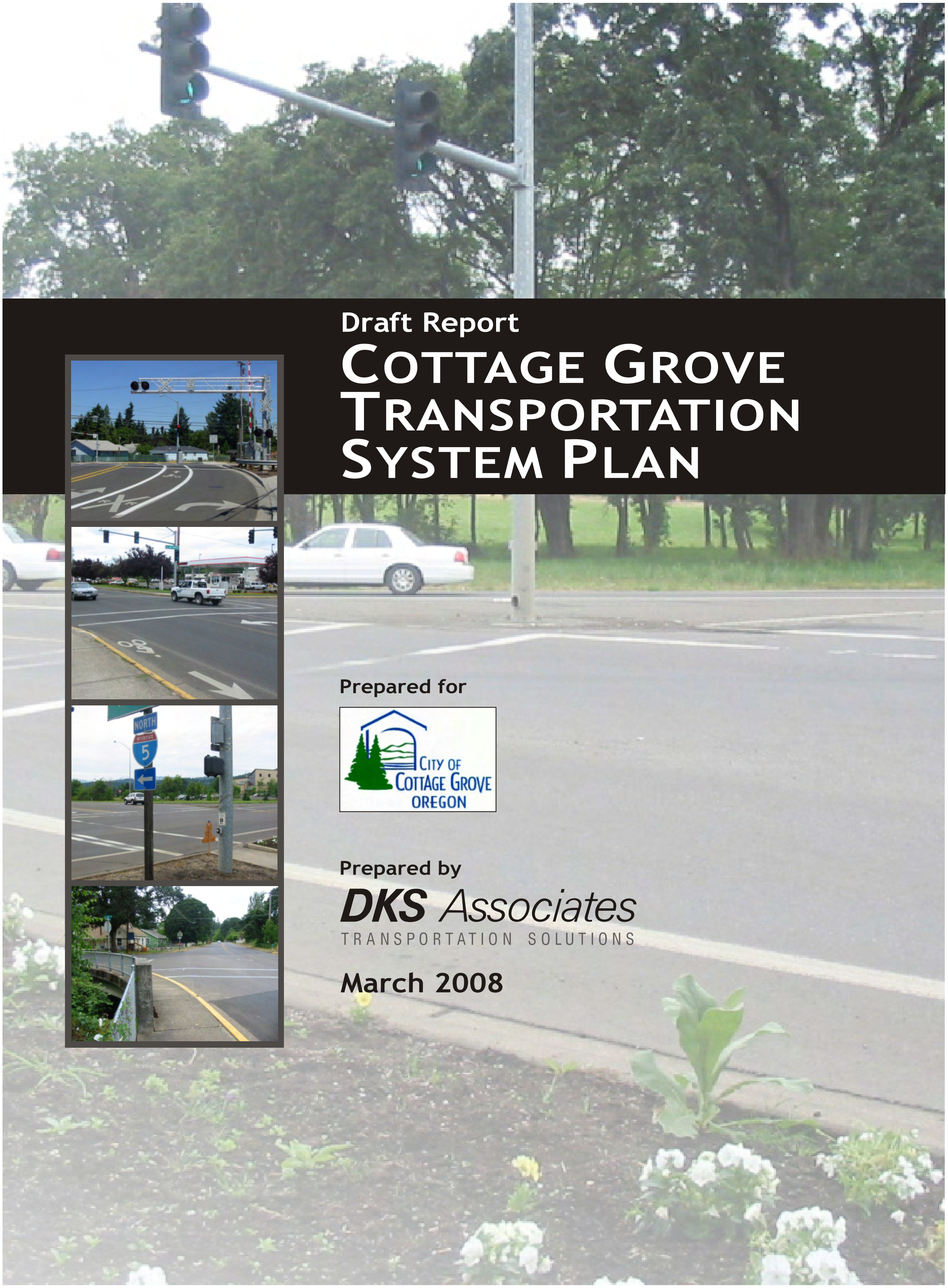

Draft Report

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN

Prepared for

CITY OF COTTAGE GROVE
OREGON

Prepared by

DKS Associates
TRANSPORTATION SOLUTIONS

March 2008

Acknowledgements

Production of this report has been the collective effort of the following people:

City of Cottage Grove

Howard Schesser
Community Development Director

Amanda Ferguson
City Planner

Ron Bradsby
City Engineer

DKS Associates

Carl Springer, PTP, PTOE
Project Manager

Reah Flisakowski, PE
Project Engineer

Mat Dolata, EIT
Transportation Engineering Staff

Winterbrook Planning

Tom Armstrong
Jeannine Rustad

Technical Advisory Committee

Savannah Crawford, ODOT
Andy McClean, South Lane County Fire and Rescue
Cathy Bellavita, Citizen Representative
Celia Barry, Lane County Public Works
George Devine, Planning Commission
Jim Branch, Citizen Representative
Marguerite Nabeta, Department of Land Conversation and Development
Matt Parsons, Planning Commission
Robert Hunt, City Council
Tara Salusso, South Lane Wheels
Wayne Clark, City Council & South Lane School District

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Transportation Equity Act for the 21st Century (TEA-21), local government, and the State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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1. SUMMARY

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

Travel Mode	Issues
Parking	The Transportation System Plan does not define specific projects. Private property owners will provide off-street parking as land develops.
Neighborhood Traffic Management (NTM)	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.
Public Transportation	Lane Transit District and South Lane Wheels will continue to develop costs for implementing transit related improvements.
Trucks/Freight	Roadway funding will address these needs.
Rail	Costs to be addressed and funded by private railroad companies and the state.
Air, Water, Pipeline	Not required by the City
Transportation Demand Management	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)

Project	Improvement	Estimated City Cost
City Projects		
Realign OR 99 at Main Street*	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	$800,000[1]
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

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[1] 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.

Project	Improvement	Estimated City Cost
State Projects		
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
Private Development Projects		
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

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

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 9th 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/8th 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/6th Street	6	1
I-5 On Ramp/6th Street	0	0
OR 99/Cottage Grove Connector	2	0
OR 99/Woodson Bridge[1]	60	15
OR 99/Main Street[1]	102	38
OR 99/6th Street[2]	30	8
OR 99/4th Street	33	84
OR 99/S. River Road	13	12
Main Street/Gateway Boulevard[3]	88	48
Main Street/16th Street[3]	27	37
Main Street/River Road	14	1
Main Street/R Street	10	5
Harrison Avenue/River Road	68	52
S. 8th Street/Taylor Avenue	205	81
S. 10th Street/Monroe Avenue	51	39

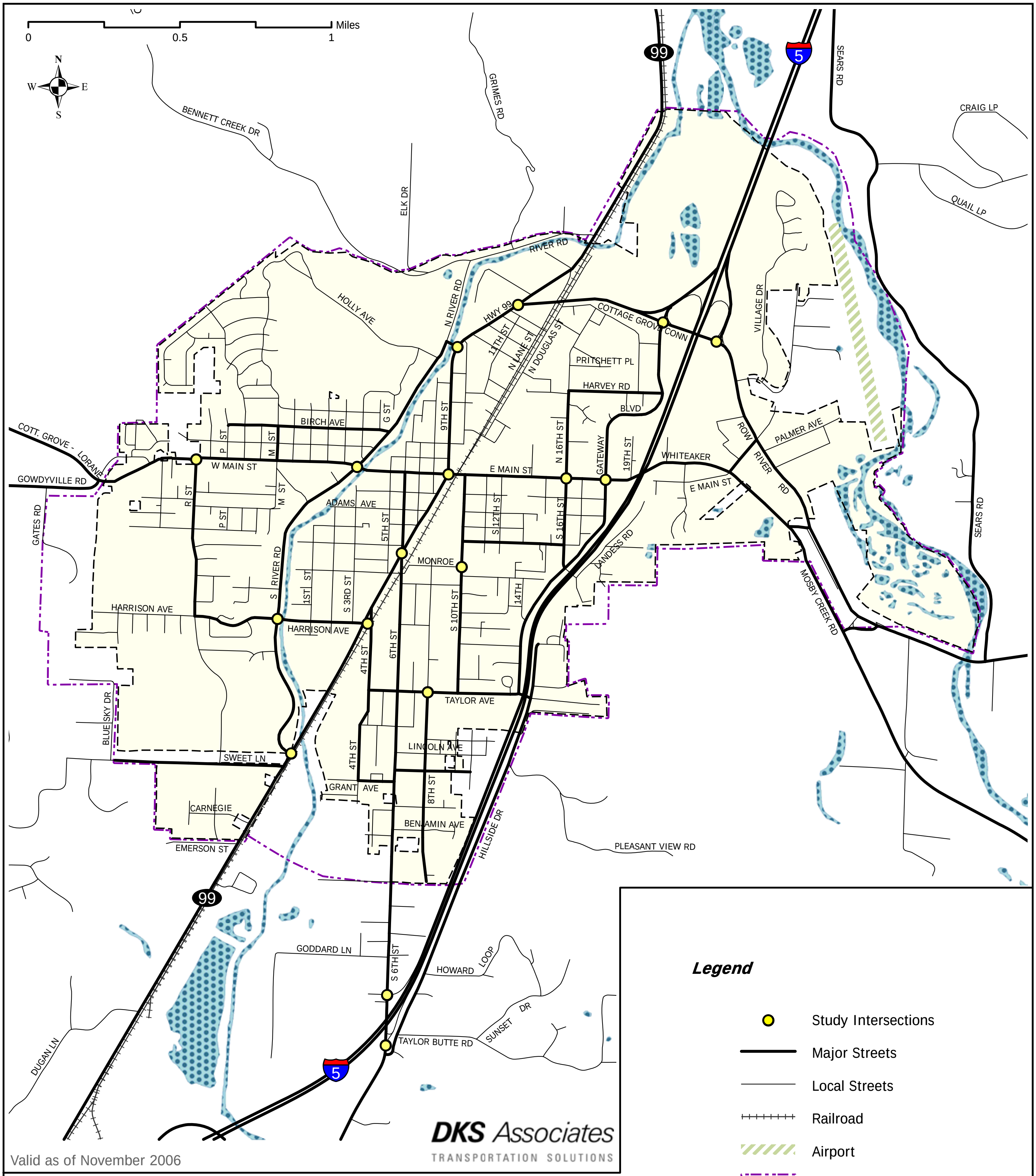
Source: ODOT Transportation System Monitoring Unit Counts, October, 2005, unless otherwise noted.

[1] ODOT Transportation System Monitoring Unit Counts, January, 2004.

[2] ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

[3] 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.

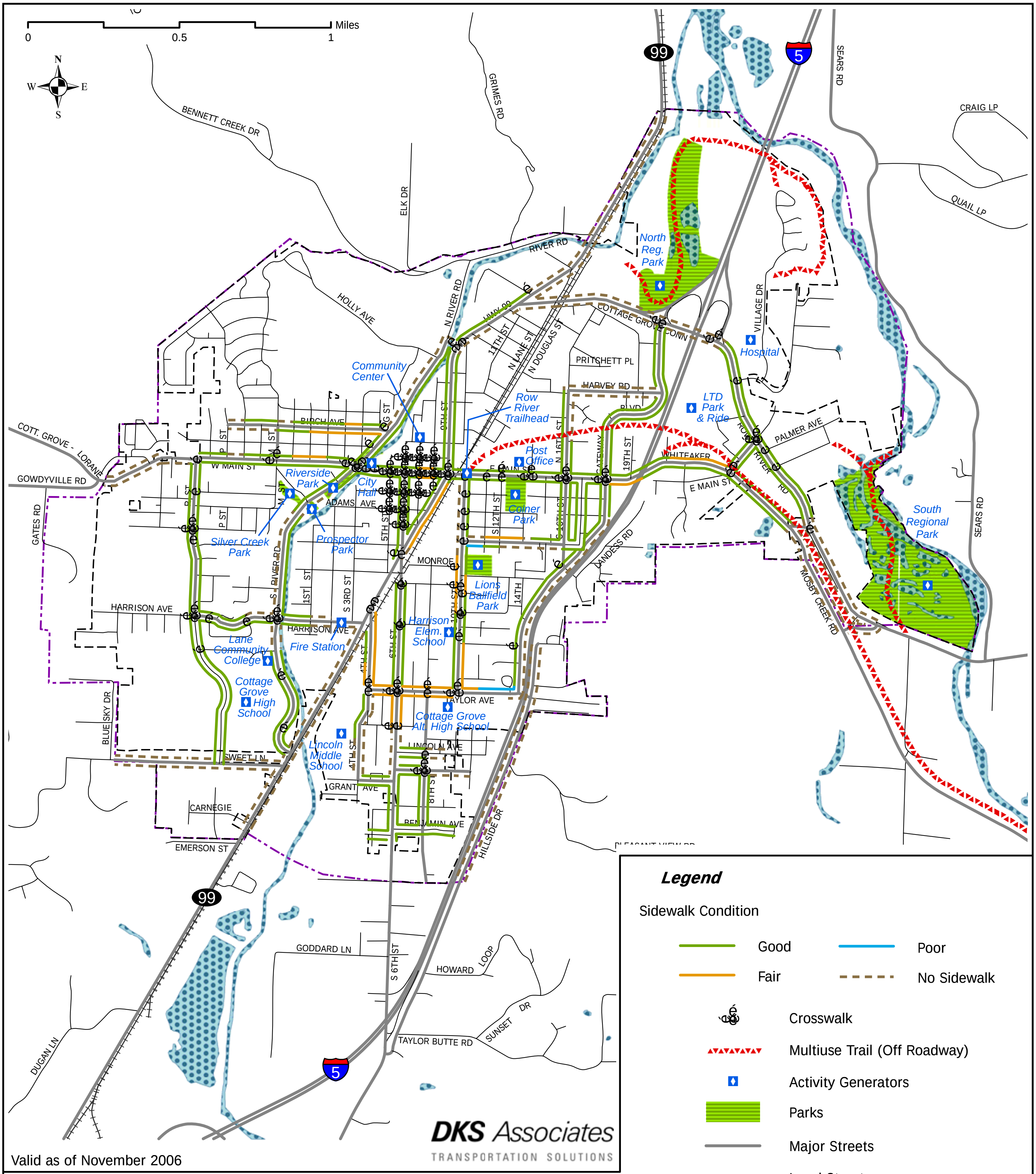


City of
Cottage Grove
Oregon

Transportation System Plan

FIGURE 3-1

Study Area



City of
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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[1] 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, 6th 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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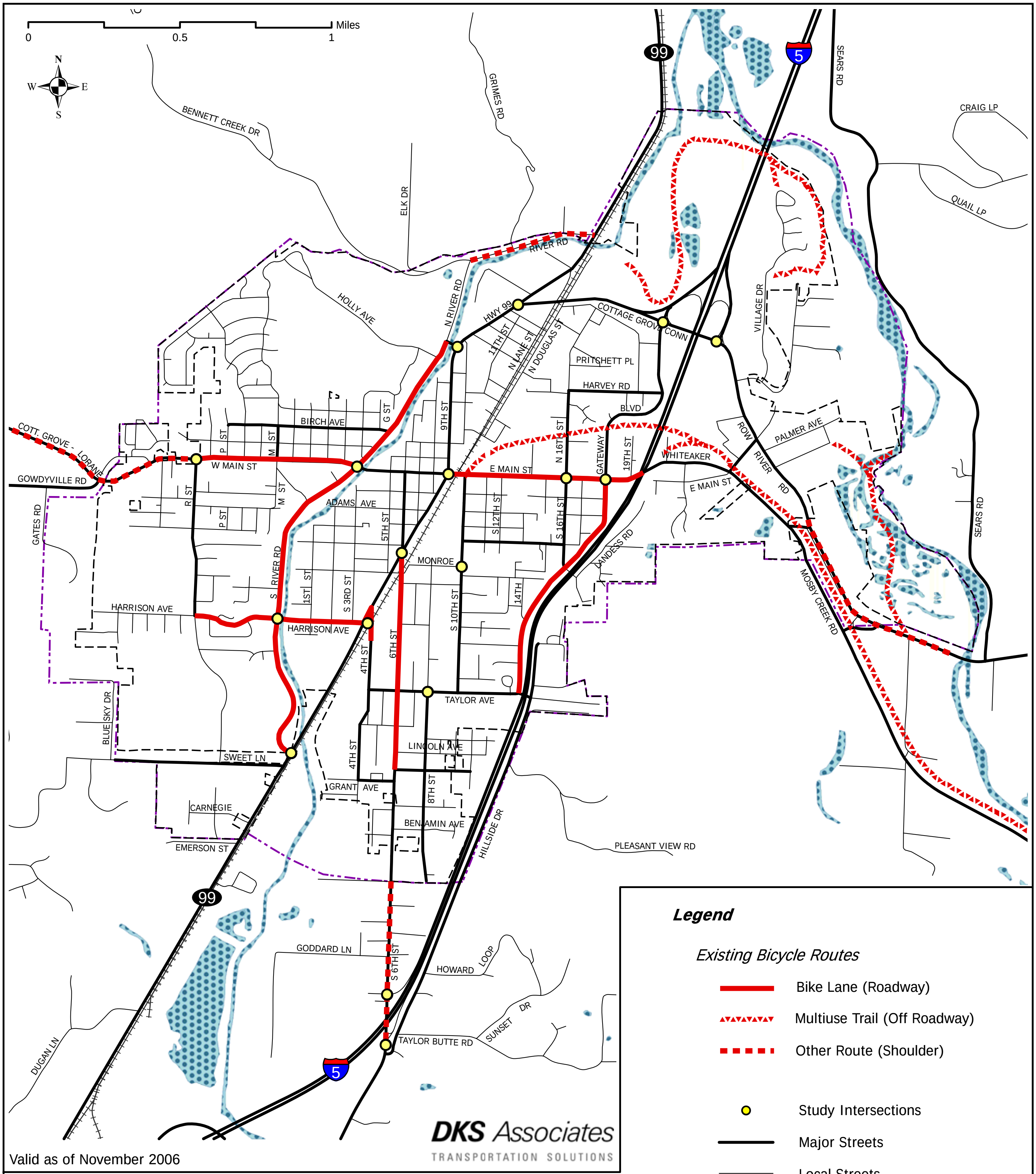
[1] Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1995



City of
Cottage Grove
Oregon

Transportation System Plan

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/6th Street	8	0
I-5 On Ramp/6th Street	4	0
OR 99/Cottage Grove Connector	11	4
OR 99/Woodson Bridge[1]	20	7
OR 99/Main Street[1]	26	3
OR 99/6th Street[2]	0	0
OR 99/4th Street	19	38
OR 99/S. River Road	5	5
Main Street/Gateway Boulevard[3]	15	11
Main Street/16th Street[3]	6	15
Main Street/River Road	33	16
Main Street/R Street	10	30
Harrison Avenue/River Road	17	42
S. 8th Street/Taylor Avenue	34	19
S. 10th Street/Monroe Avenue	40	22

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

[1] ODOT Transportation System Monitoring Unit Counts, January, 2004.

[2] ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

[3] 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.[2]

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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[2] 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[3] 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[4].

Transit Level of Service

Table 3-3 summarizes the average time between bus arrivals at a stop (headways) and corresponding level of service[5] 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.

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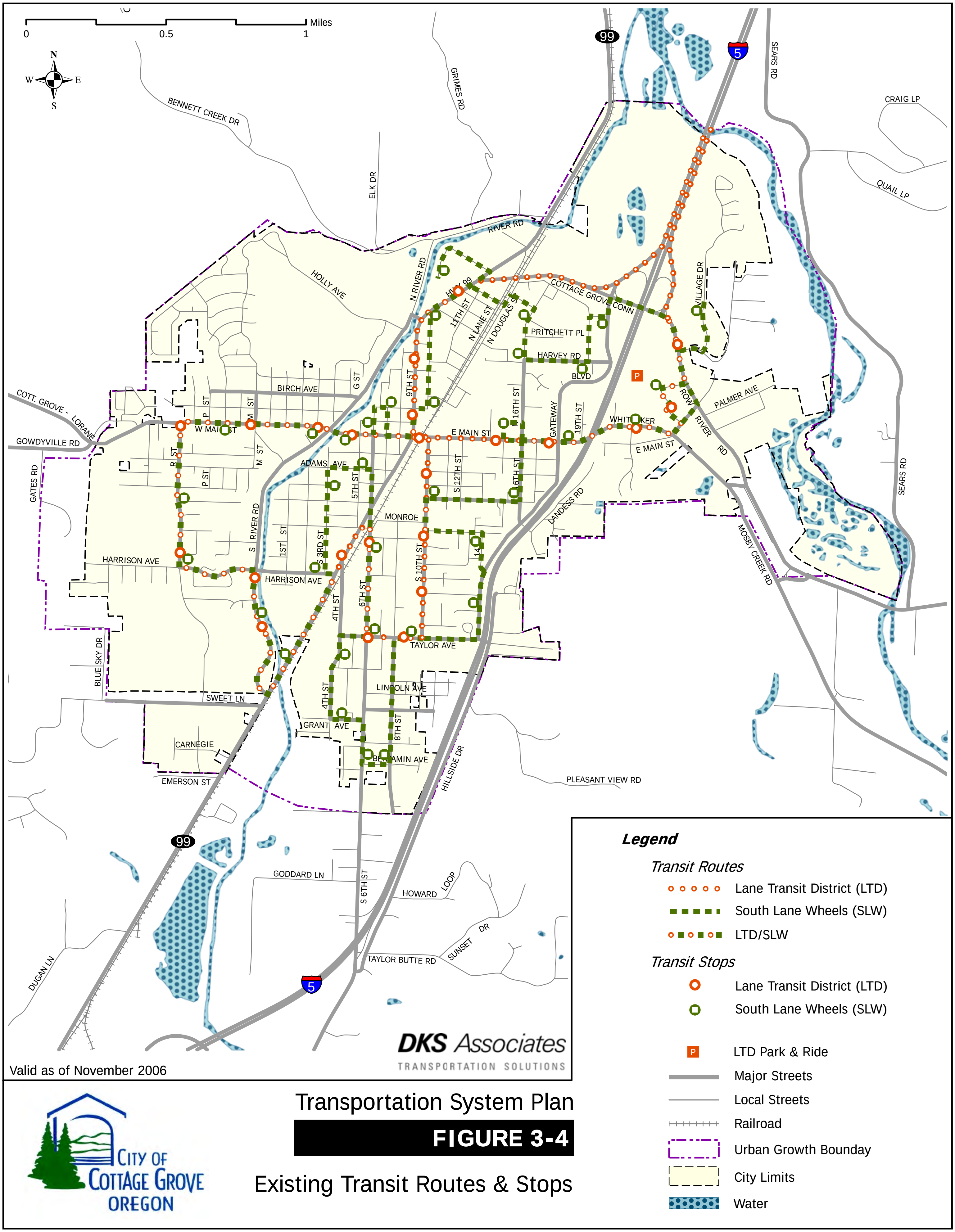
[3] Tara Sue Salusso, Executive Director, South Lane Wheels, August 2006.

[4] Journey to Work: 2000, Census 2000 Summary File 4, U.S. Census Bureau.

[5] *2000 Highway Capacity Manual*, Transportation Research Board, 2000, Chapter 27.



Valid as of November 2006

City of Cottage Grove Oregon

Transportation System Plan

FIGURE 3-4

Existing Transit Routes & Stops

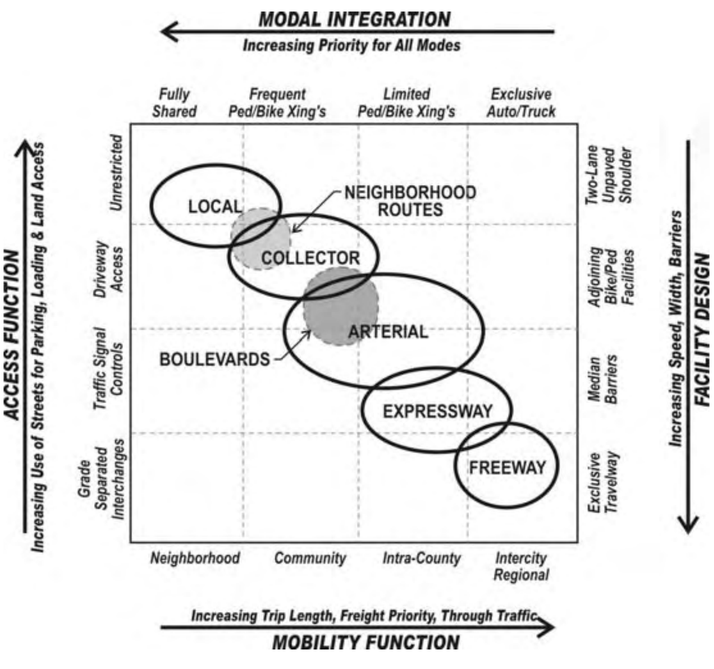
Motor Vehicles

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 10th 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.

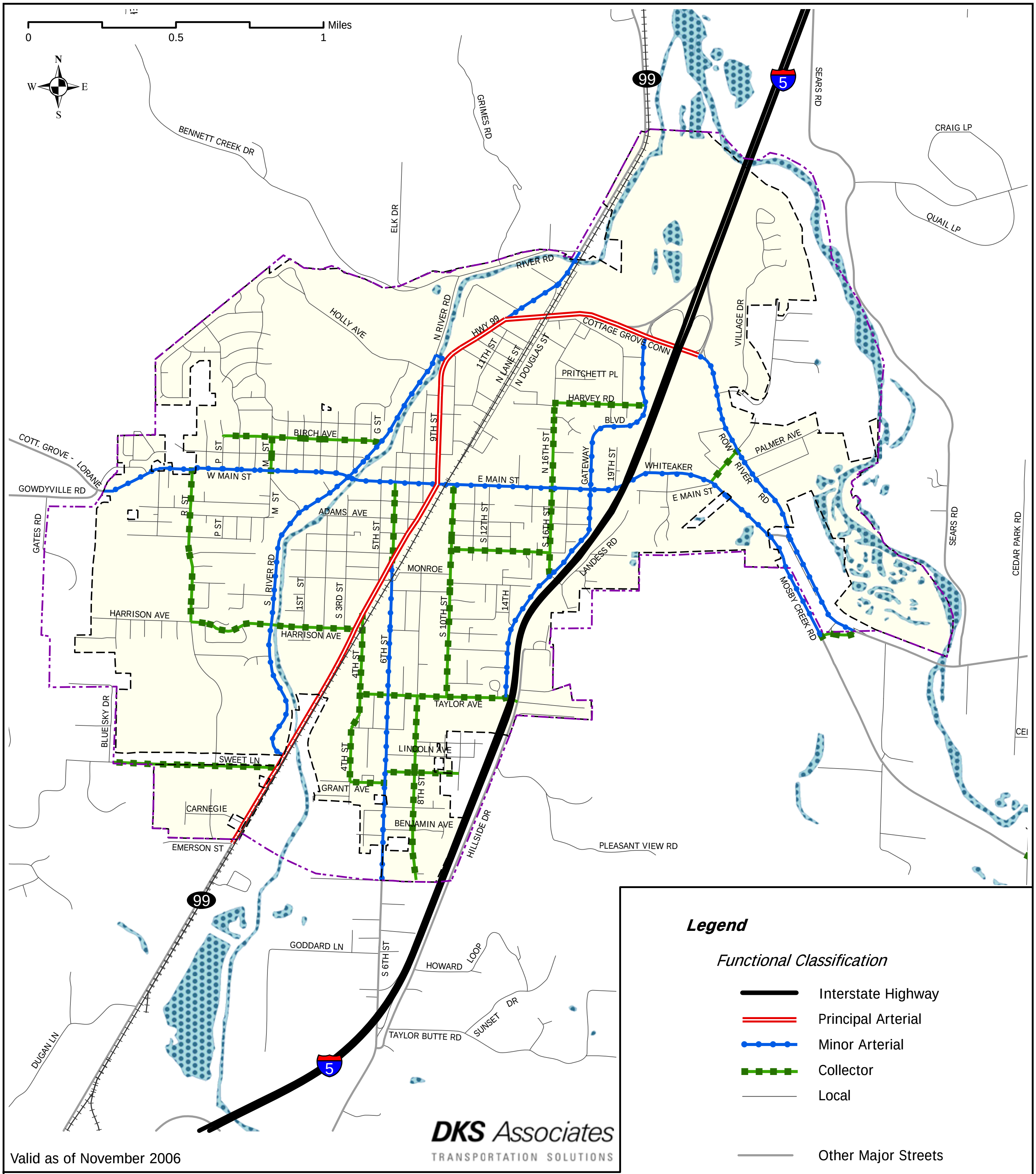


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FIGURE 3-5

Functional Classification

From 1998 Cottage Grove TSP

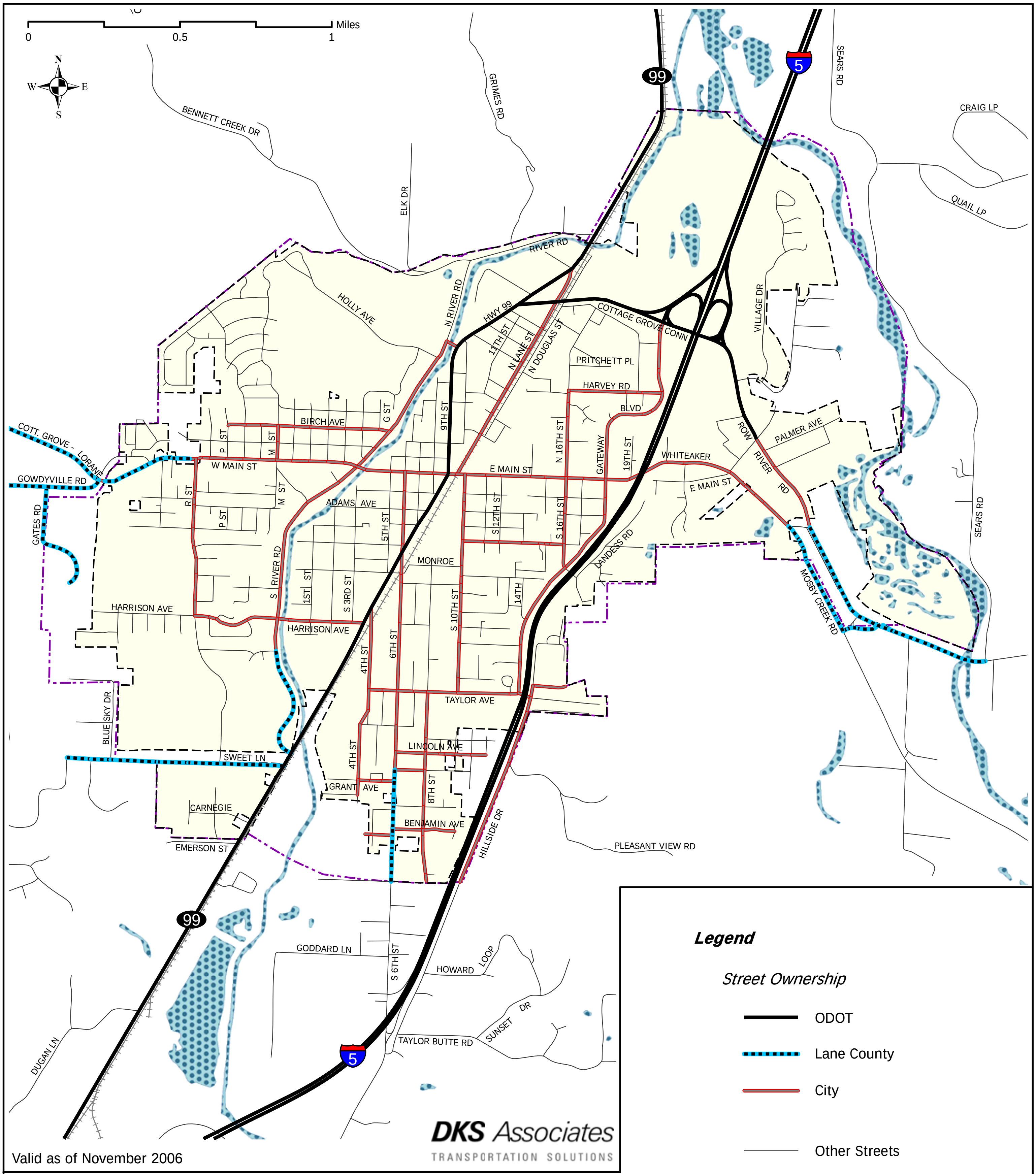

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FIGURE 3-6

Roadway Jurisdiction

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[6]

