintained to Federal Railroad Administration Class 1 and 2 conditions. The route is used for freight hauling with lumber making up a large share of transported goods. The route serves an average of approximately five trains per day and provides a connection between Medford and Eugene. Train lengths typically vary from 25 to 75 cars in length.

Passenger rail service is not available in Cottage Grove. However, passenger rail service is available in Eugene on Amtrak. Connections to Amtrak service (as well as additional intercity buses through Greyhound Lines) in Eugene may be made via LTD bus service.

### Pipelines

No major pipelines are located in Cottage Grove.

### Airport

The Cottage Grove State Airport is located off Airport Road in northeast Cottage Grove within the urban growth boundary. The airport is owned by the Oregon Department of Aviation and is used by both public and private parties. Cottage Grove State Airport is classified as a Category 4 airport by ODOT and may be used by small recreational planes or light jets. The runway is approximately 3,200 feet long and 60 feet wide with pavement asphalt in good condition. Oregon Aeronautical personnel routinely perform inspections of the facilities. The airport has a daily average of 46 aircraft operations (take-offs and landings). The airport's runway protection zone and airport imaginary service regulations set limitations to development in the area immediately surrounding the airport.

Commercial passenger service is available at the Eugene Airport, located approximately 30 miles north of Cottage Grove.

## Work Distribution and Journey to Work

Census data<sup>14</sup> indicate that 89.5% of workers travel via car, truck or van, with 77.8% of all workers driving alone and 11.7% carpooling. Other commuters travel by walking (4.5%), biking (0.8%) or using public transportation (1.5%). The remaining workers either remain at home (3.4%) or use other means of transport.

The Census data also indicate that 42.5 percent of workers who did not work at home traveled between 25 and 45 minutes to reach work. A significant portion of these travelers are believed to be destined to the Eugene/Springfield metropolitan area, as 25-40 minutes is the approximate travel time expected to reach the area. In comparison, 37.7 percent of workers travel less than 15 minutes, a travel time which would be adequate for most trips within Cottage Grove. These statistics indicate that a significant portion of the workers in Cottage Grove travel to the Eugene area for work.

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<sup>14</sup> U.S. Census Bureau, 2000 Census Summary File 4, Journey to Work: 2000, Cottage Grove, Oregon.

## 4. FUTURE DEMAND

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As part of the City of Cottage Grove Transportation System Plan (TSP) Update, an analysis was performed of 2025 future demand on the Cottage Grove transportation system. The analysis is based upon the transportation system inventory (performed during the summer of 2006) and analysis of existing conditions (Chapter 3). The analysis does not furnish a twenty-year analysis from the expected date of adoption of the TSP, as forecasts of future demand are based on land use projections for 2025.

A forecast model was used to determine future traffic volumes in Cottage Grove for the year 2025. This forecast model translates assumed land uses into person travel and assigns motor vehicles to the roadway network. These traffic volume projections form the basis for identifying potential roadway deficiencies and for evaluating alternative circulation improvements. This section describes the forecasting process including key assumptions and the land use scenario developed from the existing Comprehensive Plan designations and allowed densities.

### Projected Land Use Growth

Land use is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the type of land uses and how the land uses are mixed together have a direct relationship to expected demands on the transportation system. Understanding the amount and type of land use is critical to taking actions to maintain or enhance transportation system operation. The following section summarizes the forecasted growth that will influence travel within Cottage Grove.

Projected land use changes were developed for the study area and reflect information provided from several sources. Lane County's 2025 coordinated population projection for Cottage Grove is used to estimate expected growth in households within the Cottage Grove UGB. The existing average household size of 2.6 is retained for future forecasting. The 2001 Cottage Grove Buildable Lands Analysis included a 2020 employment projection based on historical trends. This projection was adjusted upwards to account for economic development activities and a 2025 horizon year. Local knowledge of known and expected developments was used to supplement and adjust the land use forecasts where appropriate. Table 4-1 summarizes the land uses for the 2005 base and future 2025 scenarios within the Cottage Grove TSP Update study area.

Table 4-1: Cottage Grove TSP Study Area Land Use Summary

Land Use	2005	2025	Increase	Percent Increase
Households	3,839	5,439	1,600	42%
Employees	3,425	6,102	2,677	78%

Source: Lane County 2025 Coordinated Population Projection & 2001 Cottage Grove Buildable Lands Analysis



This land use forecast includes growth by various types of employment including retail, service, education, government and industrial. These land use projections are stratified into geographical areas called transportation analysis zones (TAZs), which represent the sources of vehicle trip generation. The TAZs in the Cottage Grove study area were originally developed by LCOG. A detailed summary of the uses for each Transportation Analysis Zone (TAZ) within the Cottage Grove study area is provided in Technical Appendix I. Projected employment and household growths are illustrated in Figure 4-1 and 4-2, respectively.

For transportation forecasting, the land use data is grouped into 17 larger TAZs within the Cottage Grove TSP Update study area. These TAZs represent land use and access to the transportation system in Cottage Grove. The aggregated model zone boundaries are shown in Figure 4-3.

At the existing level of land development, the transportation system generally operates without significant deficiencies in the study area. As land uses are changed in proportion to each other (i.e. there is a significant increase in employment relative to household growth), there will be a shift in the overall operation of the transportation system. Retail and service land uses generate higher amounts of trips per acre of land than households and other land uses do. The location and design of retail land uses in a community can greatly affect transportation system operation. Additionally, if a community is homogeneous in land use character (i.e. all employment or residential), the transportation system must support significant trips coming to or from the community rather than within the community. Typically, there should be a mix of residential, commercial, and employment type land uses so that some residents may work and shop locally, reducing the need for residents to travel long distances.

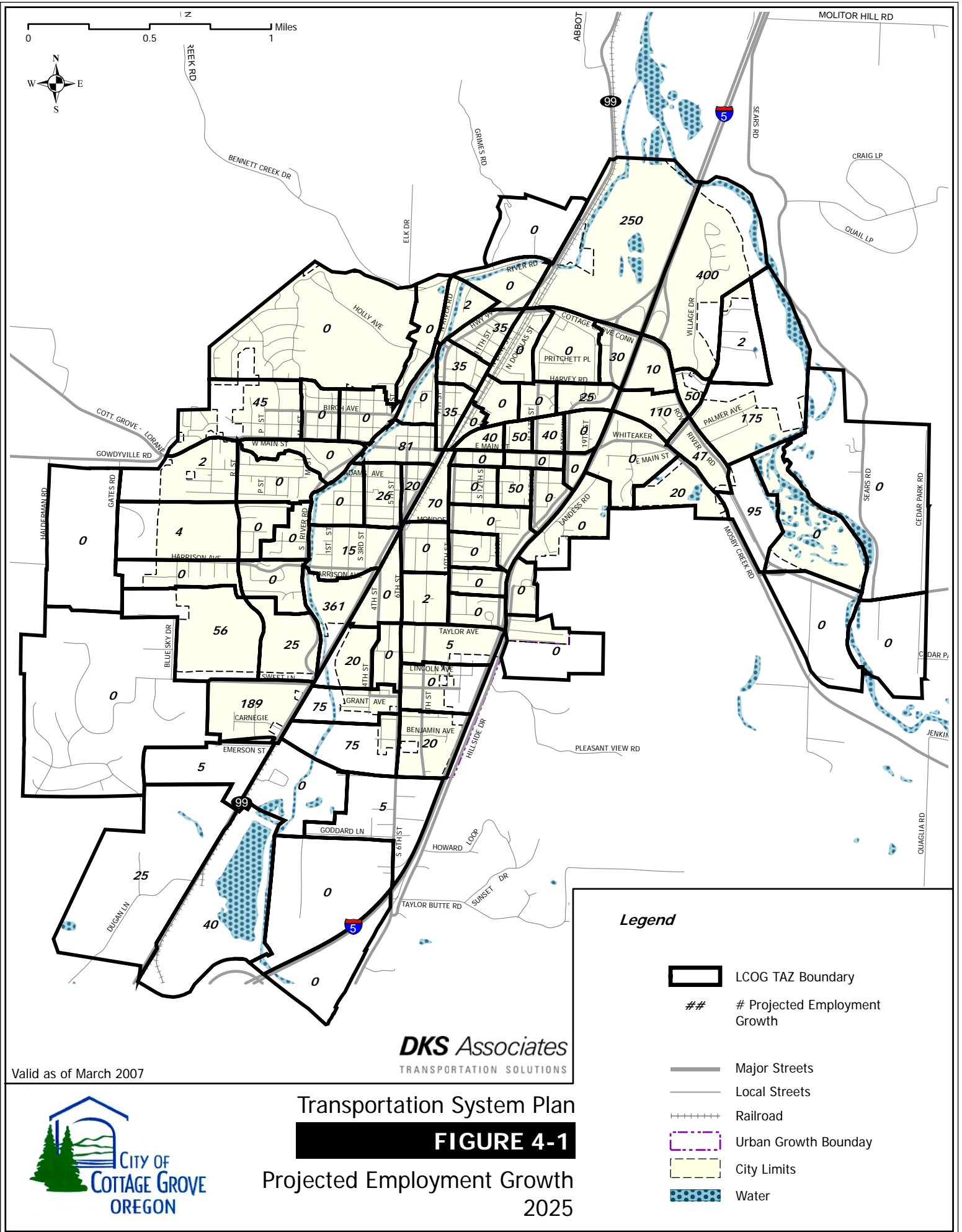
Table 4-1 indicates that significant residential (about 1,600 households) growth and employment (about 2,700 employees) increases are expected in Cottage Grove in the coming decades. The household growth and especially the employment growth generate significant increases in traffic volume. The transportation system will need to be monitored to make sure that land uses in the plan are balanced with transportation system capacity.

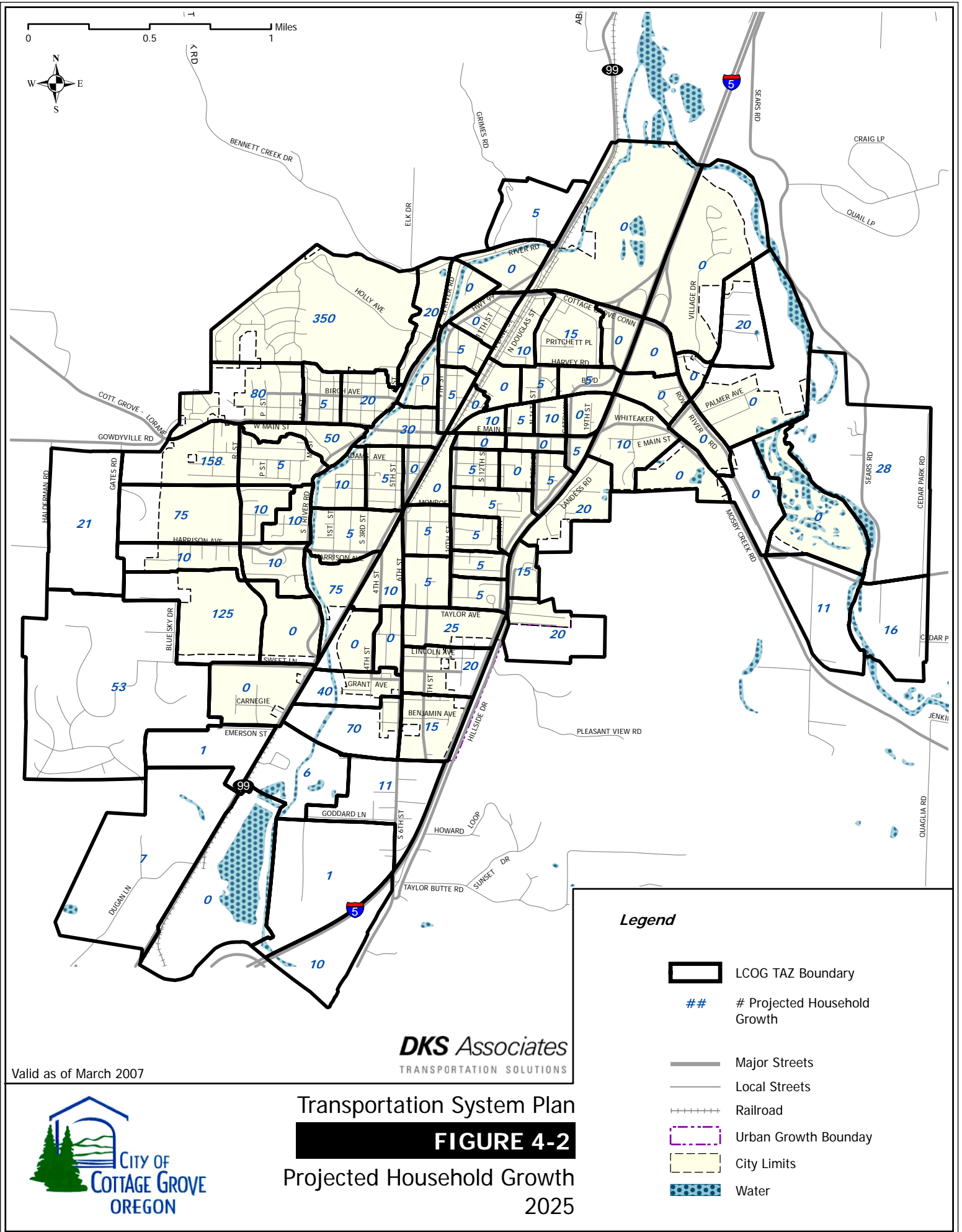
## Traffic Volume Forecast

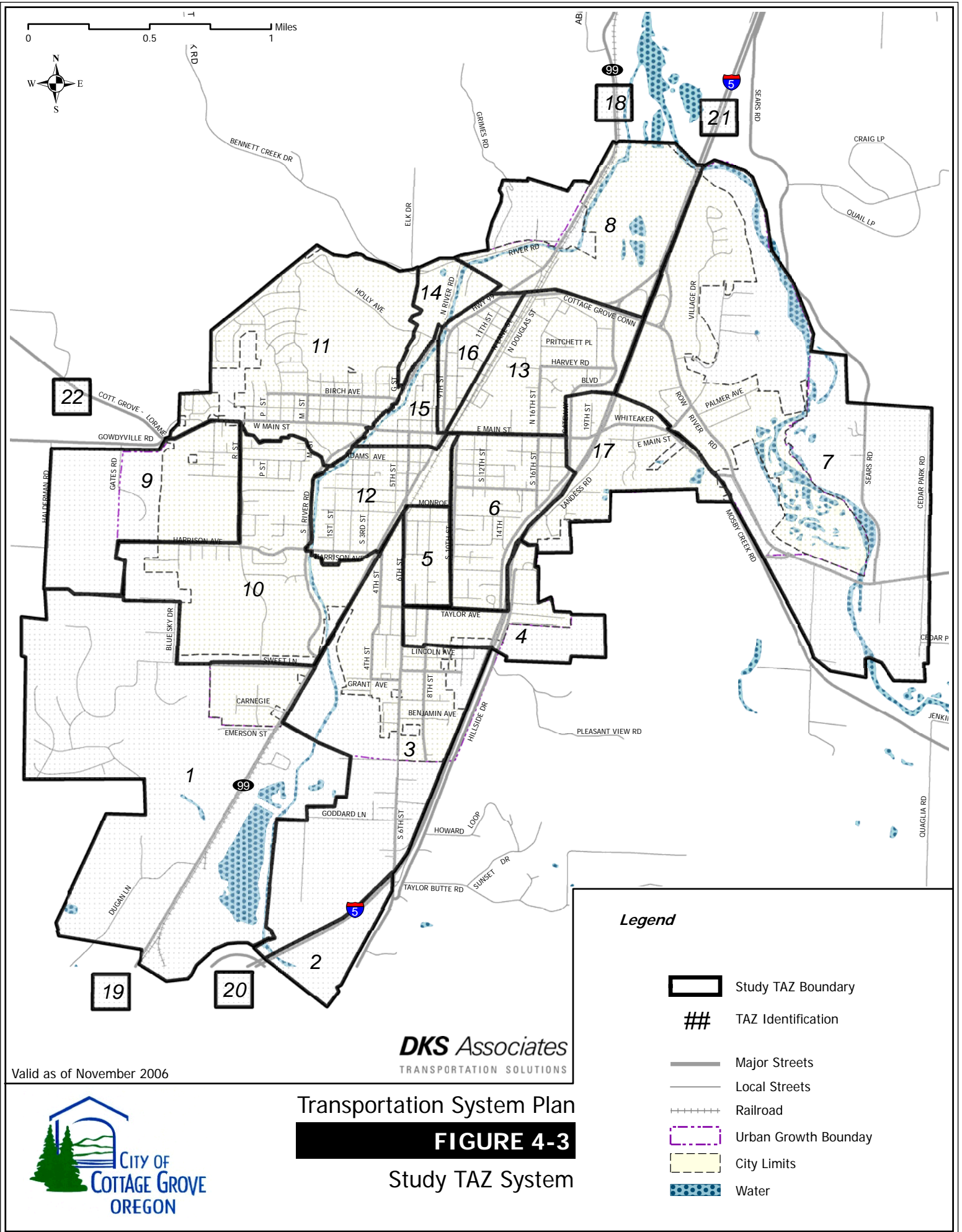
A determination of future traffic system needs in Cottage Grove requires the ability to accurately forecast travel demand resulting from estimates of future housing and employment for the City. The objective of the transportation planning process is to provide the information necessary for making decisions on when and where improvements should be made to the transportation system to meet travel demand as developed in forecasting procedures.

In order to accurately forecast 2025 traffic volume, future travel demand projections are based on adding three distinct segments of demand growth to existing traffic volumes:

- *Internal-Internal* trips: trips traveling within Cottage Grove exclusively;
- *Internal-External and External-Internal* trips: trips with either an origin or destination in Cottage Grove with the opposite trip end in a location outside the Cottage Grove TSP update study area; and
- *External-External* trips: trips that do not have an origin or destination in Cottage Grove. In other words, this is through traffic that does not stop in Cottage Grove.







Internal trips are based on local trip generation – trips resulting from the expected growth in employment and households in Cottage Grove. External trips are based on ODOT forecasted growth on I-5 and OR 99<sup>1</sup>. External-external and internal-internal trips are calculated by removing the external-internal and internal-external segments of the demand from the two forecast methods. By using this method, double counting of trips was avoided.

The combined local land use and external trip growth was then added to the existing traffic to yield a future volume forecast. This future volume forecast was analyzed to uncover areas of performance deficiencies in the roadway network. The analysis was performed using the Traffix software package for trip distribution and operational performance analysis. The methodology for determining forecasted 2025 traffic volumes in Cottage Grove is described in further detail below.

## Local Trip Generation

The trip generation process translates land use quantities (number of households or employees) into vehicle trip ends (number of vehicles entering or leaving a TAZ) using established trip generation rates. As in most traffic impact studies, this analysis relies on the Institute of Transportation Engineers (ITE) research for applicable trip generation rates<sup>2</sup>. Table 4-2 provides a listing of PM peak hour trip rates used in this analysis. Although the land use description will not match all actual developments, the trip generation rate identified is believed to be representative of the overall growth in Cottage Grove.

**Table 4-2: ITE PM Peak Hour Trip Rates**

Growth Segment	Land Use Description	ITE Code	Vehicle Trips Per Land Use Unit
Residential Households	Single Family Detached Housing	210	1.01
Industrial Employment	General Light Industrial	89	0.42
Retail Employment	Shopping Center	820	4.38 <sup>3</sup>
Service Employment	Specialty Retail	814	1.89 <sup>3</sup>
Education Employment	High School	530	1.55
Government Employment	Government Office Building	730	0.30 <sup>3</sup>
Other Employment	Office Park	750	0.39

Forecasted PM peak hour trip growth was calculated by applying the ITE Trip Generation rates above to the land use growth forecasts for TAZs. Table 4-3 illustrates the estimated growth in

<sup>1</sup> 2025 Secondary Highway Future Volume Table. Retrieved December 2006, from ODOT Web site: <http://www.oregon.gov/ODOT/TD/TP/TADRIVEShtml>

<sup>2</sup> Trip Generation Manual, 7<sup>th</sup> Edition, Institute of Transportation Engineers, 2003.

<sup>3</sup> Because this ITE code has no trip generation rate for PM peak hour based on employees, a trip rate per 1000 square feet had to be modified to an employee rate by utilizing the ratio of employees per 1000 square feet. These conversions are detailed in the technical appendix.

vehicle trip ends (trip productions and attractions) generated within the Cottage Grove study area during the PM peak hour between 2005 and 2025.

**Table 4-3: Vehicle Trip Generation Growth Forecast - PM Peak Hour**

Growth Segment	Cottage Grove
Residential Households	1,619
Industrial Employment	126
Retail Employment	2,777
Service Employment	2,742
Education Employment	149
Government Employment	29
Other Employment	39
<b>TOTAL</b>	<b>7,481</b>

This forecast provides the internal-internal as well as the internal-external and external-internal trip growth segments, but not external-external trip growth. The following section describes external trip growth in more detail.

## External Trip Growth

In addition to growth resulting from forecasted land use changes within the City of Cottage Grove, growth of external traffic must be accounted for. Given that the I-5, Cottage Grove – Lorane Road (Main Street) and OR 99 are the primary roadways for travel in Cottage Grove with origins and/or destinations outside of the City, it was assumed that growth in external traffic would utilize these three roadways.

Growth of external trips (trips that have an origin and/or a destination outside of Cottage Grove) was projected based on forecasted traffic growth on I-5 and OR 99. Traffic growth is estimated by using the ODOT Future Volume Table<sup>4</sup> which forecasts traffic volume at several points along OR 99 and I-5 in 2025 based on historical growth trends. This data indicates an expected annual growth rate of approximately 0.8%, or total growth of 16% on OR 99 from 2006 to 2025. Growth on I-5 is estimated at 1.8% annually for a total growth of 40% by 2025. Since no projections are available for Cottage Grove – Lorane Road, the growth rate for OR 99 is applied. The projected growth on these external roadways, at each external location, is illustrated in Table 4-4.

<sup>4</sup> 2024 Secondary Highway Future Volume Table. Retrieved June 2006, from Oregon Dept. of Transportation Web site: <http://www.oregon.gov/ODOT/TD/TP/TADRIVEShtml>

Table 4-4: External PM Peak Hour Growth Forecast

Location	Direction	2006 Design Hour Volume	Growth Factor	2025 Design Hour Volume	Projected Growth
Hwy 99	Enter	178	1.16	207	29
North End	Exit	193	1.16	225	32
Hwy 99	Enter	281	1.16	327	46
South End	Exit	220	1.16	256	36
I-5	Enter	1,846	1.40	2591	745
North End	Exit	2,179	1.40	3058	879
I-5	Enter	1,375	1.40	1930	555
South End	Exit	1,341	1.40	1882	541
CG-Lorane	Enter	139	1.16	161	22
West End	Exit	201	1.16	233	32

To separate external-external traffic growth on these roadways from traffic with either a trip origin or destination in Cottage Grove (internal-external and external-internal trips, respectively) a probability of being an external-external trip was applied. The ODOT Analysis Procedures Manual<sup>5</sup> describes the process to calculate the probability of an external-external trip. By using this method, the external-external trip probability was estimated for travel to and from each end of the highway and applied to the forecasted trip growth at each location to yield the expected 2025 external-external trip growth<sup>6</sup>. External-external trips are separated from external-internal and internal-external trips, thereby accounting for through trip growth on I-5, OR 99, and Cottage Grove – Lorane Road. The growth forecasted for these roadways was separated by type in Table 4-5.

<sup>5</sup> *Analysis Procedures Manual*, Oregon Dept. of Transportation: Transportation Development Division, April 2006, p. 4-21.

<sup>6</sup> Due to the large number of turns resulting from trips within the city, the Analysis Procedures Manual methodology for determining external-external trip percentages resulted in a zero percentage estimate for OR 99 and Cottage Grove-Lorane Road. As this was considered to be unrealistic, a 5% external-external trip percentage was assumed. Although significant through truck traffic currently travels on OR 99 (as a result of height restrictions on I-5 at the 6<sup>th</sup> Street interchange), future improvements should address this issue. Once the I-5 height restriction issue is resolved, through truck traffic should decrease substantially on OR 99.

Table 4-5: External PM Peak Hour Growth Forecast by Trip Type

Location	Direction	Total Projected Growth	External-External Trip Probability	2025 External-External Trip Growth	2025 External-Internal / Internal-External Trip Growth
Hwy 99	Enter	29	0.05	2	27
North End	Exit	32	0.05	2	30
Hwy 99	Enter	46	0.05	2	44
South End	Exit	36	0.05	2	34
I-5	Enter	745	0.65	486	259
North End	Exit	879	0.57	499	380
I-5	Enter	555	0.90	499	56
South End	Exit	541	0.90	486	55
CG-Lorane	Enter	22	0.05	2	20
West End	Exit	32	0.05	2	30

## TAZ Allocation

The forecasted growth in trips was allocated to the 17 project TAZs based on land use (comprehensive plan land use designation), buildable land in the TAZ, and local knowledge of approved and expected developments within the city that are not yet occupied. The allocation of trips between zones is described in detail in Technical Appendix F (Cottage Grove 2025 Traffic Volume Forecasting Methodology).

External zones outside of the study area are added to the network at I-5 and OR 99 north and south of Cottage Grove and Cottage Grove – Lorane Road west of Cottage Grove. These five external zones are added to the 17 internal zones to result in a 22-zone system. Figure 4-3 shows the project TAZ system used for future traffic volume forecasting.

## Trip Distribution

Trip distribution estimates how many trips travel from one zone in the model to any other zone. Distribution was based on the number of trip ends generated in each zone as either trips coming out from the zone (productions) or trips going into the zone (attractions). The percentage of each zone’s total trips that are productions and attractions are defined based on ITE trip generation research. The productions and attractions for each zone are used to determine an attraction probability and production probability for each zone, relative to other zones in the transportation network.

In projecting long-range future traffic volumes, it was important to consider potential changes in regional travel patterns as well. Although the locations and amounts of traffic generation in Cottage Grove are essentially a function of future land use in the city, the distribution of trips



was influenced by regional growth, particularly along I-5. For this reason, external trips are included in the analysis as well.

External trips are added to the trip table. However, so as not to double-count the external-internal and internal-external trips, the growth in these trips calculated for external roadways was subtracted from the local trip growth. The production and attraction probabilities are used to distribute external trips to and from the appropriate TAZs.

Trip productions and attractions are balanced to result in a trip table that specifies the number of trips from each zone to each other zone in the network. The resulting trip table was the travel growth that was added to the existing traffic in Cottage Grove for 2025 traffic volume projections.

## Traffic Assignment

In this process, trips from one zone to another are assigned to specific travel routes in the network, and resulting trip volumes are accumulated on links of the network until all trips are assigned. The Traffix software package was used to represent the transportation network and to assign the additional growth volume to the existing roadway and intersection volumes.

Table 4-6 summarizes the expected PM peak hour volumes along key roadway segments in Cottage Grove. The increases in expected PM peak hour volume are substantial and reflect the expected increases in households and employment identified in Table 4-1. Figure 4-4 illustrates the expected average daily two-way existing traffic volumes on several roadways in the Cottage Grove area.

**Table 4-6: PM Peak Hour Volume Comparison**

Roadway	Two-way Volume		Percent Growth
	2006	2025	
Hwy 99 (South of Main St.)	1,016	2,113	108%
Hwy 99 (North of Woodson Br.)	1,280	2,377	86%
Hwy 99 (South of River Road)	501	1,019	103%
Main (West of Hwy 99)	661	1,306	98%
Main (West of Gateway Boulevard)	1,204	1,908	58%

## Future Capacity Analysis

The projected growth in traffic volumes by 2025 was added to the existing roadway network (no-build) to examine future performance at the study intersections. This expected growth would result in significant increases in traffic volumes at most intersections. The 2025 operational analysis (summarized in Table 4-7 below) found many study intersections would reach or exceed full capacity and experience high levels of congestion and delay without improvements to the existing transportation system.

Table 4-7: Future 2025 Study Intersection Level of Service - PM Peak Hour

Intersection	Level of Service	Average Delay (Sec)	Volume / Capacity	Standard Met?
<i>Signalized Intersections</i>				
I-5 SB Ramp/Cottage Grove Connector	F	141	>1	No
I-5 NB Ramp/Row River Road	C	29	0.95	No
OR 99/Woodson Place	C	27	0.92	No
OR 99/Main Street	F	138	>1	No
OR 99/6 <sup>th</sup> Street	C	21	0.86	Yes
OR 99/4 <sup>th</sup> Street	C	26	0.74	Yes
Main Street/River Road	C	24	0.83	Yes
Main Street/16 <sup>th</sup> Street	C	25	0.87	Yes
Main Street/Gateway Boulevard	F	92	>1	No
<i>Unsignalized Intersections</i>				
OR 99/S. River Road	A / F	11	0.13 / 0.85	No
Harrison Avenue/S. River Road*	E	42	>1	No
Main Street/R Street	A / B	4	0.09 / 0.33	Yes
Monroe Avenue/10 <sup>th</sup> Street	A / B	2	0.02 / 0.08	Yes
Taylor Avenue/8 <sup>th</sup> Street*	B	13	0.66	Yes
I-5/6 <sup>th</sup> Street (southbound off ramp)	A / B	5	0.00 / 0.45	Yes
I-5 NB Ramp OFF Ramp (Southbound Right) /Row River Road	A / C	1	0.00 / 0.35	Yes
OR 99/Cottage Grove Connector (OR 99 northbound & southbound)	A / F	77	>1	No
OR 99/Cottage Grove Connector (CGC northbound right turn)	A / B	4	0.17 / 0.38	Yes
OR 99/Cottage Grove Connector (OR 99 eastbound left turn)	A / F	60	>1	No

Notes: Unsignalized Intersection Operations:

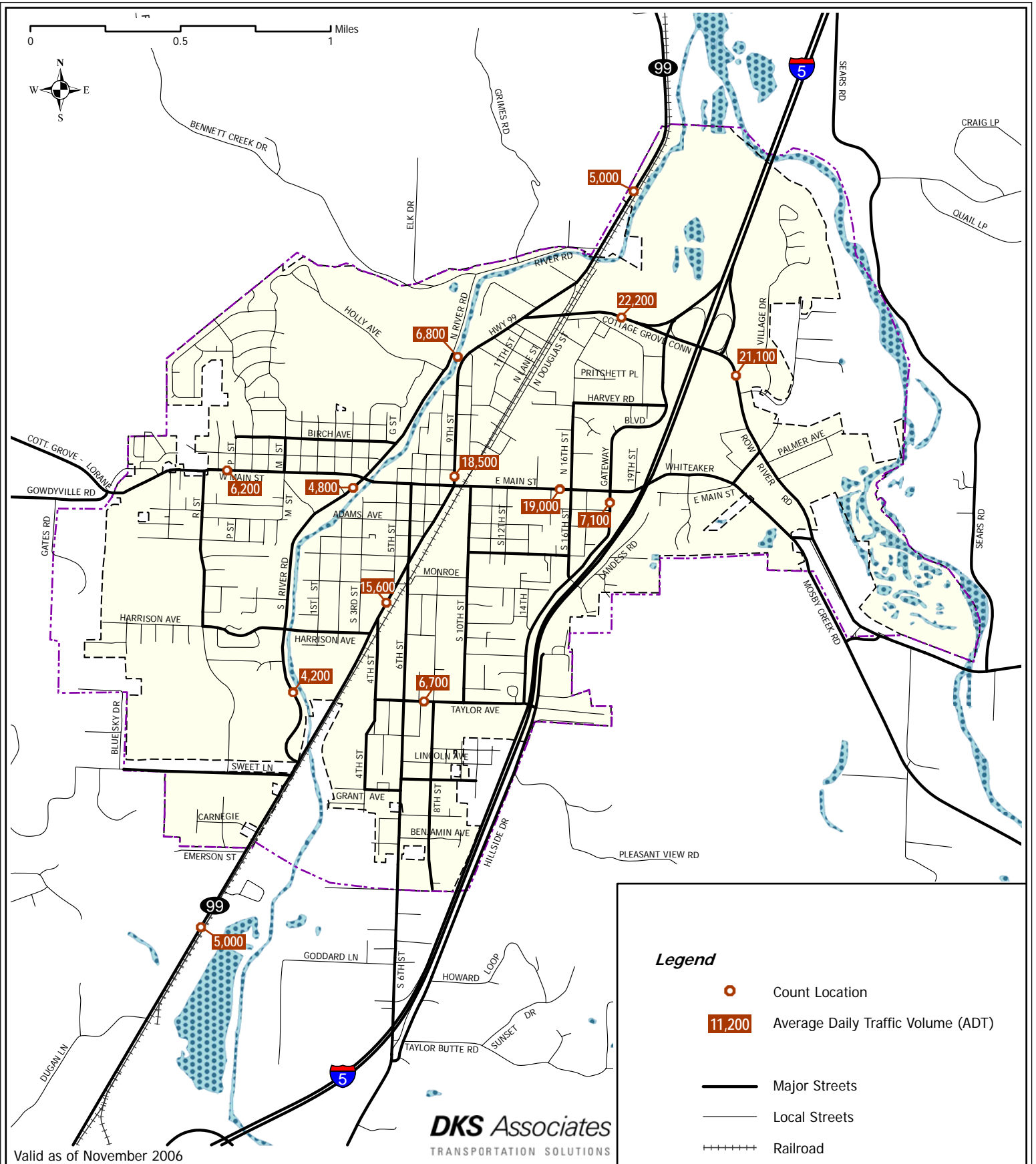
A/A = Major street turn LOS / Minor street turn LOS

#/# = Major street turn v/c / Minor street turn v/c

Signalized and All-Way Stop Intersections:

Delay = Average vehicle delay in the peak hour for entire intersection in seconds.

\* All-Way Stop Intersection



Transportation System Plan  
**FIGURE 4-4**

Future Daily Traffic Volume

Valid as of November 2006

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## 5. PEDESTRIAN PLAN

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Existing pedestrian facilities in Cottage Grove were inventoried and described in Chapter 3. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible pedestrian trip generators. Figure 3-2 shows the existing sidewalk and multi-use trail inventory in Cottage Grove as well as the location of major activity centers.

This chapter summarizes existing and future pedestrian needs in the City of Cottage Grove, and outlines strategies and a recommended Master Plan. Analysis of the pedestrian system and the strategies for addressing needs were completed through work with the City's Technical Advisory Committee. Pedestrian system issues within Cottage Grove include an incomplete arterial/collector sidewalk system and substandard sidewalk design in some locations.

### Policies

Several goals for the Cottage Grove transportation system were identified in Chapter 2. Several policies associated with these goals concern future pedestrian facilities in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards pedestrian projects that meet the goals of the City.

The policies related to pedestrian facilities are:

#### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

#### Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

## Multi-Modal

Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.

Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Pedestrian

Policy 25: Design new streets and crossings to meet the needs of pedestrians and encourage walking as a transportation mode.

Policy 26: Develop a pedestrian network by focusing on direct, convenient, and safe pedestrian travel within and between residential areas, schools, parks, and shopping and working areas within the urban area.

Policy 27: Install sidewalks and/or pedestrian trails of suitable surfacing on all future local streets. Reconstructed and new collectors and arterials shall include sidewalks. Pedestrian facilities may be installed on or off-street to facilitate walking between significant activity areas.

Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.

Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

# Needs

To assess the adequacy of pedestrian facilities in Cottage Grove, an inventory of sidewalks, crosswalks and off-street trails was conducted along arterial and collector streets. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible pedestrian trip generators. Figure 3-2 shows existing pedestrian facility inventory in Cottage Grove as well as the location of major activity centers.

An important existing pedestrian need in Cottage Grove is providing sidewalks on all arterial and collector roadways and providing a connection from pedestrian trip generators. This includes the need for safe, well lighted arterials and collector streets with suitable pedestrian amenities for on-street and crossing facilities to reduce the barriers for pedestrian travel. Pedestrian facility needs in Cottage Grove must consider the three most prevalent trip types:

- Residential based trips – home to school, home to home, home to retail, home to park, home to transit, home to entertainment
- Service based trips – multi-stop retail trips, work to restaurant, work to services, work/shop to transit
- Recreational based trips – home to park, exercise trips, casual walking trips

Residential trips need a set of interconnected sidewalks radiating out from homes to destinations within one-half to one mile. Beyond these distances, walking trips of this type become substantially less common (over 20 minutes). Service based trips require direct, conflict-free connectivity between uses (for example, a shopping mall with its central spine walkway that connects multiple destinations). Service based trips need a clear definition of connectivity. This requires mixed use developments to locate front doors which relate directly to the public right-of-way and provide walking links between uses within one-half mile. Recreational walking trips have different needs. Off-street trails, well landscaped sidewalks and relationships to unique environments (creeks, trees, and farmland) are important.

Arterial and collector streets in Cottage Grove currently provide an incomplete sidewalk network (see Figure 3-2). Although most arterial and collector streets include sidewalks on some sections, gaps exist along several key roadways, preventing good pedestrian connectivity throughout the city. Gaps within the sidewalk and trail network discourage pedestrians and put them at an increased safety risk by requiring them to share the roadway with vehicles in certain locations. Gaps in the existing sidewalk network in Cottage Grove (on major streets, as listed in the 1998 TSP functional classification) are detailed in Table 5-1.

**Table 5-1: Locations of Gaps in Sidewalk Network**

<b>Street</b>	<b>Gap Location</b>	<b>Side of Street</b>
4 <sup>th</sup> St.	Grant Avenue to Fillmore Avenue	Both
4 <sup>th</sup> St.	Fillmore Avenue to Taylor Avenue	East
6 <sup>th</sup> St.	Quincy Avenue to OR 99	East
6 <sup>th</sup> St.	Johnson Avenue to Fillmore Avenue	Both
10 <sup>th</sup> Street	Madison Ave to Main St.	West
16 <sup>th</sup> St.	Gibbs Ave to Harvey Ln.	East
16 <sup>th</sup> St.	Gateway Boulevard to Madison St.	Both
Cottage Grove Conn.	OR 99 to Gateway Boulevard	Both
Cottage Grove Conn.	Gateway Boulevard to n/b I-5 ramp	Both
Gateway Boulevard	Taylor Avenue to Adams Avenue	East
Harrison Avenue	Edison Avenue to River Road	North
Harrison Avenue	1 <sup>st</sup> St. to 2 <sup>nd</sup> St.	North
Harrison Avenue	West of 2 <sup>nd</sup> St. to 2 <sup>nd</sup> St.	South
Harrison Avenue	3 <sup>rd</sup> St. to OR 99	South
Harvey Ln.	16 <sup>th</sup> St. to 20 <sup>th</sup> St.	Both
Johnson Avenue	East of 8 <sup>th</sup> St. to 11 <sup>th</sup> St.	Both
Madison St.	12 <sup>th</sup> St. to 15 <sup>th</sup> St.	South
Mosby Creek Road	Currin Conn. To Row River Conn.	Both
OR 99	Woodson Pl. to Lord Avenue	East
OR 99	Geer Ave to Chamberlain Avenue	East
OR 99	Harrison Avenue to south city limits.	Both
OR 99	North of Withycombe Avenue to north city limits	Both
River Road	Harrison Avenue to Bryant Road	West
River Road	Willamette Ct. to Nellis Pl.	East
River Road	Birch Avenue to Holly Avenue	West
Row River Conn.	Mosby Creek Road to Row River Road	Both
Row River Road	Currin Conn. To Row River Conn.	Both
Sweet Lane	OR 99 to Blue Sky Drive	Both
Taylor Avenue	West of Gateway Boulevard to Gateway Boulevard	South
Currin Conn.	Mosby Creek Road to Row River Road	Both
Birch Avenue	O St. to P St.	Both
E Main St.	R St. to Cemetery Road	Both
Hillside Drive	Within City limits	Both
Cottage Grove-Lorane Rd	Gowdyville Road to South S. St.	Both

It is desirable to provide at least one continuous sidewalk connection between activity centers and arterial and collector roadways to provide safe and attractive non-motorized travel options. There are locations where sidewalk coverage could be more complete and provide greater connectivity throughout the city. Specific areas where missing sidewalk facilities are thought to particularly impact the consideration of the walking mode of travel include:

- The Cottage Grove Connector, from the southbound I-5 ramps to OR 99. Continuity and quality of sidewalks along the Cottage Grove Connector, particularly along the bridge crossing the railroad tracks, where the sidewalk is approximately 2 feet wide, should be improved. The narrow sidewalk width creates an uncomfortable pedestrian environment, particularly with the heavy vehicles that travel along the roadway.
- Residential areas south of Taylor Avenue, including 4<sup>th</sup> and 6<sup>th</sup> Streets, have poor connectivity. This is of particular concern near Lincoln Middle School.
- Harrison Avenue, between 1<sup>st</sup> and 3<sup>rd</sup> Streets
- River Road, between Harrison Avenue and Girard Avenue

Another area where future needs may create greater demand for pedestrian facilities is M Street, north of Main Street. In general, sidewalks are desirable on all new collectors and arterials within the city.

The availability and convenience for crossing arterial roadways is usually provided by pedestrian traffic signals at major intersections or a marked crosswalk at lower volume intersections. Pedestrian crossings are of particular concern in the following locations:

- OR 99, north of Woodson Place to the Cottage Grove Connector. There are no direct crosswalks available between residential areas to the east of the highway and commercial land uses to the west.
- Pedestrians traveling east or west at the intersection of OR 99 and Main Street have to rush across the intersection due to the duration of the crossing time provided by the pedestrian signal. The intersection is generally difficult for pedestrians because of high traffic volumes, narrow sidewalk area, and limited sight-distance towards the north.
- Row River Road also represents a barrier to pedestrians due to the distance between marked crossings at intersections located at Thornton Road and the northbound I-5 ramps.
- The intersection at Thornton Road and Whiteaker Avenue is poorly configured for pedestrian crossing, as the nearby multi-use path crosses through Thornton Road, rather than through the intersection.
- North of the Woodson Place intersection, the spacing between marked or controlled crossings across OR 99 is designed to facilitate safe and efficient vehicular traffic flow rather than accessibility by pedestrian travelers. This can create unsafe situations where pedestrians cross arterials at mid-block locations without any controls.



## Facilities

Sidewalks should be built to current design standards of ODOT and the City of Cottage Grove and in compliance with the Americans with Disabilities Act (at least four feet of unobstructed sidewalk).<sup>1</sup> Narrow sidewalks are of particular concern at the intersection of Main Street and 9<sup>th</sup> Street as well as along the Cottage Grove Connector as it passes over the railroad tracks between OR 99 and Gateway Boulevard

Wider sidewalks may be constructed in commercial districts or on arterial streets. Additional pedestrian facilities may include accessways, pedestrian districts and pedestrian plazas.

- Accessway – A walkway that provides pedestrian and/or bicycle passage either between streets or from a street to a building or other destinations such as a school, park or transit stop.
- Pedestrian District – A plan designation or zoning classification that establishes a safe and convenient pedestrian environment in an area planned for a mix of uses likely to support a relatively high level of pedestrian activity.
- Pedestrian Plaza – A small, semi-enclosed area usually adjoining a sidewalk or a transit stop which provides a place for pedestrians to sit, stand or rest.

## Strategies

In addition to completing the arterial and collector gaps in sidewalk infrastructure, several potential strategies have been identified to address pedestrian needs and create a Pedestrian Master Plan. The Action Plan includes projects which are selected from the Master Plan to be funded and constructed by 2025. This selection process helps to focus community investment on those projects that are most effective at meeting critical needs, while deferring other projects of lesser value. The strategies for pedestrian facilities are:

- Arterial crossing enhancements
- Connect key pedestrian corridors to schools, parks, and activity centers
- Create pedestrian corridors that connect neighborhoods
- Fill in gaps in the network where some sidewalks exist
- Create pedestrian corridors that connect to major recreational uses
- Create pedestrian corridors that encourage retail development

The first three strategies place a strong emphasis on those types of improvements that would likely be more used than others (connection to schools versus shoppers) and provide a more significant safety improvement (arterial crossing enhancement versus filling in sidewalk gaps). By

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<sup>1</sup> *Americans with Disabilities Act*, Uniform Building Code.

creating pedestrian corridors in the major retail areas in Cottage Grove, motorized trips are discouraged for intra-area trips. Pedestrian corridors can also reduce motor vehicle/pedestrian conflicts within the zone when used in conjunction with roadway traffic calming techniques. Pedestrian corridors may be developed in the downtown area by utilizing existing alleyways.

## Pedestrian Master Plan

To serve expected growth, the future transportation system needs multi-modal improvements to manage the forecasted travel demand. The extent of the recommended multi-modal improvements for Cottage Grove is significant. Future growth can be accommodated with significant investment in transportation improvements.

A list of actions to achieve fulfillment of identified strategies was developed into a Pedestrian Master Plan. The Master Plan (Figure 5-1) is an overall plan and summarizes the list of desired pedestrian related projects in Cottage Grove. Table 5-2 identifies pedestrian projects considered to be an important part of the Cottage Grove Transportation System Plan as well as estimated costs for these projects.

From this Master Plan, a more specific shorter term, Action Plan (Table 5-3) was developed. The Action Plan consists of projects that the City should give priority to in funding. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well.