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[7]

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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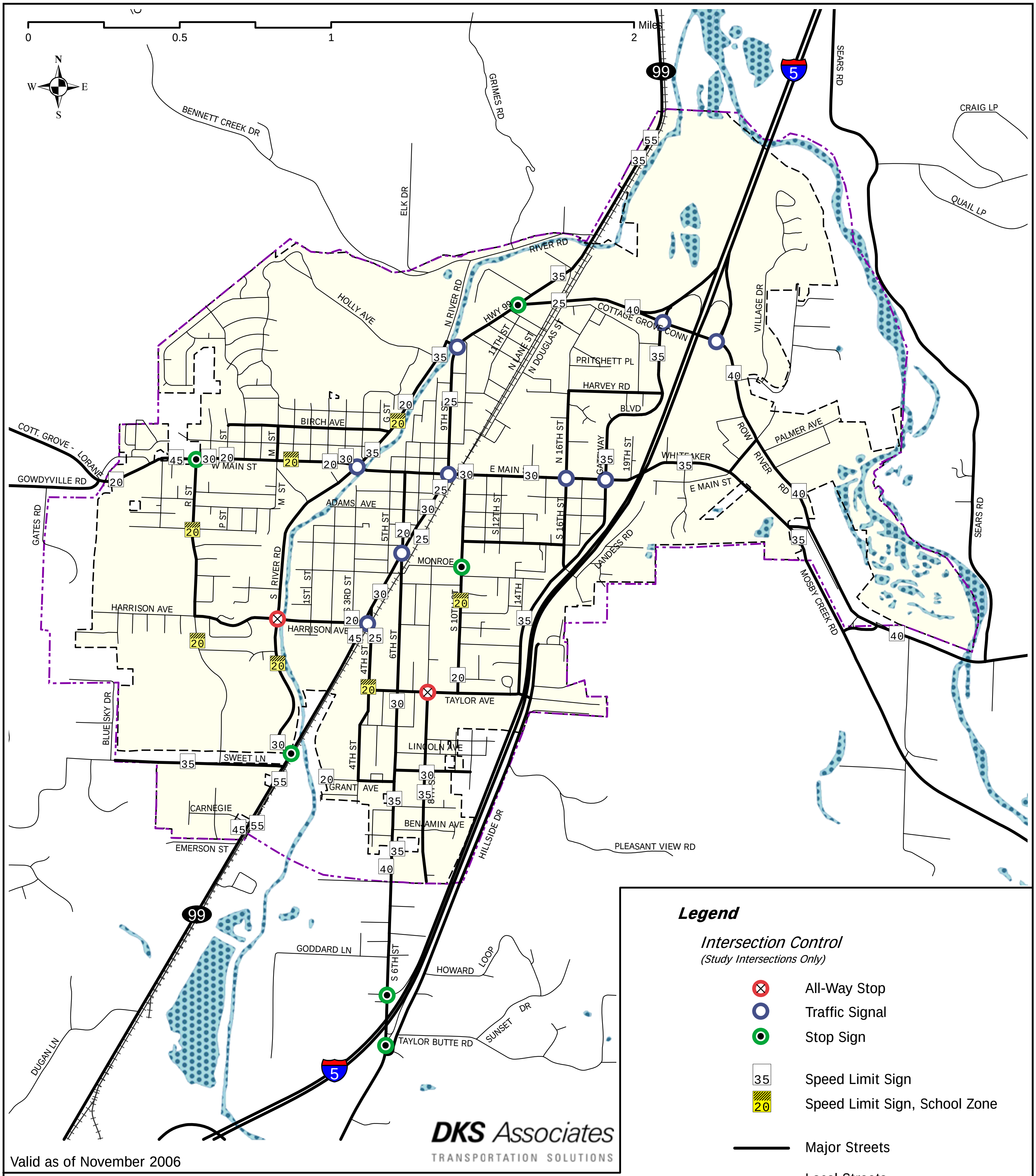
[6] Posted speed and data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).

[7] Roadway cross section data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).



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Legend

Intersection Control
(Study Intersections Only)

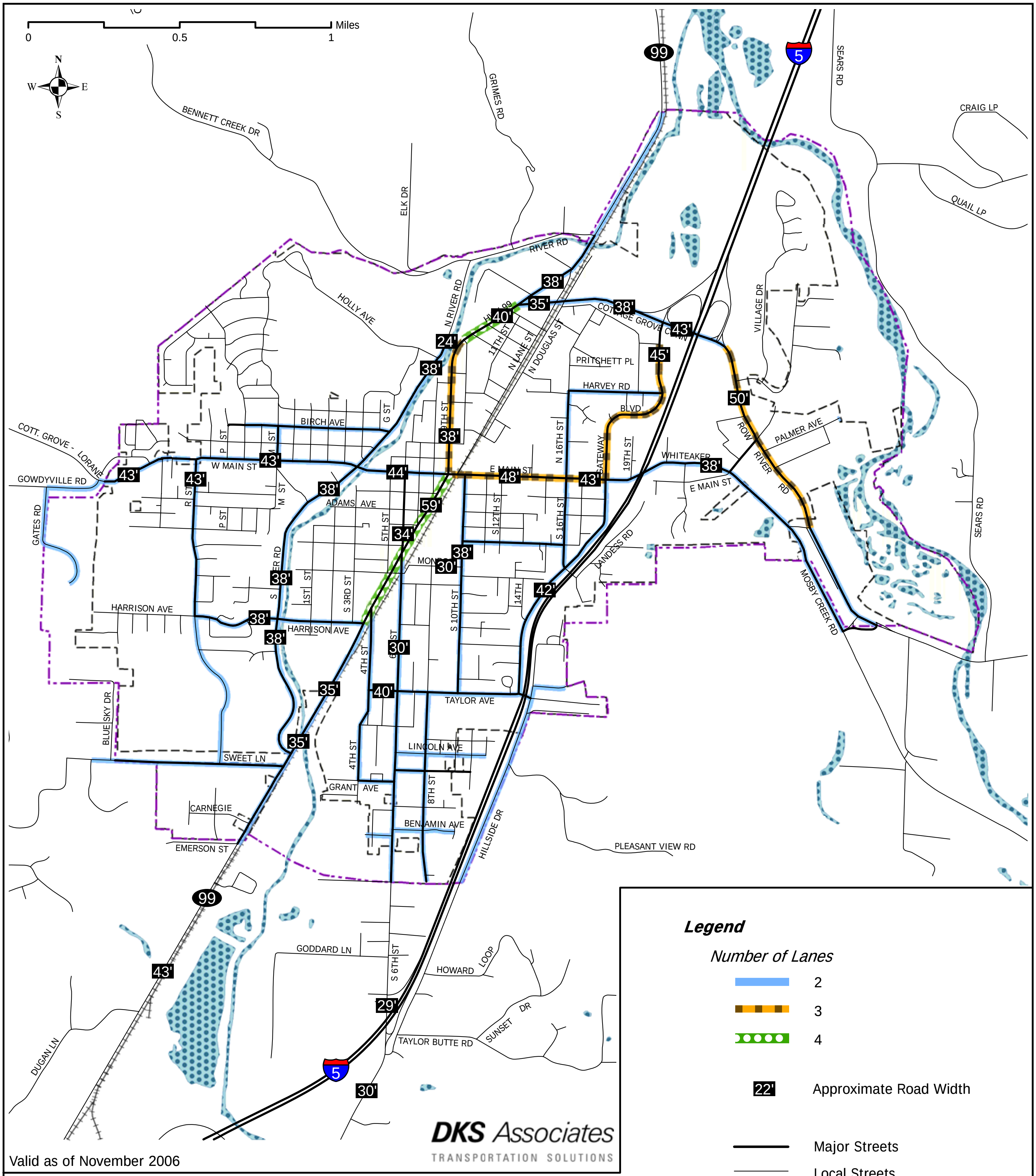
⊗	All-Way Stop
○	Traffic Signal
◉	Stop Sign
35	Speed Limit Sign
▨ 20	Speed Limit Sign, School Zone
━━	Major Streets
──	Local Streets
┼┼┼┼┼┼┼	Railroad
┅┅	Urban Growth Bounday
╌╌	City Limits
▨	Water

CITY OF COTTAGE GROVE OREGON

Transportation System Plan

FIGURE 3-7

Existing Speed Limits and Intersection Control



Legend

Number of Lanes

🟦	2
▨	3
🟩	4
22'	Approximate Road Width
━	Major Streets
─	Local Streets
┼┼┼┼	Railroad
▭	Urban Growth Bounday
▭	City Limits
▨	Water

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FIGURE 3-8

Existing Roadway Width & Number of Travel Lanes

Pavement Conditions[8]

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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[8] Pavement conditions data was obtained by field observation during DKS Associates transportation inventory (Summer 2006).

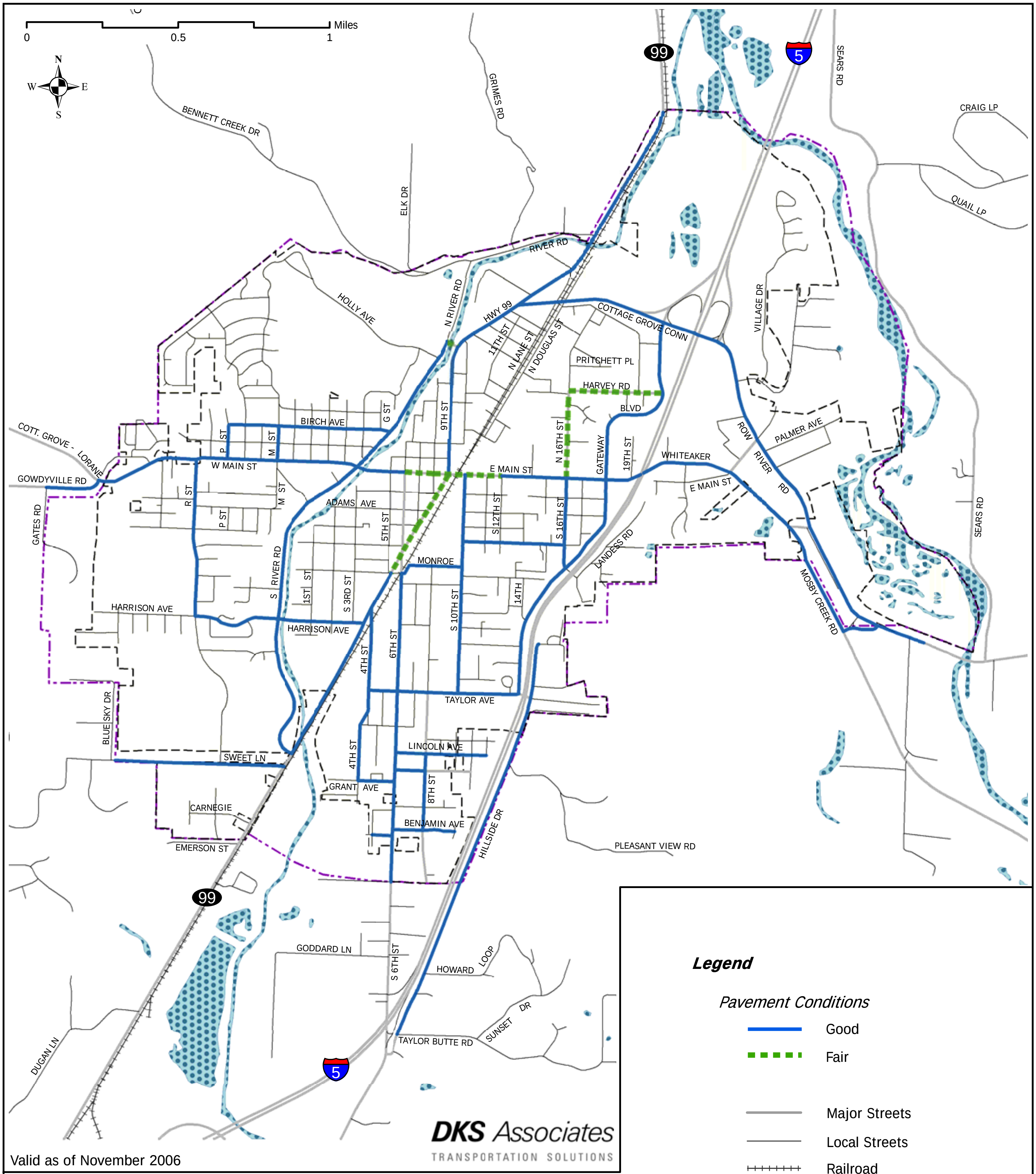

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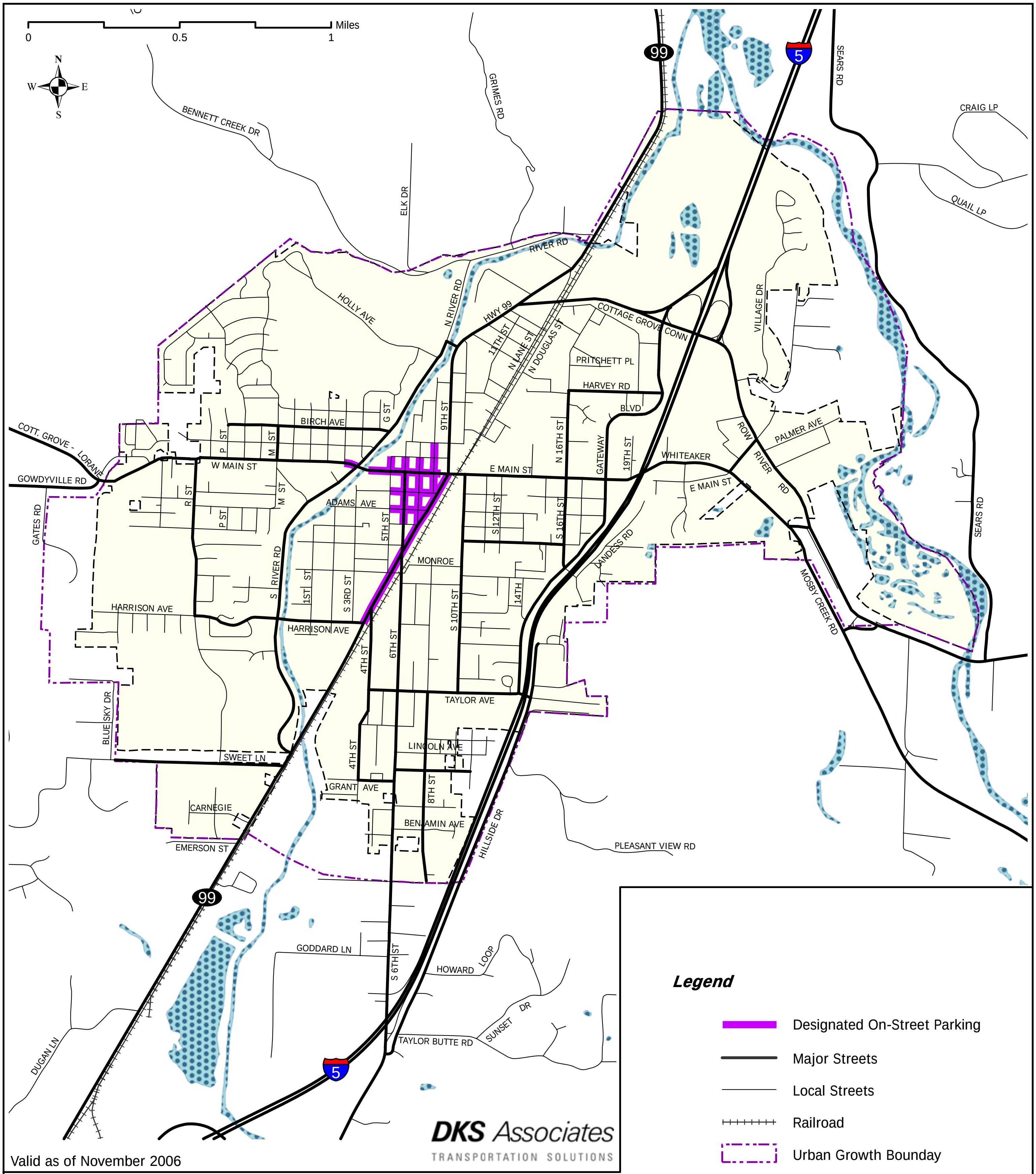
FIGURE 3-9

Pavement Conditions



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Legend

▬	Designated On-Street Parking
▬	Major Streets
—	Local Streets
┼┼┼┼	Railroad
▭	Urban Growth Bounday
▭	City Limits
▨	Water

City of Cottage Grove Oregon

Transportation System Plan

FIGURE 3-10

Designated Street Parking

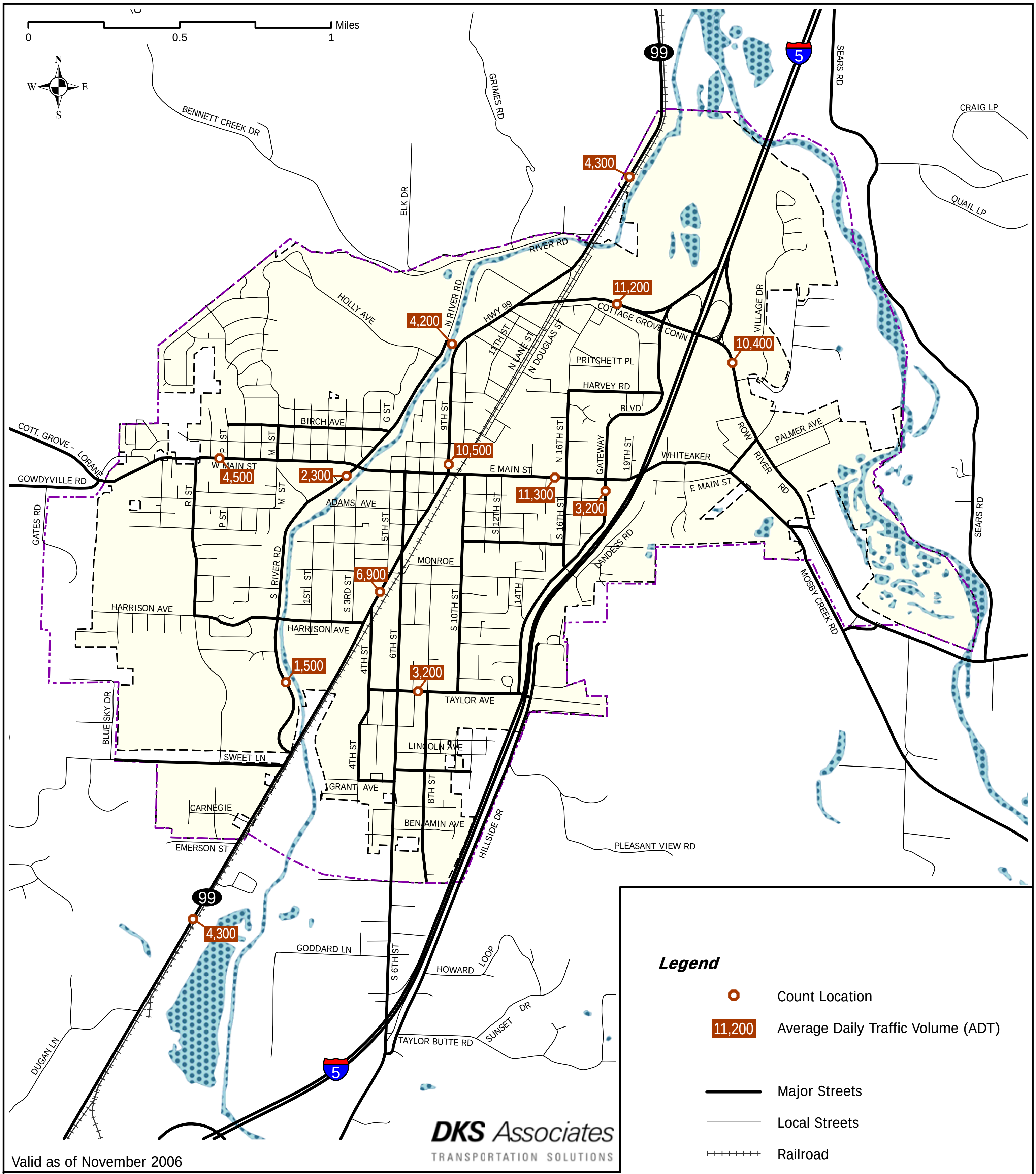

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FIGURE 3-11

Daily Traffic Volume

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[9] **—** 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[10] — 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 6th 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[11]. 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

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[9] Lane County Transportation System Plan, Lane County Public Works, June 2004

[10] *1999 Oregon Highway Plan - Amendment*, The Oregon Department of Transportation, July 2005.

[11] *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?
Signalized Intersections				
I-5 SB Ramp/Cottage Grove Connector	D	44	**0.88**	**No**
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 99/6th Street	B	11	0.33	Yes
OR 99/4th Street	B	19	0.33	Yes
Main Street/River Road	B	17	0.41	Yes
Main Street/16th Street	B	17	0.59	Yes
Main Street/Gateway Boulevard	C	28	0.78	Yes
Unsignalized Intersections				
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/10th Street	A / B	2	0.01 / 0.06	Yes
Taylor Avenue/8th Street*	A	8	0.18	Yes
I-5/6th 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 4th Street are flashing-light signals with an overhead cantilever structure and automatic gates. The railway intersection at 6th 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

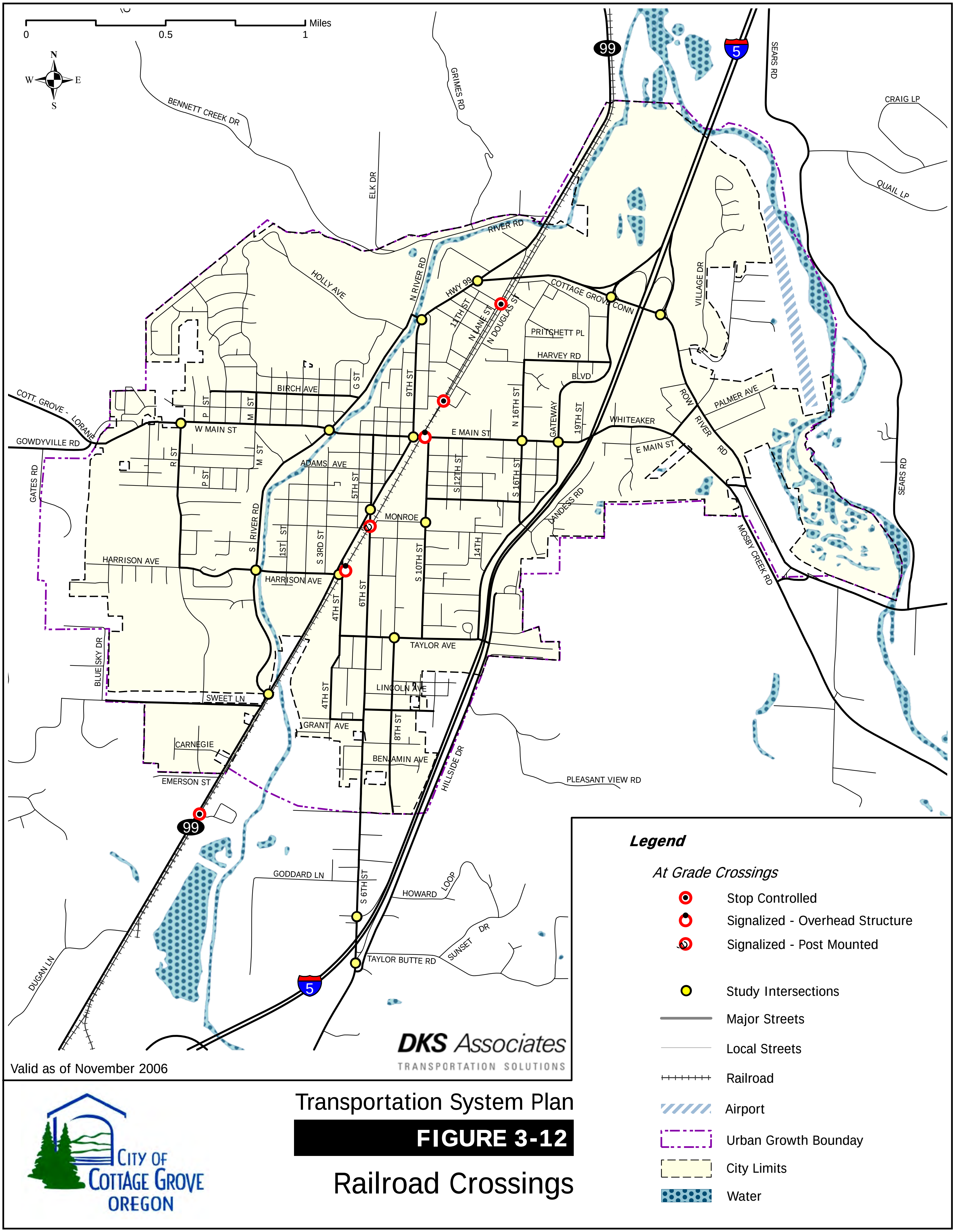
Five years of available collision data (2000 through 2004) were obtained from ODOT to identify areas of traffic safety concern within Cottage Grove. The analysis of collision data was separated into a review of past highway performance (specifically along OR 99) and past city street performance.

The collision data assessment indicated that three fatalities occurred within Cottage Grove from 2000 through 2004. The fatal collisions occurred on 8th 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 4th Street has recently been signalized resulting in improved traffic safety.



Valid as of November 2006

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Oregon

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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
6th Street	0	1	3	4	0.20
Harrison Avenue / 4th 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[12]. 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

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[12] 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	-	-	-	-	-	-	-	-	-	**-**
Total Collisions	**2**	**-**	**-**	**12**	**-**	**2**	**14**	**22**	**1**	**53**

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/16th 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/10th Street	0	0	0	0	0.00
Taylor Avenue/8th Street	0	0	0	0	0.00
I-5/6th 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.[13]

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.

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[13] 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)

	Posted Speed (MPH)			
Facility	**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

	Posted Speed Limit (MPH)				
Facility	**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	12th Street	<150’	na	na
Main Street	12th 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/6th Street	300	9%
I-5 On Ramp/6th Street	510	12%
OR 99/Cottage Grove Connector	450	2%
OR 99/Woodson Bridge[1]	370	3%
OR 99/Main Street[1]	470	3%
OR 99/6th Street[2]	260	3%
OR 99/4th Street	290	4%
OR 99/S. River Road	370	7%
Main Street/Gateway Boulevard[3]	280	2%
Main Street/16th Street[3]	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. 8th Street/Taylor Avenue	100	3%
S. 10th Street/Monroe Avenue	30	1%

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

[1] ODOT Transportation System Monitoring Unit Counts, January, 2004.

[2] ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

[3] 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[14] 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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[14] U.S. Census Bureau, 2000 Census Summary File 4, Journey to Work: 2000, Cottage Grove, Oregon.

4. FUTURE DEMAND

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.

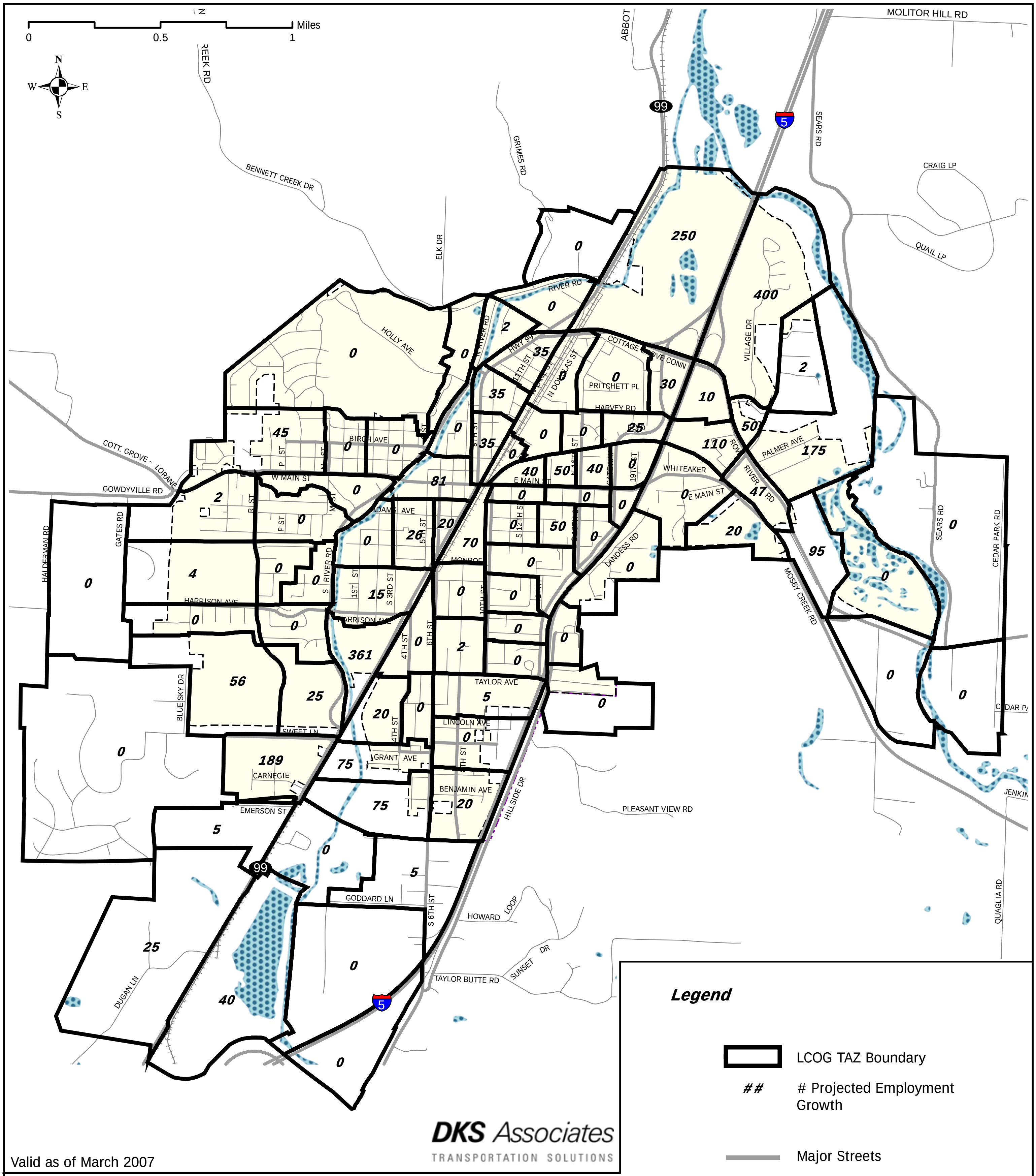
Table 4-1 indicates that significant residential (about 1,600 households) growth and employment (about 2,700 employees) increases are expected in Cottage Grove in the coming decades. The household growth and especially the employment growth generate significant increases in traffic volume. The transportation 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.



Legend

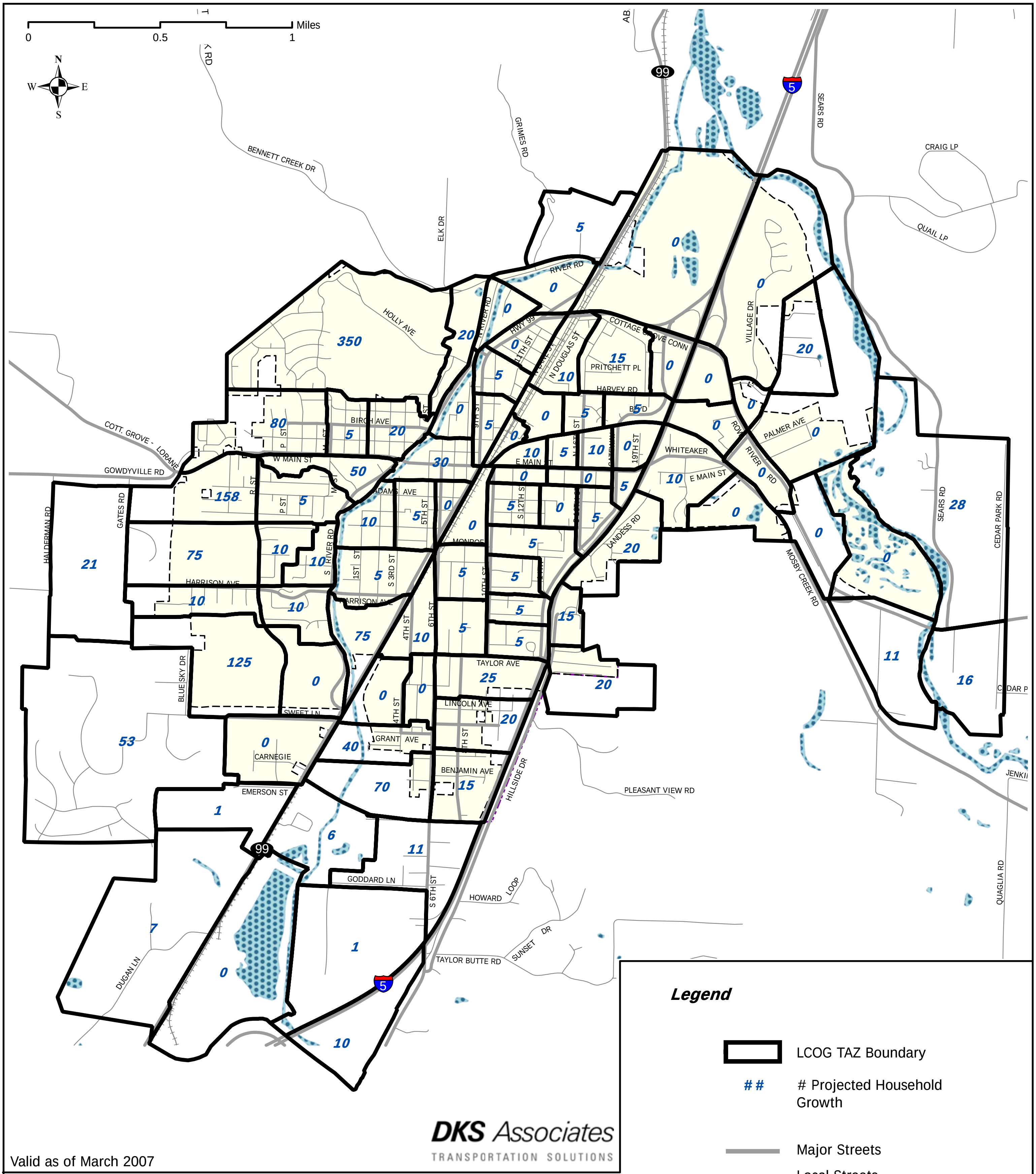
▭	LCOG TAZ Boundary
##	# Projected Employment Growth
━	Major Streets
─	Local Streets
┼┼┼	Railroad
⊡	Urban Growth Bounday
⬚	City Limits
▨	Water

City of Cottage Grove Oregon

Transportation System Plan

FIGURE 4-1

Projected Employment Growth
2025



Valid as of March 2007

DKS Associates
TRANSPORTATION SOLUTIONS

Legend

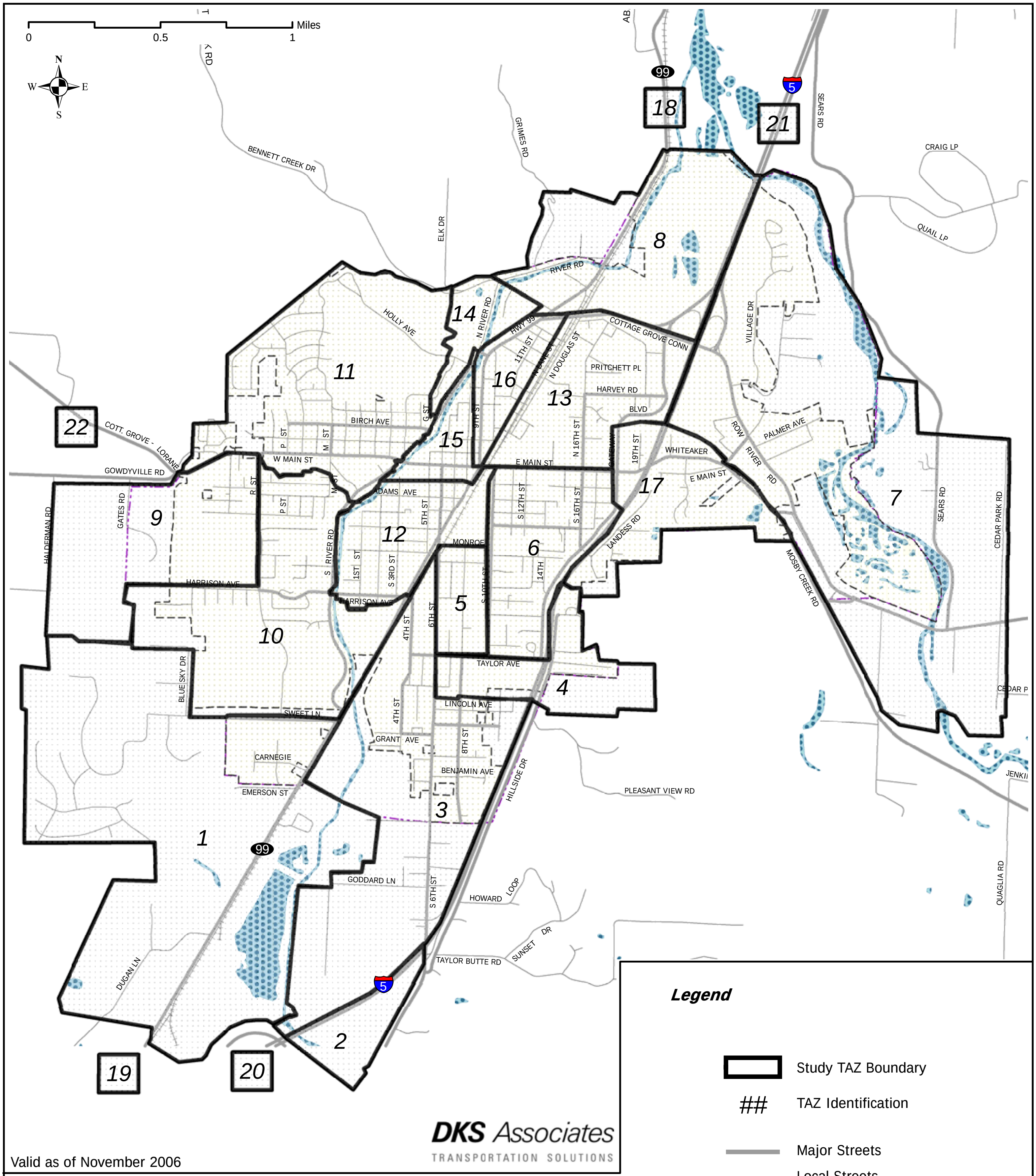
▭	LCOG TAZ Boundary
##	# Projected Household Growth
━	Major Streets
─	Local Streets
┼┼┼	Railroad
┅	Urban Growth Bounday
▭	City Limits
▨	Water

CITY OF COTTAGE GROVE OREGON

Transportation System Plan

FIGURE 4-2

Projected Household Growth 2025



Valid as of November 2006

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OREGON

Transportation System Plan

FIGURE 4-3

Study TAZ System

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[1]. 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[2]. 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[3]
Service Employment	Specialty Retail	814	1.89[3]
Education Employment	High School	530	1.55
Government Employment	Government Office Building	730	0.30[3]
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

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[1] *2025 Secondary Highway Future Volume Table*. Retrieved December 2006, from ODOT Web site: http://www.oregon.gov/ODOT/TD/TP/TADRIVEshtml

[2] *Trip Generation Manual*, 7th Edition, Institute of Transportation Engineers, 2003.

[3] 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
TOTAL	7,481

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[4,] 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.

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[4] *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[5] 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[6]. 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.

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[5] *Analysis Procedures Manual*, Oregon Dept. of Transportation: Transportation Development Division, April 2006, p. 4-21.

[6] 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 6th 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%

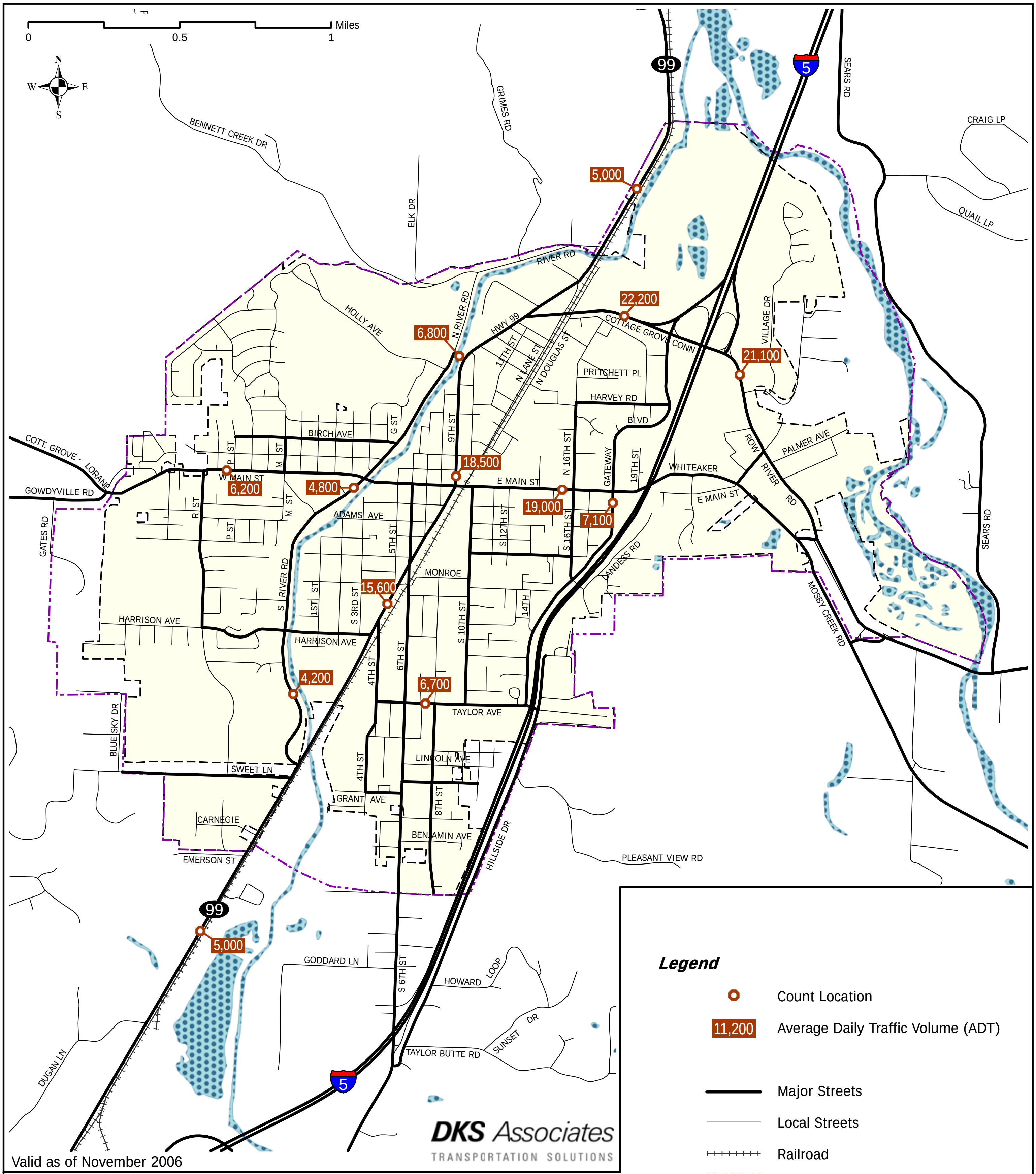
Future Capacity Analysis

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?
Signalized Intersections				
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 99/6th Street	C	21	0.86	Yes
OR 99/4th Street	C	26	0.74	Yes
Main Street/River Road	C	24	0.83	Yes
Main Street/16th Street	C	25	0.87	Yes
Main Street/Gateway Boulevard	F	92	**>1**	**No**
Unsignalized Intersections				
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/10th Street	A / B	2	0.02 / 0.08	Yes
Taylor Avenue/8th Street*	B	13	0.66	Yes
I-5/6th 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



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Transportation System Plan

FIGURE 4-4

Future Daily Traffic Volume

5. PEDESTRIAN PLAN

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

Street	Gap Location	Side of Street
4th St.	Grant Avenue to Fillmore Avenue	Both
4th St.	Fillmore Avenue to Taylor Avenue	East
6th St.	Quincy Avenue to OR 99	East
6th St.	Johnson Avenue to Fillmore Avenue	Both
10th Street	Madison Ave to Main St.	West
16th St.	Gibbs Ave to Harvey Ln.	East
16th 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	1st St. to 2nd St.	North
Harrison Avenue	West of 2nd St. to 2nd St.	South
Harrison Avenue	3rd St. to OR 99	South
Harvey Ln.	16th St. to 20th St	Both
Johnson Avenue	East of 8th St. to 11th St.	Both
Madison St.	12th St. to 15th 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 4th and 6th Streets, have poor connectivity. This is of particular concern near Lincoln Middle School.
- Harrison Avenue, between 1st and 3rd 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).[1] Narrow sidewalks are of particular concern at the intersection of Main Street and 9th 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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[1] *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.

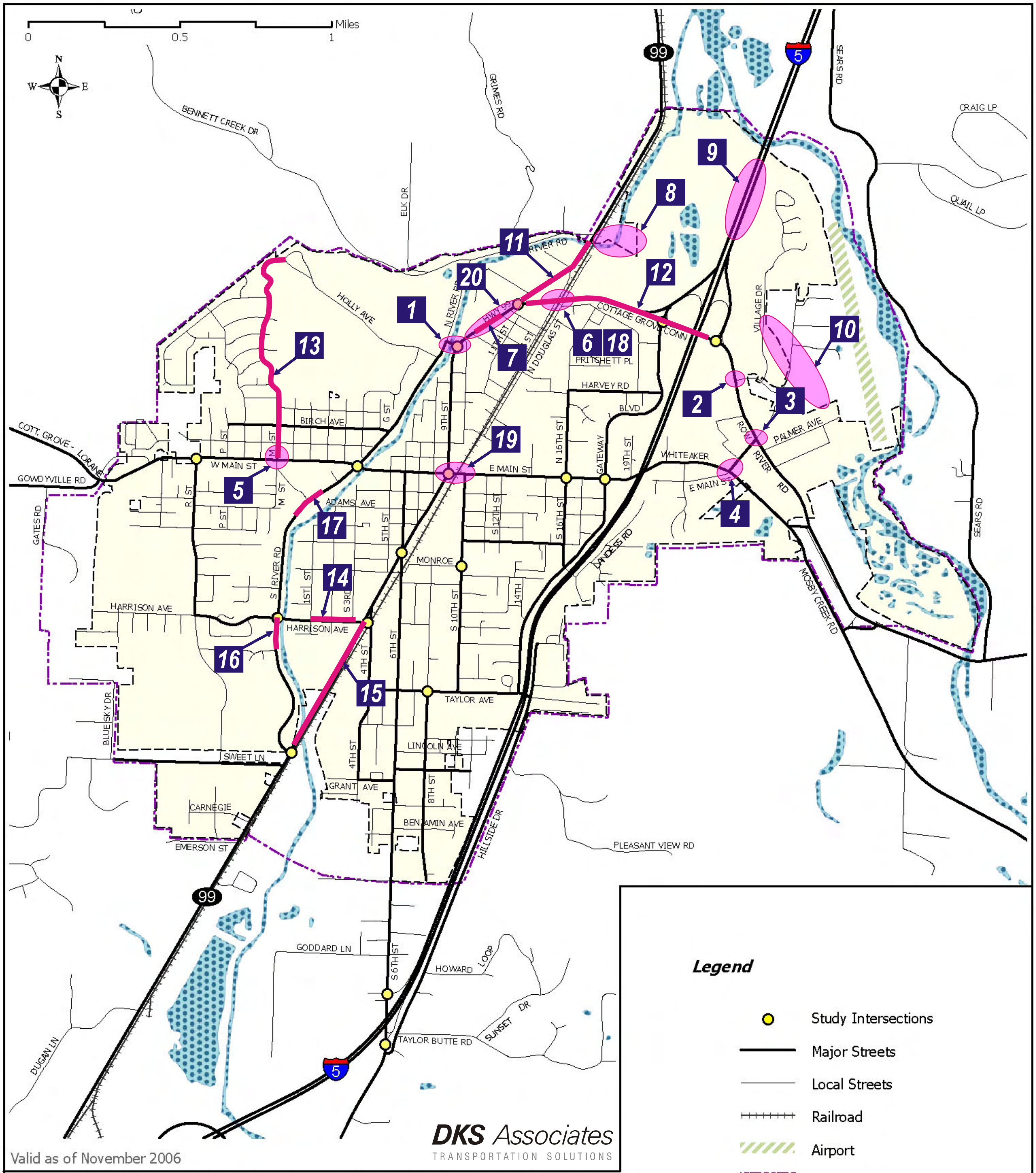
From this Master Plan, a more specific shorter term, Action Plan (Table 5-3) was developed. The Action Plan consists of projects that the City should give priority to in funding. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master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

Table 5-2: Pedestrian Master Plan Project List

#	Project	**Cost** (2006 $)
	Crossings	
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
	Trail Extensions	
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*
	Sidewalks	
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 1st Street ***	$150,000
15	OR 99 from S. River Road to 4th 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
	Other Projects	
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.



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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[2]. 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

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[2] *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

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[1]. 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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[1] 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 additional 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

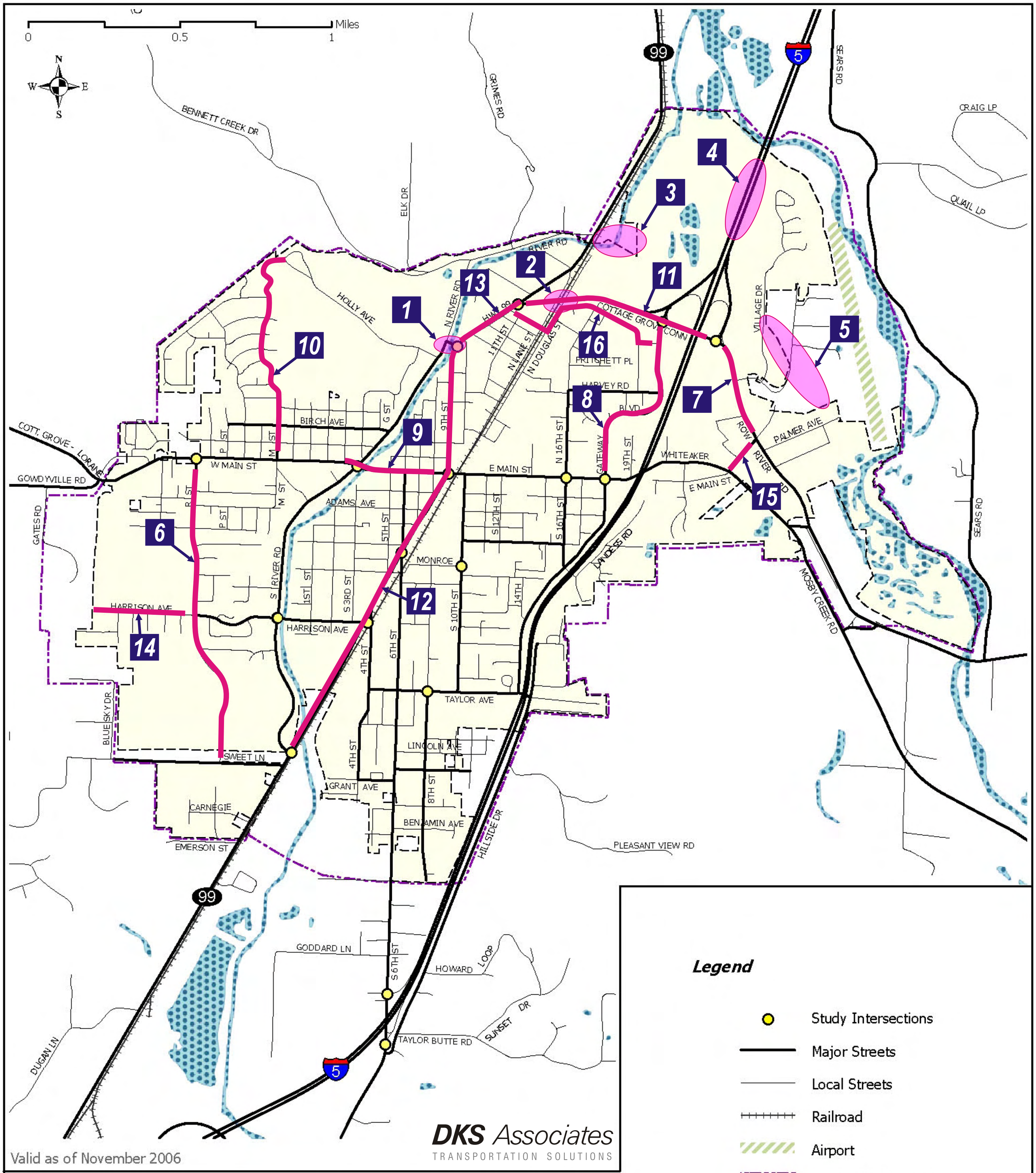
A list of likely actions to achieve fulfillment of the City's priorities was developed into a Bicycle Master Plan. The Bicycle Master Plan is an overall plan and summarizes the list of desired bicycle-related projects in Cottage Grove, providing a long-term map for planning bicycle facilities. From this 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 $)
	New Crossings	
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 ***	*
	Trail Extensions	
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	*
	Bike Lanes	
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
	Marked Bikeway	
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, 19th Street and Oswald West Avenue.	$25,000

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



CITY OF COTTAGE GROVE OREGON

Transportation System Plan

FIGURE 6-1

Bicycle Projects

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[2]. 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
City Projects			
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, 19th 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.

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[2] *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

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[1] 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[2] 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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[1] 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.

[2] *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

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*	Traffic calming measures are acceptable on lesser emergency response routes that have connectivity (more than two accesses).
Medians	Supported	Supported	
Pavement Texture	Supported**	Supported**	
Speed Hump	Not Supported	Not Supported	
Roundabout	Supported***	Supported***	
Raised Crosswalk	Not Supported	Not Supported	
Speed Cushion (provides emergency pass-through with no vertical deflection)	Not Supported	Not Supported	
Choker[1]	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

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[1] 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

Street Facility	Maximum spacing of roadways and driveways	Minimum spacing of roadways and driveways
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

Posted Speed (miles per hour)	*Access spacing (feet)*
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

	Posted Speed Limit (MPH)				
Facility	**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 6th 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.