Table 5-2: Pedestrian Master Plan Project List

#	Project	Cost (2006 \$)
<i><b>Crossings</b></i>		
1	Bicycle and Pedestrian Bridge adjacent to Woodson Bridge	\$250,000
2	Intersection Improvements at Row River Road and Jim Wright Way	**
3	Signalized crosswalk at Row River Road and Thornton Road	**
4	Signalized crosswalk at Whiteaker Avenue and Thornton Road / Realign adjacent segment of Row River Trail to cross at intersection	**
5	Signalized crosswalk Main Street and M Sstreet	**
6	New Cottage Grove Connector bridge for pedestrians and bikes / New Cottage Grove Connector bridge including sidewalks ***	\$1,000,000
7	Pedestrian Crossing Refuge on OR 99 between intersections with Woodson Bridge and the Cottage Grove Connector ***	\$60,000
<i><b>Trail Extensions</b></i>		
8	Multi-use trail connection from North River Road to North Regional Park	\$500,000*
9	Additional trail connection across I-5 from North Regional Park to Village Drive	\$500,000*
10	Multi-use trail connection from Village Drive to Palmer Avenue	\$500,000*
<i><b>Sidewalks</b></i>		
11	OR 99 between the Cottage Grove Connector and N. River Road ***	\$250,000

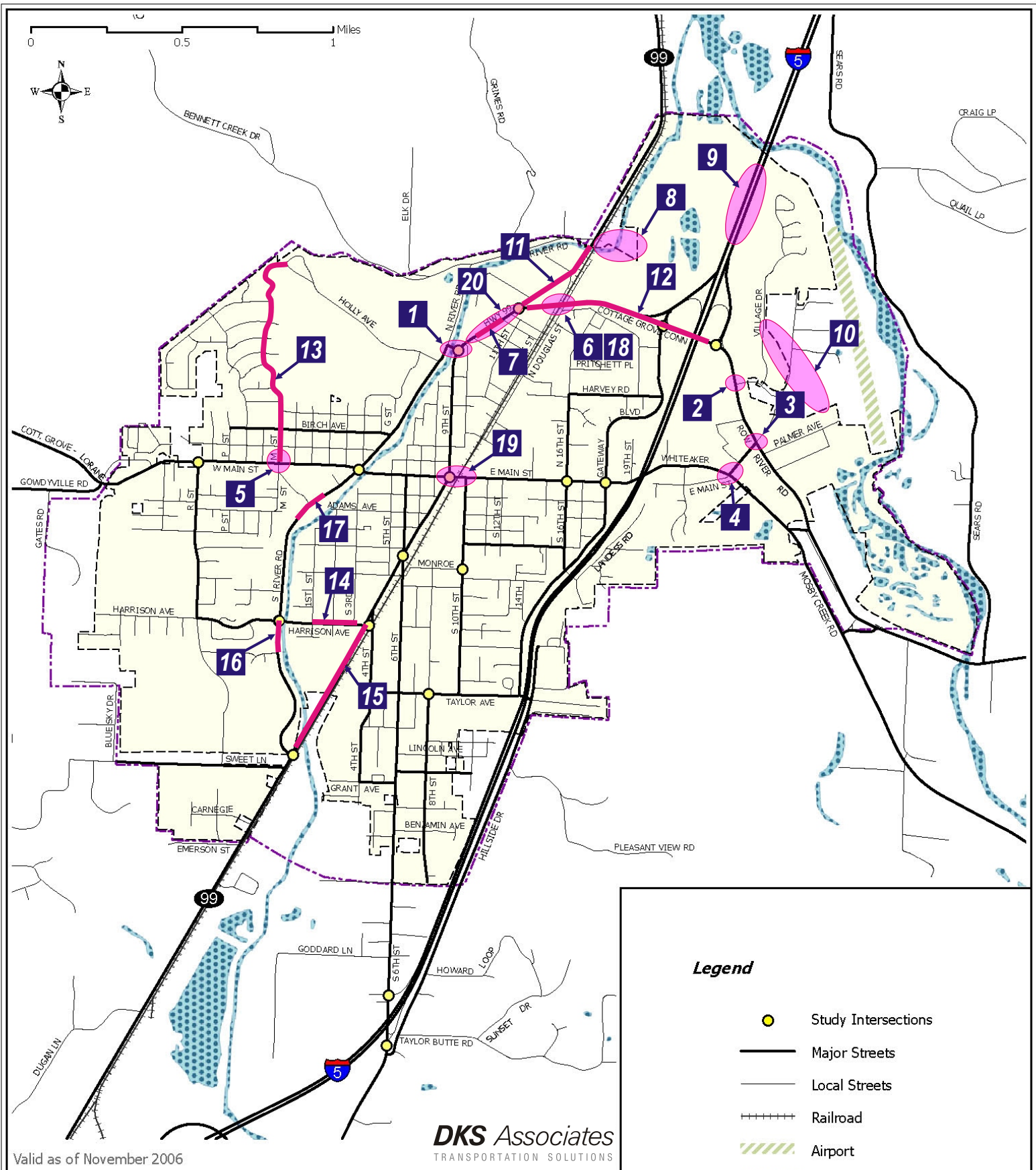
#	Project	Cost (2006 \$)
12	Cottage Grove Connector between OR 99 and I-5 Northbound Ramp *** (excluding bridge related costs)	\$500,000
13	M Street from Main Street to Holly Avenue (To be installed by developers.)	\$400,000
14	Harrison Avenue from OR 99 to 1 <sup>st</sup> Street ***	\$150,000
15	OR 99 from S. River Road to 4 <sup>th</sup> Street ***	\$400,000
16	S. River Road from Whitman Road to Harrison Avenue	\$100,000
17	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue	\$10,000
<b><i>Other Projects</i></b>		
18	Lower speed limits on Cottage Grove Connector to encourage a safer pedestrian environment.	****
19	Pedestrian crossing enhancements recommended in Downtown Revitalization and Refinement Plan	**
20	Access management on the north/west side of OR 99 between intersection with Woodson Place and the Cottage Grove Connector.	-

\*Includes estimated costs for right of way acquisition.

\*\*Costs included in related motor vehicle project.

\*\*\*Requires ODOT approval.

\*\*\*\*To lower speed limits on a state facility, an ODOT Speed Reduction Study would need to be initiated by the City and deemed to be appropriate by ODOT.



Valid as of November 2006

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**Transportation System Plan**  
**FIGURE 5-1**  
**Pedestrian Projects**



# Pedestrian Action Plan

A pedestrian system action plan project list was created to identify pedestrian projects that are reasonably expected to be funded by the year 2025, which meets the requirements of the updated Transportation Planning Rule<sup>2</sup>. Table 10-3 shows the full action plan identified in the TSP update analysis.

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities over 18 years exceed projected revenues, as discussed in Chapter 10. Without additional revenue sources, the expected funding deficit would not allow for any capital improvements projects that provide new pedestrian facilities.

Action Plan Projects (Table 5-3) are presented assuming funding equivalent to a doubling of street SDC charges. Refer to Chapter 10 (Financing and Implementation) for details on the financial assumptions. Note that some projects listed in the Pedestrian Action Plan are anticipated to be funded by ODOT or private development. Other projects include pedestrian facilities as part of total project costs to capture economies of scale. Such project costs are included in the Motor Vehicle Action Plan (Chapter 8).

**Table 5-3: Pedestrian Action Plan Projects (2007 Dollars)**

Project	Improvement	Estimated City Cost	Priority
Intersection Improvements	Intersection Improvements at Row River Road and Jim Wright Way Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Traffic Signal	New traffic signal at Row River Road and Thornton Road Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Traffic Signal	New traffic signal at Whiteaker Avenue and Thornton Road Intersection including pedestrian crosswalks and pedestrian signals and realignment of Row River Trail to align with intersection.	*	Short Term
Traffic Signal	New traffic signal at Main Street and M Street Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Cottage Grove Connector - Interchange Area Management Plan	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-	Short Term
M Street Extension	New roadway from Main St. to Holly Avenue	**	Short Term

<sup>2</sup> OAR Chapter 660, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.

OR 99 Pedestrian Refuge	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector including Pedestrian Crossing Refuge	\$60,000	Mid Term
Realign OR 99 at Main Street	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan including recommended pedestrian crossing enhancements	*	Mid Term
Main Street Access Management	Close motor vehicle access to Main Street from Lane Street	*	Mid Term
Intersection Improvements	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector. Include pedestrian signals and crosswalks.	*	Long Term
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue	**	Long Term
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln.	**	Long Term

\* Construction costs for pedestrian facilities included in Motor Vehicle Plan Projects costs (Chapter 8)

\*\*Construction costs including sidewalks to be covered by private development exactions.

## Plan Implementation

### Address Gaps in Pedestrian System

In an effort to provide adequate pedestrian infrastructure, developers in the City of Cottage Grove shall be required to build sidewalks on project frontages. However, developers often have little means or incentive to extend sidewalks beyond their property. Additionally, property owners without sidewalks are unlikely to independently build sidewalks that do not connect to anything. In fact, some property owners are resistant to sidewalk improvements due to cost (they do not want to pay) or changes to their frontage (they may have landscaping in the public right-of-way). As an incentive to fill some of these gaps concurrent with development activities, the City could consider an annual walkway fund that would supplement capital improvement-type projects. A fund of about \$20,000 per year could build over 600-feet of sidewalk annually to help fill gaps. If matching funds were provided, over double this amount may be possible. The fund could be used several ways:

- Matching other governmental transportation funds to build connecting sidewalks identified in the master plan.
- Matching funds with land use development projects to extend a developer's sidewalks off-site to connect to non-contiguous sidewalks.
- Supplemental funds to roadway projects which build new arterial/collector sidewalks to create better linkages into neighborhoods.
- Matching funds with adjacent land owners that front the proposed sidewalk.
- Reimbursement agreements with developers.

## Complementing Land Use Actions

Land use actions enable significant improvements to the pedestrian system to occur. A change in land use from vacant or under utilized land creates two key impacts to the pedestrian system:

- Added vehicle trips that conflict with pedestrian flows
- Added pedestrian volume that requires safe facilities

The above mentioned impacts require mitigation to maintain a safe pedestrian system.

Pedestrians walking in the traveled way of motor vehicles are exposed to potential conflicts that can be minimized or removed entirely with sidewalk installation. The cost of a fronting sidewalk to an individual single family home would be roughly \$1,000 to \$2,000 (representing less than one percent of the cost of a house). Over a typical 50-year life of a house, this would represent less than \$50 per year assuming that cost of money is 4% annually. This cost is substantially less than the potential risk associated with the cost of an injury accident or fatality without safe pedestrian facilities (injury accidents are likely to be \$10,000 to \$50,000 per occurrence and fatalities are \$500,000 to \$1,000,000). Sidewalks are essential for the safety of elderly persons, the disabled, transit patrons and children walking to school, a park or a neighbor's house. No area of the city can be isolated from the needs of these users (not residential, employment areas or shopping districts). Therefore, fronting improvements including sidewalks are required on every change in land use or roadway project.

For any developing or redeveloping property in Cottage Grove, the cost savings to the private developer is the only benefit of not providing sidewalks – at the potential risk and future expense to the public. Therefore, it is recommended that sidewalks be required in Cottage Grove with all new development and roadway projects.

Developments should be responsible for providing a pedestrian connection from the site main entrance to the public right-of-way and/or nearby facilities including parks. Also, buildings should be sited to be supportive and convenient to pedestrians, bicyclists and transit riders. This is most critical for residential, commercial and public service (library, community center, parks) developments where higher pedestrian volumes would be expected. Pedestrian circulation through large parking lots should generally be provided in the form of accessways. Conflict free paths and traffic calming elements should be identified, as appropriate.

It is important that, as new development occurs, connections or accessways are provided to link the development to the existing pedestrian facilities in as direct manner as possible. As a guideline, the sidewalk distance from the building entrance to the public right-of-way should not exceed 1.25 times the straight line distance. Off-site sidewalk improvements may be required to complete connectivity to nearby sidewalks and/or roadways.

It is also very important that residential developments consider the routes that children will use to walk to school. Safe and accessible sidewalks should be provided to accommodate these routes, particularly within one mile of a school site.

## 6. BICYCLE PLAN

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To assess the adequacy of bicycle facilities in Cottage Grove, an inventory of designated bike lanes, shoulder bikeways, identified shared roadways and off-street trails was conducted along arterial and collector streets. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible bicycle trip generators. Figure 3-3 shows the existing bicycle facility inventory in Cottage Grove as well as the location of major activity centers.

The arterial and collector roadway system in Cottage Grove has intermittent bike lanes providing poor connectivity. These conditions force the bicyclist to share the travel lane with motor vehicles or use the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow widths or uneven pavement conditions. Adequate bicycle facilities should be provided to allow for safe travel between neighborhoods and activity centers.

This chapter summarizes existing and future facility needs for bicycles in the City of Cottage Grove. The following sections identify the policies for implementing a bicycle plan, evaluate needs and recommend a bicycle plan for the City of Cottage Grove. The policies used in evaluating bicycle needs were identified through work with the City's Technical Advisory Committee.

### Policies

Several transportation system policies must be considered when planning and constructing future bikeway facilities in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards Bikeway projects that meet the goals of the City.

The policies related to bikeway facilities are:

#### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.



## Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

## Multi-Modal

Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.

Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Pedestrian

Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.

Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

## Bicycle

Policy 30: Ensure consistency with the policies in the most current Bikeway Master Plan.

Policy 31: Require adequate bicycle parking in schools, parks, churches, existing shopping and working areas, and other destination areas to encourage increased use of bicycles.

Policy 32: Include bicycle facilities such as bike lanes or dedicated bikeways in the planning, design, and construction of all new and/or reconstructed collectors and arterial roads. The Oregon Bicycle and Pedestrian Plan Bike Lane Matrix for urban and suburban settings shall be used as a guide in making decisions regarding the need for bike lanes.

Policy 33: Require provision of bicycle parking facilities with new commercial and industrial development and multi-family residential development.

## Needs

Bicycle trips are different from pedestrian and motor vehicle trips. Common bicycle trips are longer than walking trips and generally shorter than motor vehicle trips. Where walking trips are attractive at lengths of a quarter mile (generally not more than a mile), bicycle trips are attractive up to three miles. Bicycle trips can generally fall into three groups: commuting, activity-based and recreational. Commuter trips are typically home/work/home (sometimes linking to transit) and are made on direct, major connecting roadways and/or local streets. Bicycle lanes provide good accommodations for these trips. Activity based trips can be home-to-school, home-to-park, home-to-neighborhood commercial or home-to-home. Many of these trips are made on local streets with some connections to arterials and collectors. Their needs are for lower volume/speed traffic streets, safety and connectivity. It is important for bicyclists to be able to use through streets<sup>1</sup>. Recreational trips share many of the needs of both the commuter and activity-based trips, but create greater needs for off-street routes, connections to rural routes and safety. Typically, these bike trips will exceed the normal bike trip length.

Streets with low vehicle volumes (under 3,000 average daily traffic) and slow speeds (25 miles per hour or less) do not require designated bike lanes, as right of way under these conditions can be shared between motor vehicles and bicyclists.

Locations of particular concern on the bikeway network include:

- Main Street bike lanes are not continuous. Few east-west bike lanes exist resulting in poor overall east-west connectivity.
- Key arterial roads including OR 99 and the Cottage Grove Connector do not provide bike lanes.

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<sup>1</sup> This can include end of cul-de-sac connections, but even better is regular spacing of local streets.

- The intersection at Thornton Road and Whiteaker Avenue is poorly configured for crossing by bicycle, as the nearby bicycle path crosses through Thornton Road, rather than through the intersection.
- The Woodson Bridge is narrow and often has vehicle queuing concerns due to its short length, making this a difficult intersection to navigate for bicyclists.
- The intersection of OR 99 and Main Street, along with the nearby intersection of 10th Street and Main Street, are difficult to navigate on bicycle due to high traffic volume and sight distance concerns. These are important crossings for bicycle travel due to the proximity of the entrance to the Row River Trail.
- The connectivity of multi-use trails east of Row River Road is limited due to the location of the airport, which prevents a viable alternative to traveling via Row River Road.

Other areas where future needs may create greater demand for bicycle facilities include:

- OR 99 north of the Cottage Grove Connector.
- OR 99 south of N. River Road.

## Facilities

Bikeways can generally be categorized as bike lanes, shoulder bikeways, shared roadways, or off-street bike paths/multi-use trails. Bike lanes are areas within the street right-of-way designated specifically for bicycle use. Shoulder bikeways provide space outside of the travel lane for bicyclists as well, but may not be specifically marked. Shared roadways require bicyclists and autos share the same travel lanes, including a wider outside lane and/or bicycle boulevard treatment (priority to through bikes on local streets). Multi-use paths are generally off-street routes (typically recreationally focused) that can be used by several transportation modes, including bicycles, pedestrians and other non-motorized modes (i.e. skateboards, roller blades, etc.). The term bikeway is used in this plan to represent any of the bicycle accommodations described above. The bicycle plan designates where bike lanes and multi-use paths are anticipated. Other bikeways are expected to be bike accommodations (i.e. shared with motor vehicles), although as land use and traffic patterns change, bike lanes should be added to any new or reconstructed facilities where average daily traffic exceeds 3,000 motor vehicles.

Bikeways should be constructed to be consistent with the standards defined in the *Oregon Bicycle and Pedestrian Plan*. Bicycle lanes adjacent to the curb are preferred to bicycle lanes adjacent to parked cars or bicycle lanes combined with sidewalks. Six-foot bicycle lanes are recommended. Provision of a bicycle lane not only benefits bicyclists but also motor vehicles which gain greater shy distance/buffer/emergency shoulder area and pedestrians which gain buffer between walking areas and moving vehicles. On reconstruction projects, bicycle lanes of five feet may need to be considered. Widening the curb travel lane (for example, from 12 feet to 14 or 15 feet) can provide bicycle accommodations. This extra width makes bicycle travel more accommodating and provides a greater measure of safety. Off-street trails and sidewalks that are constructed should be planned for 12 feet in width, which is desirable for mixed-use activity (pedestrian and bike). Signing and marking of bicycle lanes should follow the *Manual on Uniform Traffic Control Devices*. Design features in the roadway can improve bicycle safety. For example, using curb storm drain inlets rather than catch basins significantly improves bicycle facilities.

# Strategies

Bikeway improvements are aimed at closing the gaps in the bicycle network along arterial and collector roadways, in addition to providing multi-modal links to improve livability. The strategies identified below help to address bicycle system needs and to guide project prioritization. This prioritization process helps to focus community investment on those projects that are most effective at meeting critical needs, while deferring other projects of lesser value.

The strategies for bicycle facilities (listed in order of importance) are:

- Connecting key bicycle corridors to schools, parks, and activity centers,
- Bicycle corridors that connect neighborhoods,
- Bicycle corridors that connect to major recreational facilities,
- Filling in gaps in the network where some bikeways exist (arterials and collectors),
- Providing a multi-use trail connecting North Regional Park and East Regional Park,
- Arterial Crossing Enhancements,
- Bicycle corridors that commuters might use, and
- Bicycle corridors that access retail areas.

## Recommended Bicycle Master Plan

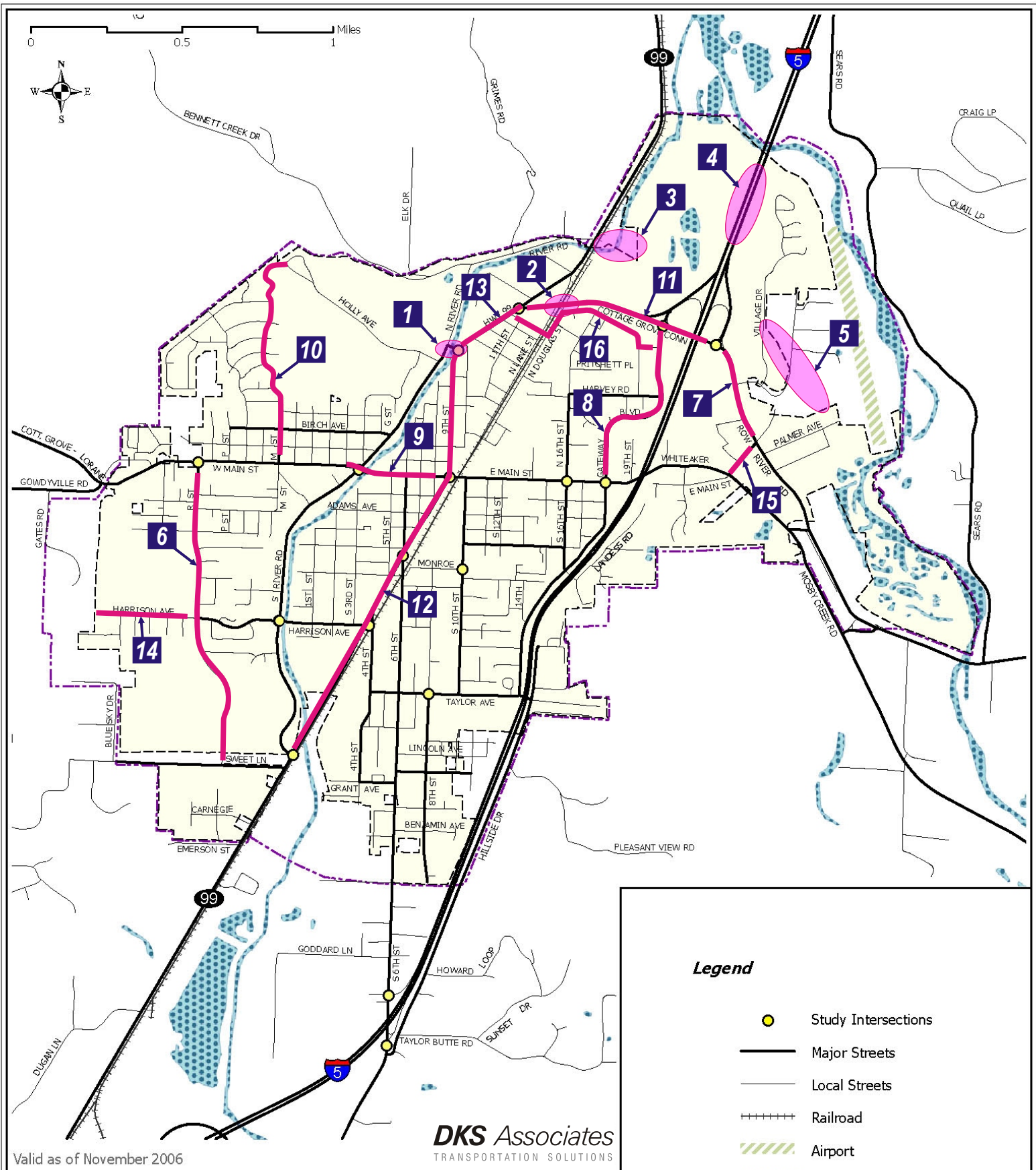
A list of likely actions to achieve fulfillment of the City's priorities was developed into a Bicycle Master Plan. The Bicycle Master Plan is an overall plan and summarizes the list of desired bicycle-related projects in Cottage Grove, providing a long-term map for planning bicycle facilities. From this Master Plan, a more specific, shorter term, Action Plan was developed. The Action Plan consists of projects that the City should actively try to fund. These projects form a basic bicycle grid system for Cottage Grove. The Bicycle Master Plan will require incremental implementation. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well.

Table 6-1 identifies bicycle projects considered to be an important part of the Cottage Grove Transportation System Plan. Bicycle project locations are illustrated in Figure 6-1.

Table 6-1: Bicycle Master Plan Project List

#	Project	Cost (2007 \$)
<b><i>New Crossings</i></b>		
1	Bicycle and Pedestrian Bridge adjacent to Woodson Bridge	*
2	New Cottage Grove Connector bridge for pedestrians and bikes / New Cottage Grove Connector bridge including sidewalks ***	*
<b><i>Trail Extensions</i></b>		
3	Multi-use trail connection from North River Road to North Regional Park	*
4	Additional trail connection across I-5 from North Regional Park to Village Drive	*
5	Multi-use trail connection from Village Drive to Palmer Avenue	*
<b><i>Bike Lanes</i></b>		
6	Restripe R St. to include bike lanes along entire duration south of Main St.	\$80,000
7	Restripe Row River Road to include bike lanes from I-5 northbound ramps to Thornton Road	\$15,000
8	Restripe four lane section to add bike lanes on Gateway Boulevard between Main Street and the Cottage Grove Connector ***	**
9	Widen to add bike lanes along Main Street from OR 99 to River Road	\$450,000
10	Stripe bike lanes on M Street north of Main Street to Holly Avenue	\$40,000
11	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs) ***	\$40,000
12	Widen to add bike lanes along OR 99 from Woodson Bridge to South River Road ***	\$800,000
13	Restripe four lane section to add bike lanes on OR 99 from Woodson Bridge to Cottage Grove Connector***	**
14	Restripe Harrison Avenue west of R Street to include Bike Lanes	\$25,000
15	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	\$60,000
<b><i>Marked Bikeway</i></b>		
16	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19 <sup>th</sup> Street and Oswald West Avenue.	\$25,000

\* Costs included in related pedestrian project.  
 \*\*Costs included in related motor vehicle project.  
 \*\*\*Requires ODOT approval.



**DKS Associates**  
TRANSPORTATION SOLUTIONS

Transportation System Plan  
**FIGURE 6-1**  
Bicycle Projects



Valid as of November 2006

# Bicycle Action Plan

A bicycle system action plan project list was created to identify bicycle projects that are reasonably expected to be funded by the year 2025, which meets the requirements of the updated Transportation Planning Rule<sup>2</sup>. Table 6-2 and 6-3 show the full action plan identified in the TSP update analysis.

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities over 18 years exceed projected revenues, as discussed in Chapter 10. Without additional revenue sources, the expected funding deficit would not allow for any capital improvements projects that provide new bicycle facilities.

Action Plan Projects (Table 6-2) are presented assuming funding equivalent to a doubling of street SDC charges. Refer to Chapter 10 (Financing and Implementation) for details on the financial assumptions. Note that some projects listed in the Bicycle Action Plan are anticipated to be funded by ODOT or private development. Other projects include bicycle facilities as part of total projects costs to capture economies of scale. Such project costs are included in the Motor Vehicle Action Plan (Chapter 8).

**Table 6-2: Bicycle Action Plan Projects (2007 Dollars)**

Project	Improvement	Estimated City Cost	Priority
<i>City Projects</i>			
Gateway Boulevard Restripe	Restripe Gateway Boulevard to 3 lanes (and bike lanes) from Harvey Road to Cottage Grove Connector	*	Short Term
Cottage Grove Connector - Interchange Area Management Plan	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-	Short Term
Realign OR 99 at Main Street	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	*	Mid Term
East/West Bicycle Route	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19 <sup>th</sup> Street and Oswald West Avenue.	\$25,000	Mid Term
OR 99 Restripe	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector	*	Mid Term
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue	**	Long Term
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln.	**	Long Term

\* Construction costs for bicycle facilities included in Motor Vehicle Plan Projects costs (Chapter 8)

\*\*Construction costs including bicycle facilities to be covered by private development exactions.

<sup>2</sup> OAR Chapter 660, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.

## Plan Implementation

It is important that, as new development occurs, connections or accessways are provided to link the development to the existing bicycle and pedestrian facilities in as direct manner as is reasonable. If a development fronts a bikeway or sidewalk (as shown in the Bicycle or Pedestrian Master Plans), the developer shall be responsible for providing the bikeway or walkway facility as part of any street improvement required for project mitigation.



## 7. TRANSIT

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Transit service is provided in Cottage Grove by the Lane Transit District (LTD) and South Lane Wheels (SLW). LTD provides fixed route bus service between Cottage Grove and Eugene. South Lane Wheels provides both deviated schedule route service and demand responsive service to transportation disadvantaged residents and the general public. Chapter 3 details the existing transit service in Cottage Grove, with transit routes and stop locations illustrated in Figure 3-4.

### Policies

Several transportation system policies must be considered when planning public transit services in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards transit projects that meet the goals of the City.

The policies related to transit facilities are:

#### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 2: Consider the impact of all land use decisions on the existing and planned transportation facilities.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

#### Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

#### Multi-Modal

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Transit

Policy 34: Develop a cost effective accessible transit program that meets the needs of all potential and identified users.

Policy 35: Support provision of basic mobility services for the elderly and people with special needs.

Policy 36: All new development shall be referred to transit service providers for review and comment to determine if new transit stops are appropriate and can reasonably be provided as part of the new development.

## Needs

The Oregon Public Transportation Plan Minimum Level of Service Standards for cities with a population between 2,500 and 25,000 call for the following:

- Coordination between intercity senior/disabled serviced and intercity general public bus and van services.
- Connection between local public transportation, senior/disabled services, and intercity bus services.
- Accessibility for rides to anyone requesting service.

Stop locations of SLW's fixed route service are coordinated with all LTD Route 98 stops, resulting in good connections between local services and intercity buses. SLW's paratransit service and special pickup service for transportation disadvantaged riders provide good integration between services and a high level of accessibility to all local residents.

The quality of transit service within Cottage Grove can be characterized by the following indicators:

- Transit route coverage
- Frequency
- Reliability
- User amenities

The following sections present the analysis and findings for each of these service characteristics, and identify potential needs for future transit service improvements.

## Transit Coverage

The minimum land use density<sup>1</sup> required to support a fixed route transit bus service with 1-hour scheduled between arrivals is about four housing units per acre or three employees per acre. Between LTD and South Lane Wheels bus service, most areas of higher density are covered. Future developments may require adjustments to the existing routing to meet new demand.

## Transit Frequency

In addition to providing service to a geographic area, transit route frequency is a measure of transit quality of service and mode attractiveness.

Table 3-3 summarized the average time between bus arrivals at a stop (headways) and corresponding level of service<sup>2</sup> for both LTD Route 98 and SLW Route Around Town. Headways were typically around one hour during AM and PM peak periods. While this could be improved, this is an adequate service for a community of the size of Cottage Grove.

## Transit Reliability

Transit service reliability is a key performance characteristic for retaining riders. Congested roadways, bottlenecks, and traffic signals can delay transit vehicles and cause transit vehicles to arrive off schedule and close together.

Bus stop consolidation or relocation can also improve transit reliability. Transit stops should be spaced appropriately to provide adequate accessibility to riders while limiting bus delays from frequent stops. Transit stop relocations should be coordinated with pedestrian improvements, such as curb extensions, as they are constructed.

## User Amenities

The purpose of transit stop amenities is to improve the convenience and attractiveness of using the transit system. Good public transportation is important to the livability of a community. Accessible transit stops are essential to a useable system. Potential improvements to the overall system include:

- Information kiosks at bus stops – This amenity provides transit riders information such as next bus arrival time forecasts.
- Bus shelters – Improve the convenience of using the transit system by providing a comfortable place to wait for the bus.
- Curb extensions – The extension of the sidewalk area into the parking lane provides a more convenient pedestrian connection to a stopped bus.
- Street lighting – Bus stops should be highly visible locations so pedestrians can easily identify the locations and good security can be provided.

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<sup>1</sup> Thresholds for minimum land use density to support fixed-route transit service are based on definitions in the 2000 *Highway Capacity Manual*, Chapter 27 for Transit service analysis methodologies.

<sup>2</sup> 2000 *Highway Capacity Manual*, Transportation Research Board, 2000, Chapter 27.

One of the most significant user amenities for bus services is a shelter at the transit stop. These user amenity improvements are particularly important at the Park and Ride lot serving both Lane Transit District Route 98 and South Lane Wheels Route Around Town due to the higher volumes of passengers at this location.

The need for bus shelters at bus stops, as well as other user amenities, should be evaluated in conjunction with new commercial or residential development adjacent to a transit route. Typical daily boarding thresholds of 35 patrons or more could be used to support installation of a covered bus shelter and bench.

There is no agreement in place to guarantee the future location of the Park & Ride lot. It is currently provided by Wal-Mart on a volunteer basis. This issue should be addressed so that provision of at least one Park & Ride facility in the City is assured.

## Strategies

The strategies to meet the public transit needs of Cottage Grove require coordination with South Lane Wheels and/or Lane Transit District. The strategies (listed in order of importance) include:

- Provide direct/express access to the Eugene bus rapid transit system (EmX)
- Provide access to employment areas
- Provide dedicated park-and-ride lots
- Provide express routes to regional employment centers
- Provide frequent service in peak commute periods
- Provide access to commercial areas
- Provide access to activity and service centers
- Provide bus shelters
- Improve bus stop signage
- Improve service awareness via marketing

Transit system enhancements within the LTD service area are ultimately decided based on regional transit goals. As such, Cottage Grove has limited control over dictating the expansion of LTD local service or increasing route frequency. A similar relationship exists with SLW and the local services it provides. These decisions can be influenced if the proper density is achieved along transit corridors or if roadway infrastructure is built to serve transit routes, a decision over which the City has more control. Another tactic for increasing transit service to Cottage Grove is through inter-governmental agreements and funding strategies between the City and LTD or SLW in order to leverage transit dollars for local projects, providing better connections to transit facilities and supplying transit amenities at transit locations.

As the community continues to grow, the City transit system should continue to be developed as funding becomes available. Transit coverage area should continue to be expanded as demand for services increases. Services should be developed and oriented towards regional employment

centers while also considering access to commercial areas and other activity generators such as hospitals, parks, schools, etc. The transit system should be considered in conjunction with multimodal access to pedestrian and bicycle facilities as well as park and ride locations. Transit agencies should continue to work with the City and Lane County to encourage transit ridership. To attract additional riders, current transit service headways could be reduced. In addition, improved marketing programs could increase awareness and attract higher ridership.

## 8. MOTOR VEHICLES

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This chapter summarizes the motor vehicle system for future conditions in the City of Cottage Grove. It also outlines the strategies to be used in evaluating needs and recommends plans for motor vehicles (automobiles, trucks, buses and other vehicles). The needs, strategies, and recommended plans were identified in working with the City's Technical Advisory Committee for the Transportation System Plan. This group explored automobile and truck needs in the City of Cottage Grove and provided input about how they would like to see the transportation system develop. The Motor Vehicle modal plan is intended to be consistent with other jurisdictional plans including and Lane County's *Transportation System Plan* (TSP) and ODOT's *Oregon Highway Plan* (OHP).

### Policies

Several transportation system policies will be considered when planning and constructing roadways for motor vehicles in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards roadway projects that meet the goals of the City.

The policies related to motor vehicle facilities are:

#### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Policy 5: Develop a street network that accommodates the safe and efficient movement of emergency service vehicles.

Policy 7: Coordinate with ODOT and/or Lane County on roadway projects impacting land uses outside of city limits or roadways outside of City jurisdiction.

## Standards

Policy 10: Consider economic development potential (the extent to which the project relieves congestion and provides land use access to under-utilized and undeveloped urban lands) in evaluating and prioritizing street improvement projects within the existing street system.

Policy 11: Consider the following primary criteria in evaluating and prioritizing street improvement projects within the existing street system – average daily traffic, physical condition of street, street geometrics, and capacity/congestion (level of service).

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 14: Consider commercial and industrial transportation needs in decisions about access management and in construction or reconstruction of roadways.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

## Multi-Modal

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Strategies

To meet performance standards and serve future growth, the future transportation system needs multi-modal improvements and strategies to manage the forecasted travel demand. The extent and nature of the multi-modal improvements for Cottage Grove are significant. The impact of future growth would be severe without investment in transportation improvements. Strategies for meeting automobile facility needs include the following:

- Local Circulation Enhancements
- Regional Circulation Enhancements

- Neighborhood Traffic Management
- Transportation Demand Management Programs to Reduce Peak Traffic for Employers in Cottage Grove
- Additional Traffic Signals on Arterial/Collector Intersections
- Intelligent Transportation Systems (ITS)
- Intersection Modifications
- Transportation System Management (TSM)
- Mitigate all Intersections to Meet or Exceed Applicable Performance Standards (Level of Service and/or V/C) in the PM Peak Hour

The following sections detail the type of improvements that would be necessary as part of a long-range Motor Vehicle Master Plan. Phasing of implementation will be necessary since all of the improvements cannot be done at once. This will require prioritization of projects and periodic updating to reflect current needs. Most importantly, it should be understood that the improvements outlined in the following sections are a guide to managing growth in Cottage Grove as it occurs over the next 20 years. Other improvements will become necessary as development patterns change and new development occurs.

## Transportation System Management (TSM)

Transportation System Management (TSM) focuses on low cost strategies to enhance operational performance of the transportation system by seeking solutions to immediate transportation problems, finding ways to better manage transportation, maximizing urban mobility, and treating all modes of travel as a coordinated system. These types of TSM measures include such things as:

- Transit signal priority
- Signal coordination and optimization
- Traffic monitoring and surveillance
- Traffic calming
- Incident management
- Access management
- Local street connectivity
- Functional classifications

TSM measures focus primarily on region wide improvements, however there are a number of TSM measures that could be used in a smaller scale environment such as the Cottage Grove area. Typically, the most significant measures that can provide tangible benefits to the traveling public are traffic signal coordination and systems. The following sections discuss TSM measures that could be appropriate for the Cottage Grove 2025 TSP study area.



## Neighborhood Traffic Management (NTM)

The City of Cottage Grove should consider neighborhood traffic management elements, including traffic calming measures such as curb extensions, on streets within the study area. The city should consult with the community to find the traffic calming solution that best meets their needs and maintains roadway function. Table 8-1 lists common NTM applications and suggests which devices may be supported by South Lane County Fire and Rescue. Any NTM project should include coordination with emergency agency staff to assure public safety.

Table 8-1: Traffic Calming Measures by Roadway Functional Classification

Traffic Calming Measure	Roadway Classification		
	Arterial	Collector	Local Street
Curb Extensions	Supported*	Supported*	
Medians	Supported	Supported	
Pavement Texture	Supported**	Supported**	
Speed Hump	Not Supported	Not Supported	
Roundabout	Supported***	Supported***	Traffic calming measures are acceptable on lesser emergency response routes that have connectivity (more than two accesses).
Raised Crosswalk	Not Supported	Not Supported	
Speed Cushion (provides emergency pass-through with no vertical deflection)	Not Supported	Not Supported	
Choker <sup>1</sup>	Supported*	Supported*	
On-Street Parking	Supported	Supported	
Traffic Circle	Supported***	Supported***	
Diverter (with emergency vehicle pass through)	Supported**	Supported**	

- \* Only supported where poles or other obstructions do not interfere with 20 foot clearances for vehicles.
- \*\* Only supported where texturing would not obstruct emergency medical vehicle services.
- \*\*\* In special cases to be determined by City staff. Only supported when inside radius of 28 feet is maintained.

**Note:** It is desirable to have all traffic calming measures meet South Lane County Fire and Rescue guidelines including minimum street and travel lane width, emergency vehicle turning radius, and accessibility/connectivity requirements.

NTM projects on state facilities would have to meet ODOT standards. Pavement textures, chokers, on-street parking and traffic circles are prohibited on state highways. Curb extensions would only be supported on state highways in locations designated as Special Transportation Areas.

## Access Management

Access Management is a broad set of techniques that balance the need to provide efficient, safe and timely travel with the ability to allow access to individual properties. Proper implementation of access management techniques should support reduced congestion, reduced accident rates, less need for roadway widening, conservation of energy, and reduced air pollution.

Access management is the control or limiting of vehicular access on arterial and collector facilities to maintain the capacity of the facilities and preserve their functional integrity. Access management strives to strike a balance between maintaining the integrity of the facility and providing access to adjacent parcels. Numerous driveways can erode the capacity of arterial and collector roadways. Preservation of capacity is particularly important on higher volume roadways for maintaining traffic flow and mobility. Whereas local and neighborhood streets function to provide access, collector and arterial streets serve greater traffic volume. Numerous driveways or

<sup>1</sup> A choker is a curb extension located at the mid-block or intersection corner that narrows a street by extending the sidewalk or planting strip. Chokers are not supported when they do not shadow parking.

street intersections increase the number of conflicts and potential for collisions and decrease mobility and traffic flow. Cottage Grove, as with every city, needs a balance of streets that provide access with streets that serve mobility.

Several access management strategies with the potential to improve local access and mobility in Cottage Grove are identified:

- Develop, implement and enforce specific access management plans for major and minor arterial streets in Cottage Grove to maximize the capacity of the existing facilities and protect their functional integrity.
- Examine roadways with potential to remove or consolidate access points. Certain streets should be studied to determine if and where access control measures should be implemented. Examples of potential studies are OR 99 corridor through Cottage Grove and Main Street.
- Work with land use development applications to consolidate driveways where feasible.
- Provide left turn lanes where warranted for access onto cross streets.
- Construct raised medians to provide for right-in/right-out driveways as appropriate.
- Develop, implement and enforce city access standards for new developments on collectors and arterials.
- New driveway placement should be in accordance with applicable access spacing standards. Access requirements should be evaluated at the site plan review stage and shared access should be considered where feasible.

Staff should propose revisions to the development code to reflect the standards being developed in the Transportation System Plan. Additional attention should be given to the specific standards and whether exceptions are appropriate to be written into the code or if variances are the action needed. Four access management standards are recommended.

- A restriction of direct access of new single-family units on arterials and collectors (with an exception process that addresses safety and neighborhood traffic management needs).
- An access report requirement as part of the land development application. The report would verify driveway design and spacing, proper on-site circulation, adequate stacking, sight and deceleration distance as set by ODOT (including their approach permitting process), Lane County, the City and AASHTO (utilizing future traffic volumes from this plan as a future base for evaluation). Where possible, new developments should be required to provide “cross-over easements” as a condition of approval, thus insuring shared driveway access points.
- Driveways should not be placed in the influence area of intersections. The influence area is that area where queues of traffic commonly form on the approach to an intersection (typically between 150 to 300 feet). In a case where a project has less than 150 feet of frontage, the site would need to explore potential shared access, or if that were not practical, place driveways as far from the intersection as the frontage would allow (permitting for five feet from the property line).

- Access to arterials from driveways should be limited. When a site that has private access onto a principal arterial is redeveloped, the private access may be eliminated if alternate access exists to the site.

The recommended access spacing standards for city street facilities are identified in Table 8-2. As state facilities, OR 99 and the Cottage Grove Connector are subject to ODOT access management spacing standards, which supersede the City standards. The access spacing standards recommended for district highways are listed in Table 8-3. Lane County spacing standards apply to county facilities and are listed in Table 8-4.

**Table 8-2: Access Spacing Standards for City Street Facilities**

<b>Street Facility</b>	<b>Maximum spacing of roadways and driveways</b>	<b>Minimum spacing of roadways and driveways</b>
Arterial:	1,000 feet	600 feet*
Collector:	500 feet	200 feet (or 1 per residential lot)
Local:	500 feet	-
Arterials and Collectors:	Require an access report stating that the driveway/roadway is safe as designed meeting adequate stacking, sight distance and deceleration requirements as set by ODOT, Lane County and AASHTO.	

Note: Spacing standards apply to both full access and restricted access intersections (ex. right-in/right-out).

\*Arterials located where existing block spacing is approximately 400 feet (such as seen downtown) would be exempt from the 600 foot minimum spacing standard and instead be subject to a 400 foot minimum spacing.

**Table 8-3: District Highway Access Spacing Standards**

<i>Posted Speed (miles per hour)</i>	<i>Access spacing (feet)</i>
55 or more	700
50	550
40, 45	500
35 or less	350

*Source: 1999 Oregon Highway Plan*

Table 8-4: Lane County Approach Spacing Standards

Facility	Posted Speed Limit (MPH)				
	55 or greater	50	40, 45	30, 35	25 or less
Principal Arterial	700'	550'	500'	400'	400'
Minor Arterial or Major Collector	475'	475'	400'	275'	200'
Minor Collector	325'	325'	325'	220'	150'

Source: Lane County Code, Chapter 15 - Roads, Lane Code 15.138

Access management is not easy to implement and often requires long institutional memory of the impacts of short access spacing – increased collisions, reduced capacity, poor sight distance and greater pedestrian exposure to vehicle conflicts. The most common opposition response to access control is that “there are driveways all over the place at closer spacing than mine – just look out there”. These statements are commonly made without historical reference. Many of the pre-existing driveways that do not meet access spacing requirements were put in when traffic volumes were substantially lower and no access spacing criteria were mandated. With higher and higher traffic volume in the future, the need for access control on all arterial and collector roadways is critical – the outcome of not managing access properly is additional wider roadways which have much greater impact than access control.

### Traffic Signal Spacing

Traffic signals that are spaced too closely on a corridor can result in poor operating conditions and safety issues due to the lack of adequate storage for vehicle queues. A minimum traffic signal spacing of 1,000-feet may be required for arterial and collector facilities. Different signal spacing standards may be applied to lower classifications of roadways. ODOT identifies ½ mile as the desirable spacing of signalized intersections on regional and statewide highways but recognizes that shorter signal spacing may be appropriate due to a number of factors including existing road layout and land use patterns.

### Local Street Connectivity

Much of the local street network in Cottage Grove is built but, in some cases, is not well connected. Multiple access opportunities for entering or exiting neighborhoods are limited. There are a number of locations where neighborhood traffic is funneled onto one single street. Examples include the residential area along South 6<sup>th</sup> Street (south of Taylor Avenue) and the area north of Main Street and west of River Road.