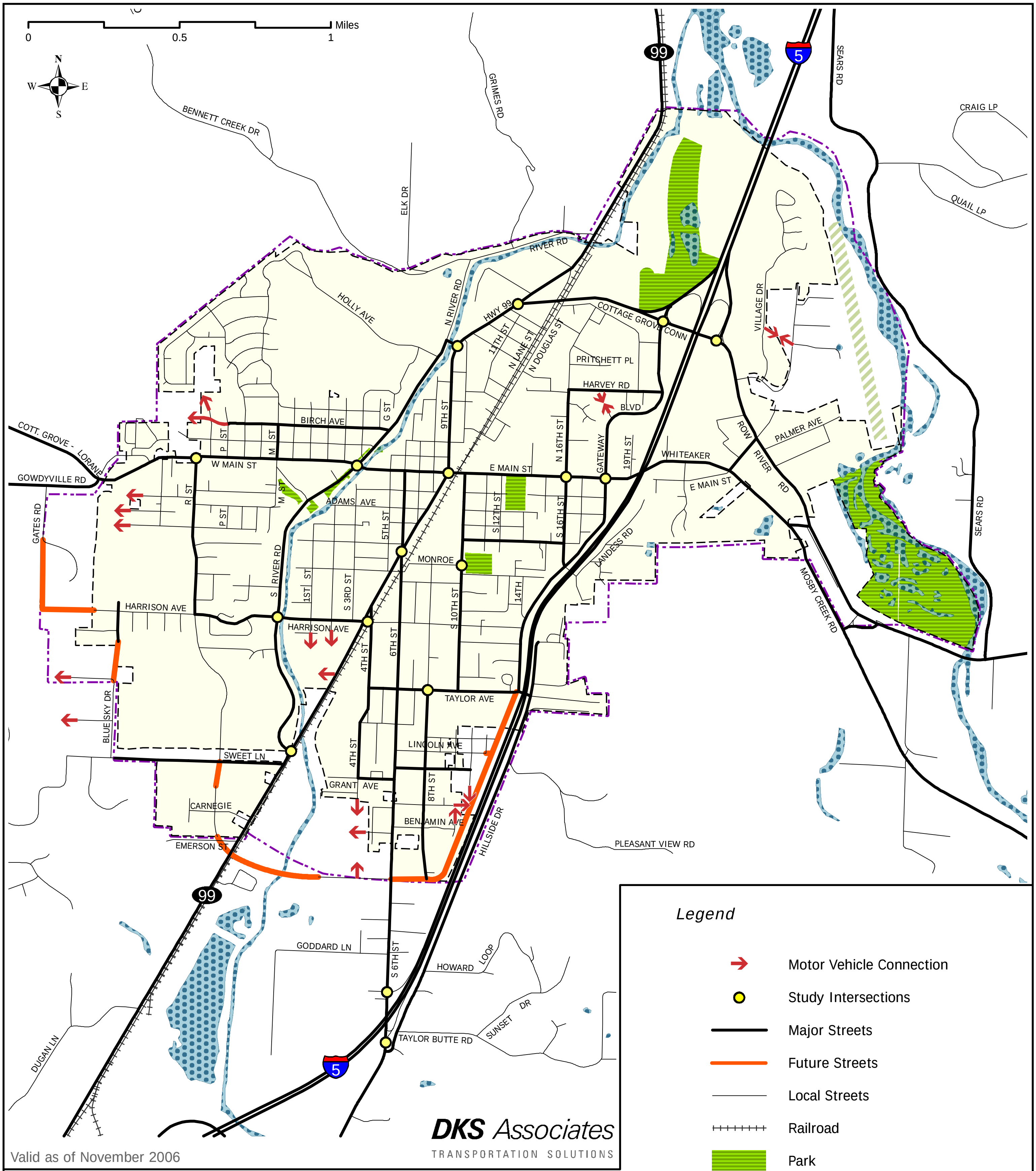
Figure 8-1 illustrates recommended motor vehicle and pedestrian and bicycle connections to local streets to encourage accessibility throughout the roadway network.

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.



Legend

- ➔ Motor Vehicle Connection
- ● Study Intersections
- ━ Major Streets
- ━ Future Streets
- ─ Local Streets
- ┼┼┼┼ Railroad
- 🟩 Park
- ▨ Airport
- ┅ Urban Growth Bounday
- ╌ City Limits
- ▩ Water

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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).[2] 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 10th Street, and South 16th 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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[2] *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

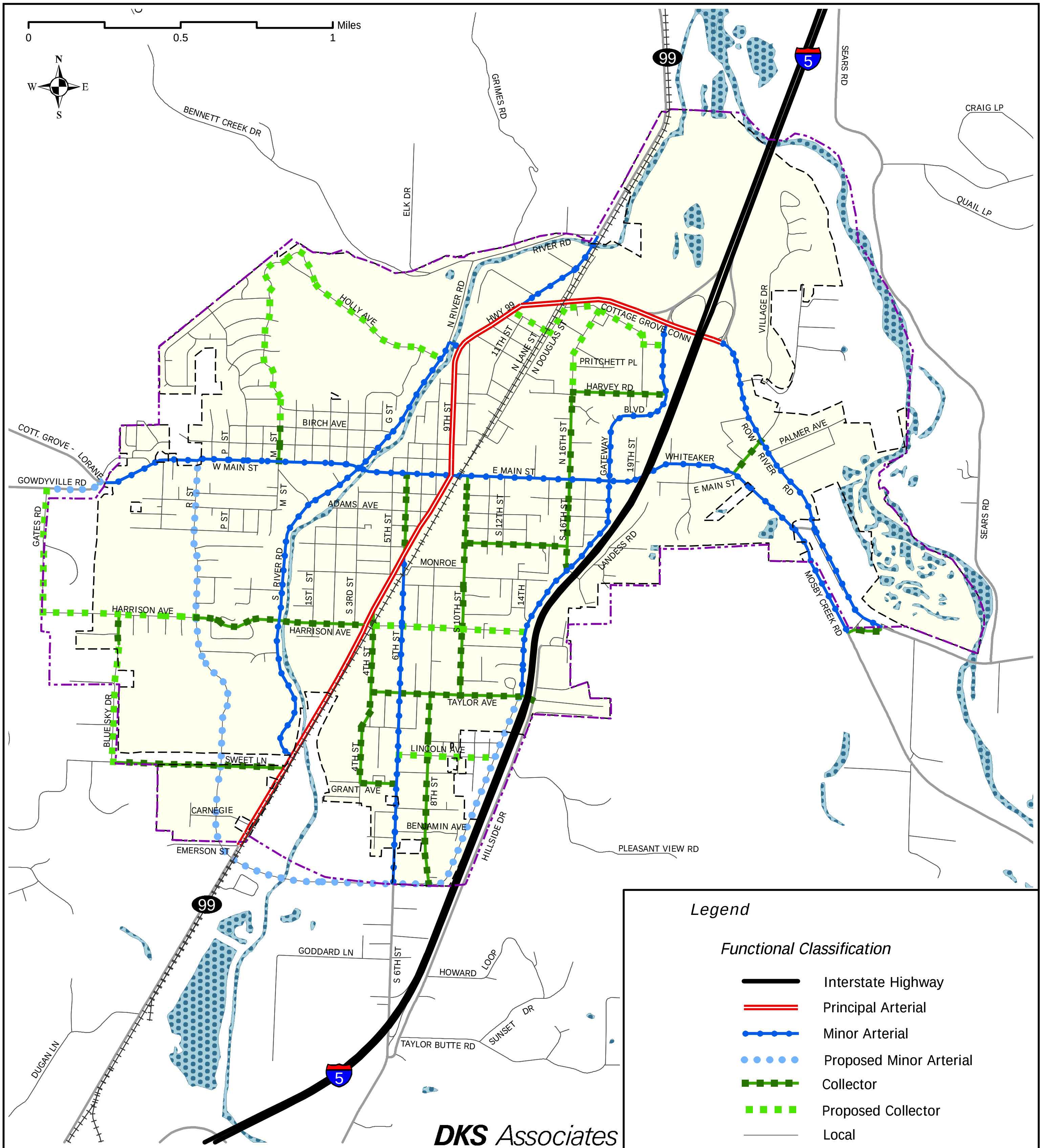

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FIGURE 8-2

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[3] 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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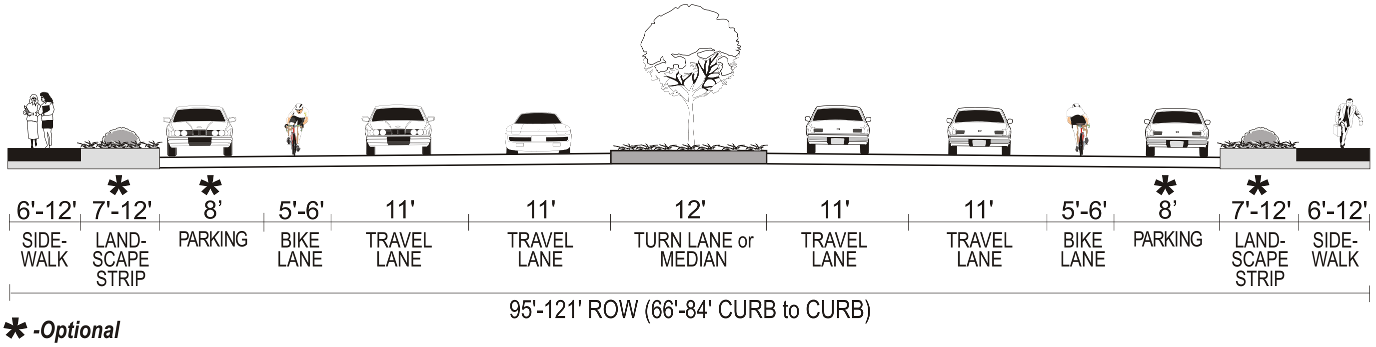
[3] Oregon Transportation Planning Rule, Land Conservation and Development Department, OAR 660-012-0000

Table 8-5: Street Standards

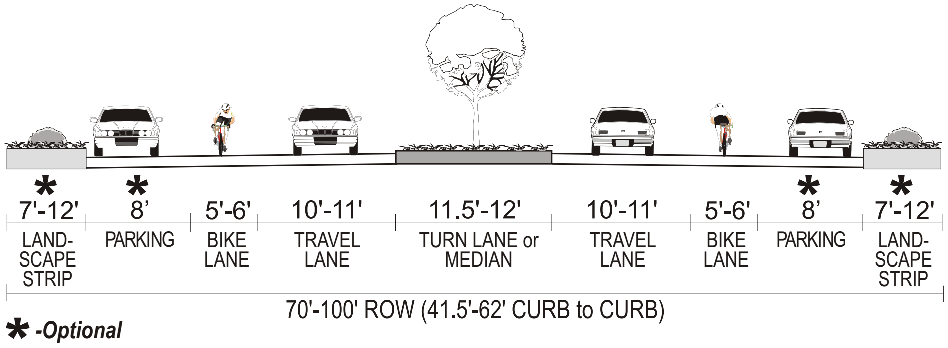
Street Type	**Right-of-Way Width**	**Curb-to-Curb Paved Width**	**Within Curb-to-Curb Area**				**Planting Strips or Tree Wells**	**Side-walks**
			Motor Vehicle Travel Lanes	**Median/ Center Turn Lanes**	**Bike Lanes**	**On-Street Parking**		
<u>**Arterials**</u>								
Boulevards:								
2-Lane Boulevard	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’
Avenues:								
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’
<u>**Collectors**</u>								
Residential:				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’
Commercial (Collectors and Local Streets):				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’

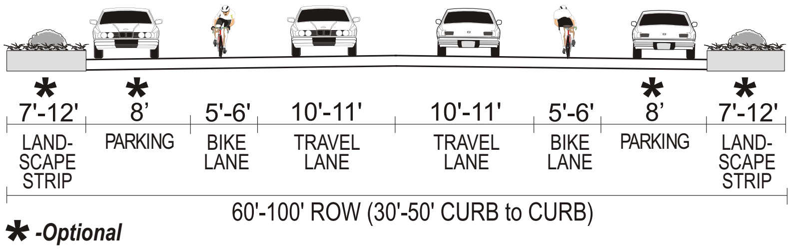
Arterial - 5 Lane



Arterial - 3 Lane



Arterial - 2 Lane



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

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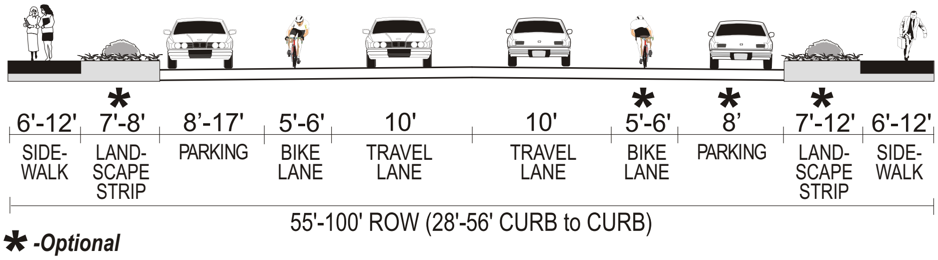
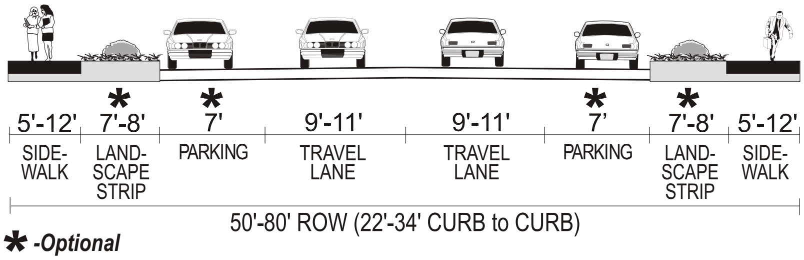
Figure 8-3A

Arterial Street Design Standards

Commercial Collector



Residential Collector



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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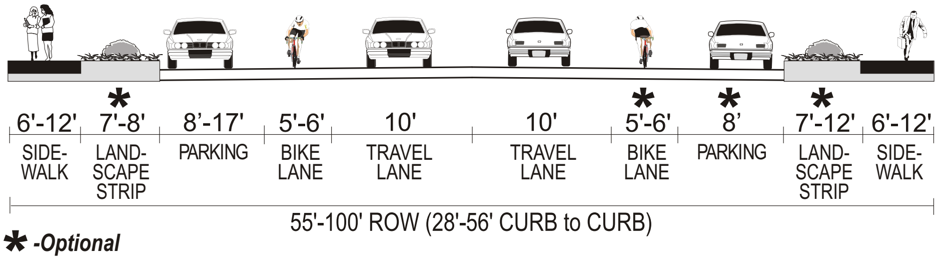
Figure 8-3B

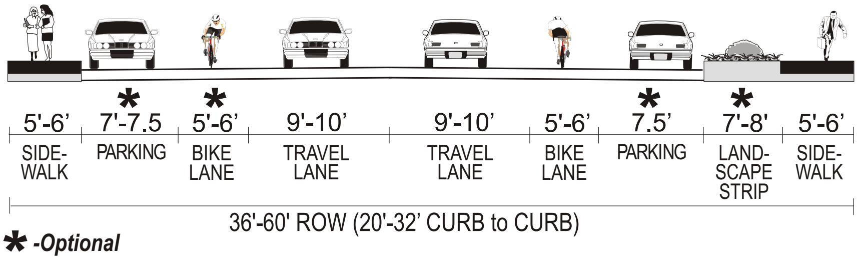
Collector Street Design Standards

Commercial Local



*** -Optional**

Residential Local



*** -Optional**

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

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Figure 8-3C

Local Street Design Standards

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[4] 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.[5] 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)

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[4] 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.

[5] *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.	Reduction Transit 8-20% High 5-9% Medium 2-4% 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 lessoned.

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:

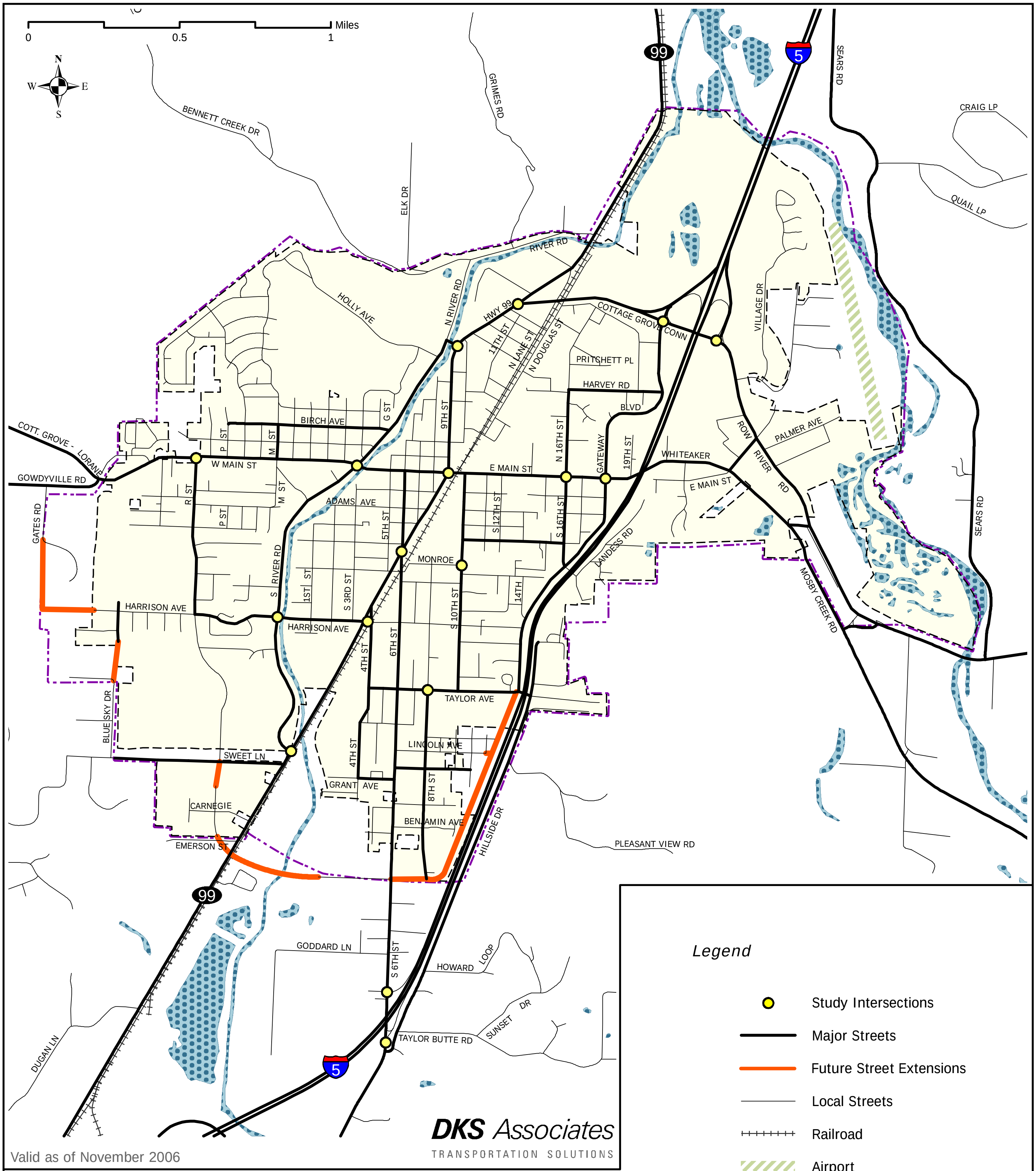
- Gates Road Extension – complete from Gowdyville Rd to Harrison Avenue.
- Blue Sky Lane Extension – complete from Harrison Avenue to Sweet Lane
- Lincoln Avenue Extension – from east end to Gateway Boulevard Extension

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.



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Legend

- ● Study Intersections
- Major Streets
- Future Street Extensions
- Local Streets
- Railroad
- ▨ Airport
- Urban Growth Bounday
- City Limits
- Water

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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?
Signalized Intersections					
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 99/6th Street	B	13	0.66	0.80	Yes
OR 99/4th Street	C	21	0.54	0.80	Yes
Main Street/River Road	B	20	0.72	0.90	Yes
Main Street/16th Street	C	24	0.87	0.90	Yes
Main Street/Gateway Boulevard	F	86	**>1**	**0.90**	**No**
Unsignalized Intersections					
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/10th Street	A / B	2	0.02 / 0.08	E	Yes
Taylor Avenue/8th Street*	A	9	0.28	E	Yes
I-5/6th 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[6]. 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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[6] 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 (9th 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.

<u>New Traffic Signals (Previously Identified)</u>

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[7] 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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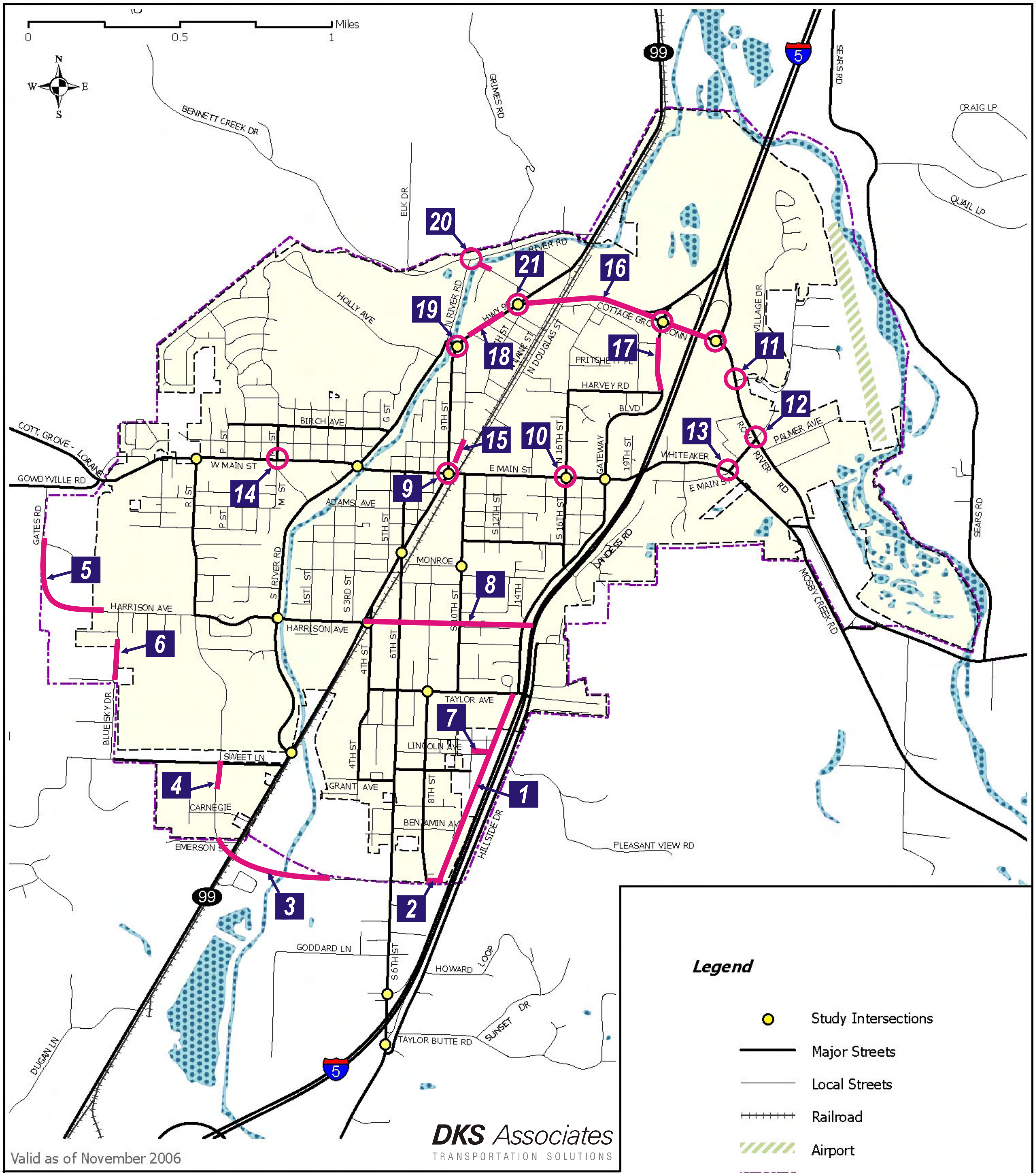
[7] Cottage Grove Downtown Revitalization and Refinement Plan, CH2Mhill, Alta Planning, Angelo Eaton Associates, June 2005.

Table 8-8: Motor Vehicle Master Plan Project List

#	Project	Cost (2007$)
	New Roadways	
1	Gateway Boulevard Extension – from Taylor Avenue to Cleveland Avenue	$3,000,000*
2	Cleveland Avenue Extension – from Gateway Boulevard Extension to 6th 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*
	Other Projects	
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.



CITY OF COTTAGE GROVE OREGON

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[8]. 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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[8] *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
City Projects			
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[9]	Mid Term
Main Street at 16th Street Turn Lane	Addition of a southbound left turn lane at 16th Street and Main Street Intersection	$400,000	Long Term
State Projects			
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
Private Development Projects			
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.

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[9] 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

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

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[1], 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)

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

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.

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[1] 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[2]. 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 $)
Operations and Maintenance Programs and Services	
Capital Improvement Projects – Maintenance and other non-capacity-adding projects ($815,000 per year)	$14.7
Operations ($800,000/yr)	$14.4
Total Operations and Maintenance Programs	**$29.1**
18 YEAR TOTAL in 2007 Dollars	**$29.1**

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

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[2] 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)

Project	Improvement	Estimated City Cost
City Projects		***$2,000,045***
Realign OR 99 at Main Street*	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	$800,000[3]
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 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
State Projects		***$1,000,070***
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
Private Development Projects		
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.

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[3] 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.

COTTAGE GROVE
TRANSPORTATION SYSTEM PLAN UPDATE

- TECHNICAL APPENDIX

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APPENDIX A: Background Plan and Document Review

Background Plan And Document Review

A review of past plans, maps and studies was conducted to determine key elements that would have an impact on the Transportation System Plan update process for the City of Cottage Grove. The following section summarizes key findings, and provides highlights of the relevant issues from state, county and city planning documents. This background review is useful throughout the TSP update project because it identifies how local plans fit into the larger regional context.

Other reports addressing specific area master plans or feasibility studies will be considered through the process, as appropriate, but the land development and travel forecasts done in conjunction with the TSP generally supersede these studies.

Summary

The Cottage Grove TSP update will include responses to transportation, land use, environmental, economic and social changes that have occurred in the community since the TSP was first prepared. The update will also attempt to anticipate emerging issues.

Key rules and policies found during the Plan and Document Review include the following:

- Use 2001 Oregon Transportation System Planning Guidelines for overall transportation system planning assistance.
- Document the steps of the TSP update in a matrix to demonstrate TPR compliance.
- Address new TPR requirements (OAR 660-12-0050 and -0055) that direct the amendment of local TSPs when land use plan amendments are proposed.
- Comply with State access management standards for District Highways for Highway 99 as it travels through Cottage Grove. Access spacing ranges from 400 feet to 700 feet depending on the posted speed limit.
- Follow the guidance of OHP policies related to:
    - Coordination of land use and transportation planning coordination between the City, County, and the State;
    - mobility standards of 0.85 v/c on District Highways where the posted speed limit is less than 45 mph, and 0.80 v/c where the posted speed limit is 45 mph or higher; and
    - off-system improvements, where the State may financially assist local jurisdictions in local road projects that are cost-effective improving conditions on state facilities.
- For alternative modes, recognize city walkways and bikeways (paths, sidewalks, wider shoulders) for transportation alternatives within Cottage Grove.
- Observe the Urban Growth Management Agreement (UGMA) provision that transfers county and local access roads from Lane County to the City of Cottage Grove upon annexation.
- Propose development code language that specifies the kinds of transportation facilities and activities that are permitted each of the City's land use districts, as well as corresponding, enabling policy language for the Comprehensive Plan.
- Decide how to coordinate City and County Comprehensive Plan policies regarding Urbanization, Natural Resources, and Transportation.

- Account for the transportation impacts of proposed commercial and residential development developments in the city.

The following sections summarize the key documents, plans, and regulations that were reviewed to reach the above findings. These are summarized for the State of Oregon, Lane County, and the City of Cottage Grove.

State of Oregon Planning Documents and Regulations

Oregon Transportation Plan (OTP)

The Oregon Transportation Plan (OTP) sets the general direction for transportation development statewide for the next twenty years and provides overall direction for allocating resources and coordinating modes of transportation. It provides policies to increase livability in the State of Oregon by emphasizing alternative forms of transportation to the single occupant vehicle. The plan seeks to develop public transit, rail lines, bicycling and pedestrian facilities, airports and pipelines, while also emphasizing the maintenance and improvement of highways, roads and bridges. Thus, the plan calls for a transportation system that has a modal balance, is both efficient and accessible, provides connectivity among rural and urban places and between modes, and is environmentally and financially stable. The Cottage Grove TSP currently incorporates these goals and strategies and they will be carried forward in the update.

Oregon Highway Plan (OHP)

The basic framework for the Oregon Highway Plan (OHP) is a refinement and application of the goals and policies stated in the OTP applied to the state highway system. The OHP gives policy and investment direction to large scale facility plans and TSPs, but is not intended to direct specific projects and modal alternatives.

Specific OHP policies with bearing on transportation planning and updating in Cottage Grove include the following.

- Policy 1A – State Highway Classification System

  The state highways in Cottage Grove are Interstate 5, classified as an Interstate Highway and Highway 99, designated as a District Highway.

- Policy 1B: Land Use and Transportation

  Land use and transportation planning and development need to be coordinated between state, regional, county, and city agencies.

- Policy 1F: Highway Mobility Standards

  District Highways inside UGBs where speed limit are less than 45 mph, mobility standards are 0.85 v/c. Where the speed limit is at least 45 mph, the standards are 0.80 v/c. Interstate highways should have a maximum v/c of 0.70 in non-MPO areas.

- Policy 1G: Major Improvements

  Efficiency and other management measures must be instituted before adding capacity.

- Policy 2A: Partnerships

The limited resources available for transportation planning and development should be efficiently and effectively used by coordinating the efforts of ODOT and other agencies, in this case the City of Cottage Grove.

- Policy 2B: Off-System Improvements

  The State is to provide financial assistance for local road projects when the projects are cost-effective in improving state facility conditions.

- Policy 2D: Public Involvement

  Offer opportunities for effective public involvement in transportation planning and project development.

- Policy 2F: Traffic safety

  Increase the safety of the state transportation system through engineering, education, enforcement, and emergency services.

Goal 3 (Access Management) is critical in transportation planning efforts that involve state transportation facilities. This goal is implemented through OAR 734-051, which is reviewed later in this chapter. Goal 4 (Travel Alternatives) and Goal 5 (Environmental and Scenic Resources) also apply to the TSP update, if in limited ways. Goal 5, with an aim to go beyond what is required by other state and federal regulations, calls for natural resources to be maintained and even improved by transportation planning and projects involving state facilities.

The highways of statewide importance that are specifically identified in The Highway Plan in the City of Cottage Grove include:

- Interstate 5, which is classified as a Interstate Highway and Major Freight Route with the primary objective being to provide mobility between urban areas and a secondary objective being to provide mobility for regional trips *within* a metropolitan area. The operations of this facility should be safe and efficient high-speed continuous flow. The maximum volume to capacity ratios for peak hour operating conditions is 0.70.
- Goshen-Divide Highway (OR 99), which is classified as a District Highway. This facility functions as a city arterial or collector. In urban areas, such as the City of Cottage Grove, this facility should provide moderate to low-speed operation for traffic flow to allow for significant pedestrian and bicycle movements. Mobility is to be balanced with local access. The maximum volume to capacity ratios for peak hour operating conditions varies from 0.85 to 0.80, depending on posted speed limits.

Oregon Public Transportation Plan

The Oregon Public Transportation Plan develops transit, rideshare and transportation demand management services as well as implementing the public transportation system envisioned in the OTP. The plan describes the roles and responsibilities of key players, provides a financial investment strategy and identifies both short and long term implementation steps. The plan provides minimum levels of service standards for public transportation operations. These criteria include peak and off-peak frequencies, vehicle maintenance programs and replacement schedules, intermodal connections and ridesharing. The Cottage Grove TSP update will incorporate all relevant aspects of this plan.

Oregon Bicycle and Pedestrian Plan

The provision of safe and accessible bicycling and walking facilities in an effort to encourage increased levels of bicycling and walking is the goal of the Oregon Bicycle and Pedestrian Plan. The Plan provides actions that will assist local jurisdictions understand the principals and policies that ODOT follows in providing bike and walkways along state highways. In order to reach the plan's objectives, the strategies for system design are outlined, including:

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

The document includes two sections, including the Policy & Action Plan and the Bikeway & Walkway Planning Design, Maintenance & Safety. The first section contains background information, legal mandates and current conditions, goals, actions and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. The second section assist ODOT, cities and counties in designing, constructing and maintaining pedestrian and bicycle facilities. Design standards are recommended and information on safety is provided.

The Cottage Grove TSP update will address design standards for all bicycling and pedestrian facilities located in the City of Cottage Grove in accordance with the Oregon Bicycle and Pedestrian Plan. Additionally, needs assessment and possible alignment alternatives will be based on the goals espoused in the Policy and Action section of the Oregon Bicycle and Pedestrian Plan.

Oregon Aviation Plan

The Oregon Aviation Plan establishes five categories of airports based in their functional roles and provides a statewide perspective relating to airport planning decisions while further refining the goals and policies of the OTP. The Plan provides both forecasts and inventories for the public access airports in the state, with key issues being that :

- Local governments own most airports.
- The federal government owns most of the navigational system.
- The FFA determines funding levels and prioritization of expenditures.

With over 70 core system public use airports in the state of Oregon (there are 97 total public use airports in the state), the Cottage Grove State Airport-Jim Wright Field is classified as a Category 4 – Community General airport, used to accommodate general aviation users and local business activities. The Cottage Grove TSP update will consider the findings from the Oregon Aviation Plan in assessing the air transport mode for Cottage Grove and incorporate findings and suggestions from the plan in the air modal plan.

Oregon Rail Plan

This plan serves as a combination of the State's rail planning, freight rail and passenger rail systems and contains three elements:

- Summary of the state's goals and objectives related to passenger and freight rail.

- Quantify and measure the state's performance to-date.
- Identifies projected costs, revenues and investment needs for rail transportation of people and goods.

The plan also establishes a system of integration between freight and passenger elements into the land use and transportation planning processes and calls for cooperation between state, regional and local jurisdictions in completing the plan. The Cottage Grove TSP update will incorporate the recommendations of the Oregon Rail Plan in the rail modal plan, as well as consider the implications of recommendations to other modal projects in the City.

Oregon Statewide Planning Goals (OAR 660-015)

The Oregon Statewide Planning Goals provide a foundation for expressing state policy on land use planning. The 19 goals for land use planning in the state are to be achieved through local comprehensive planning. Local comprehensive plans must be consistent with the Statewide Planning Goals.

The Transportation goal (Goal 12) is a safe, convenient, multimodal and economic transportation system. Consideration of local and regional economies, social consequences, environmental impacts, energy, the needs of transportation disadvantaged, and over reliance on a single mode should be included in local plans. Guidelines for planning and implementation are included to support the Statewide Planning Goals.

Oregon Transportation Planning Rule (TPR) (OAR 660-012)

The State of Oregon adopted 19 statewide planning goals that must be implemented in a comprehensive plan for each city (with a population over 2,500 individuals) and county in the state. In addition to identifying how land, air and water resources of each specific jurisdiction will be utilized, a review and needs analysis must be completed for improving public facilities.

One of the 19 goals is the Transportation Planning Rule (Goal 12). To comply with this rule, Cottage Grove must adopt a Transportation System Plan (TSP) that complies with the State TSP. The overarching goals to be accomplished by the TPR are to:

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

Local TSPs are expected to examine possible land use solutions to transportation problems and identify multi-modal, system management and demand management strategies to address transportation needs. This entails the development of modal plans, including pedestrian, bicycle, motor vehicle and transit. These plans must strive to provide a integrated transportation network and include an inventory of current infrastructure, provide a gap analysis and identify how these gaps are going to be filled. The areas of analysis addressed in the TPR for a transportation system plan include:

- Roadway capacity and level of service
- Transit capacity and capacity utilization
- Bicycle and pedestrian system capacity
- Adjustment of turning movement volumes produced by travel demand forecasting models

- Estimation of future transportation needs (person travel), reflecting:
    - Population and employment forecasts consistent with comprehensive plans
    - Measures to reduce reliance on the automobile
    - Increased residential, commercial and retail development densities
    - Location of neighborhood shopping centers near residential areas
    - Better balance between jobs and housing
    - Maximum parking limits for office and institutional developments
    - Appropriate levels of transportation facilities to serve land uses identified in transportation plans
    - Increases in average automobile occupancy
    - Increases in modal shares of non-automobile modes
    - TDM programs
    - Land use and subdivision regulation
- Estimation of future goods movement
- Access management

These strategies were incorporated into the adopted TSP and will be carried forward in the update.

The Oregon Land Conservation and Development Commission adopted amendments to sections of the TPR – OAR 660-12-0050 and -0055 – in 2005. The amendments clarify planning requirements for amending local TSPs when land use plan amendments are proposed. The TSP update should reflect this new rule requirement.

Oregon Access Management Rule (OAR 734-051)

The purpose of Oregon's Access Management Rule is to control the issuing of permits for access to state highways, state highway rights of way and other properties under the State's jurisdiction. In addition, the ability to close existing approaches, set spacing standards and establish a formal appeals process in relation to access issues is also identified.

These rules enable the State to set policy and direct location and spacing of intersections and approaches on state highways, ensuring the relevance of the functional classification system and preserving the efficient operation of state routes. Regulating access can:

- Protect resource lands
- Preserve highway capacity
- Ensure safety for segments of state routes with sharp curves, steep grades or obstructed sight distance.

The access management standards adopted by ODOT are summarized in the table below.

Table 1: ODOT Access Management Standards

	Posted Speed (MPH)				
Facility	***>55***	***50***	***40,45***	***30,35***	***<20***
Statewide Highway (feet)	1320	1100	990	770	550
Regional Highway (feet)	990	830	750	600	450
District Highway (feet)	700	550	500	400	400

These standards will be used in the TSP update to establish a connectivity plan, verify access spacing for any proposed highway interchanges and analyze current access conditions on congested state highways. The TSP update will work towards compliance with these standards on existing roadways where they are currently unmet. The standards will be applied to all rights of way under the State's jurisdiction in the City of Cottage Grove.

Sustainability and Quality Development Executive Orders

Executive Orders related to sustainability have been issued in support of the Oregon Sustainability Act in 2000, 2003, and 2006. The 2000 Executive Order (EO-00-07) identified the goals and guidelines for sustainability in Oregon and adopted sustainability practices in state government operations. The 2003 Executive Order (EO-03-03) established sustainability planning within state agencies consistent with the goals identified in the Oregon Sustainability Act. Executive Order 06-02 supersedes the prior Executive Orders and identifies the roles of state agencies in carrying out sustainability goals.

Executive Order (EO-00-23) identifies objectives and implementation policy for quality development. Quality development objectives included mixed use development which encourages walking, biking, and transit use.

State Transportation Improvement Program (STIP)

The current adopted (2006-2009) Statewide Transportation Improvement Program (STIP) serves as ODOT's short term capital improvement program and provides funding and scheduling information for transportation projects for both ODOT and the metropolitan planning organizations in the state. Projects funded in the STIP reflect and advance the Oregon Transportation Plan for highways, public transportation, freight and passenger rail and bicycle and pedestrian facilities. Additionally, monies obtained from the sale of state bonds authorized in the 2003 Oregon Transportation Investment Act (OTIA III) and placed in the STIP coffers have been dedicated to modernization, bridge and pavement preservation projects. Therefore, many of the projects in the 2006-2009 STIP are preservation oriented.

The following projects will have an impact on the Cottage Grove transportation system:

- Replacement and repair of the I-5 bridges south of Cottage Grove from milepoint 172.2 to milepoint 174.4. (total cost $13.6 million). (Key Number 13539)
- Replacement and repair of I-5 bridges through and north of Cottage Grove from milepoint 174.7 to 185.5 (total cost $15.3 million). (Key Number 14053)

- Construction of a turn lane on Gateway Boulevard in Cottage Grove. (total cost over $110,000). (Key Number 14072)

Lane County Planning Documents

Transportation System Plan (TSP)

The Lane County TSP (2004) provides a framework for addressing the transportation needs of Lane County over the next 20 years, and works within the framework provided by the related state, regional and local plans. The plan was created through an extensive citizen involvement process and represents the vision and goals of the community. The purpose of the plan is to facilitate multi-modal transportation needs of County citizens with coordination between transportation system improvements and land use requirements.

The plan defines goals and policies, identifies transportation system facilities in the county and suggests recommended improvements. Recommended improvements are based on county profiles, trends, and a detailed needs assessment.

Lane County projects identified in the TSP include projects from the TSP needs assessment, the 2003-2007 Lane County Capital Improvement Plan (CIP), and City TSPs. The following projects identified in the 20-year TSP project list will have an impact on the Cottage Grove transportation system:

- Widening and guardrail upgrade on Bennett Creek Road between North River road and the bridge at the UGB (total cost $270,000)
- Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000).
- Bicycle and pedestrian facilities on Latham Road between Highway 99 and London Road. (total cost $100,000).
- Upgrade on North River Road between Highway 99 and Bennett Creek Road (total cost $430,000).
- Upgrade to a three-lane facility with bike lanes on Row River Road between the Cottage Grove UGB and Row River. (total cost $900,000).
- Upgrade and realignment of South River Road from Highway 99 to city limit (total cost $660,000).
- Upgrade of Sweet Lane to urban standards from Highway 99 to Talemena Drive (total cost $570,000).
- Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000).

Capital Improvement Plan (CIP)

The capital improvement plan implements the goals and policies that have been adopted into the Lane County Transportation System Plan. The CIP is a 5-year plan for capital improvements which lists specific projects and includes a financial plan. The Lane County CIP is updated annually. The current adopted 2006-2010 CIP is an update from the 2003 to 2007 plan referenced in the Lane County TSP. No Cottage Grove area projects are included in the current 5-Year Program.

City of Cottage Grove Documents

Comprehensive Plan

The Cottage Grove Comprehensive Plan provides a framework for future development by presenting goals and policies in a wide array of subjects related to development, including urbanization, land use, housing, natural and cultural resources, environmental quality, public facilities and services, energy and transportation.

Public involvement policies require public hearings and opportunities for citizen participation during the consideration of amendments to the City's Comprehensive Plan, a requirement that adoption of an updated TSP will trigger. Natural resource policies protect habitat and natural systems around the city, the most sensitive areas being associated with the city's rivers and streams. Transportation planning and projects should minimize impacts to these resources as well as minimize degradation of air, water, and general environmental quality, and avoid areas of natural hazards.

Although not addressed by the current plan, the Comprehensive Plan should include policy that enables the establishment of the types of transportation facilities and activities permitted in each of the City's land use districts.

Transportation System Plan (TSP)

The adopted 1998 Cottage Grove TSP was developed to provide an extensive review of the transportation system, evaluate deficiencies in the system and plan for future improvements for the area through the year 2015. A key objective of this plan was to achieve a balanced, safe transportation system that meets the needs of all modes of travel, including pedestrians, bicycles, transit, motor vehicles and other modes (e.g. rail, air). The TSP outlines the City's goals for developing its transportation facilities to meet short and long term needs.

Existing conditions were assessed and future needs through 2015 were determined based on growth assumptions. A master plan for each travel mode was recommended to meet the city's goals and local performance standards. A project list for each travel mode was prepared including estimated costs. The TSP also provides funding strategies. The TSP update will consider and incorporate all findings and projects from the adopted TSP that are still relevant in addition to incorporating new projects.

Zoning Code

The City of Cottage Grove Zoning Code specifies zoning and land use including permitted uses, conditional uses, standards and exceptions. The goal of zoning and development codes is to promote general welfare and to implement the Comprehensive Plan for the city. The following zoning designations are made in the City Code:

- Suburban Residential (RS)
- Single-Family Residential (R-1)
- Medium Density Multi-Family Residential (R-2)
- High Density Multi-Family Residential (R-3)

- Manufactured Home Subdivision (MHS)
- Mobile Home Park (MHP)
- Residential Professional (RP1 & RP2)
- Parks and Recreation (PR)
- Neighborhood Commercial (C-1)
- Central Business (C-2)
- Community Commercial (C-2P)
- Commercial Tourist (CT & CT/L)
- Medical Park (MP)
- Light Industrial (M-1)
- Heavy Industrial (M-2)
- Historic Preservation (HP)
- Planned Unit Development (PUD)
- Mixed Use Master Plan (MUM)

The zoning code establishes permitted uses and design standards for each of these zones. Parking and loading requirements as well as signage standards are included.

The City's code does not indicate whether transportation improvement and maintenance projects are allowed in its zoning districts. In order to comply with the TPR, the City's code must specify what kinds of transportation facilities and activities are permitted in each district. Enabling policy for this code language must be established in the City's Comprehensive Plan. The Development Code Update Project, a comprehensive review of the zoning code, should ensure that the code is in compliance with the TPR.

Buildable Lands Analysis (BLA)

The 2005 Cottage Grove Buildable Lands Analysis (BLA) Update identifies available land for growth over a 20 year planning horizon. Land available for development is classified as infill, redevelopment, or vacant. The 2005 BLA Update provides new information that has become available since the 2001 BLA. Population forecasts and employment trends are used to arrive at forecasted land needs. These forecasts provide the City with valuable information to aid in development of economic goals and policies to assist in shaping the community by attracting desirable commercial and industrial businesses and in providing a range of housing options.

Downtown Revitalization & Refinement Plan

The Cottage Grove Downtown Revitalization and Refinement Plan (DRRP) addresses key transportation issues in the city with the goal of improving pedestrian and bicycle travel while enhancing the safety, function, aesthetics and historical character of downtown Cottage Grove. The DRRP is focused on traffic and safety analysis in the area surrounding the Main Street intersections with OR 99 and 10th street. Components of the DRRP include:

- Multimodal planning of the area surrounding the Main Street intersections
- Streetscape Improvements along Main Street
- Intersection design plans including safety, functionality, and access considerations
- Code recommendations for implementation of DRRP goals

- Construction cost estimates and potential funding sources

Bikeway Master Plan

The 1993 City of Cottage Grove Bikeway Master Plan provides guidance for future bikeway improvements in the City of Cottage Grove. The Plan recognizes the relevant agency plans to bikeways in the City, identifies the existing bicycle and pedestrian system, and includes a list of proposed improvements. Safety, construction, and maintenance issues related to bikeways in Cottage Grove are discussed. Implementation of specific projects and funding sources are included in the Plan as well.

Major Development Plans

As the City of Cottage Grove continues to grow, developments will need to be effectively integrated into the city's transportation network to accommodate the changing travel patterns in the area without adverse impacts on the community. Several plans for major developments are currently planned for Cottage Growth including:

- *Cottage Grove Wal-Mart Expansion* - An April 2006 Traffic Impact Study (TIS) was conducted to address the trip making impacts of expanding the Wal-Mart on Row River Road to over 160,000 square feet . The proposed project would require modification of the City's Zoning Code to allow for larger buildings and additional parking. The TIS estimates 91 new PM peak hour vehicular trips resulting from the development.
- *Sunrise Ride Subdivision* – A residential development of approximately 57 acres is planned west of "M" Street and north of Birch Avenue. The subdivision would have 250 residential units.
- *Madonna Project* – A mixed-use development made up of commercial and residential land uses is planned along OR 99, south of East Harrison Avenue.

An additional residential subdivision of 200 units is proposed on Mt.David, east of Sunrise Ride.

The TSP update will consider these potential developments and any resulting changes to the roadway network in all relevant analyses.

Environmental Inventories

Natural resources and environmental considerations in Cottage Grove must be considered when developing transportation plans. The following sources provide information relevant to transportation system planning in the City of Cottage Grove:

- *National Wetlands Inventory* – A map of Cottage Grove wetlands depicts the location of rivers, streams, wetland areas and water infrastructure facilities in Cottage Grove. Any adverse transportation related impacts that may compromise the water quality or wetland resources in the City of Cottage Grove will be identified in the TSP Update.
- *Critical Facilities Inventory* - This list identifies facilities that are important to the cultural, natural, and functional characteristics of the City of Cottage Grove. Any related transportation plans will include consideration for these facilities.

- *Earthquake Hazard Zones* – This map indicates the location of low, intermediate, and high earthquake hazard zones. High risk zones should generally be avoided for critical transportation infrastructure.
- *Natural Hazards Map* – This map identifies Debris-Flow Hazards Areas, Floodway Areas and the 100-Year Flood Zone in Cottage Grove. Consideration for these natural hazards will be included in transportation plans.
- *Greenway Map* – This map identifies the location of the Willamette Greenway in the City of Cottage Grove. Along the Greenway, open space, public access, vegetation, and scenic views should considered when planning new developments or transportation infrastructure.

APPENDIX B: DHV Development Memo

DKS Associates
TRANSPORTATION SOLUTIONS

MEMORANDUM

DATE: July 2006

TO: Terri Harding, ODOT Region 2
Dorothy Upton, ODOT Transportation Planning Analysis Unit

FROM: Mat Dolata

SUBJECT: **Revised** Cottage Grove 30th HV Methodology

P06097-000-000

The purpose of this memorandum is to summarize the revised methodology used to identify key factors used in calculating the 30th highest annual hour of traffic (30th HV) on Cottage Grove roadways. The 30th HV, after traffic balancing between intersections, will be used for traffic analysis of study intersections for the Cottage Grove TSP Update.

Peak Hour

Upon examining each study intersection's peak hour of travel, an area-wide peak hour was chosen for most study intersections. Since all but three of the traffic counts were taken on an hourly increment, the choice for peak hours was limited to one-hour increments beginning at the top of the hour (i.e. 4:15-5:15 could not be chosen). A few intersections (OR99 @ Harrison and OR 99 @ South River Road) had an earlier peak hour from 3 to 4 pm, and others (such as Main Street and River Road) had later peaks, however the most common peak hour in Cottage Grove was 4 to 5 pm. Therefore, 4 to 5 pm was selected as the study area peak hour for traffic analysis purposes for most study intersections.

One sub-area (along the southern portion of the Goshen Divide Highway corridor in Cottage Grove) had an earlier peak that required a different peak hour to be selected. Along this segment of the Goshen Divide Highway, 3 to 4 pm was chosen as the peak hour at four study intersections (at Main Street, 6th Street, 4th Street, and South River Road) to better reflect peak hour traffic operations.

1400 SW Fifth Avenue
Suite 500
Portland, OR 97201

(503) 243-3500
((503) 243-1934 fax
www.dksassociates.com

Peak Hour Factors

Traffic counts could not be used as the basis for peak hour factor (PHF) determination at most study intersections because all but three of the counts were taken on an hourly increment, without data available in 15-minute intervals. ODOT methodology (Analysis Procedures Manual, April 2006, pg. 5-6) recommends using a PHF of 0.92 for urban areas and 0.88 for rural areas when traffic counts are not available in 15-minute intervals. The three study intersections that included 15-minute intervals indicate that a PHF of 0.94 (OR99 @ Woodson Place), 0.92 (OR99 @ Main Street) or 0.87 (OR99 @ 6th Street) should be chosen. Actual PHFs based on counts are used at these three study intersections. For other intersections where 15-minute interval traffic counts are not available, a PHF of 0.92 is chosen, as this is both the ODOT recommended PHF for urban areas and the approximate average of the three 15-minute interval traffic counts in the study area.

Seasonal Factor

The closest 2005 ATR (ATR # 20-020) is located 4 miles south of Cottage Grove on I-5 and has an ADT of approximately 24,000, which is significantly more than Goshen-Divide Highway's ADT through Cottage Grove (approximately 9,500). Therefore this ATR is not used along the Goshen Divide Highway study intersections. However, the seasonal factor for this ATR is applied to study intersections located at the I-5 interchanges in Cottage Grove (I-5 southbound ramps at the Cottage Grove Connector and Gateway Boulevard, and I-5 northbound ramps at Row River Road, and the ramp intersections at South 6th Street).

For Goshen Divide Highway intersections and other non-I-5 intersection in Cottage Grove, a different method is necessary due to the large difference in ADT. Other nearby highway ATRs such as ATR # 22-012 at OR-99E south of Halsey (ADT ~ 3300) and ATR #20-005 at OR 126 (Florence-Eugene Highway) west of Elmira (ADT ~ 6400) also indicate volumes differing significantly from the Goshen-Divide Highway. Therefore, using a seasonal factor based on these ATR's was not pursued further.

TPAU's methodology for calculating seasonal factors where ATR is not directly available (ATR Characteristic Table Method) was utilized. An ATR with similar seasonal characteristics was researched in ODOT's 2004 ATR Characteristic Table. The seasonal traffic trend was assumed to be "commuter", rather than "coastal", "summer", or "interstate" based on the characteristics of the City and its proximity to the Eugene/Springfield area. The area type was considered to be "small urban", since "urban fringe" commuter highways tended to have much larger ADTs. The only "weekday", "small urban" and "commuter" ATR with ADT within 10% of the Goshen-Divide Highway in Cottage Grove was Highway 99E South of Woodburn (ATR 24-001). Therefore, this ATR is used to calculate the seasonal factor for the Goshen-Divide Highway intersection volumes as well as other intersections within Cottage Grove, excluding the intersections located off the I-5 interchanges.

Annual Growth Factor

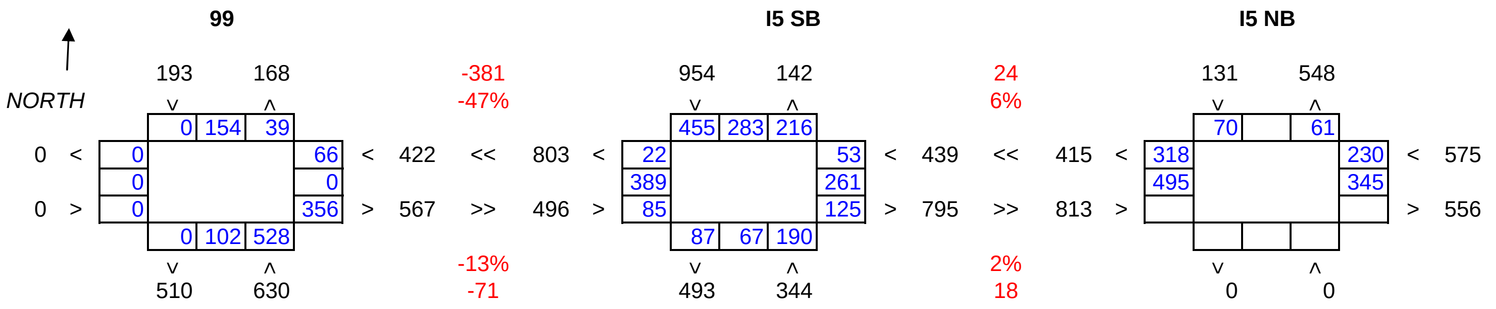
By examining the change in traffic volume from 2003 to 2024, as listed in ODOT's 2024 Future Volume table for locations listed on the Goshen-Divide Highway through the Cottage Grove city limits, the annual growth rate was calculated (assuming linear growth). Volumes with r-squared values under 0.5 are discarded, leaving three entries which were averaged. Using this method, an estimated annual growth factor of 1.07% was calculated.

Study Intersection Operational Analysis Background Data

Intersection	Count Month	Seasonal Adjustment	Count Year	Annual Growth Rate	PHF Measured	PHF Applied	Peak Hour
Signalized Intersections							
I-5 SB Ramp/Cottage Grove Connector	October	1.28	2005	1.07%	-	0.92	4-5 PM
I-5 NB Ramp/Row River Road	October	1.28	2005	1.07%	-	0.92	4-5 PM
OR 99/Woodson Place	January	1.25	2004	1.07%	0.94	0.94	4-5 PM
OR 99/Main Street	January	1.25	2004	1.07%	0.92	0.92	3-4 PM
OR 99/6th Street	March	1.12	2004	1.07%	0.87	0.87	3-4 PM
OR 99/4th Street	October	1.09	2005	1.07%	-	0.92	3-4 PM
Main Street/River Road	October	1.09	2005	1.07%	-	0.92	4-5 PM
Main Street/16th Street	February	1.17	2006	1.07%	-	0.92	4-5 PM
Main Street/Gateway Boulevard	February	1.17	2006	1.07%	-	0.92	4-5 PM
Unsignalized Intersections							4-5 PM
OR 99/River Road	October	1.09	2005	1.07%	-	0.92	3-4 PM
Harrison Avenue/River Road*	October	1.09	2005	1.07%	-	0.92	4-5 PM
Main Street/R Street	October	1.09	2005	1.07%	-	0.92	4-5 PM
Monroe Avenue/10th Street	October	1.09	2005	1.07%	-	0.92	4-5 PM
Taylor Avenue/8th Street*	October	1.09	2005	1.07%	-	0.92	4-5 PM
I-5/6th Street (southbound off ramp)	October	1.28	2005	1.07%	-	0.92	4-5 PM
I-5 NB OFF Ramp (Southbound Right) /Row River Road	October	1.28	2005	1.07%	-	0.92	4-5 PM
OR 99/Cottage Grove Connecter (OR 99 northbound & southbound)	October	1.09	2005	1.07%	-	0.92	4-5 PM
OR 99/Cottage Grove Connecter (CGC northbound right turn)	October	1.09	2005	1.07%	-	0.92	4-5 PM
OR 99/Cottage Grove Connecter (OR 99 easbound left turn)	October	1.09	2005	0.0107	-	0.92	4-5 PM

CGC

UNBALANCED VOLUMES



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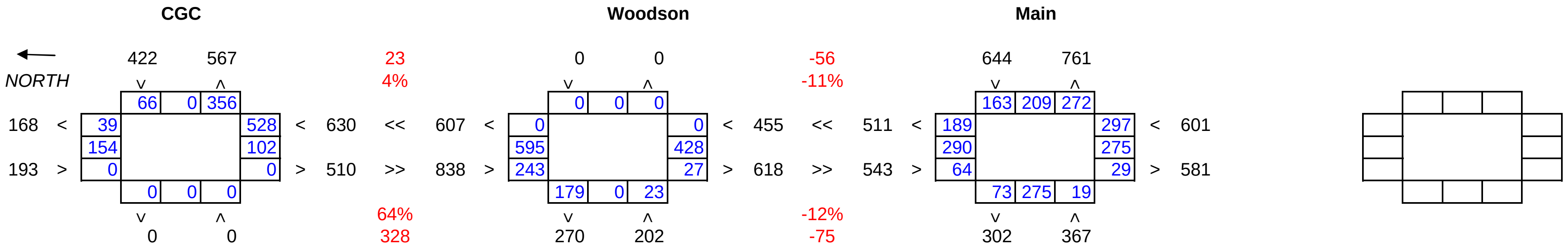

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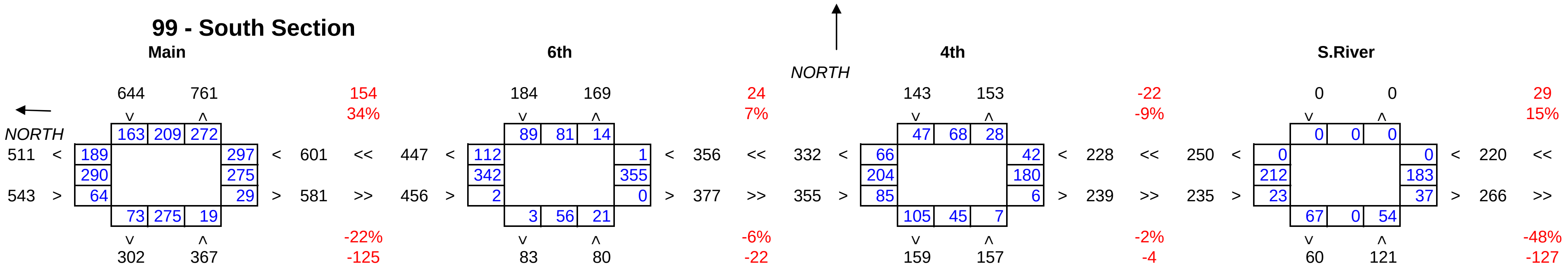