This type of street network results in out-of-direction travel for motorists and an imbalance of traffic volumes that impact residential frontage. The outcome can result in the need for wider roads, traffic signals and turn lanes (which can negatively impact traffic flow). By providing connectivity between neighborhoods, out-of-direction travel and vehicle miles traveled (VMT) can be reduced, accessibility between various travel modes can be enhanced and traffic levels can be balanced out between various streets. Additionally, public safety response time is reduced.

Some of these local connections can contribute with other street improvements to mitigate capacity deficiencies by better dispersing traffic. Several roadway connections will be needed within neighborhood areas to reduce out of direction travel for vehicles, pedestrians and bicyclists. This is most important in the areas where a significant amount of new development is possible.

Figure 8-1 shows the proposed Local Street Connectivity Plan for Cottage Grove. In most cases, the connector alignments are not specific and are aimed at reducing potential neighborhood traffic impacts by better balancing traffic flows on neighborhood routes. The arrows shown in the figures represent potential local connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be better determined upon development review. New street approaches to OR 99 and the Cottage Grove Connector must be reviewed and permitted by ODOT.

To protect existing neighborhoods from potential traffic impacts of extending stub end streets, connector roadways should incorporate neighborhood traffic management into their design and construction. Stub streets may include signs indicating the potential for future connectivity. Additionally, new development that constructs new streets, or street extensions, must provide a proposed street map that:

- Limits use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections
- Includes no close-end street longer than 200 feet or having no more than 25 dwelling units
- Includes street cross-sections demonstrating dimensions of ROW improvements, with streets designed for posted or expected speed limits

The arrows shown on Figure 8-1 indicate priority connections only. Topography, railroads and environmental conditions limit the level of connectivity in several areas of Cottage Grove. Other stub end streets in the City's road network may become cul-de-sacs, extended cul-de-sacs or provide local connections. Pedestrian connections from the end of any stub end street that results in a cul-de-sac should be considered mandatory as future development occurs. The goal would continue to be improved city connectivity for all modes of transportation.

Figure 8-1 illustrates recommended motor vehicle and pedestrian and bicycle connections to local streets to encourage accessibility throughout the roadway network.

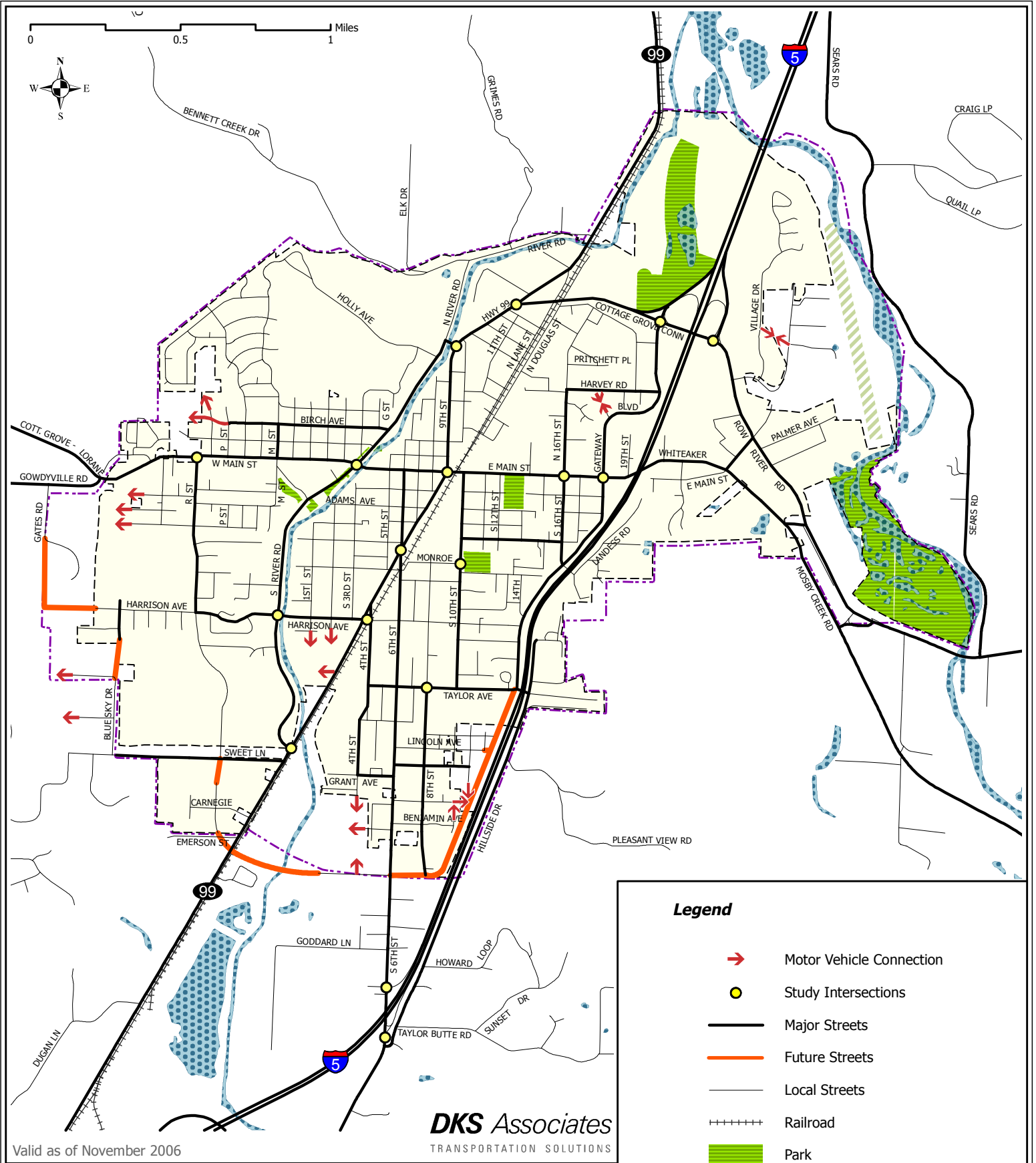
## Functional Classification

The 1998 TSP established a functional classification for Cottage Grove that included arterials, collectors, and local streets. The background document review completed for the TSP included a comparison of the Cottage Grove functional classification to designations made by ODOT and Lane County. A desire has been expressed to revise the Cottage Grove functional classification map in order to maintain consistency with these other jurisdictions and reflect the changing characteristics of roadways in the City.

The criteria used to assess functional classification have two components: the extent of connectivity and the frequency of the facility type. Maps can be used to determine regional, city/district and neighborhood connections. The frequency or need for facilities of certain classifications is not routine or easy to package into a single criterion. While planning textbooks

call for arterial spacing of a mile, collector spacing of a quarter to a half-mile, and neighborhood connections at an eighth to a sixteenth of a mile, this does not form the only basis for defining functional classification.

Changes in land use, environmental issues or barriers, topographic constraints, and demand for facilities can change the frequency for routes of certain functional classifications. While spacing standards can be a guide, they must consider other features and potential long term uses in the area (some areas would not experience significant changes in demand, where others will). It is acceptable for the city to re-classify street functional designations to have different naming conventions, however, the general intent and purpose of the facility, whatever the name, should be consistent with regional, state and federal guidelines.



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**FIGURE 8-1**  
Local Street Connectivity



### Functional Classification Definitions

**Interstate Highways** are access controlled national roadways that also serve regional needs.

**Principal Arterials** are typically state highways that are access controlled and provide a high level of connectivity. These routes connect over the longest distance (sometimes miles long) and are less frequent than other arterials or collectors. These roadways generally span several jurisdictions and often have statewide importance (as defined in the State Highway Classification System).<sup>2</sup> In Cottage Grove, OR 99 and the Cottage Grove Connector are both designated as principal arterials.

**Minor Arterial streets** serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced close enough together to assure accessibility and reduce the incidence of traffic using collectors or local streets for through traffic in lieu of a well placed arterial street. Access control is the key feature of an arterial route.

Several city streets are designated as minor arterial streets including Main Street, River Road and Gateway Boulevard

**Collector streets** provide both access and circulation within and between residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation functionality, do not require as extensive control of access (compared to arterials) and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system. Harrison Avenue, South 10<sup>th</sup> Street, and South 16<sup>th</sup> Street are examples of collectors.

**Local Streets** have the sole function of providing access to immediate adjacent land. Service to “through traffic movement” on local streets is deliberately discouraged by design.

All other city streets in Cottage Grove not designated as collector streets or arterial streets are considered to be local streets, with the exception of I-5 which is classified as an Interstate Highway.

### Proposed Functional Classification Changes

A revised functional classification map is illustrated in Figure 8-2. The recommended changes to the functional classification defined in the 1998 TSP are summarized below.

#### **New Roadways:**

- R Street extension, Cleveland Avenue extension and Gateway Boulevard extension added as minor arterials
- Gates Road extension, Harrison Avenue extensions, and Blue Sky Drive extension added as collectors

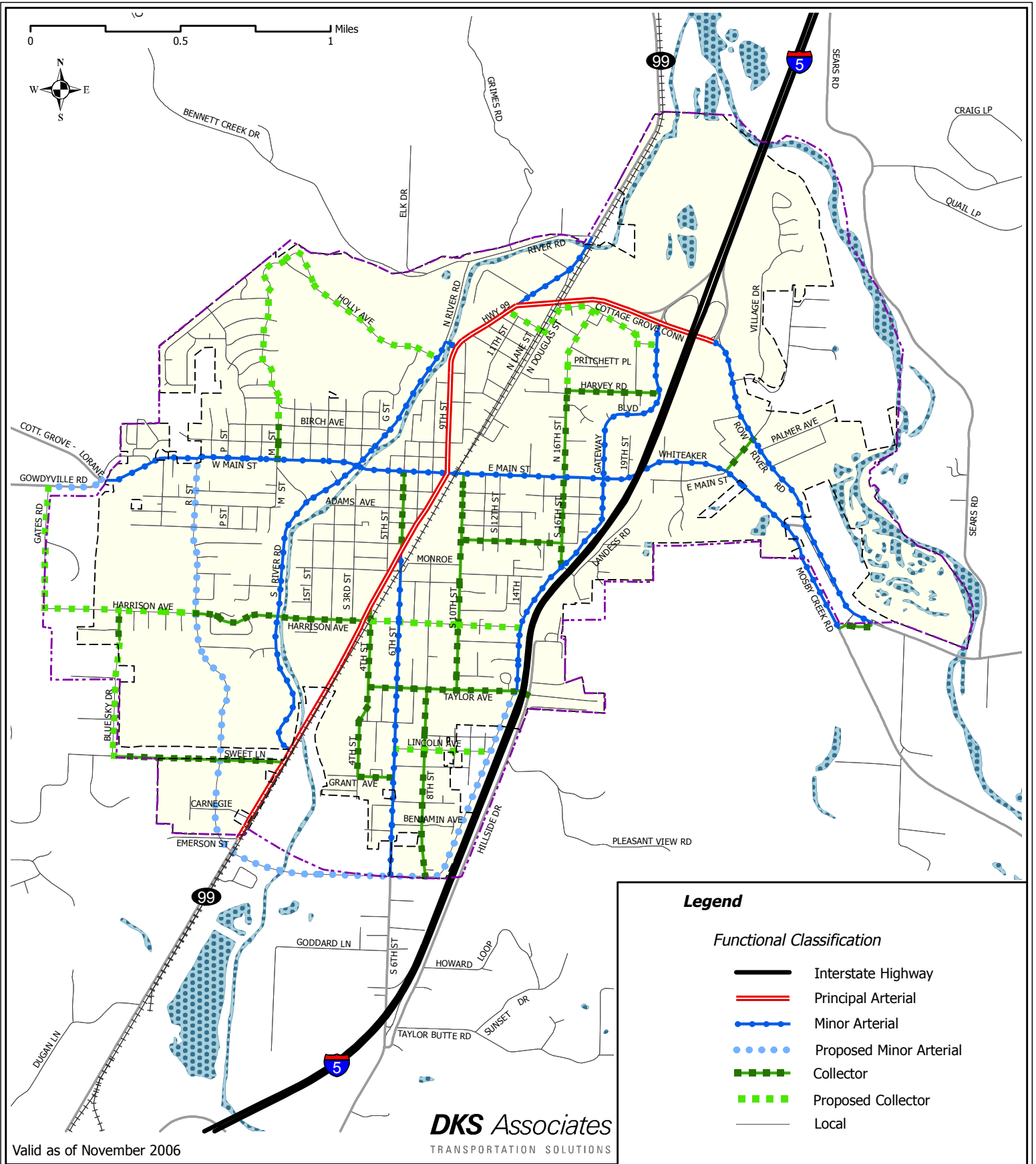
#### **Existing Roadways:**

- Gowdyville Road becomes a minor arterial and is incorporated as a city street from Main Street to Gates Road
- R Street changes from a collector to a minor arterial

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<sup>2</sup> 1999 Oregon Highway Plan, An Element of the Oregon Transportation Plan, Adopted by the Oregon Transportation Commission, March 18, 1999.

- Harrison Avenue becomes a collector west of R Street
- Lincoln Avenue is extended to Gateway Boulevard as a collector (requires new roadway construction)
- M Street is reclassified as a collector from Main Street to Holly Avenue
- Holly Avenue is reclassified as a collector pending incorporation as a public roadway and if structural improvements are made
- 16th Street is reclassified as a collector between Harvey Road and Ostrander Lane
- Chamberlain Avenue is reclassified as a collector from OR 99 to Douglas Street
- Douglas Street is reclassified as a collector from Chamberlain Avenue to Ostrander Lane
- Ostrander Lane is reclassified as a collector from Douglas Street to 19th Street
- 19th Street is reclassified as a collector from Ostrander Lane to Oswald West Avenue
- Oswald West Avenue is reclassified as a collector from 19th Street to Gateway Boulevard
- Johnson Avenue is reclassified as a local street
- Birch Avenue is reclassified as a local street
- Blue Sky Drive is reclassified as a local street north of Harrison Avenue and as a collector south of Harrison Avenue to Sweet Lane



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**FIGURE 8-2**

Proposed Functional Classification



## Roadway Cross-Section Standards

The design characteristics of city streets in Cottage Grove were developed to meet the function and demand for each facility type. Because the actual design of a roadway can vary from segment to segment due to adjacent land uses and demands, the objective was to define a system that allows standardization of key characteristics to provide consistency, but also to provide criteria for application that provides some flexibility, while meeting the design standards.

Figure 8-3 illustrates the resulting cross-sections for city arterials, collectors, and local streets in Cottage Grove. Roadways under state or country jurisdictions will be subject to design standards of those agencies. ODOT requires lane widths of 12 feet for roadways under its jurisdiction.

Planning level right-of-way needs can be determined utilizing these figures. Specific dimensions for roadways with various lane and parking characteristics are detailed in the Cottage Grove Development Code (Section 3.4.100) and Table 8-5 for each street classification. These street standards are compliant with the Oregon Transportation Planning Rule<sup>3</sup> which specifies that local governments limit excessive roadway widths (OAR 660-012-0045 Item 7).

Under some conditions a variation to the adopted street cross-sections may be requested from the City Engineer. Typical conditions that may warrant consideration of a variation include (but are not limited to) the following:

- Infill sites
- Innovative designs (roundabouts)
- Severe topographic or environmental constraints
- Existing developments and/or buildings that make it extremely difficult or impossible to meet the design standard

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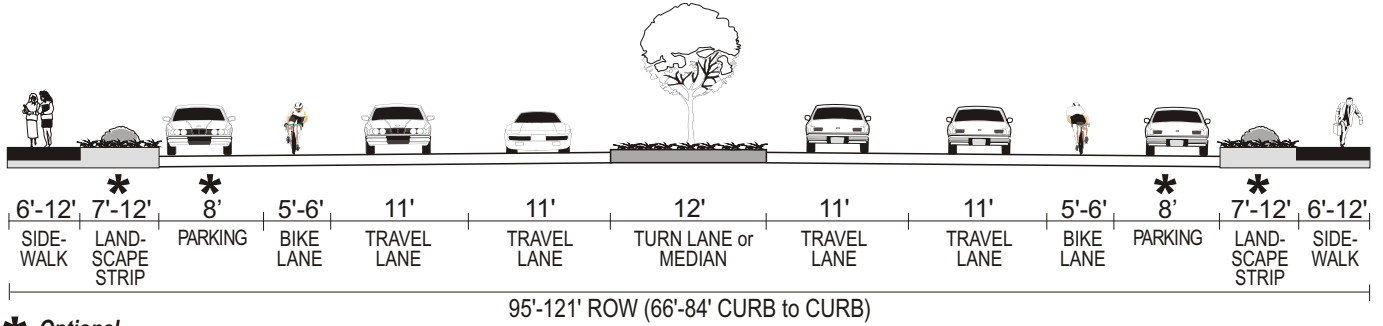
<sup>3</sup> Oregon Transportation Planning Rule, Land Conservation and Development Department, OAR 660-012-0000

Table 8-5: Street Standards

Street Type	Right-of-Way Width	Curb-to-Curb Paved Width	Within Curb-to-Curb Area				Planting Strips or Tree Wells	Side-walks
			Motor Vehicle Travel Lanes	Median/Center Turn Lanes	Bike Lanes	On-Street Parking		
<b><u>Arterials</u></b>								
<i><b>Boulevards:</b></i>								
2-Lane Boulevard	60'-100'	32'-50'	11'	None	2 at 5-6'	8' bays	7'-12'	6'-12'
3-Lane Boulevard	70'-100'	44'-62'	11'	12'	2 at 5-6'	8' bays	7'-12'	6'-12'
5-Lane Boulevard	95'-121'	66'-84'	11'	12'	2 at 5-6'	8' bays	7'-12'	6'-12'
<i><b>Avenues:</b></i>								
2-Lane Avenue	60'-90'	30'-49'	10'-10.5'	none	2 at 5-6'	8' bays	7'-12'	6'-12'
3-Lane Avenue	70.5'-97.5'	41.5'-60.5'	10'-10.5'	11.5'	2 at 5-6'	8' bays	7'-12'	6'-12'
<b><u>Collectors</u></b>								
<i><b>Residential:</b></i>				As per traffic calming				
No Parking	50'-60'	22'	11'			None	7'-8'	6'-12'
Parking One Side	50'-80'	25'-27'	9'-10'			7' lane	7'-8'	5'-12'
Parking Both Sides	57'-80'	32'-34'	9'-10'			7' lanes	7'-8'	5'-12'
<i><b>Commercial (Collectors and Local Streets):</b></i>				As per traffic calming				
Parallel One Side	55'-80'	28'-40'	10'		5'-6'	8' lane	7'-8'	6'-12'
Parallel Both Sides	63'-80'	36'-48'	10'		5'-6'	8' lanes	7'-8'	6'-12'
Angled Parking One Side	65'-80'	37'-56'	10'		5'-6'	Varies	7'-8'	6'-12'

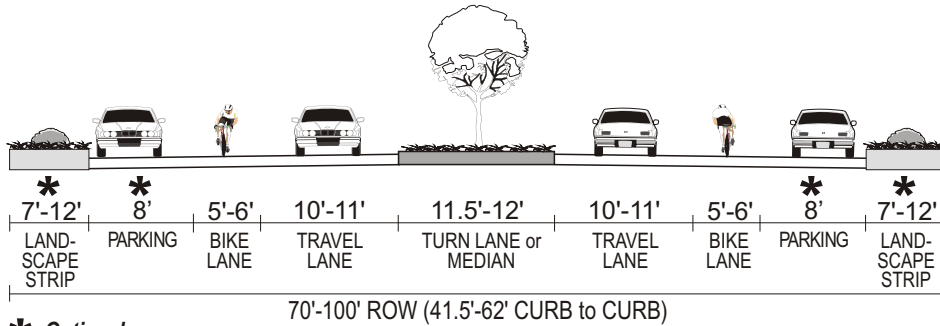
Street Type	Right-of-Way Width	Curb-to-Curb Paved Width	Within Curb-to-Curb Area				Planting Strips or Tree Wells	Side-walks
			Motor Vehicle Travel Lanes	Median/Center Turn Lanes	Bike Lanes	On-Street Parking		
Angled Parking Both Sides	81'-100'	54'	10'		5'-6'	Varies	7'-8	6'-12'
<u>Local Streets</u>				As per traffic calming				
Parking One Side	50'-60'	28'	20'		2 at 5'-6'	7' lane	4'-12'	5'-6'
Parking Both Sides	56'-60'	32'	18'		2 at 5'-6'	7.5' lanes	4'-12'	5'-6'
No Parking	36'-56'	20'	20'		2 at 5'-6'	None	4'-12'	5'-6'

## Arterial - 5 Lane



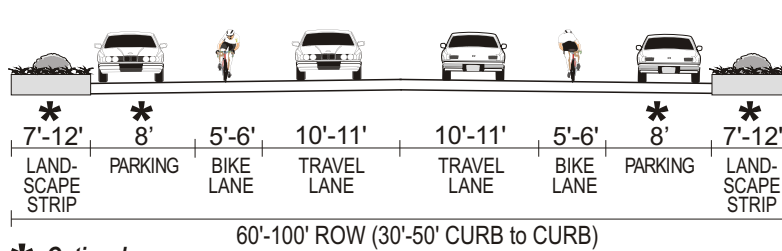
\* -Optional

## Arterial - 3 Lane



\* -Optional

## Arterial - 2 Lane

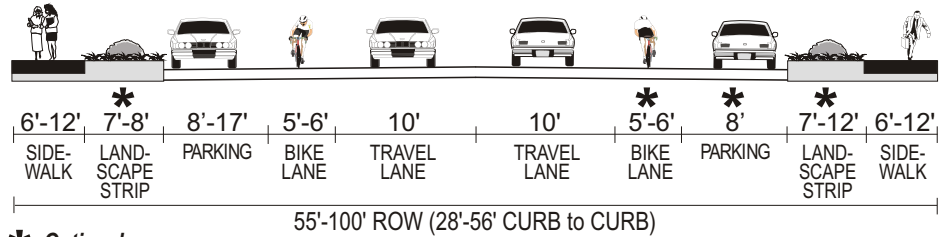


\* -Optional

**Note:**  
Detailed Street Standards are identified in Cottage Grove Development Code 3.4.100

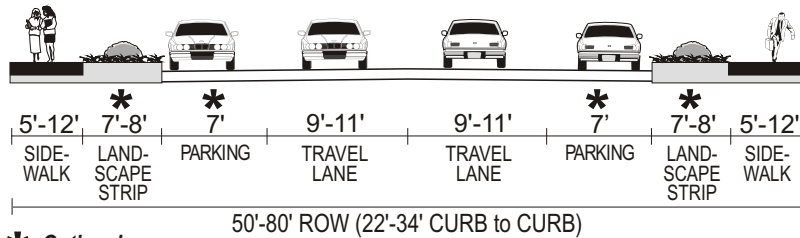
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## Commercial Collector



\* -Optional

## Residential Collector



\* -Optional

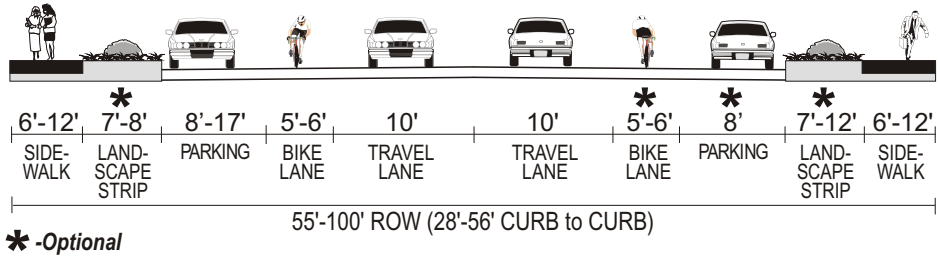
**Notes:**

Detailed Street Standards are identified in Cottage Grove Development Code 3.4.100  
 Bike lanes should be included on collectors when ADT >3000

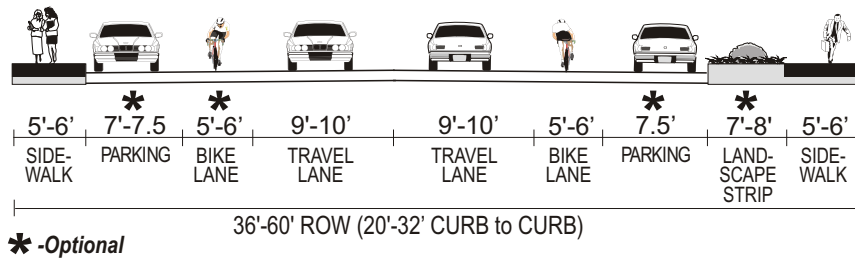
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## Commercial Local



## Residential Local



**Notes:**

Detailed Street Standards are identified in Cottage Grove Development Code 3.4.100

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## Street Right-of-Way Needs

Wherever arterial or collectors cross each other, planning for additional right-of-way to accommodate turn lanes should be considered within 500 feet of the intersection. Specific right-of-way needs will need to be monitored continuously through the development review process to reflect current needs and conditions. This will be necessary since more specific detail may become evident in development review which requires improvements other than those outlined in this 20 year general planning assessment of street needs.

## Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is the general term used to describe any action that removes single occupant vehicle (SOV) trips from the roadway network during peak travel demand periods. As growth in the Cottage Grove area occurs, the number of vehicle trips and travel demand in the area will also increase. The ability to change a user's travel behavior and provide alternative mode choices will help accommodate this growth. The City of Cottage Grove is below the population threshold<sup>4</sup> that requires a formal TDM program, but some elements of the program could be suggested to local employers and agencies.

Generally, TDM focuses on reducing vehicle miles traveled and promoting alternative modes of travel for large employers of an area. Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can have an effect on the number of vehicle miles traveled to/from that area.<sup>5</sup> However, the same research indicates that in order for TDM measures to be effective, they should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc. Setting TDM goals and policies for new development will be necessary to help implement TDM measures in the future.

The more effective TDM measures include elements related to parking and congestion pricing, improved services for alternative modes of travel, and other market-based measures. However, TDM includes a wide variety of actions that are specifically tailored to the individual needs of an area. Table 8-6 provides a list of several strategies that could be applicable to the Cottage Grove area.

**Table 8-6: Transportation Demand Management Strategies**

Strategy	Description	Potential Trip Reduction
Telecommuting	Employees work at home or at a work center closer to home, rather than commuting from home to work. This can be full time or on selected workdays. This can require computer equipment to be most effective.	82-91% (Full Time) 14-36% (1-2 day/wk)
Compressed Work Week	Schedule where employees work their regular scheduled number of hours in fewer days per week.	7-9% (9 day/80 hr) 16-18% (4 day/40 hr) 32-36% (3 day/36 hr)

<sup>4</sup> Cities above 25,000 population are required to develop and implement Transportation Demand Management Programs to comply with state Transportation Planning Rule requirements, section 020.

<sup>5</sup> *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

Strategy	Description	Potential Trip Reduction	
Transit Pass Subsidy	For employees who take transit to work on a regular basis, the employer pays for all or part of the cost of a monthly transit pass.	19-32% (full subsidy, high transit service) 2-3% (half subsidy, medium transit service)	
Cash Out Employee Parking	An employer that has been subsidizing parking (free parking) discontinues the subsidy and charges all employees for parking. An amount equivalent to the previous subsidy is then provided to each employee, who then can decide which mode of travel to use.	<u>Reduction</u> 8-20% 5-9% 2-4%	<u>Transit</u> High Medium Low
Reduced Parking Cost for HOVs	Parking costs charged to employees are reduced for high occupancy vehicles (HOV) such as carpools and vanpools.	1-3%	
Alternative Mode Subsidy	For employees that commute to work by modes other than driving alone, the employer provides a monetary bonus to the employee.	21-34% (full subsidy of cost, high alternative modes) 2-4% (half subsidy of cost, medium alternative modes)	
Bicycle Program	Provides support services to those employees that bicycle to work. Examples include: safe/secure bicycle storage, shower facilities and subsidy of commute bicycle purchase.	0-10%	
On-site Rideshare Matching for HOVs	Employees who are interested in carpooling or vanpooling provide information to a transportation coordinator regarding their work hours, availability of a vehicle and place of residence. The coordinator then matches employees who can reasonably rideshare together.	1-2%	
Provide Vanpools	Employees that live near each other are organized into a vanpool for their trip to work. The employer may subsidize the cost of operation and maintaining the van.	15-25% (company provided van with fee) 30-40% (subsidized van)	
Gift/Awards for Alternative Mode Use	Employees are offered the opportunity to receive a gift or an award for using modes other than driving alone.	0-3%	
Walking Program	Provide support services for those who walk to work. This could include buying walking shoes or providing lockers and showers.	0-3%	
Company Cars for Business Travel	Employees are allowed to use company cars for business-related travel during the day	0-1%	
Guaranteed Ride Home Program	A company owned or leased vehicle or taxi fare is provided in the case of an emergency for employees that use alternative modes.	1-3%	
Time off with Pay for Alternative Mode Use	Employees are offered time off with pay as an incentive to use alternative modes.	1-2%	

Source: *Guidance for Estimating Trip Reductions from Commute Options*, Oregon Department of Environmental Quality, August 1996.

With many regional trips destined to, or traveling through, the Cottage Grove area, region wide TDM measures should help to reduce congestion. Increase in travel by non-SOV modes can only be achieved with significant improvements to the transportation system and implementation of trip reduction strategies.

## Future Capacity Analysis

Analysis of future conditions with the current (no-build) roadway network in place was discussed in Chapter 4. The following analysis includes previously identified arterial and collector roadway additions. The projects included in this scenario (listed below) were identified in the 1998 TSP and were considered by City staff to remain as potential improvements to the transportation system. These projects create connections that provide alternative routes of travel within Cottage Grove and improve overall transportation system connectivity. As the number of routing options increases, the travel demand placed on more congested roadways may be lessened.

The following projects are included in this scenario:

### **New Arterial Roadways:**

- Gateway Boulevard Extension – from Taylor Avenue to Cleveland Avenue
- Cleveland Avenue Extension – from Gateway Boulevard Extension to 6th Street
- Cleveland Avenue Extension – from west end to OR 99 / R Street
- R Street Extension – complete from Sweet Lane to OR 99

### **New Collector Roadways:**

- Gates Road Extension – complete from Gowdyville Rd to Harrison Avenue.
- Blue Sky Lane Extension – complete from Harrison Avenue to Sweet Lane
- Lincoln Avenue Extension – from east end to Gateway Boulevard Extension

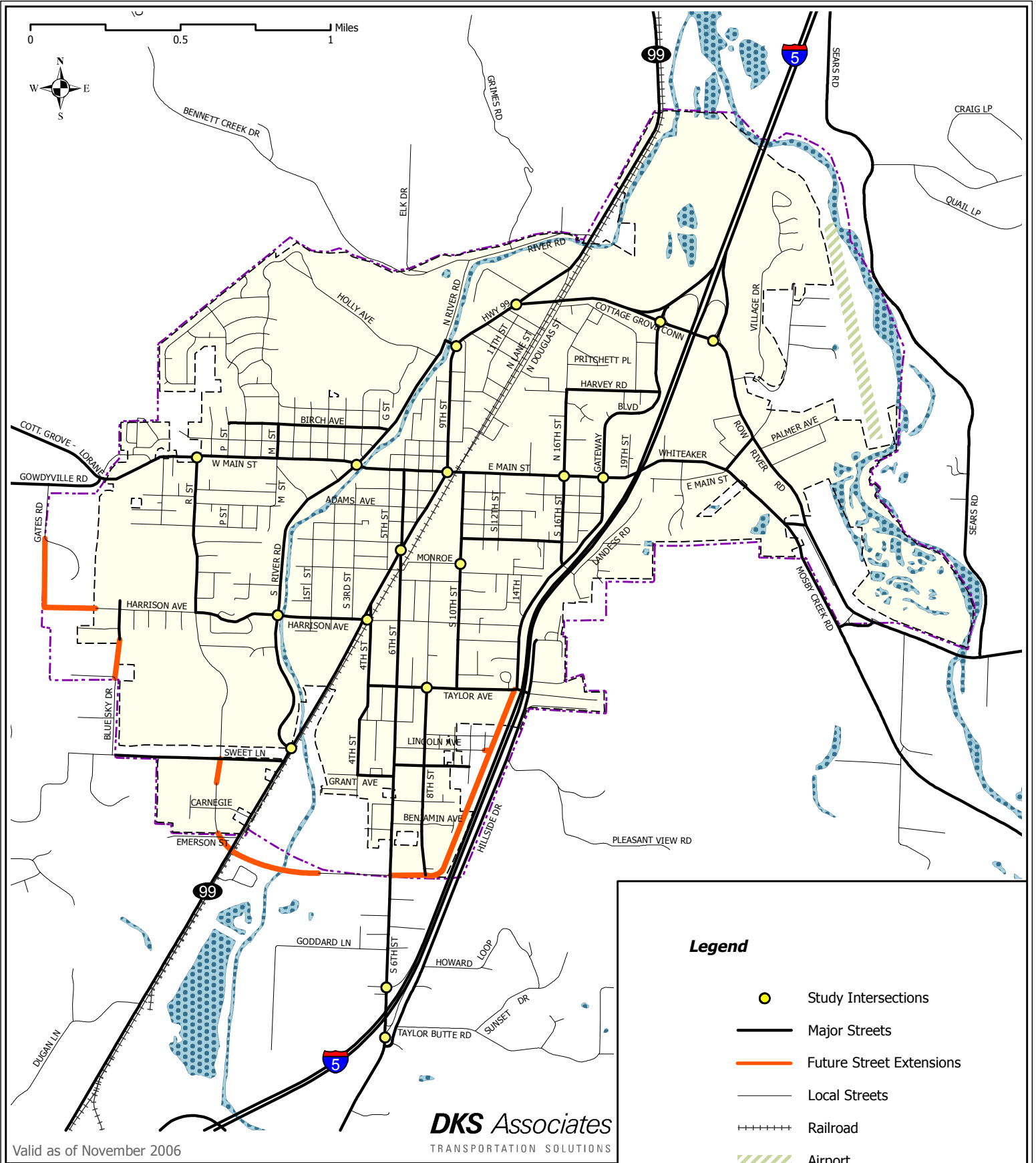
The future streets assumed are illustrated in Figure 8-4.

The projected growth in traffic volumes over the next 20 years was added to the new roadway network to examine future performance at the study intersections. As in the case of no-build scenario (no improvements to the existing roadway system - as identified in Chapter 4), expected growth would result in significant increases in traffic volumes at most intersections. The 2025 operational analysis (summarized in Table 8-7), including previously identified projects described above, found many study intersections would reach or exceed full capacity and experience high levels of congestion and delay without additional improvements to the existing transportation system.

These new roadway projects result in a new distribution of forecasted trips across the city, as travelers may choose new and more direct routes. Although most study intersections that failed to meet performance standards in the no build scenario (Table 4-7) continue to fail, the performance at some intersections have improved as demand is shifted to new roadways. Two

intersections (OR 99 at River Road and Harrison Avenue at River Road) no longer fail to meet performance standards, as traffic shifts to R Street as a result of its extension to OR 99.

Performance standards for ODOT facilities are set by ODOT. Recommended performance standards for city streets are defined in this TSP (as defined for city streets in Chapter 10) and are the standards by which intersections of city streets should be measured when not including a roadway under Lane County or ODOT jurisdiction.



Valid as of November 2006

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Transportation System Plan

**FIGURE 8-4**

Future Streets



Table 8-7: Previously Identified Projects Scenario - 2025 Study Intersection Level of Service - PM Peak Hour

Intersection	Level of Service	Average Delay (Sec)	Volume / Capacity	Performance Standard	Standard Met?
<i>Signalized Intersections</i>					
I-5 SB Ramp/Cottage Grove Connector	F	136	>1	0.80	No
I-5 NB Ramp/Row River Road	C	24	0.89	0.80	No
OR 99/Woodson Place	C	23	0.87	0.80	No
OR 99/Main Street	F	108	>1	0.80	No
OR 99/6 <sup>th</sup> Street	B	13	0.66	0.80	Yes
OR 99/4 <sup>th</sup> Street	C	21	0.54	0.80	Yes
Main Street/River Road	B	20	0.72	0.90	Yes
Main Street/16 <sup>th</sup> Street	C	24	0.87	0.90	Yes
Main Street/Gateway Boulevard	F	86	>1	0.90	No
<i>Unsignalized Intersections</i>					
OR 99/River Road	A / C	5	0.05 / 0.49	0.75	Yes
Harrison Avenue/River Road*	B	15	0.68	E	Yes
Main Street/R Street	A / C	6	0.10 / 0.50	E	Yes
Monroe Avenue/10 <sup>th</sup> Street	A / B	2	0.02 / 0.08	E	Yes
Taylor Avenue/8 <sup>th</sup> Street*	A	9	0.28	E	Yes
I-5/6 <sup>th</sup> Street (southbound off ramp)	A / B	5	0.00 / 0.26	0.75	Yes
I-5 NB Ramp OFF Ramp (Southbound Right) /Row River Road	A / C	1	0.00 / 0.29	0.80	Yes
OR 99/Cottage Grove Connector (OR 99 northbound & southbound)	A / F	77	>1	0.80	No
OR 99/Cottage Grove Connector (CGC northbound right turn)	A / C	4	0.17 / 0.38	0.80	Yes
OR 99/Cottage Grove Connector (OR 99 eastbound left turn)	A / F	60	>1	0.80	No

Notes: Unsignalized Intersection Operations:

A/A = Major street turn LOS / Minor street turn LOS

#/# = Major street turn v/c / Minor street turn v/c

Signalized and All-Way Stop Intersections:

Delay = Average vehicle delay in the peak hour for entire intersection in seconds.

\* All-Way Stop Intersection

# Project Alternatives

While the previously identified projects address some of the future operational issues in the southern part of the City, most problem intersections in the northern section of the city remain below operational standards. A variety of strategies can be used to address these issues including: signalizing intersections that are currently unsignalized, limiting vehicular movements to streamline intersection operations, adding turn lanes to improve capacity of vehicles moving through an intersection, adding roadway capacity along existing roadways, or providing an alternative travel route through the addition of new roadways. Each of these strategies has benefits, drawbacks and costs associated with them and must be balanced with the uses for the roadways, and needs of pedestrians, bicyclists, and transit, as well as the desired land use and character of the surrounding area.

## Addressing Future Operation Deficiencies

The following sections describe transportation alternatives considered to address operational issues at each of the study intersections that do not meet operational standards in the Previously Identified Projects Scenario. Alternatives considered are based on input received from public meetings, City and ODOT staff, and TSP Advisory Committee meetings.

Several study intersections have operational issues for which a solution that meets PM peak hour performance standards for motor vehicles is not recommended. The alternatives for addressing motor vehicle performance deficiencies are typically:

- Increase capacity to handle expected demand by adding turn lanes or widening the mainline.
- Improve operational performance by signalizing the intersection, limiting some movements (prohibiting turns), or improving signal timing.
- Provide alternative routes of travel to reduce traffic through the intersection.

The failing study intersections are already signalized and would not meet standards with the addition of turn lanes. Given the existing land use patterns and the expressed desire of the City to retain its character, alternative routes or turn prohibitions are not feasible at some of these intersections. Without additional through lane capacity, these intersections will not meet operational standards. At locations such as the intersection of OR 99 and Main Street (near the center of historic downtown Cottage Grove), roadway widening would be both very costly and undesirable for the City due to impacts to the character of the area. To attain consistency with the plan, the minimum acceptable operational standards will need to be modified, as discussed for city streets in Chapter 10. Any modifications to standard performance standards would require an amendment to the *Oregon Highway Plan*, which is overseen by the Oregon Transportation Commission.

### Improvements to State Facilities

- I-5 Southbound Ramp at the Cottage Grove Connector and Gateway Boulevard

The addition of a northbound right turn lane has been previously considered and would improve intersection operations, but not result in performance that meets operational standards. A second eastbound left turn lane or an additional eastbound right turn lane



would also improve operations but not enough to meet standards.

The largest traffic movements at the intersection are eastbound and westbound through traffic. To meet operational standards under 2025 forecasted volumes, the Cottage Grove Connector would need to be widened to two through lanes in both eastbound and westbound directions with additional northbound and eastbound right turn lanes. (These improvements would result in a V/C ratio of 0.80). However, additional capacity along the Connector would most likely push the problem to the nearest adjacent intersection where capacity becomes limited. Moreover, physical constraints exist to the east of the intersection (at the I-5 bridge, which does not have room for additional lanes under the current configuration) and west of the intersection (on the Cottage Grove Connector bridge crossing the railroad).

Given the potential costs of capacity improvements along with the expressed desire of the City to maintain the character of the historical downtown area and support pedestrian, bicycle and transit modes, expansion of the Cottage Grove Connector to four lanes was not analyzed further. Expansion of other east/west routes was considered to draw traffic away from the Cottage Grove Connector. However, no nearby capacity expansions were considered desirable given existing housing and development along potential routes. Intersection operations will likely remain below operational standards during the PM peak hour with the forecasted growth. Delays will be significant during this period but operations are expected to be adequate outside of the peak hour.

A low-cost strategy of re-striping the south leg of the intersection (Gateway Boulevard) to add a northbound right turn lane in place of one of the southbound lanes would immediately improve intersection operations during the PM peak hour, although the theoretical V/C would remain above one. Most of Gateway Boulevard is currently a three lane roadway (with a center turn lane) north through the intersection with Harvey Road. Under this scenario, the three lane section would be extended to the Cottage Grove intersection. The middle turn lane will allow for continued turn movements into the nearby commercial areas while improving the intersection's traffic operations.

Although several potential solutions have been suggested to address the issues along the Cottage Grove Connector at the I-5 southbound intersection, an Interchange Area Management Plan (IAMP) is recommended for further detailed analysis. An IAMP is a joint effort between the local jurisdiction and the state to determine how best to manage an interchange area with a focus on access management, signal spacing, operations, and safety. The IAMP should include the Cottage Grove Connector from the I-5 northbound to OR 99. The Cottage Grove Connector, OR 99 and the I-5 ramps are all under ODOT jurisdiction. The study could be extended to address issues along OR 99 at the intersections with Woodson Place and Main Street as well.

- I-5 Northbound Ramp at the Cottage Grove Connector and Row River Road

An additional eastbound left turn lane would meet future operational standards. The addition of such a lane would require a non-standard design due to the proximity of the I-5 overpass or reconstruction of the I-5 Bridge. Given this constraint and the potential design concerns, an additional eastbound left turn lane was not considered further.

As with the I-5 southbound ramp, the dominant movements at the intersection are made

by eastbound and westbound through travelers. Capacity expansion to two lanes in the eastbound/westbound directions would address operational issues but is expected to be very costly due to the proximity of the highway overpass and is likely to push operational deficiencies to adjacent intersections. As with the I-5 southbound ramp, future operational deficiencies will likely be limited to the PM peak hour.

- OR 99 at the Cottage Grove Connector

The existing configuration meets operational standards for existing traffic volume but creates confusion for drivers entering the intersection and presents a significant safety issue for pedestrians due to wide roadways, a lack of designated crossings, and high speeds of vehicles traveling westbound (downhill from a 40 mile per hour section of the railroad crossing overpass) to the intersection. Under 2025 future conditions, the intersection fails to meet operational standards for an unsignalized intersection. The intersection is located approximately 2,000 feet from the southbound I-5 ramps.

A roundabout was considered as a reasonable alternative to handle the traffic volumes but was ruled out due to the approach grade between the Cottage Grove Connector bridge (passing over the railroad tracks to the east of OR 99) and the intersection. A signal is recommended to more efficiently move traffic through the intersection and to improve pedestrian safety with push-button signals and crosswalks. The intersection would meet preliminary traffic signal warrants (as illustrated in Technical Appendix M.)

Several configurations were considered for alignment of the signalized intersection. Conversion to a standard “T” intersection would necessitate two west bound left turn lanes in order to meet operational standards. The largest traffic movements are between the east leg (Cottage Grove Connector) and the south leg of OR 99. For this reason, the intersection should be configured so through movements occur between the Cottage Grove Connector and the south leg of OR 99. This reconfigured intersection would require traffic traveling southbound on OR 99 to make a right turn to continue on OR 99 south, and a left turn to travel eastbound on the Cottage Grove Connector. Northbound OR 99 traffic would need to make a left turn at the intersection to continue north. As these volumes are relatively small compared to the traffic between the Cottage Grove Connector and OR 99 to the south, this configuration produces better intersection operations. With this alignment, the intersection would meet applicable performance standards with a V/C ratio of 0.89 and a LOS C.

- The Woodson Bridge at OR 99

Although the intersection currently performs adequately according to performance standards, the short length of the bridge creates queuing concerns during peak periods. Suggestions included adding lanes to the bridge, realigning the bridge, or prohibiting some turn movements at the intersection. Bridge reconstruction would be costly and additional lanes along the bridge would not significantly improve queuing. Prohibiting turns would result in rerouting of trips along River Road, as there are few nearby river crossing alternatives. Travelers would have to drive significantly greater distances to get to some destinations. Limiting turns at the intersection might also place greater pressure on the intersection of OR 99 and Main Street. New alignments would require costly land acquisition and bridge constructions and would not significantly improve intersection operations.