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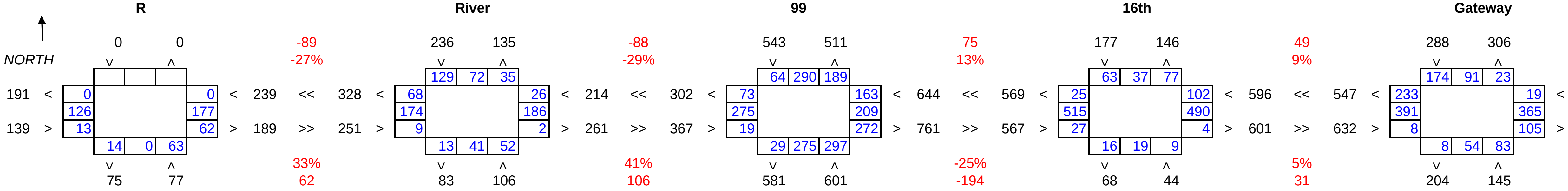

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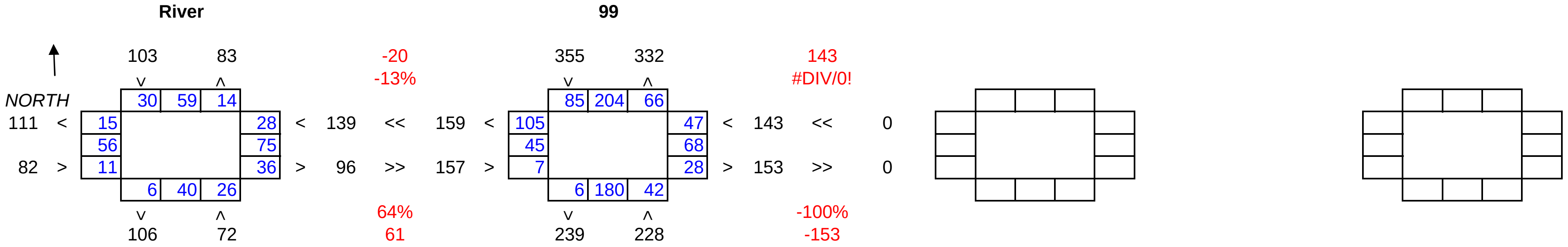

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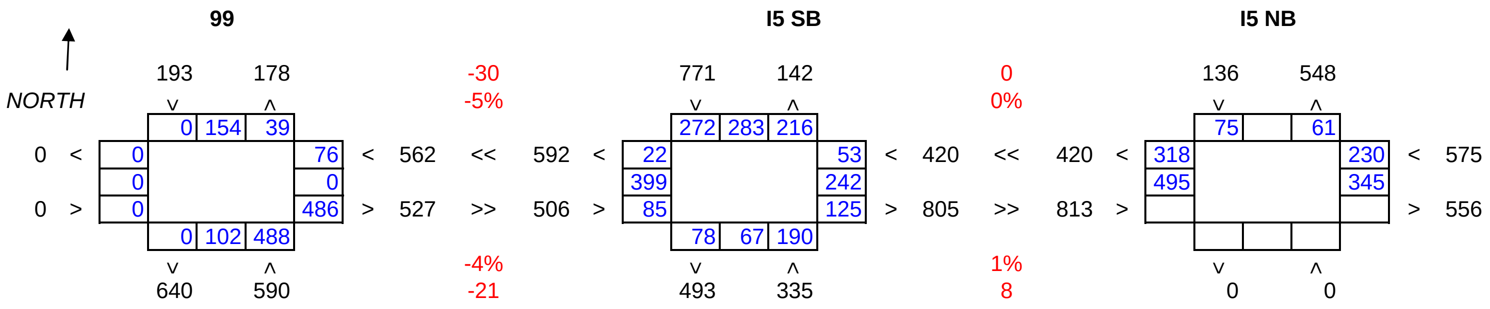

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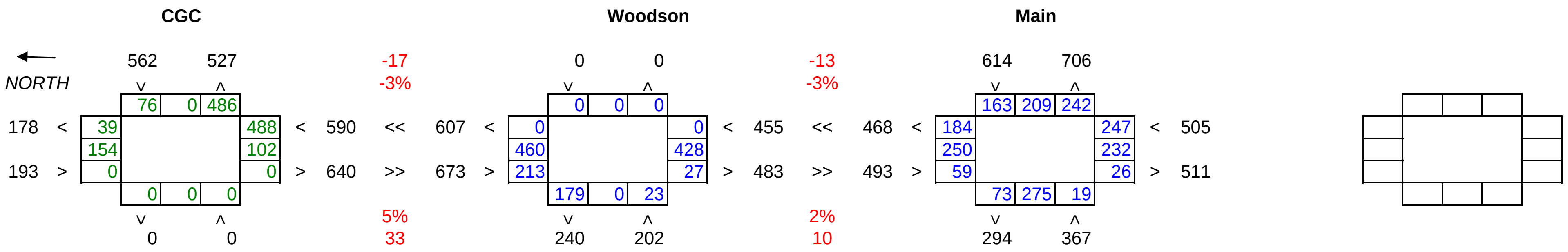

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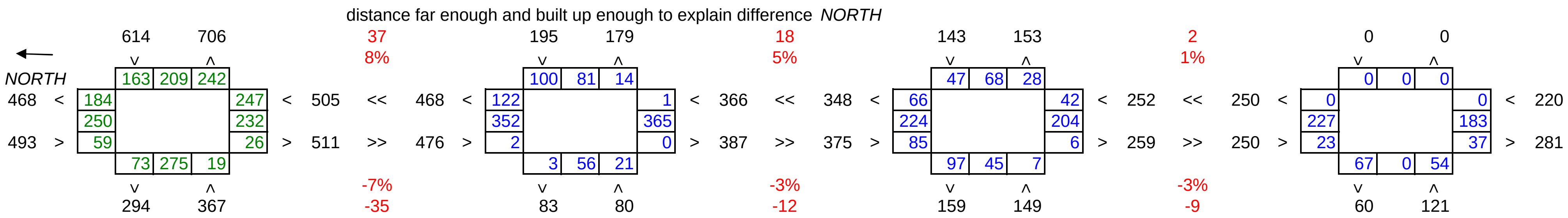

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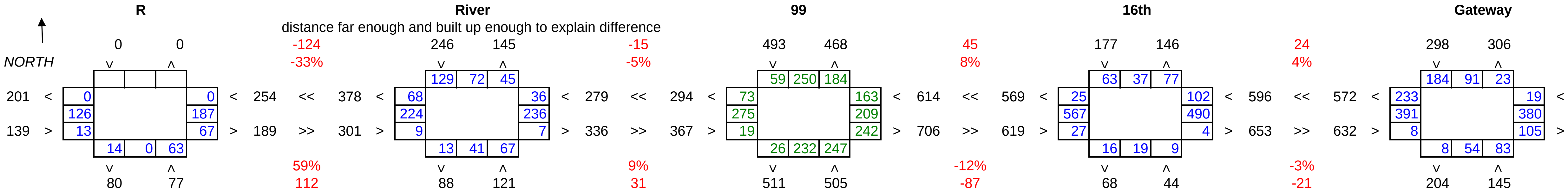

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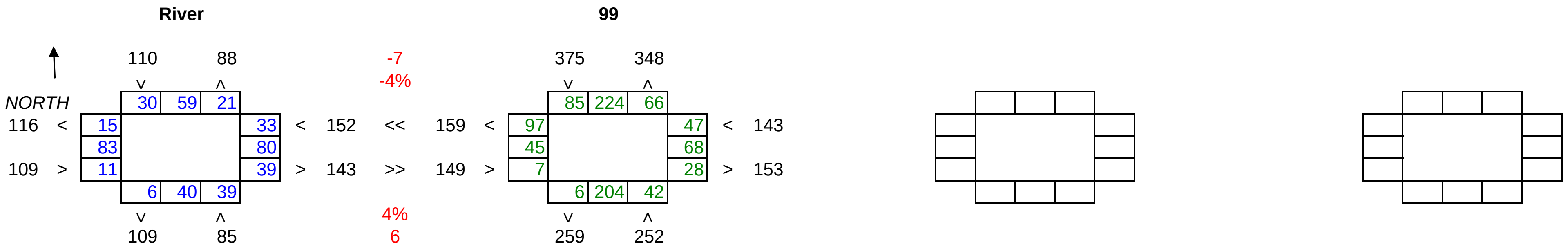

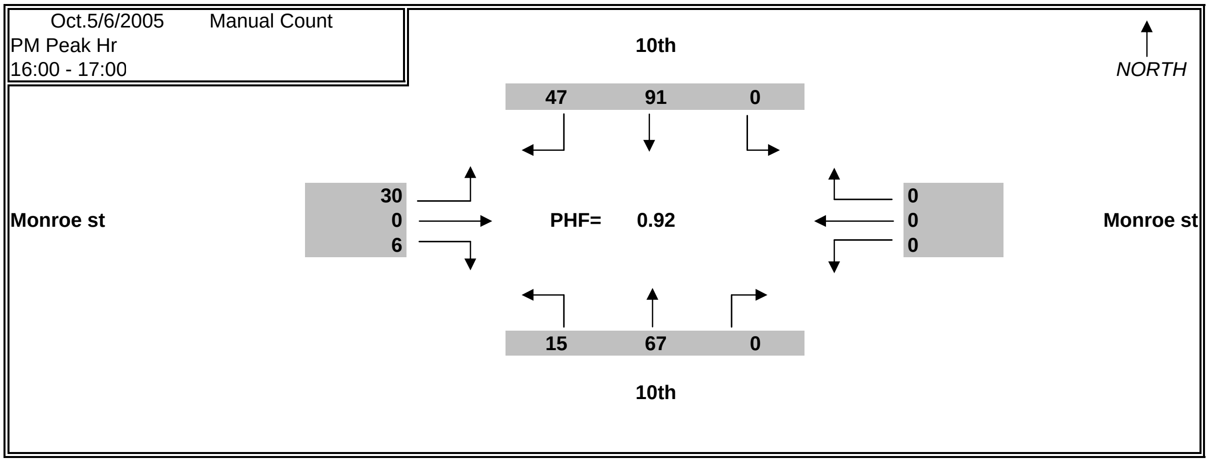

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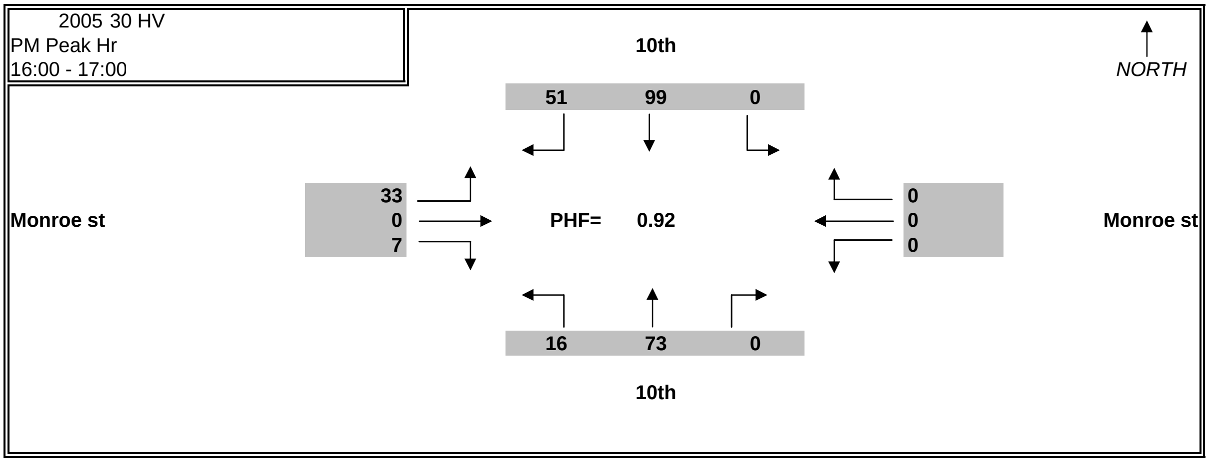

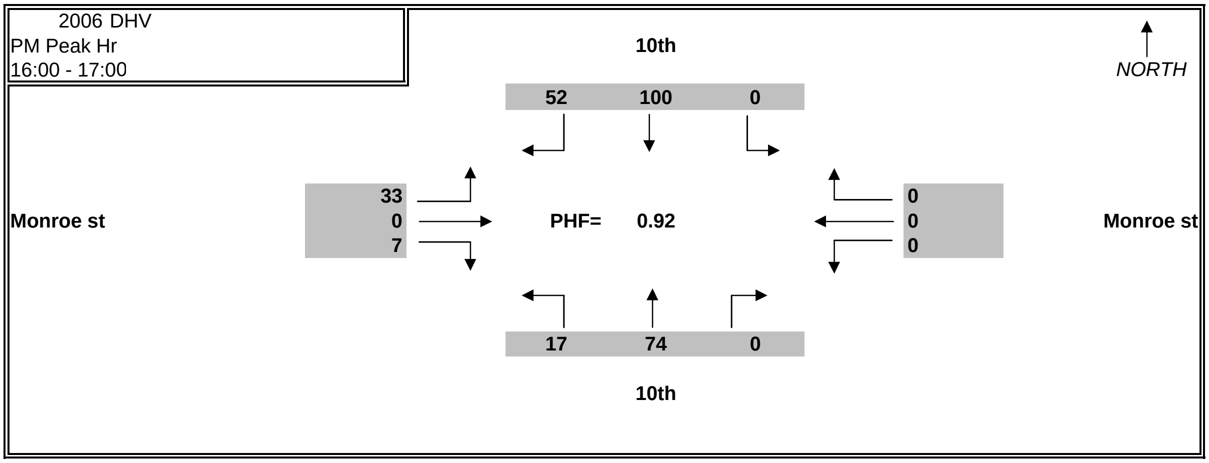

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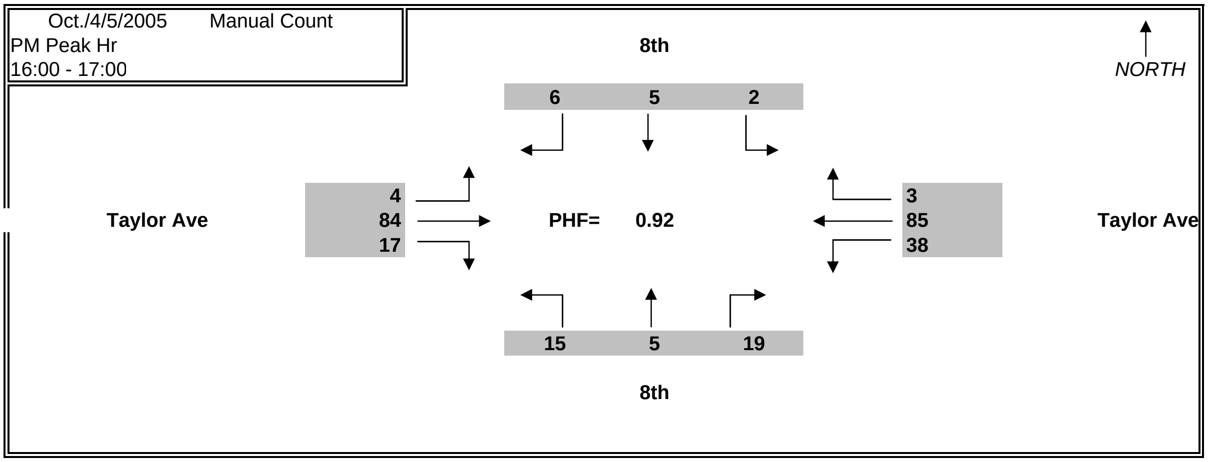

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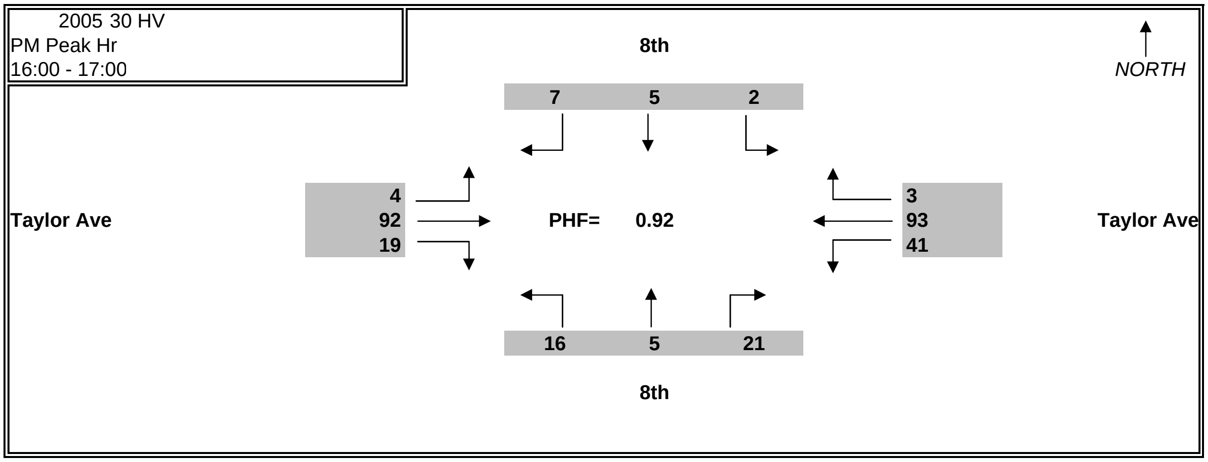

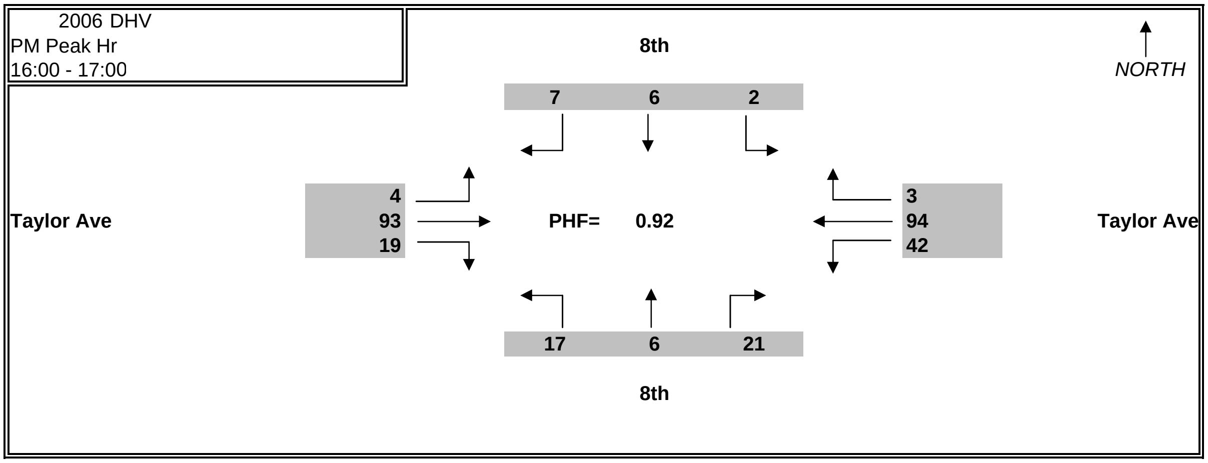

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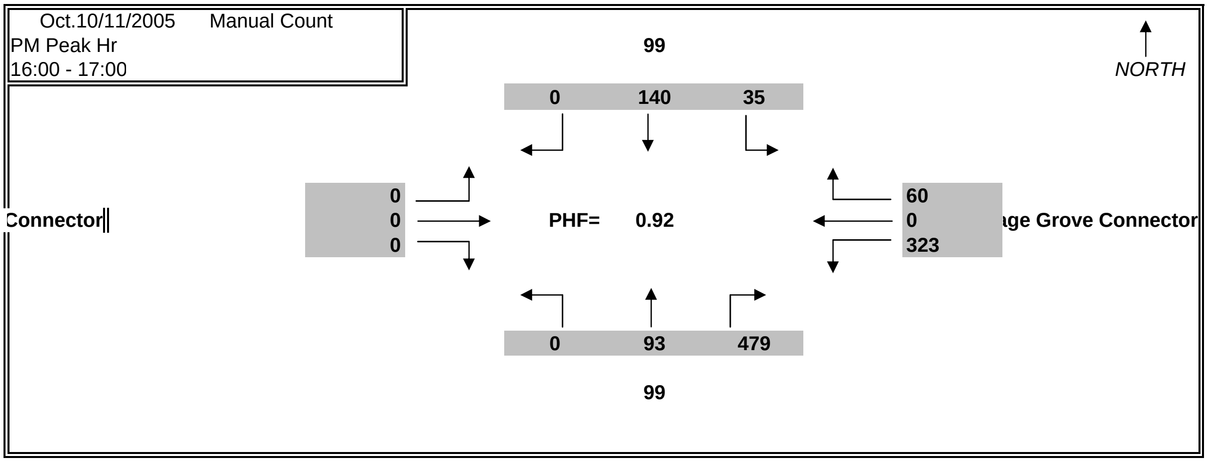

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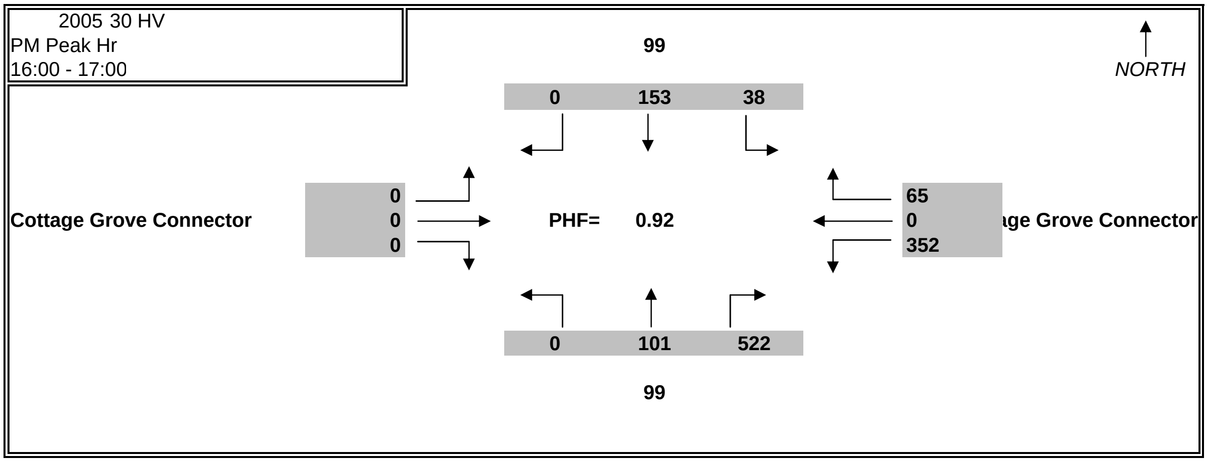

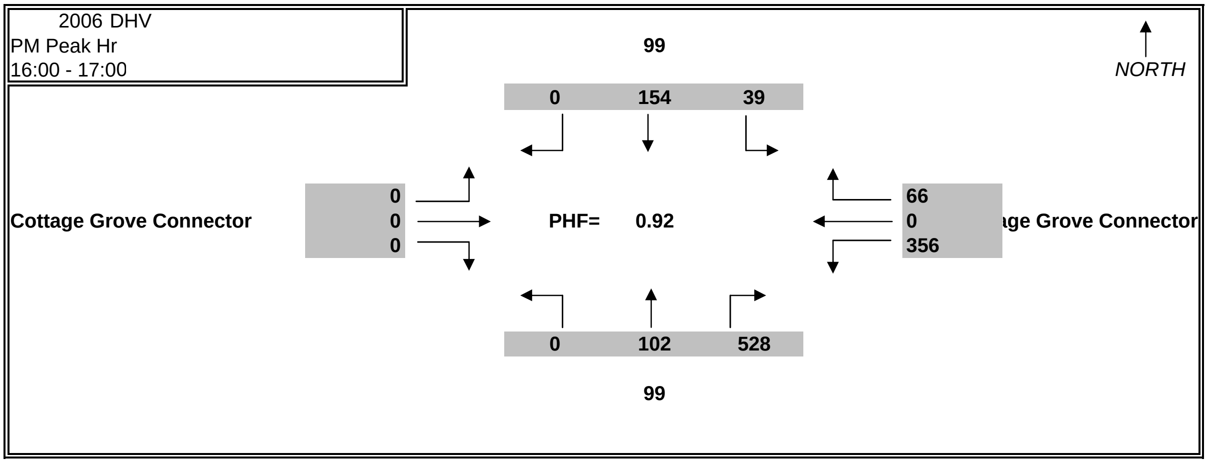

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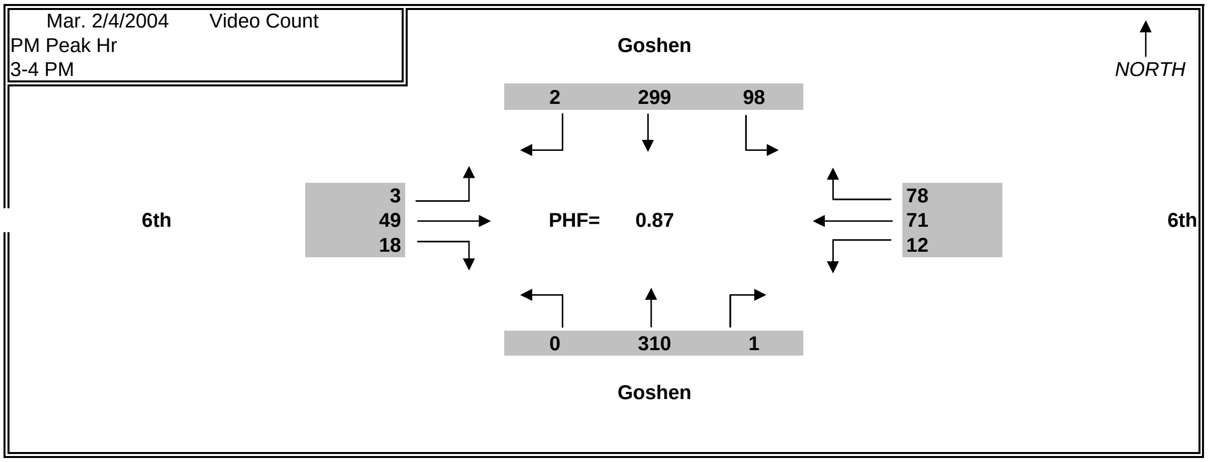

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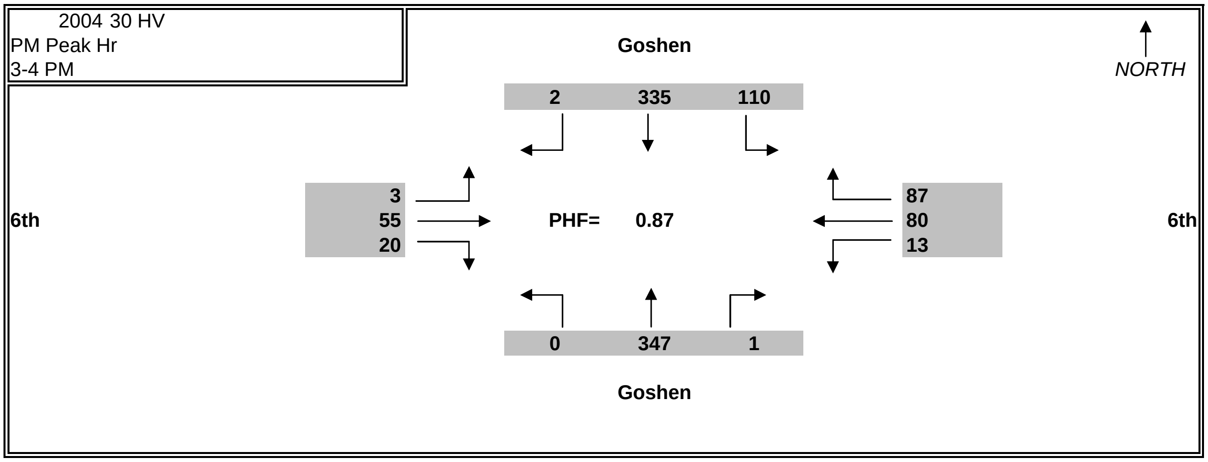

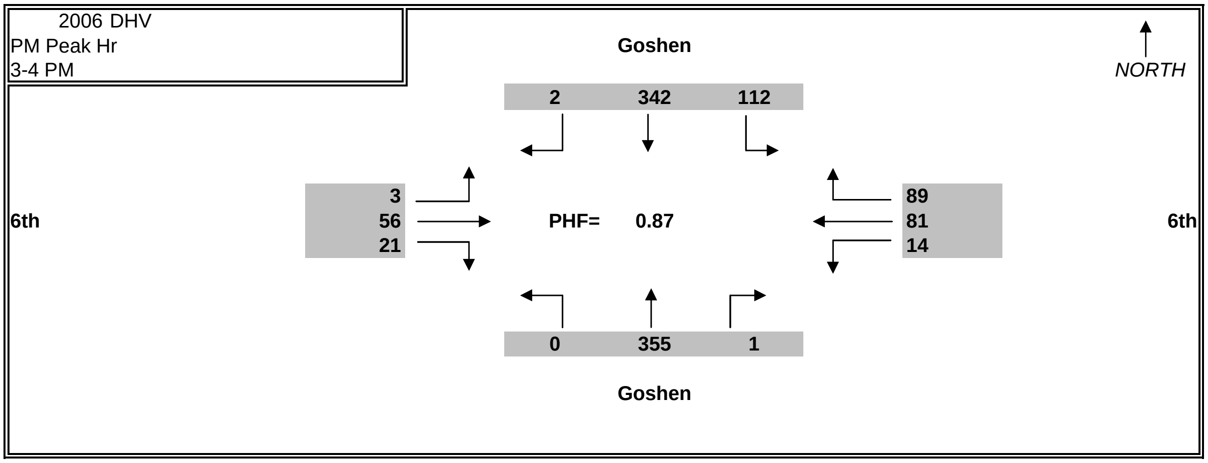

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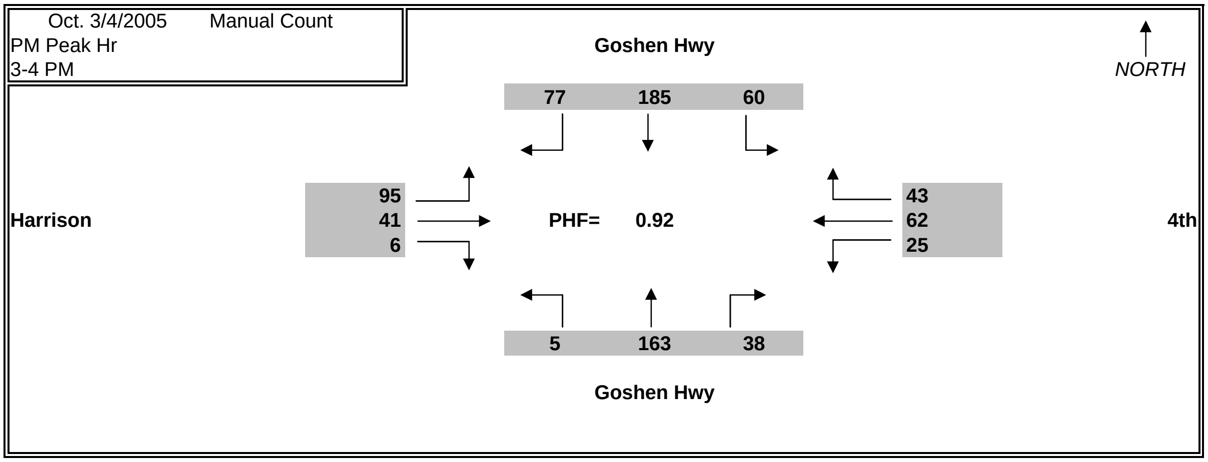

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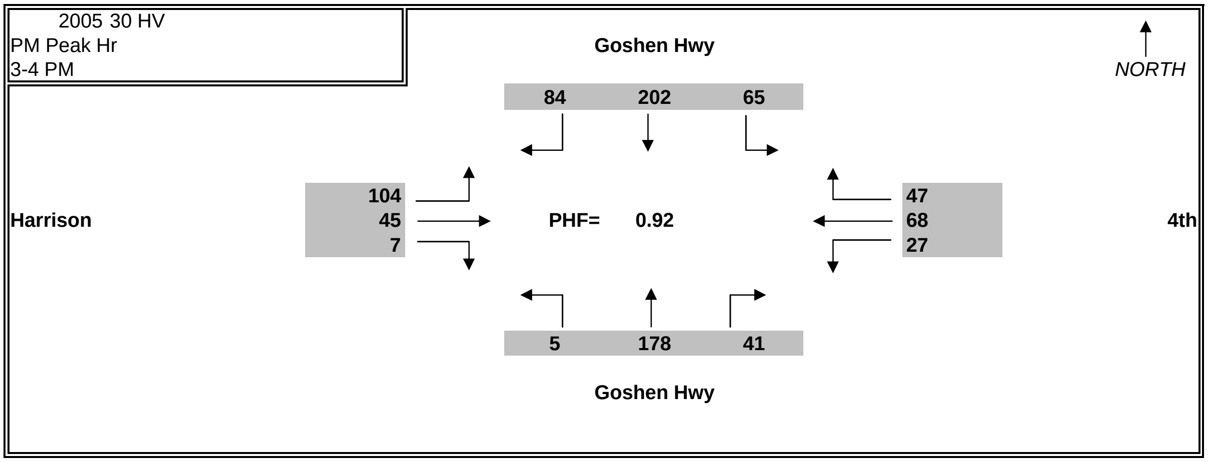

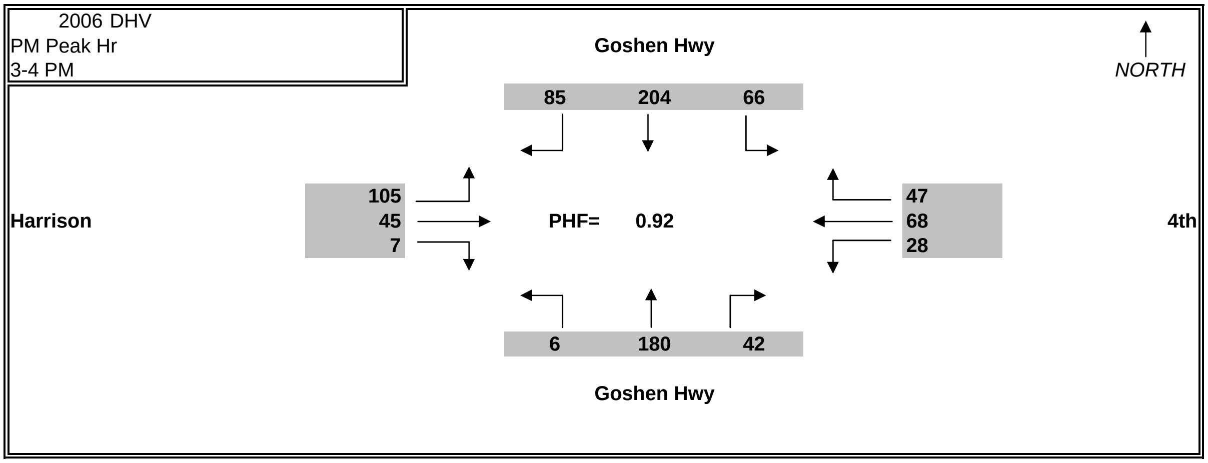

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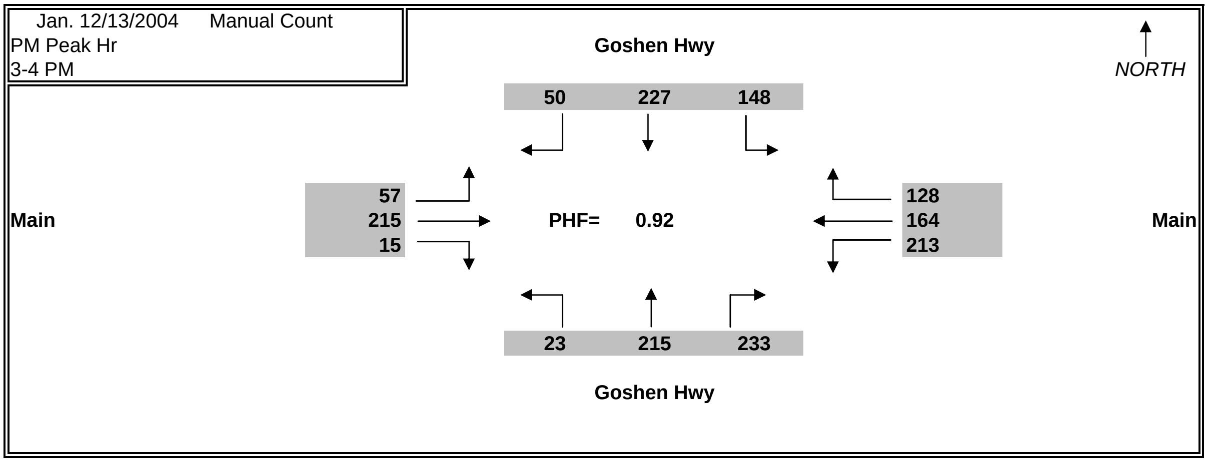

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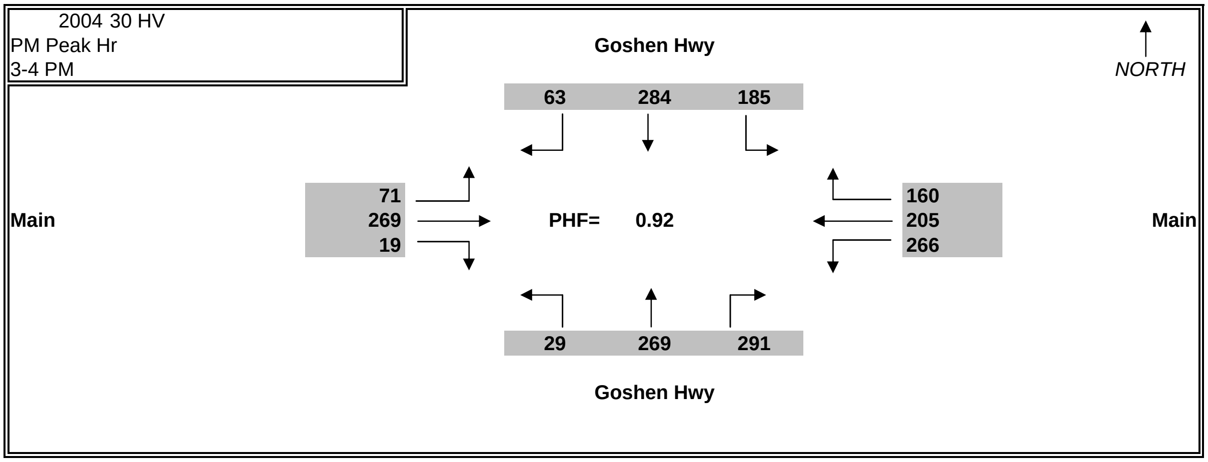

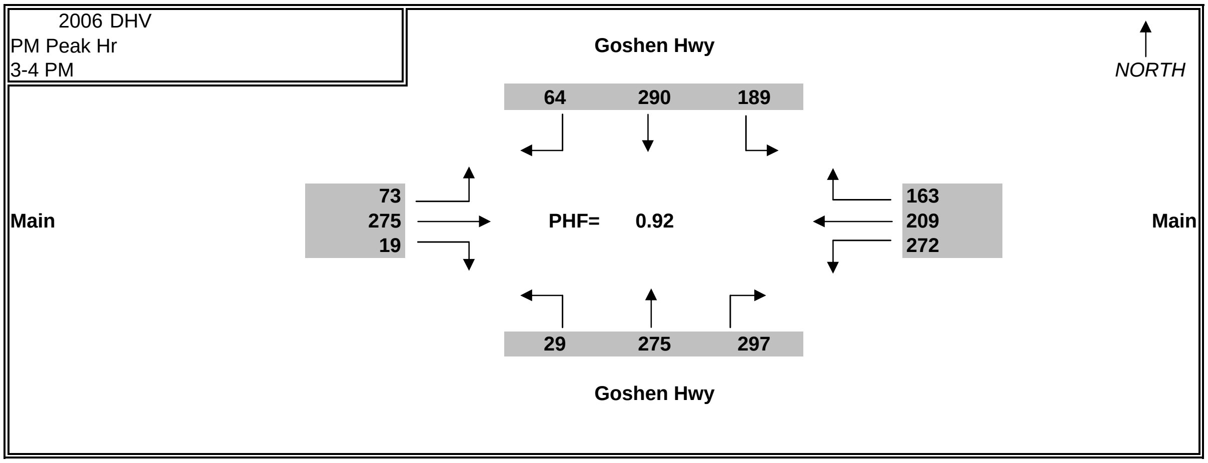

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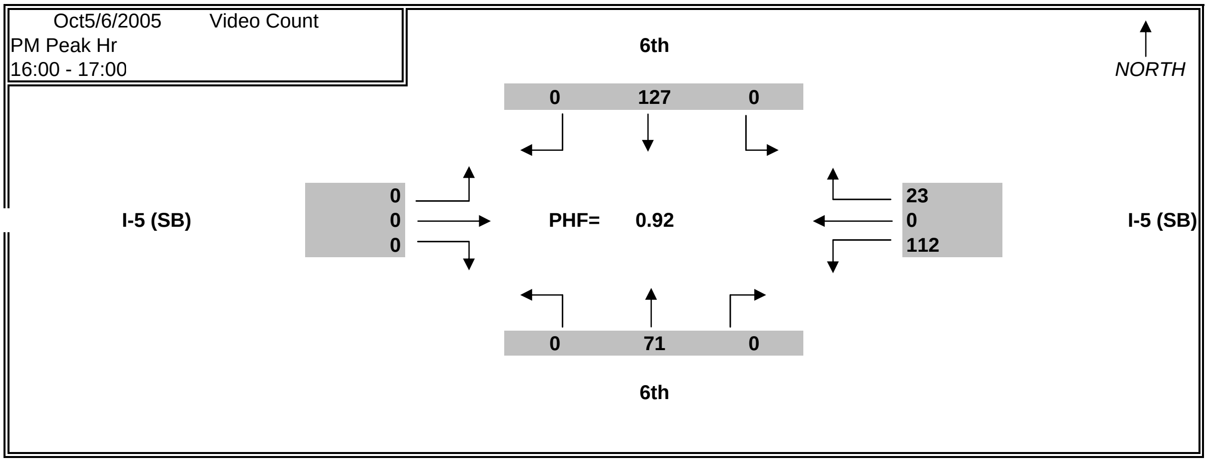
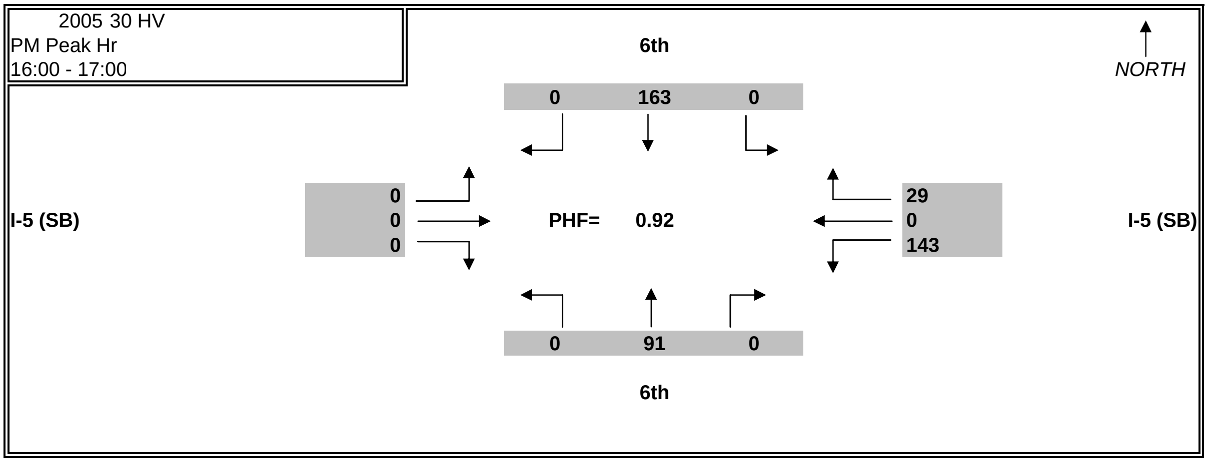
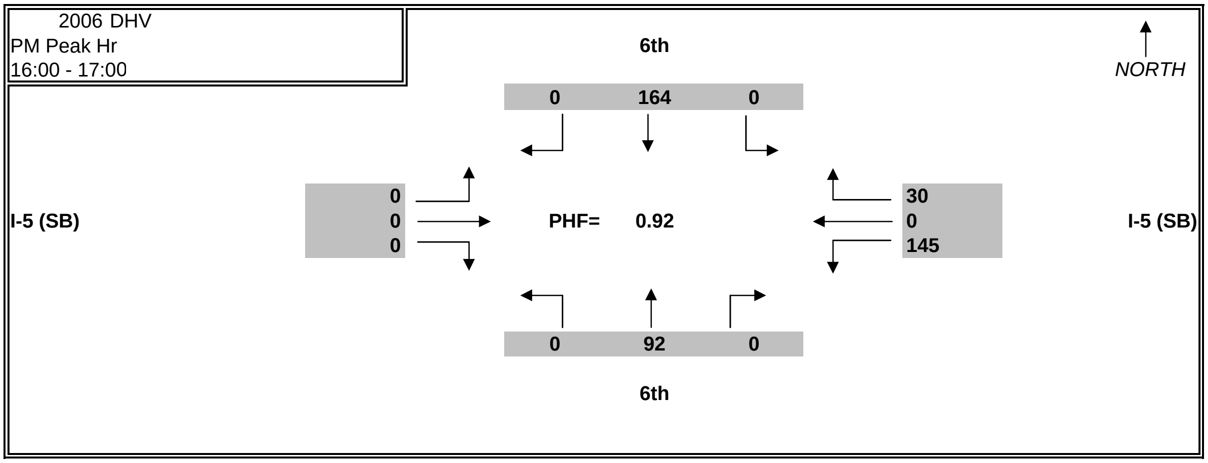
Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