Constructing the roadway extensions identified previously (Gateway Boulevard, Cleveland Avenue, and R Street) would provide an alternative route of travel from some vehicles traveling along OR 99 and would therefore reduce traffic at this intersection. Although the new roadway would relieve congestion at the intersection, it would not meet future performance standards unless intersection capacity was increased. This could be achieved by increasing the duration of the signal cycle, however this is likely to exacerbate the queuing issues at the bridge. Other alternatives to increase intersection capacity include bridge expansion or the addition of through lanes along OR 99. Widening OR 99 to include two additional through lanes results in a V/C ratio of 0.616 and LOS B.

Although crash rates do not appear to be higher than expected, given the queuing concerns, the intersection should be monitored as traffic volumes increase.

The bridge also presents a pedestrian and bicycle issue due to narrow lanes and sidewalks. A new bicycle and pedestrian bridge adjacent to the existing Woodson Bridge would provide good connectivity to existing sidewalks and bike lanes and is included in the Bicycle and Pedestrian Master Plans.

- OR 99 at Main Street

The existing intersection is located in the historic downtown making roadway expansion or additional turn lanes at the intersection undesirable and costly. Several alternatives were considered including prohibition of certain turn movements, but no options improved intersection performance enough to meet operational standards. To reach the applicable performance standard, additional through lanes would need to be added northbound and southbound as well as dedicated right turn lanes on all approaches. These improvements would result in a V/C ratio of 0.89 and LOS D.

As with the Cottage Grove Connector, creating an alternative east/west connection between OR 99 and Gateway Boulevard would lesson the traffic volumes traveling on Main Street. Several locations for new or upgraded connections were considered, but all would have to be built on existing housing and/or existing land uses requiring property acquisition. No new roadways were considered to be desirable additions to the character of the existing city.

Recommendations for the intersection include those suggested in the Downtown Revitalization and Refinement Plan<sup>6</sup>. This plan introduced a slight curve to increase sight distance on OR 99 north of Main Street. As OR 99 is a state facility, ODOT approval would be required to proceed with any improvements at this intersection.

- OR 99 at South River Road

Constructing the roadway extensions identified previously (Gateway Boulevard, Cleveland Avenue, and R Street) would provide an alternative route of travel and reduce traffic at this intersection. To meet performance standards without these new roadways, South River Road would need to be widened for the addition of an eastbound left turn lane.

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<sup>6</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005.

## Improvements to City Roadways

- Gateway Boulevard at Main Street

The addition of right turn lanes to eastbound, westbound and southbound approaches improves intersection performance but not enough to a level that meets city performance standards (V/C ratio under 0.90) during the PM peak hour. Like OR 99 at Main Street and Cottage Grove Connector with I-5 southbound ramp intersections, the east/west volumes are the highest volumes at the intersections. Without increasing the number of through lanes or providing an alternative parallel route of travel, intersection operations are not forecasted to meet city operational standards. Adding through lanes on Main Street and adjusting signal timing would result in operational standards being met with a V/C ratio of 0.86 and LOS D.

- Harrison Avenue at South River Road

Constructing the roadway extensions identified previously (Gateway Boulevard, Cleveland Avenue, and R Street) would provide an alternative route of travel and reduce traffic at this intersection. Without these new roadways, a traffic signal would be needed to meet performance standards. As a signalized intersection, performance standards would result in a V/C ratio of 0.61 and LOS B. However, the intersection would not meet preliminary traffic signal warrants (as illustrated in Technical Appendix M).

- Harrison Avenue Extension

Given the future operational deficiencies along the Cottage Grove Connector and Main Street, an alternative east/west connection between OR 99 and Gateway Boulevard was considered. Several potential alignments were analyzed, but given existing land uses, Harrison Avenue was considered the most desirable location. Expansion of this roadway would require land acquisition along several stretches where no current roadway exists. (The Harrison Avenue extension is illustrated as project number 8 in Figure 8-5.)

- Withycombe Avenue Extension

Building a bridge to connect Withycombe Avenue to River Road would create an additional river crossing and relieve traffic demand on the Woodson Bridge and potentially the intersection of Main Street and OR 99. The intersection could be tied in to a reconfigured four-way intersection at the Cottage Grove Connector and OR 99. Woodson Bridge could be altered to allow for pedestrian and bicycle traffic by prohibiting motor vehicles entirely or allowing only specific vehicle movements. Project costs for the Withycombe Avenue extension would be substantial as a new bridge would need to be constructed, land acquisition would be required, and two intersections would likely need to be reconfigured (at River Road and at OR 99). The project location is illustrated as project number 20 in Figure 8-5.

Pursuing an extension of Withycombe Avenue should be considered in conjunction with the findings of an ODOT Interchange Area Management Plan. The addition of a river crossing would have impacts to OR 99 intersections at Woodson Place and the Cottage Grove Connector. The intersection of OR 99 and Cottage Grove Connector may need to be configured to include Withycombe Avenue if it is extended to River Road and upgraded to a collector.

## Addressing Future Safety Concerns

The following sections describe additional projects to improve the motor vehicle system. Transportation alternatives are considered to address operational issues at each of the study intersections that do not meet operational standards in the Previously Identified Projects Scenario.

- OR 99 between Woodson Place and the Cottage Grove Connector

This is a four lane section of roadway that presents a significant barrier to pedestrians. It is recommended that the roadway be converted to a three lane section (with a two way left turn lane in the middle). As both road sections to the north and to the south (as well as the Cottage Grove Connector) have fewer lanes, the capacity is sufficient under current operating conditions. The roadway section to the south (9<sup>th</sup> Street) is a three lane roadway. To the north, OR 99 becomes a two lane roadway. The middle turn lane would improve safety for turning movements between residential areas to the south of OR 99 as well as the commercial uses to the north.

The additional right of way gain from decreasing motor vehicle lanes from four to three could allow for pedestrian and bicycle facilities such as bike lanes or construction of a pedestrian refuge for crossing near Ray's grocery store (on the northwest side of OR 99).

Although three lanes provide sufficient capacity with existing volumes, if improvements are made at the intersection of OR 99 and the Cottage Grove Connector, 2025 future volumes may be high enough to necessitate four lanes. Therefore, restriping this section of the roadway to three lanes is recommended as a temporary solution until motor vehicle volumes create the demand for four lanes and other improvements are made to accommodate pedestrians and bicyclists. The recommended lane reduction shall require full analysis of this segment prior to ODOT approval.

### New Traffic Signals (Previously Identified)

Adding traffic signals with marked crosswalks and pedestrian push button controls to intersections will improve safety for pedestrians by providing additional crossing points and will improve connectivity for the pedestrian system. Traffic signals are typically added to improve motor vehicle operations when higher volumes create delays that warrant signalized intersectional control. Several intersections have been previously identified as warranting new traffic signals. Traffic operations at these intersections have not been analyzed for this study, but have been incorporated per direction of staff. The addition of new traffic signals are planned for the following intersections:

- Row River Road and Jim Wright Way
- Row River Road and Thornton Road
- Mosby Creek Road and Thornton Road
- Main Street and M Street

### Close Access to Main Street from Lane Street

Recommendations suggested in the Downtown Revitalization and Refinement Plan<sup>7</sup> included closing Lane Street at its south end to improve the operations and safety along Main Street between OR 99 and 10th Street. The TSP supports adoption of the motor vehicle, pedestrian, and bicycle elements of the Downtown Revitalization and Refinement Plan. The location of the proposed Lane Street access closure to Main Street is illustrated in Figure 8-5 as project number 15.

## Motor Vehicle Master Plan

The Motor Vehicle Master Plan combines both improvement projects identified in the previous TSP and those determined as the outcome of the Cottage Grove TSP update analysis. The planning level cost estimates provided are based on general unit costs for transportation improvements, but do not necessarily reflect the unique project elements that can significantly add to project costs. Each of these project costs will need further refinement to detail right-of-way requirements and costs associated with special design details as projects are pursued. The estimated cost to obtain required right-of-way was included in all of the roadway widening projects. Table 8-8 summarizes the motor vehicle projects identified to meet the needs of the City of Cottage Grove. The motor vehicle project locations are illustrated in Figure 8-5.

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<sup>7</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005.

Table 8-8: Motor Vehicle Master Plan Project List

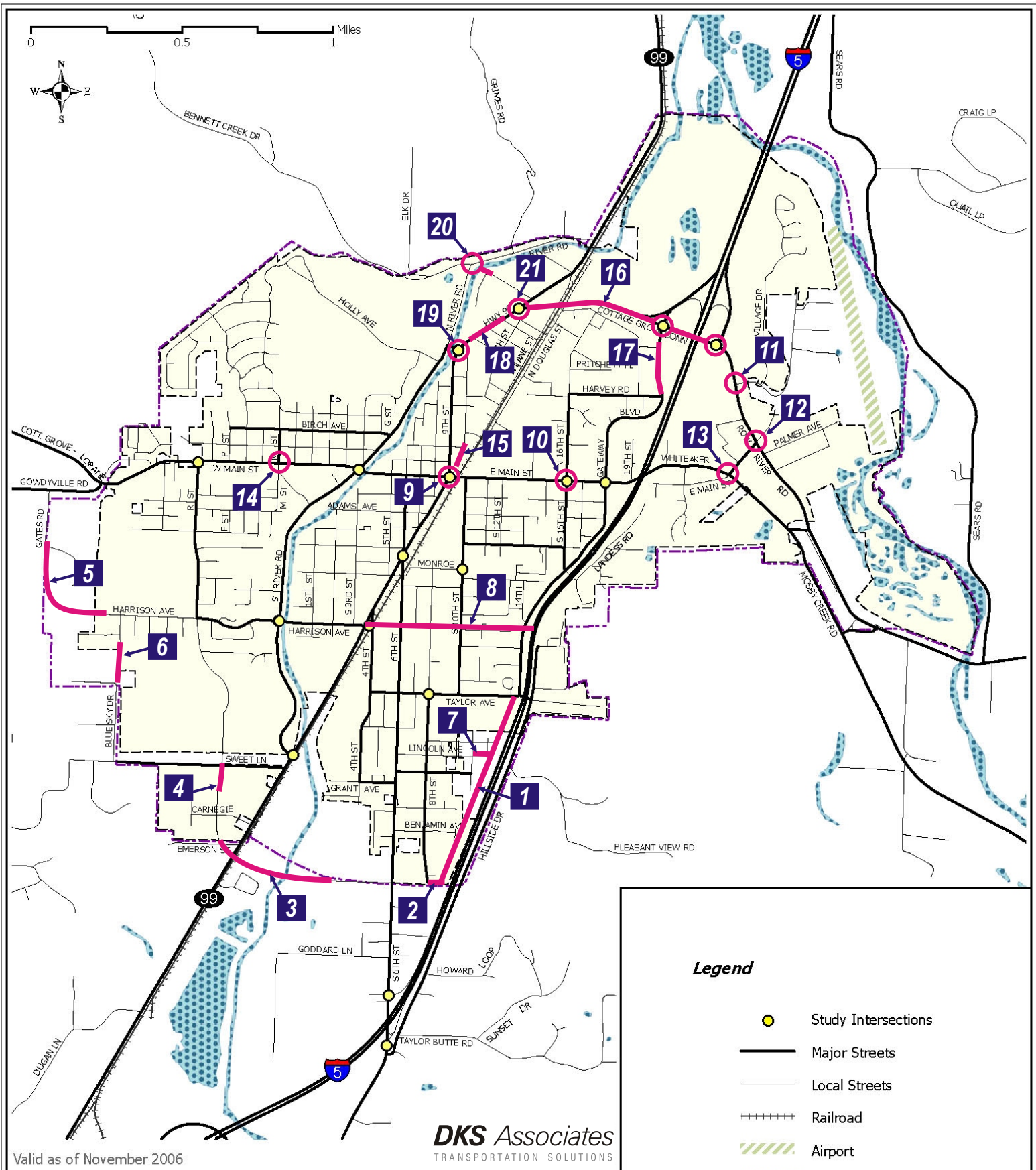
#	Project	Cost (2007\$)
<b><i>New Roadways</i></b>		
1	Gateway Boulevard Extension – from Taylor Avenue to Cleveland Avenue	\$3,000,000*
2	Cleveland Avenue Extension – from Gateway Boulevard Extension to 6 <sup>th</sup> St.**	\$1,000,000*
3	Cleveland Avenue Extension – from west end to OR 99 / R Street ***	\$4,200,000*
4	R St. Extension – complete from Sweet Ln. to Cleveland Avenue Extension ***	\$600,000*
5	Gates Road Extension – complete from Gowdyville Road to Harrison Avenue	\$2,400,000*
6	Blue Sky Drive Extension – complete from Harrison Avenue to Sweet Ln.	\$900,000*
7	Lincoln Avenue Extension – from east end to Gateway Boulevard Extension	\$200,000*
8	Harrison Avenue Extension – complete from OR 99 to Gateway Boulevard ***	\$2,500,000*
<b><i>Other Projects</i></b>		
9	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan ***	\$800,000****
10	Addition of a southbound left turn lane at 16th Street and Main Street Intersection	\$400,000*
11	Intersection improvements at Row River Road and Jim Wright Way Intersection	\$200,000
12	New traffic signal at Row River Road and Thornton Road Intersection	\$200,000
13	New traffic signal at Mosby Creek Road and Thornton Road Intersection	\$200,000
14	New traffic signal at Main Street and M Street Intersection	\$200,000
15	Close Access to Main Street from Lane Street	\$10,000
16	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor ***	-
17	Restripe Gateway Boulevard to 3 lanes from Harvey Road to Cottage Grove Connector ***	\$10,000
18	Restripe OR 99 to 3 lanes from Woodson Bridge to Cottage Grove Connector ***	\$10,000
19	Reconstruct and realign Woodson Bridge at intersections with River Road and OR 99. ***	\$5,000,000*
20	Extend Withycombe Avenue to River Road including a new bridge and signalized intersection at River Road.	\$3,300,000*
21	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector ***	\$1,000,000

\*Includes estimated costs for right of way acquisition.

\*\*Project is located outside of current UGB. UGB expansion and a jurisdiction change to a City facility would be required prior to roadway extension.

\*\*\*Requires ODOT approval.

\*\*\*\*To be conducted as part of Downtown Revitalization and Refinement Plan. Preferred Alternative short-term projects estimated at \$760,000 in 2005 dollars.



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Valid as of November 2006



**Transportation System Plan**  
**FIGURE 8-5**  
**Motor Vehicle**  
**Master Plan Projects**



# Motor Vehicle Action Plan

A motor vehicle system action plan project list was created to identify motor vehicle projects that are reasonably expected to be funded by the year 2025, which meets the requirements of the updated Transportation Planning Rule<sup>8</sup>. Table 8-7 and 8-8 shows the action plan identified in the TSP update analysis.

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities over 18 years exceeds projected revenues, as discussed in Chapter 10. Without additional revenue sources, the expected funding deficit which would not allow for any capital improvements projects that provide new capacity (new roadways, turn lanes, bike lanes, etc.)

Action Plan Projects (Table 8-9) are presented assuming a funding equivalent to a doubling of street SDC charges. Refer to Chapter 10 (Financing and Implementation) for details on the financial assumptions. Note that some projects listed in the Action Plan are anticipated to be funded by ODOT or private development. Costs for these non-City projects have not been included in the estimates in Table 8-9, but are included in the Master Plan for illustrative purposes.

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<sup>8</sup> *OAR Chapter 660*, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.

Table 8-9: Motor Vehicle Action Plan Projects (2007 Dollars)

Project	Improvement	Estimated City Cost	Priority
<b>City Projects</b>			
Intersection Improvements	Intersection improvements at Row River Road and Jim Wright Way Intersection including full pedestrian crosswalk	\$200,000	Short Term
Traffic Signal	New traffic signal at Row River Road and Thornton Road Intersection	\$200,000	Short Term
Traffic Signal	New traffic signal at Mosby Creek Road and Thornton Road Intersection	\$200,000	Short Term
Traffic Signal	New traffic signal at Main Street and M Street Intersection	\$200,000	Short Term
Gateway Boulevard Restripe*	Restripe Gateway Boulevard to 3 lanes (and bike lanes) from Harvey Road to Cottage Grove Connector	\$10,000	Short Term
Main Street Access Management	Close Access to Main Street from Lane Street	\$10,000	Mid Term
Realign OR 99 at Main Street*	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	\$800,000 <sup>9</sup>	Mid Term
Main Street at 16 <sup>th</sup> Street Turn Lane	Addition of a southbound left turn lane at 16th Street and Main Street Intersection	\$400,000	Long Term
<b>State Projects</b>			
Cottage Grove Connector - Interchange Area Management Plan	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-	Short Term
OR 99 Restripe*	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector	\$10,000	Mid Term
Intersection Improvements *	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector	\$1,000,000	Long Term
<b>Private Development Projects</b>			
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue	**	Long Term
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln.	**	Long Term

\*Project would require ODOT approval.

\*\*Construction costs to be covered by private development exactions.

The total costs for the above Action Plan would be approximately \$2.0 million without providing any funding for new roadways. The Action Plan focuses on projects that have already been initiated or may be completed without incurring large costs. The Action Plan at this level of funding does not provide funding for new roadways and therefore fails to address several operational issues noted in Chapter 4 in the southern portion of the city.

<sup>9</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005. Preferred Alternative short-term projects estimated at \$760,000 in 2005 dollars.

Additional funds would be used to fund either preliminary engineering plans or construction of portions of planned new roadways including the Gateway Boulevard, Cleveland Avenue, and R Street extensions. These additional roadways are considered to be high priority projects to provide mobility in the southern portion of the City, where significant residential growth is expected to occur. These projects relieve demand on existing roadways and improve operations at several intersections that would otherwise fail to meet performance standards.

An alternative course of action, with greater emphasis on bicycle and pedestrian projects, may be considered rather than the proposed Action Plan, which is focused on motor vehicle projects. However, with funding focused on bicycle and pedestrian projects, new roadways would likely not be constructed and significant operational deficiencies, as noted in Table 4-7, would occur at several intersections within the City.

Consideration must also be taken for the outcomes of the recommended Interchange Area Management Plan (IAMP) for the Cottage Grove Connector, OR 99, and interchanges with I-5. Although the study would be lead by ODOT, the decision making process related to projects, funding, and timing would involve significant City participation. The degree to which the City will choose to participate and financially support the projects that result from the IAMP are likely to significantly impact the scope and progress of projects in the study area.

## Trucks

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The establishment of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The objective of this route designation is to allow these routes to focus on design criteria that are “truck friendly”; i.e. 12-foot travel lanes, longer access spacing, 35-foot (or larger) curb returns, and pavement designs that accommodate a larger share of trucks. The only designated through truck route in the TSP study area remains I-5, although OR 99 is currently being used by larger trucks passing through the area due to height restrictions on I-5.

## 9. OTHER MODES

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While auto, transit, bicycle and pedestrian transportation modes have a more significant effect on the quality of life in Cottage Grove, other modes of transportation must be considered as well. Future needs for rail, air, waterway and pipeline infrastructure are identified by their providers and are summarized below.

### Policies

Several transportation system policies will be considered when planning and constructing facilities for transport by rail, air, water and pipeline in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards infrastructure projects that meet the goals of the City.

The policies related to transport by other modes are:

#### Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 2: Consider the impact of all land use decisions on the existing and planned transportation facilities.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

#### Standards

Policy 14: Consider commercial, industrial and recreational transportation needs in decisions about access management and in construction or reconstruction of roadways.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

#### Multi-Modal

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

## Rail

Policy 37: Increase economic opportunities for the State by having a viable and competitive rail system.

Policy 38: Strengthen the retention of local rail services.

Policy 39: Protect abandoned rail right-of-ways for alternative or future use.

Policy 40: Integrate rail freight considerations into land use planning process.

Policy 41: Consider adequate rail freight access for planned and existing development in the zoning of adjacent property.

Policy 42: Consult with freight rail service providers and the Oregon Department of Transportation Rail Division as appropriate, in the review of new development or other decisions that may impact freight rail lines or rail crossings.

## Air

Policy 43: The function of existing or planned general use airports shall be protected through the application of appropriate and compatible land use designations.

Policy 44: Incompatible land uses shall be prohibited on the lands adjacent to the airport. Approved uses around the airport shall be required to provide an environment that will not be adversely impacted by and will be compatible with the airport and its operations.

## Waterways

While the Willamette River travels through Cottage Grove and the Row River borders the city on the east side, no waterways are used for commercial transportation purposes within the study area. The waterways and surrounding park areas and trails are used for recreation. No plans were

identified for waterway infrastructure expansion. As such, no policies or recommendations in this area of transportation are provided for Cottage Grove.

## Railroads

The Siskiyou Line, a short line freight railroad owned by Central Oregon & Pacific Railroad, runs parallel to OR 99 throughout most of the City. The Siskiyou Line track is maintained to Federal Railroad Administration Class 1 and 2 conditions. The route is used for freight hauling and provides a connection between Medford and Eugene. There are no passenger trains currently running through Cottage Grove. Passenger rail service on Amtrak is available in Eugene. The volume, length and schedule of the freight and passenger trains are not expected to change significantly over the 20 year planning horizon.

Freight rail traffic has caused blockage issues with delays exceeding 30 minutes resulting in detours for emergency response services and impacting school bus schedules. Public railroad crossings should not be blocked for longer than 10 minutes between 6 a.m. and 10 p.m., and 15 minutes between 10 p.m. and 6 a.m., although trains that are continuously moving in one direction may exceed these limits without penalty. The ODOT Rail Division enforces the crossing blockage rules and levies fines against railroads when blockage complaints are found to be valid. Blockage incidents should be reported to the ODOT rail division. City staff should familiarize themselves with blockage reporting procedures if the issues become a frequent concern.

## Pipelines

No major pipelines are located in Cottage Grove. As such, no policies or recommendations in this area of transportation are provided for Cottage Grove.

## Airport

The Cottage Grove State Airport is located in northeast Cottage Grove within the urban growth boundary. The airport is owned by the Oregon Department of Aviation and is used by small recreational planes or light jets. The airport has a daily average of 46 aircraft operations (take-offs and landings).

The airport is recognized as an important transportation facility. Its operation, free from conflicting land uses, is in the best interests of the citizens of the City. Several policies related to air travel are identified in Chapter 2 and are consistent with the Airport Master Plan (1988). The airport's runway protection zone and airport imaginary service regulations set limitations to development in the area immediately surrounding the airport. No major changes to usage are expected to occur in the 20 year planning horizon. As such, no further recommendations in this area of transportation are provided for Cottage Grove.

# 10. FINANCING & IMPLEMENTATION

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This chapter outlines the funding sources that can be used to meet the needs of the transportation system. The costs for the elements of the transportation system plan are outlined and compared to the potential revenue sources. Options are discussed regarding how costs of the plan and revenues can be balanced.

## Current Funding Strategies

Transportation funding is commonly viewed as a user fee system where the users of the system pay for infrastructure through motor vehicle fees (such as gas tax and registration fees) or transit fares. However, a great share of motor vehicle user fees goes to road maintenance, operation and preservation of the system rather than construction of new system capacity. Much of what the public views as new construction is commonly funded (partially or fully) through local improvement districts (LIDs), traffic impact fees and fronting improvements to land development.

The City of Cottage Grove utilizes a number of mechanisms to fund construction of its transportation infrastructure as described below. The first three sources collect revenue each year that is used to repair street facilities or construct new streets, with some restrictions on the type and location of projects. The last program is different in that it does not generate on-going revenue, but is a means to acquire needed property (Exaction) as development occurs.

### State Fuel Tax and Vehicle License Fee

The State of Oregon Highway Trust Fund collects various taxes and fees on fuel, vehicle licenses, and permits. A portion is paid to cities annually on a per capita basis. By statute, the money may be used for any road-related purpose. Cottage Grove uses it for street operating needs.

Oregon gas taxes are collected as a fixed amount per gallon of gasoline served. Gas tax in Oregon has not increased since 1992 (currently 24 cents per gallon), and this tax does not vary with changes in gasoline prices. There is no adjustment for inflation tied to the gas tax, so the lack of change since 1992 means that the net revenue collected has gradually eroded over time as the cost to construct and repair transport systems increase. Fuel efficiency in new vehicles has further reduced the total dollars collected through this system.

Oregon vehicle registration fees are collected as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in Oregon have recently increased from \$15 per vehicle per year to \$27 per vehicle per year for passenger cars, with similar increases for other vehicle types. There is no adjustment for inflation tied to vehicle registration fees.



Cottage Grove gets about \$425,000 per year in gas tax and vehicle license fee revenue for streets, bikeways and sidewalks. Essentially all of these funds are spent on surface restoration of local streets or operations. Lane County does not have a gas tax that is distributed to cities, so all of the gas tax received by Cottage Grove externally is distributed from the State of Oregon. Because there is no index for cost inflation, this revenue level will increase only proportionate with the city's population growth relative to the rest of the county.

## Local Gas Tax

Cottage Grove has a local city gas tax of 3 cents per gallon. For fiscal year 2006/2007, the estimated income from the local gas tax is approximately \$355,000. An increase to at least 5 cents per gallon has been proposed for the 2007/2008 fiscal year. For forecasting purposes it is estimated that this will be adopted resulting in approximately \$590,000 per year. Taking into account projected population growth, the average annual revenue would be approximately \$705,000 per year for an estimated total of \$12.7 million dollars in local gas tax revenues over the next 18 years (assuming no additional rate increases).

## System Development Charge

The System Development Charge (SDC) fee for streets is used as a funding source for all capacity adding projects for the transportation system. The funds can be used to construct or improve portions of local streets within the city, or be used as a partial match on county street projects within the city limits. The SDC fee is collected from new development based on the afternoon peak hour vehicle trips that are expected from a proposed development. The current SDC rate is \$775.54 per trip, which is among the lowest transportation SDC rates in the State of Oregon. By comparison, the City of Gresham charges \$1,963 per trip for their transportation SDC, which is about average for the Portland-Vancouver Metropolitan area. The City of Eugene currently charges \$1,566 per trip.

For fiscal year 2006/2007, the estimated income from the Street SDC is approximately \$60,000. Over the last 8 years, the average SDC revenues have varied from \$55,000 to over \$258,000 per year resulting in an estimated carryover balance of \$685,000 for 2006/2007. However, the estimated growth in PM peak hour vehicle trips in the horizon of the TSP is 7,481 within the City of Cottage Grove based on land use forecasts and expected trip generation rates. Applying the SDC fee rate of \$775.54 to that amount of growth would generate \$5.8 million over 18 years, or about \$320,000 each year for the next 18 years. This is significantly higher than the current year's estimate, but it accounts for the aggressive growth expected in the City by 2025. The higher rate was used to estimate future revenues since it reflects average expected land development over the next 18 years, and not just the rate of development over the current year, which is the basis used for the current fiscal year estimate.

## Exactions

These are street improvements that are obtained when development is permitted. Developers are required to improve the streets along frontage of the property and, in some cases, provide off site improvements depending upon their level of traffic generation and the impact to the transportation system.

## Summary

Under the above funding programs, the City of Cottage Grove will collect approximately \$1.5 million for street construction, repair, and operations each year<sup>1</sup>, and approximately \$685,000 is carried over from previous years. Total revenues collected over 18 years would be \$28.1 million with the current sources.

Table 10-1 summarizes the current funding sources, including recent annual revenues and any unallocated balances or available funds, as applies to the SDC. The city has previously had other revenue sources including revenues from Lane County and Federal grants, however none of these programs are considered to be reliable sources of future funding on an annual basis.

**Table 10-1: Summary of Projected Revenues for Transportation (2007 Dollars)**

<b>Funding Category</b>	<b>Annual Amount</b>
State Fuel Apportionment & Vehicle License Fee	\$425,000
Local Gas Tax	\$705,000
System Development Charge (Streets) *	\$320,000
Other (Interest, etc.)	\$75,000
<b>Total Revenues</b>	<b>\$1,525,000</b>
<b>Carryover Balance</b>	<b>\$685,000</b>
	<b>18 Year Total</b>
<b>Estimated 18 Year Revenues</b>	<b>\$28,100,000</b>

Source: City of Cottage Grove, Adopted Budget, Fiscal Year 2006-007.

\* FY 2006/2007 estimate for Street SDC is \$60,000; but annualized estimated income based on remaining growth to 2025 using current SDC rate would be \$320,000.

<sup>1</sup> This higher revenue level annualizes the expected growth over 18 years.

# Projects and Programs

This section presents the Action Plan identifying recommended projects and programs developed for the City of Cottage Grove to serve local transportation needs through 2025. The Action Plan is limited to those projects reasonably likely to be funded within the plan horizon. Pedestrian, Bicycle, Transit, and Motor Vehicle projects were identified previously in the Master Plan for each mode, and represent those projects that are needed for implementation to satisfy performance standards, or other policies established for the Cottage Grove Transportation System Plan. The total costs for Master Plans are approximately \$31 million dollars, well over total available revenues (\$28 million) for all City transportation programs. Therefore, although costs for individual projects are noted in the Master Plans, they have not been included in the funding needs analysis. The Master Plans include additional projects expected to be built beyond the 18-year plan horizon or as additional revenue sources become available.

## Other Transportation Programs and Services

In addition to the physical system improvements discussed in the Master Plans, transportation facilities require on-going operations and maintenance improvements in a variety of areas. These other transportation programs are recommended to respond to the specific policies and needs in maintaining roadway pavement quality, operating the existing transportation system, allocations for implementing neighborhood traffic management, and on-going update and support of related planning documents.

### Roadway Maintenance and Operations

The annual cost of maintaining the city streets and paths within Cottage Grove was estimated at \$815,000, a portion of which is paid for by gas tax revenues from the state and the local gas tax. This does not include road maintenance responsibilities on arterial streets that are serviced by Lane County or ODOT. Over 18 years, the City's road maintenance responsibility accounts for \$14.7 million, which is the highest cost component of the transportation plan.

Operational costs of the city street system (including signals, lighting, signage, engineering and services) is estimated at approximately \$800,000 per year. Over 18 years the City's operational costs are estimated at \$14.4 million.

The actual maintenance and operations costs could vary from this estimate. It is reasonable to expect that adding more capital or maintenance responsibilities to the City will require new or expanded maintenance and operations costs.

### Neighborhood Traffic Management (NTM)

Specific NTM projects are not defined. These projects will be subject to City placement and design criteria and subject to neighborhood consensus. A City-wide NTM program, if desired, should be developed with criteria and policies adopted by the City Council. Traffic circles can cost \$3,000 to \$15,000 each. A speed trailer can cost about \$10,000. It is important, where appropriate, that any new development incorporate elements of NTM as part of its on-site mitigation of traffic impacts. No annual allocation is identified for the program development at this time, as exactions are expected to cover costs where projects are deemed to be necessary.

## Project Cost Estimates

Cost estimates (general, order of magnitude) were developed for the projects identified in the motor vehicle, bicycle, transit, and pedestrian elements. Projects were estimated using general unit costs for transportation improvements, but do not reflect the unique project elements that can significantly add to project costs<sup>2</sup>. Development of more detailed project costs can be prepared in the future with more refined financial analysis. Since many of the projects overlap elements of various modes, the costs were developed at a project level incorporating all modes, as appropriate. Each of these project costs will need further refinement to detail right-of-way requirements and costs associated with special design details as projects are pursued.

For purposes of this Transportation System Plan, capital improvement projects are divided between those that are considered to be physical improvements that upgrade the capacity or operations of the transportation system. These projects are those that provide new roadways, turn lanes, bike paths, sidewalks, trails or operational changes such as traffic signal installation. Roadway resurfacing, reconstruction, or other projects that upgrade roadways up to current standards are considered to be a separate group of projects and are not considered to be capacity enhancing capital improvements.

All cost estimates are based on 2007 dollars.

## TSP Action Plan and Costs

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities would total \$29.1 million over 18 years, as shown in Table 10-2. This exceeds the projected revenue totals of 28.1 million, resulting in a \$1 million funding deficit, which would not allow for any capital improvements projects that provide new capacity (new roadways, turn lanes, bike lanes, etc.) without additional revenues sources.

**Table 10-2: Summary of Projected Costs for Transportation (2007 Dollars)**

Transportation Element	Approximate Cost (Million \$)
<b>Operations and Maintenance Programs and Services</b>	
Capital Improvement Projects - Maintenance and other non-capacity-adding projects (\$815,000 per year)	\$14.7
Operations (\$800,000/yr)	\$14.4
<b>Total Operations and Maintenance Programs</b>	<b>\$29.1</b>
<b>18 YEAR TOTAL in 2007 Dollars</b>	<b>\$29.1</b>

Doubling the SDC rate to approximately \$1,550 per PM peak hour trip (below a typical charge of \$2,000 in Oregon) would provide an additional \$5.8 million in revenues, cover the projected funding deficit, and leave approximately \$4.8 million for Action Plan Projects. Refer to Chapters 5-7 for details on the individual projects by travel mode. Note that some projects listed in the Action Plan are anticipated to be funded by ODOT or private development. Costs for these

<sup>2</sup> General plan level cost estimates do not reflect specific project construction costs, but represent an average estimate. Further preliminary engineering evaluation is required to determine impacts to right-of-way, environmental mitigation and/or utilities.

non-City projects have not been included in the estimates in Table 10-3, but are included in the Master Plans for illustrative purposes.

**Table 10-3: Cottage Grove Action Plan Projects (2007 Dollars)**

<b>Project</b>	<b>Improvement</b>	<b>Estimated City Cost</b>
<b><i>City Projects</i></b>		<b><i>\$2,000,045</i></b>
Realign OR 99 at Main Street*	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	\$800,000 <sup>3</sup>
Main Street Access Management	Close Access to Main Street from Lane Street	\$10,000
Intersection Improvements	New intersection improvements at Row River Road and Jim Wright Way Intersection including full pedestrian crosswalk	\$200,000
Traffic Signal	New traffic signal at Row River Road and Thornton Road Intersection	\$200,000
Traffic Signal	New traffic signal at Mosby Creek Road and Thornton Road Intersection	\$200,000
Traffic Signal	New traffic signal at Main Street and M Street Intersection	\$200,000
Main Street at 16 <sup>th</sup> Street Turn Lane	Addition of a southbound left turn lane at 16th Street and Main Street Intersection	\$400,000
Gateway Boulevard Restripe*	Restripe Gateway Boulevard to 3 lanes (and bike lanes) from Harvey Road to Cottage Grove Connector	\$10,000
East/West Bicycle Route	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19 <sup>th</sup> Street and Oswald West Avenue.	\$25,000
<b><i>State Projects</i></b>		<b><i>\$1,000,070</i></b>
Cottage Grove Connector - Interchange Area Management Plan*	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-
OR 99 Restripe*	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector	\$10,000
OR 99 Pedestrian Refuge*	Construct pedestrian refuge in conjunction with restripe of OR 99 from Woodson Bridge to Cottage Grove Connector	\$60,000
Intersection Improvements*	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector, including pedestrian signals and crosswalks.	\$1,000,000
<b><i>Private Development Projects</i></b>		
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue including bicycle and pedestrian facilities.	**
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln. including bicycle and pedestrian facilities.	**

\*Project would require ODOT approval.

\*\*Construction costs to be covered by private development exactions.

<sup>3</sup> Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005. Preferred Alternative short-term projects estimated at \$760,000 in 2005 dollars.

The total costs for the above Action Plan would be approximately \$3.1 million without providing any funding for new roadways. The Action Plan focuses on projects that have already been initiated or may be completed without incurring large costs. The Action Plan at this level of funding does not provide funding for new roadways and therefore fails to address several operational issues noted in Table 4-7 in the southern portion of the city.

Remaining funds would be used to fund either preliminary engineering plans or construction of portions of planned new roadways including the Gateway Boulevard, Cleveland Avenue, and R Street extensions. These additional roadways are considered to be high priority projects to provide mobility in the southern portion of the City, where significant residential growth is expected to occur. These projects relieve demand on existing roadways and improve operations at several intersections that would otherwise fail to meet performance standards.

Consideration must also be taken for the outcomes of the recommended Interchange Area Management Plan (IAMP) for the Cottage Grove Connector, OR 99, and interchanges with I-5. Although the study would lead by ODOT, the decision making process related to projects, funding, and timing would involve significant City participation. The degree to which the City will choose to participate and financially support the projects that result from the IAMP are likely to significantly impact the scope and progress of projects in the study area.

## New Funding Sources and Opportunities

The new transportation improvement projects and recommended programs will require funding beyond the levels currently collected by the City. This section summarizes several potential funding options available for transportation improvements. These are sources that have been used in the past by agencies in Oregon. In most cases, these funding sources, when used collectively, are sufficient to fund transportation improvements for local communities. Due to the complexity of today's transportation projects, it is necessary to seek several avenues of funding projects. Unique or hybrid funding of projects generally will include these funding sources combined in a new package.

Funding for major transportation projects often is brought to a vote of the public for approval. This is usually for a large project or list of projects. Because of the need to gain public approval for transportation funding, it is important to develop a consensus in the community that supports needed transportation improvements. That is the value of the Transportation System Plan. In most communities where time is taken to build a consensus regarding a transportation plan, funding sources can be developed to meet the needs of the community.

Transportation program funding options range from local taxes, assessments, and charges to state and federal appropriations, grants, and loans. All of these resources can be constrained based on a variety of factors, including the willingness of local leadership and the electorate to burden citizens and businesses; the availability of local funds to be dedicated or diverted to transportation issues from other competing City programs; and the availability and competitiveness of state and federal funds. Nonetheless, it is important for the City to consider all of its options and understand where opportunities exist to provide and enhance funding for its Transportation programs.

The following funding sources have been used by cities to fund the capital and maintenance aspects of their transportation programs. It may be possible to begin to use (or further utilize)

these sources, as described below, to address new needs identified in the Transportation System Plan.

## General Fund Revenues

At the discretion of the City Council, the City can allocate General Fund revenues to pay for its Transportation program. (General Fund revenues primarily include property taxes, use taxes, and any other miscellaneous taxes and fees imposed by the City.) This allocation is completed as a part of the City's annual budget process, but the funding potential for transportation is constrained by competing community priorities set by the City Council. General Fund resources can fund any aspect of the program, from capital improvements to operations, maintenance, and administration. Additional revenues would only become available from this source to fund new aspects of the transportation program when either General Fund revenues increase or City Council directs and diverts funding from other City programs.

## Street Utility Fee

A number of Oregon cities supplement their street funds with street utility fees. Portland Metro cities with adopted street utility fees include Lake Oswego, Wilsonville and Tualatin. Establishing user fees to fund applicable transportation activities and/or capital construction ensures that those who create the demand for service pay for it proportionate to their use. The Street Utility Fees are recurring monthly or bi-monthly charges that are paid by all residential, commercial, industrial, and institutional users. The fees are charged proportionate with the amount of traffic generated, so a retail commercial user pays a higher rate than a residential user. Typically, there are provisions for reduced fees for those that can demonstrate they use less than the average rate implies, for example, a resident that does not own an automobile or truck.

From a transportation system health perspective, creating a street utility fee would help to support the ongoing viability of the program by establishing a source of reliable, dedicated funding for that specific function. Fee revenues can be used to secure revenue bond debt used to finance capital construction. A street utility can be formed by Council action and does not require a public vote.

A preliminary estimate for street utility fee revenue in Cottage Grove ranges between \$250,000 to \$400,000 annually, based on the average rates charged around the state. A specific fee study would be necessary to establish a fee program for the City of Cottage Grove to determine specific allocations to its residents and businesses.

## Expanded SDC Rate for Transportation

As noted previously, the City's transportation SDC rate is well below typical SDCs in the State of Oregon. At the current SDC rate, no funding for capital projects that increase capacity is available. Revenues available if SDCs are doubled and the impacts on the Action Plan were identified. It is suggested that the SDC program and rate be re-examined to adjust for the desired projects listed in the TSP Masters Plans.

## Other Funding Sources

### Urban Renewal District

An Urban Renewal District (URD) is a tax-funded district within a City. The URD would be funded with the incremental increases in property taxes that result from



construction of applicable infrastructure improvements. This type of tax increment financing has been used in Oregon since 1960. It is tax-increment funded rather than fee funded and can provide for renewal that includes, but is not limited to, transportation projects.

#### Local Improvement District Assessment Revenue

The City may set up Local Improvement Districts (LIDs) to fund specific capital improvement projects within defined geographic areas, or zones of benefit. LIDs impose assessments on properties within its boundaries. LIDs may not fund ongoing maintenance costs. They require separate accounting, and the assessments collected may only be spent on capital projects within the geographic area. Citizens representing 33% of the assessment can terminate a LID and overturn the planned projects; therefore projects and costs of a LID must gain broad approval of those within the boundaries of the LID.

#### Direct Appropriations

The City can seek direct appropriations from the State Legislature and/or U.S. Congress for transportation capital improvements. There may be projects identified in the Plan for which the City may want to pursue these special, one-time appropriations.

#### Special Assessments

A variety of special assessments are available to be used in Oregon to defray costs of sidewalks, curbs, gutters, street lighting, parking and CBD or commercial zone transportation improvements. These assessments would likely fall within the Measure 50 limitations.

#### Employment Taxes

In addition to the local gas tax charged at fueling stations, taxes may be applied in other financial transactions. For example, TriMet collects a tax for transit operations in the Portland region through payroll and self employment taxes. Approximately \$145 million are collected annually in the Portland region for transit through this tax.

## Debt Financing

While not direct funding sources, debt financing can be used to mitigate the immediate impacts of significant capital improvement projects and spread costs over the useful life of a project. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but is also viewed as an equitable funding strategy, spreading the burden of repayment over existing and future customers who will benefit from the projects. The caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

#### Voter-Approved General Obligation Bond Proceeds:

Subject to voter approval, the City can issue General Obligation (G.O.) bonds to debt finance capital improvement projects. G.O. bonds are backed by the increased taxing authority of the City, and the annual principal and interest repayment is funded through a new, voter-approved assessment on property City-wide (a property tax increase). Depending on the critical nature of projects identified in the Transportation Plan, and the willingness of the electorate to accept increased taxation for transportation improvements, voter-approved G.O. bonds may be a feasible funding option for specific projects. Proceeds may not be used for ongoing maintenance.

### Revenue Bonds:

Revenue bonds are debt instruments secured by rate revenue. In order for the City to issue revenue bonds for transportation projects, it would need to identify a stable source of ongoing rate funding. Interest costs for revenue bonds are slightly higher than for general obligation bonds, due to the perceived stability offered by the “full faith and credit” of a jurisdiction.

## New Transportation Funds

The Transportation System Plan recommends that the City consider establishing a transportation, or street, utility as the backbone of its operations and maintenance funding approach. Street utility fees can provide a stable source of dedicated revenue useable for transportation system operations and maintenance and/or capital construction. Rate revenues can also secure revenue bond debt if used to finance capital improvements. Street utilities can be formed by Council action, and billed through the City utility billing system.

It is also recommended that the City consider updating its transportation SDC to cover the new City funded capital projects identified in the TSP. This would help to ensure that local growth pays its fair share of new transportation facilities that are required to serve this planned development.

In addition, the City should actively pursue grant and other special program funding in order to mitigate the costs to its citizens of transportation capital construction.

A transportation utility fee and an updated transportation SDC could generate significantly more revenue for the City. These additional funds would be expected to generate sufficient revenues to fully capitalize the Action Plan projects and maintenance programs.

## Additional Implementation Measures

The key elements of the TSP Update must be incorporated into associated City plans and the development code to be effectively implemented.

### Intersection Operation Performance Standards

The City currently has no performance standards defined for intersection operations on City Streets. While ODOT and Lane County standards are applicable on their facilities, there were two study intersections reviewed in this plan update that has no identified standards based on the existing TSP.

It is recommended that the City adopt performance standards for streets and intersections as a part of the development code to be considered during land use applications, and other planning efforts. The suggested standard for city facilities is a volume-to-capacity ratio of 0.90 during the peak hours of operation. This would apply to streets and intersections controlled by traffic signals. Intersections that have stop sign controls (two-way or all-way stop controlled) would be allowed to drop to Level of Service E conditions, as defined by the latest *Highway Capacity Manual* for the minor side street approach. Using these two sets of criteria for assessing minimum acceptable performance will help to provide an empirical basis for recommending improvements to sustaining mobility and safety around the city.

## Traffic Impact Analysis Requirements

The recently amended City Development Code defines requirements for Traffic Impact Analysis studies including triggers specifying when such a study would be required. Further description of the impact study requirements are provided in the Technical Appendix J. Coordination with ODOT must occur when ODOT facilities are impacted by development.

## Jurisdiction Transfers

This TSP includes plans related to roadways located outside of the current UGB. In developing plans for roadways outside of the City's jurisdiction, the city would need to work with Lane County and/or ODOT to facilitate planned improvements. The roadways may become part of City jurisdiction and plans in the event of a UGB expansion and/or jurisdictional transfer. Such transfers are typically handled through Inter-Government Agreements between the City and the county or state.

## Existing Developments Affected By Functional Class Changes

Upon adoption of functional classification changes, existing land uses become subject to new standards (access spacing, performance) and applicable sections of the development code. Existing land uses, where they are non-conforming, would be addressed through non-conforming use provisions in zoning ordinances. Upon redevelopment or frontage upgrades, the land uses would be expected to conform to standards wherever reasonably possible.