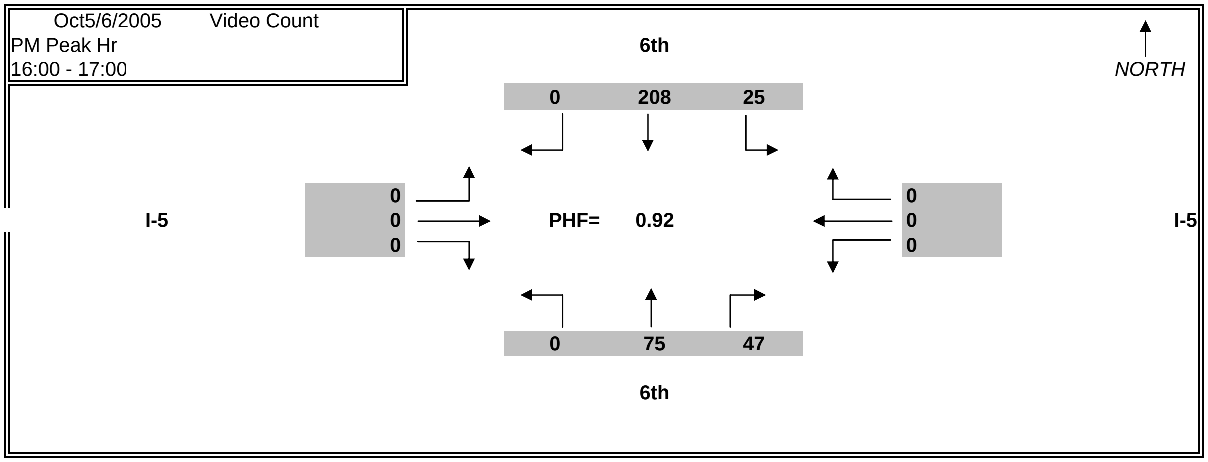
Seasonal Factor = 1.28



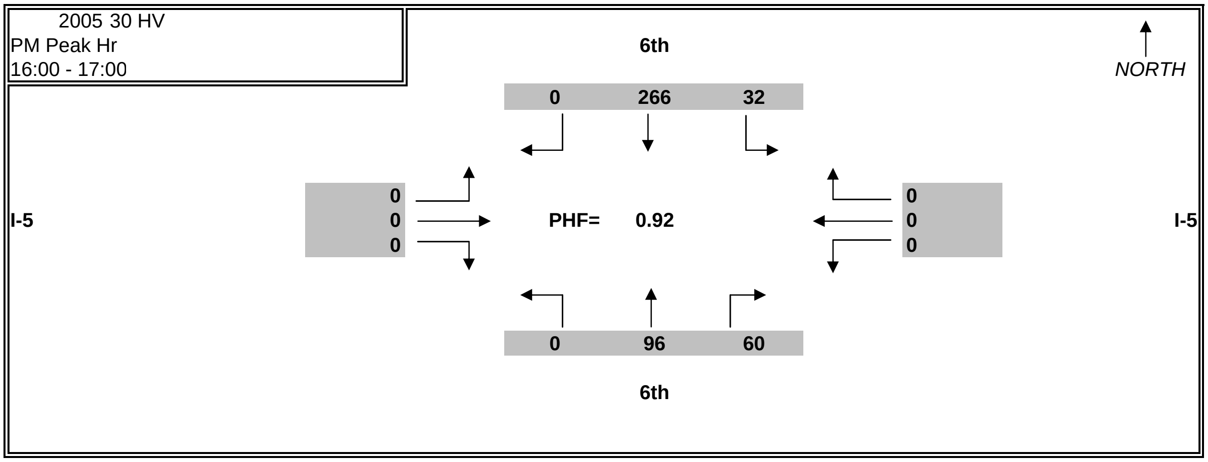


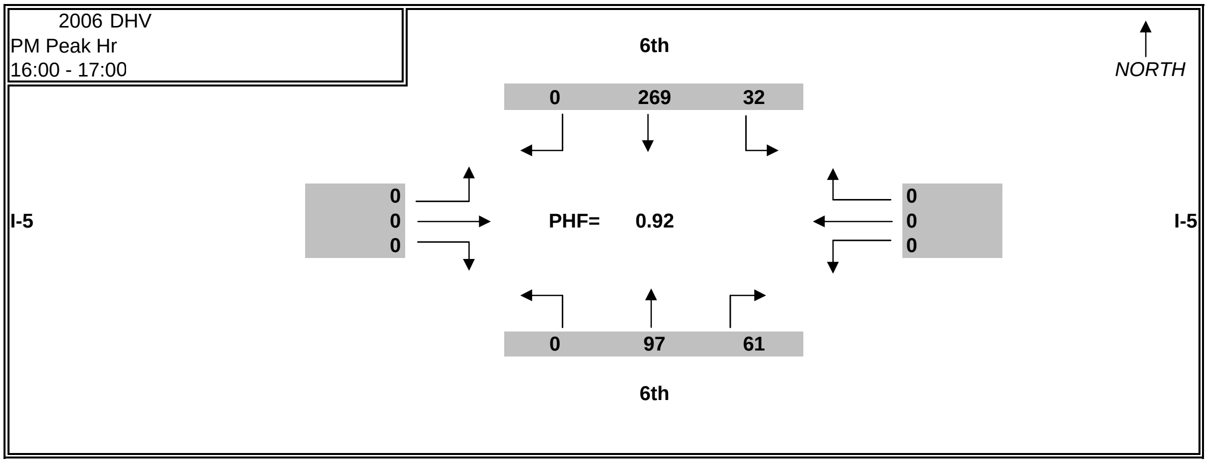
Seasonal Factor = 1.28

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



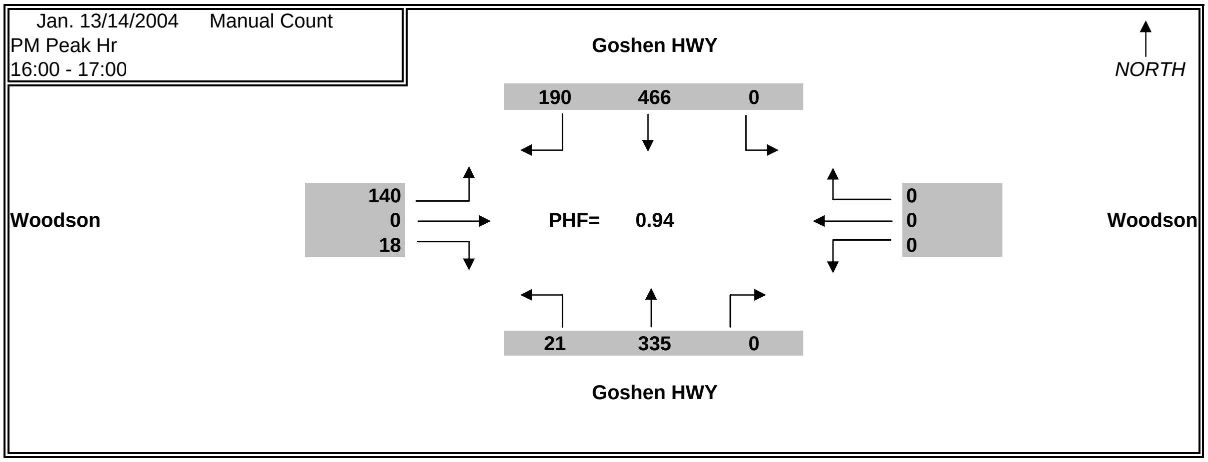
Seasonal Factor = 1.28



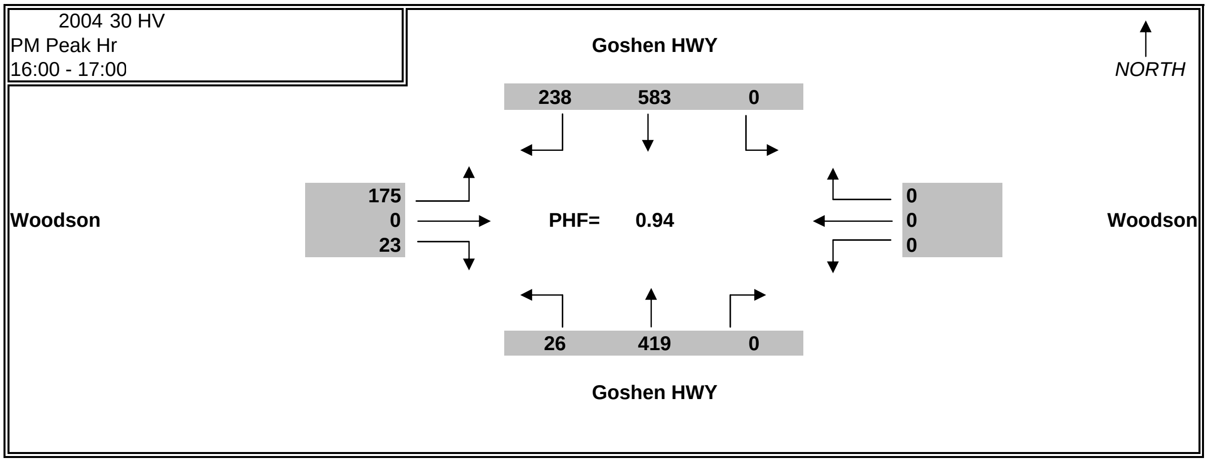


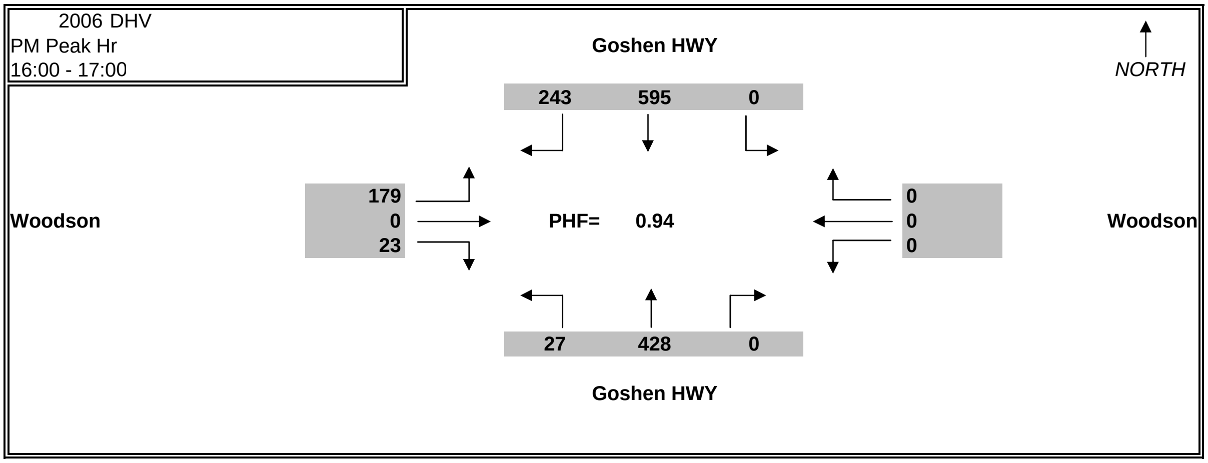
Seasonal Factor = 1.28

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



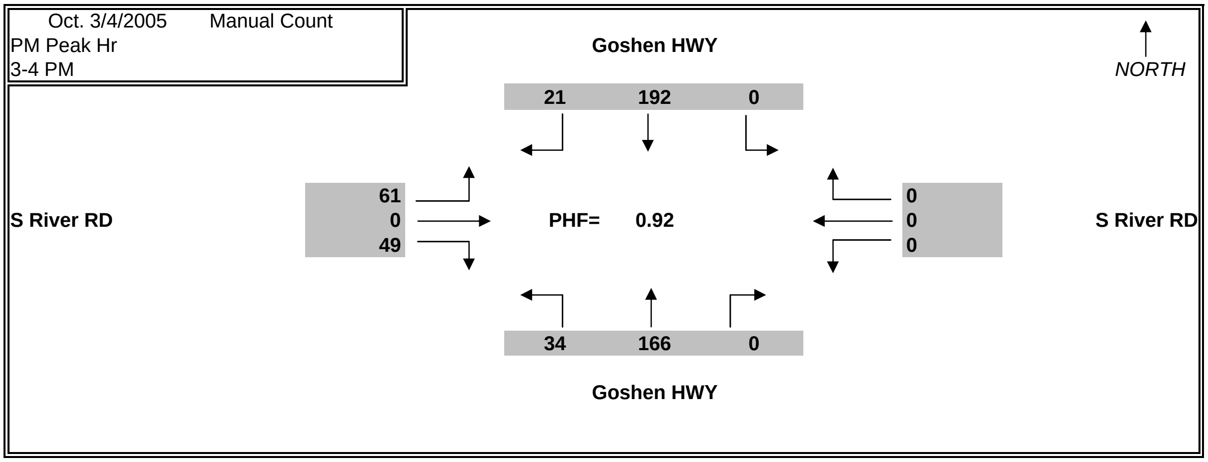
Seasonal Factor = 1.25



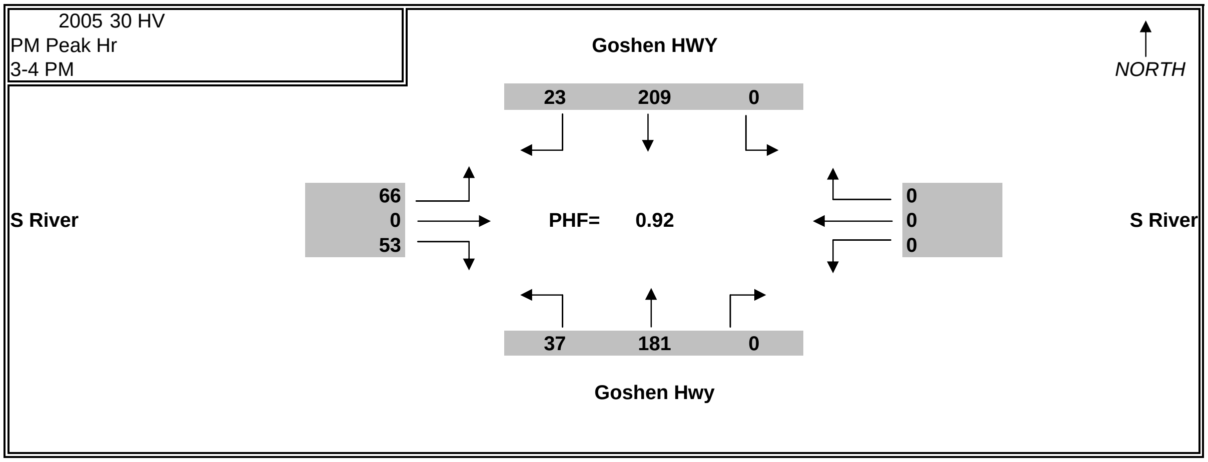


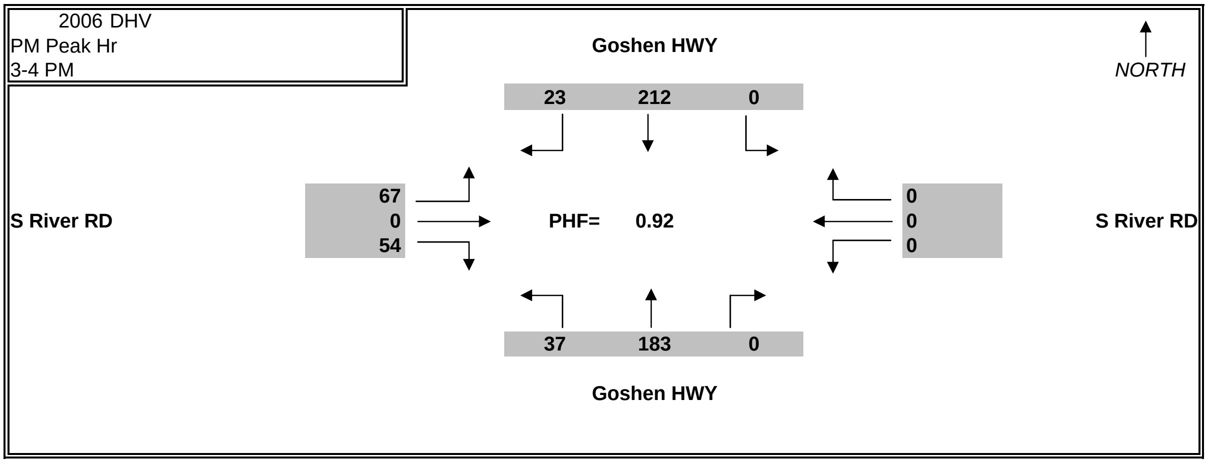
Seasonal Factor = 1.25

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



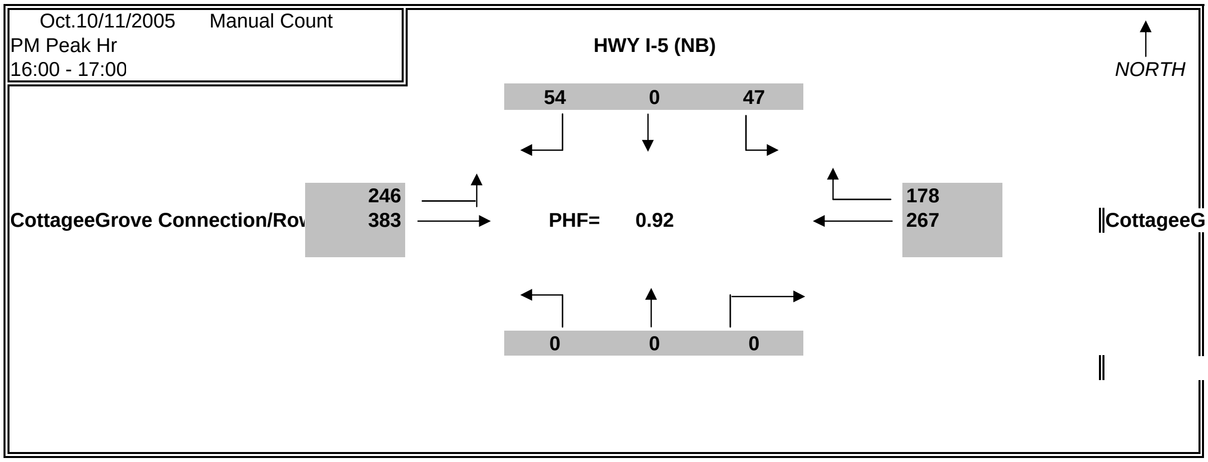
Seasonal Factor = 1.09



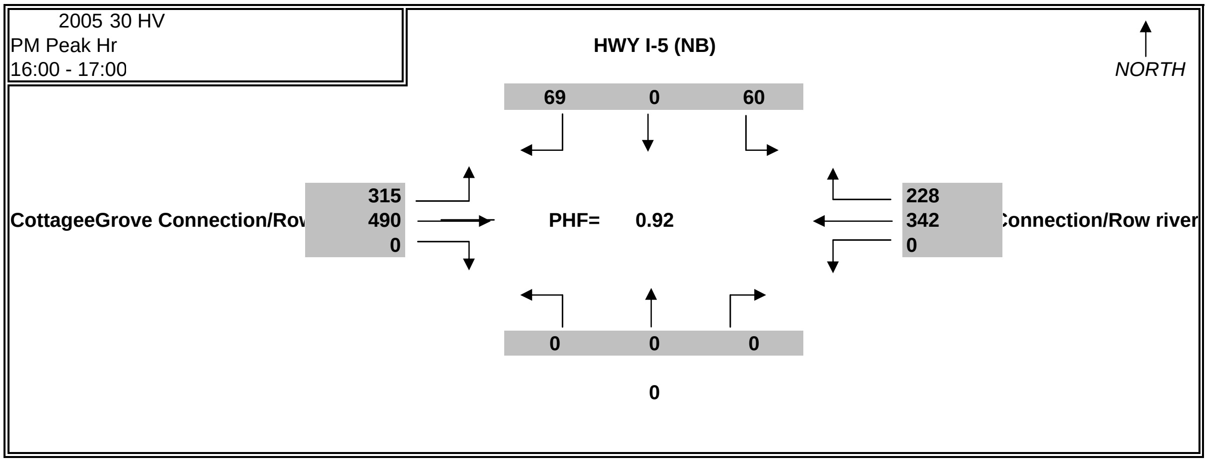


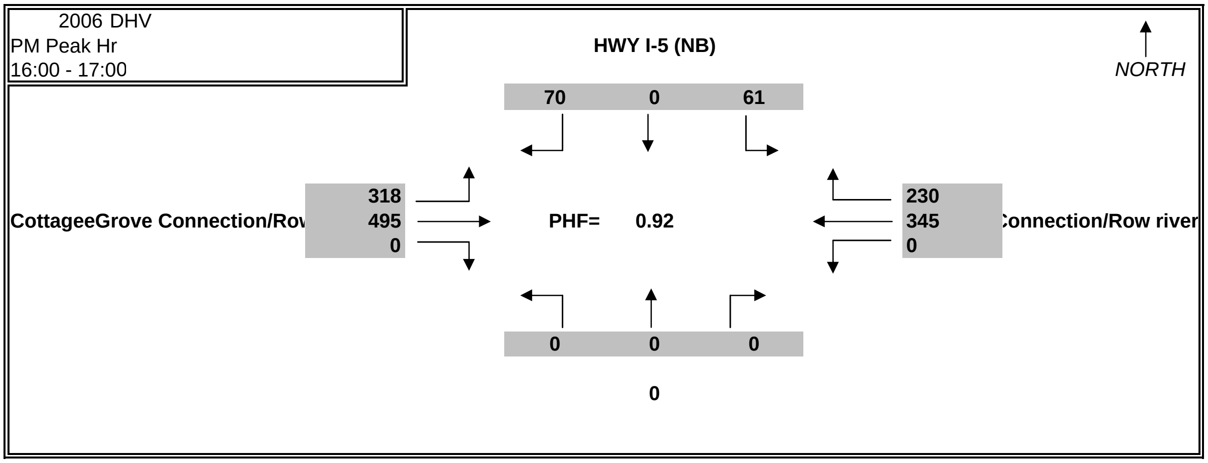
Seasonal Factor = 1.09

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



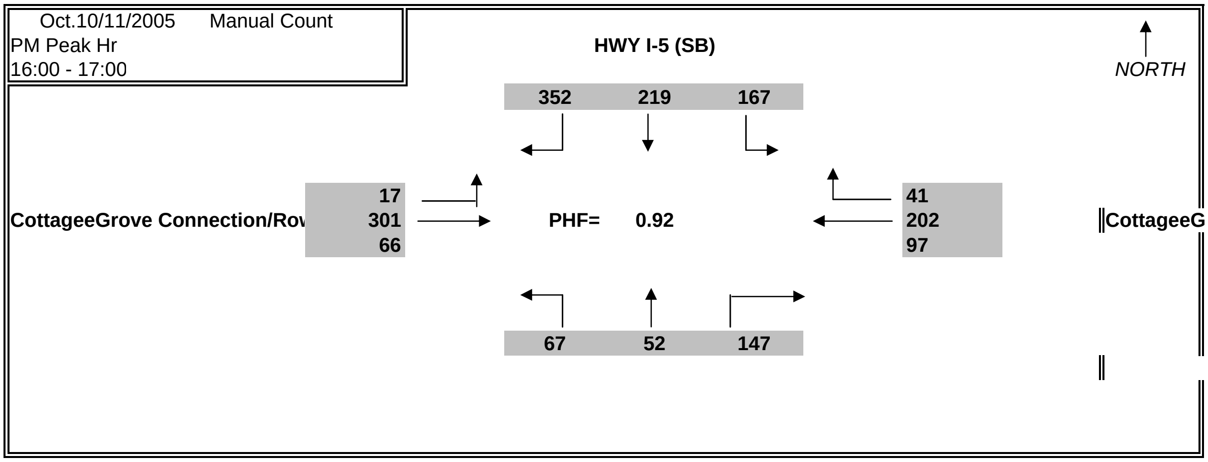
Seasonal Factor = 1.28



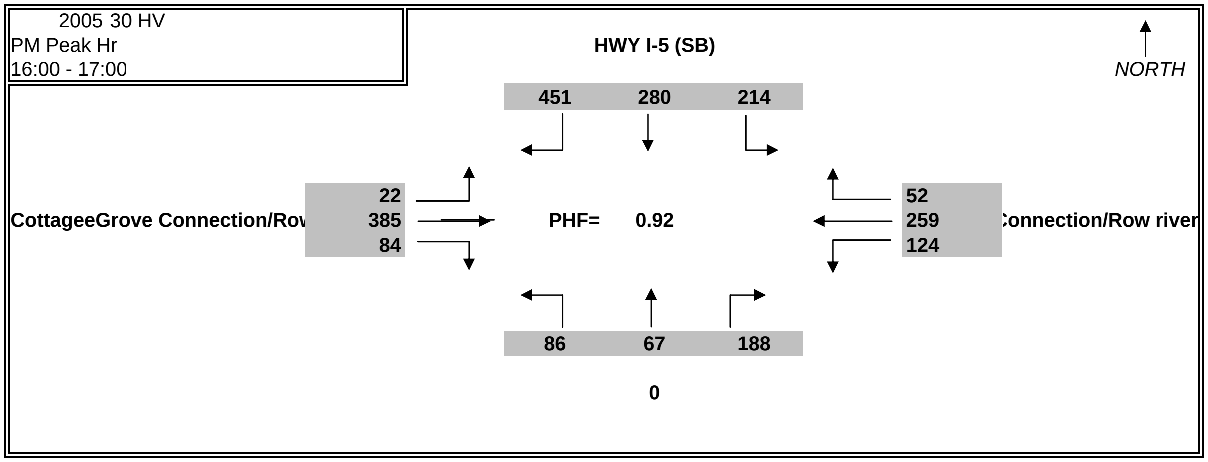


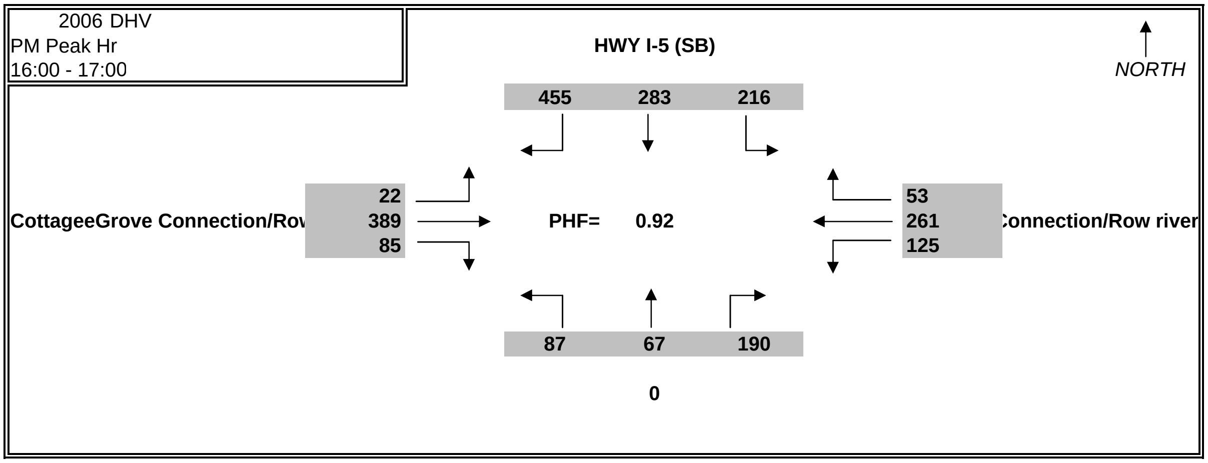
Seasonal Factor = 1.28

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



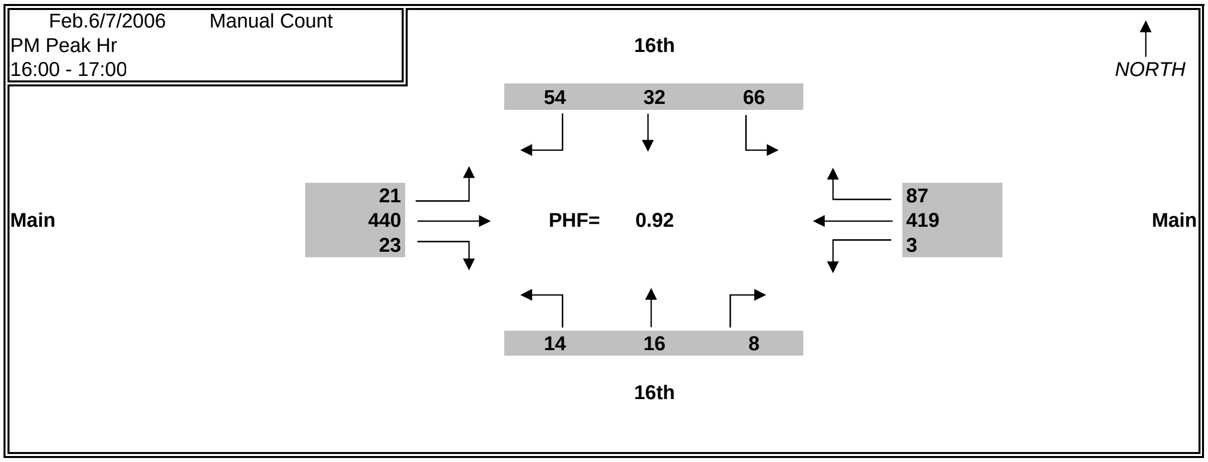
Seasonal Factor = 1.28



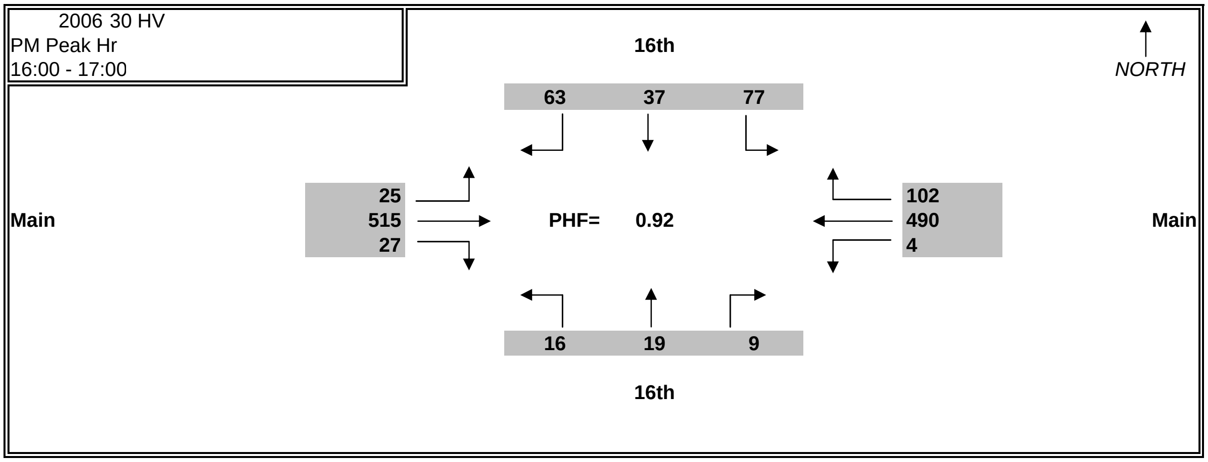


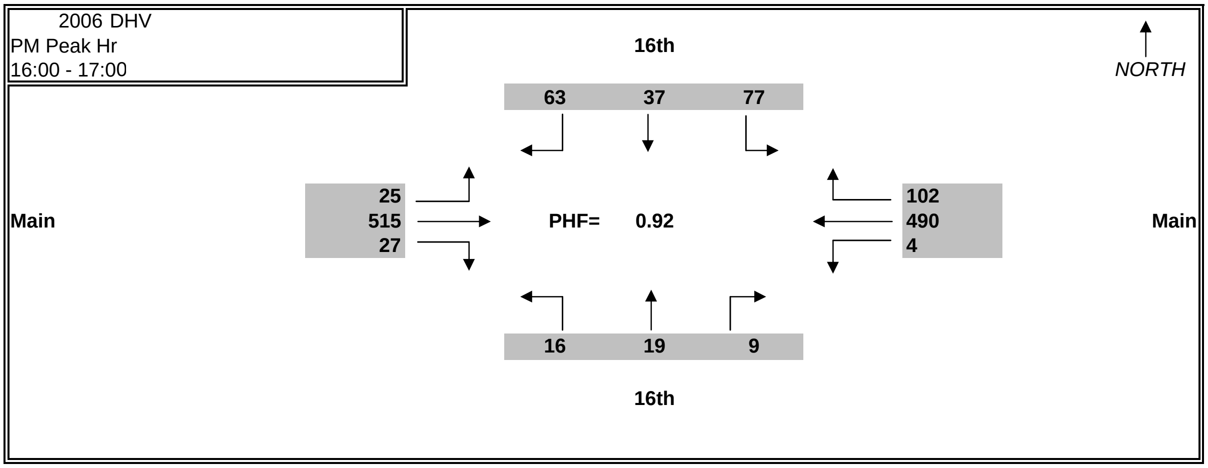
Seasonal Factor = 1.28

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



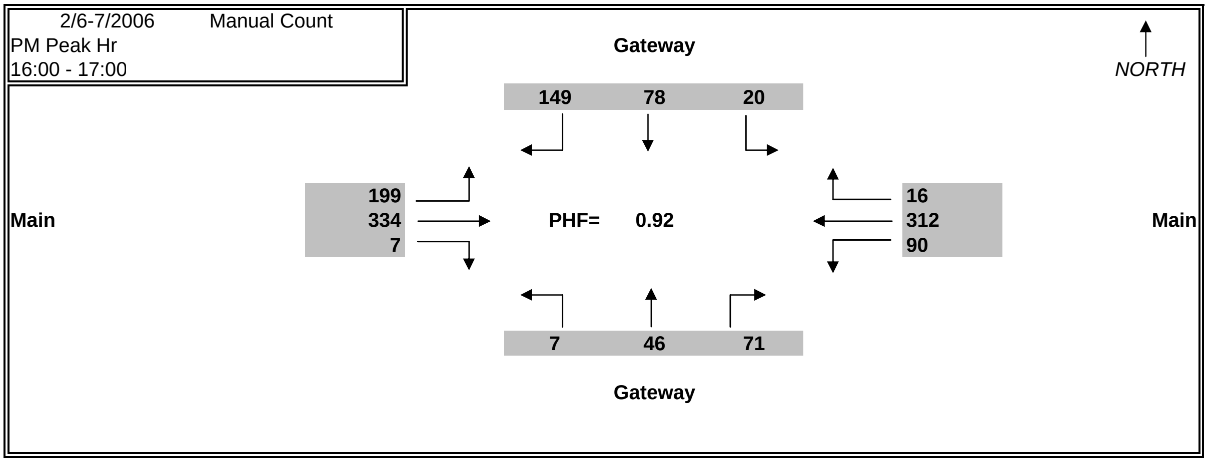
Seasonal Factor = 1.17



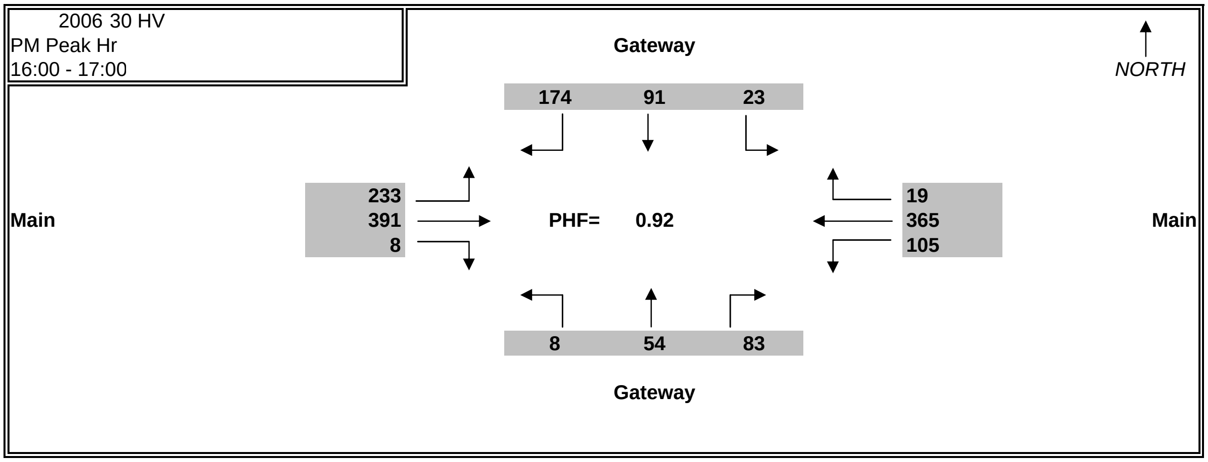


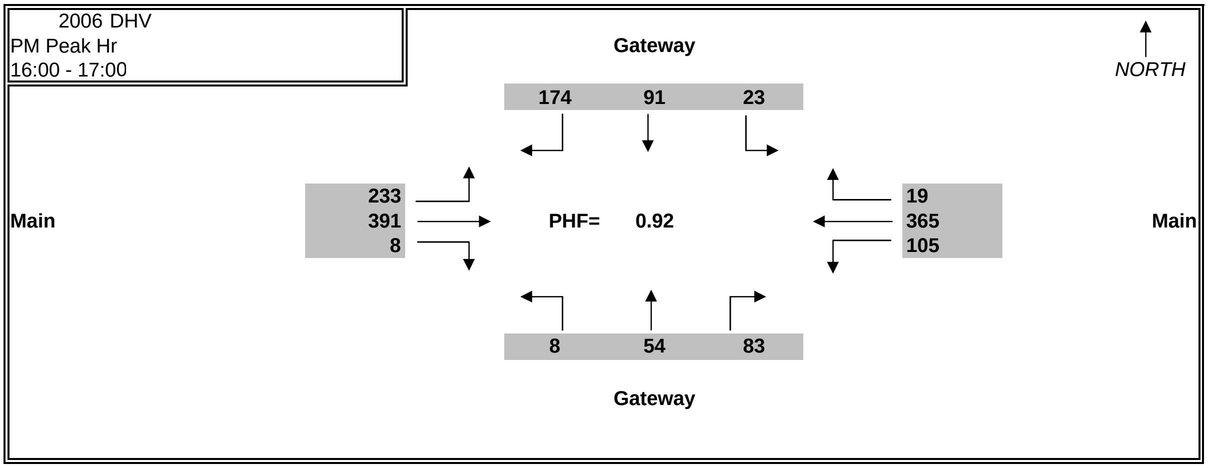
Seasonal Factor = 1.17

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



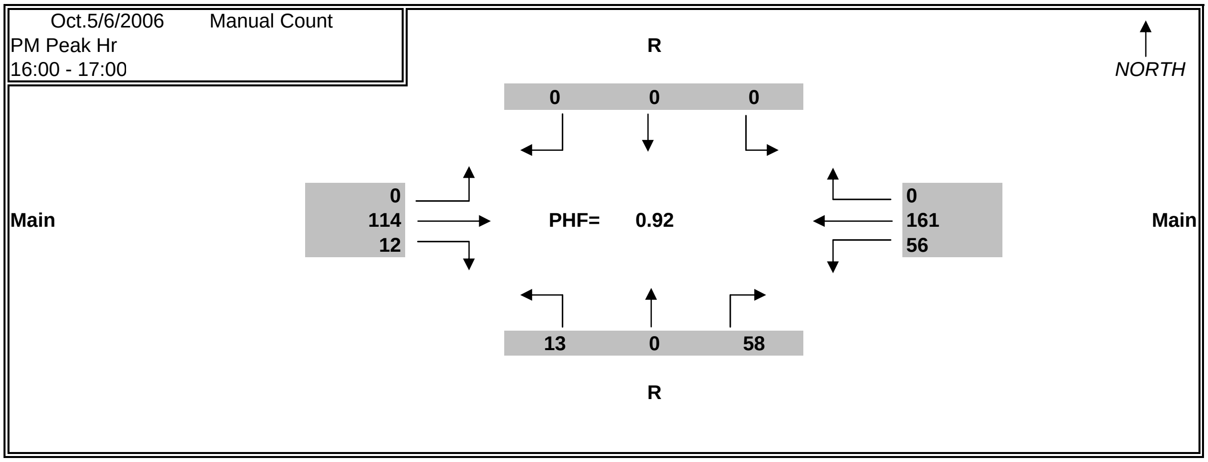
Seasonal Factor = 1.17



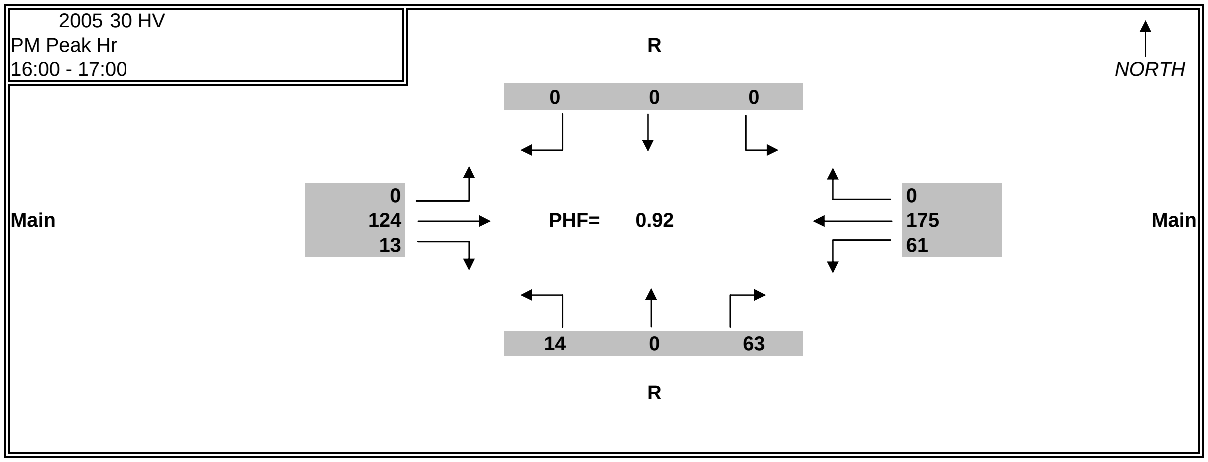


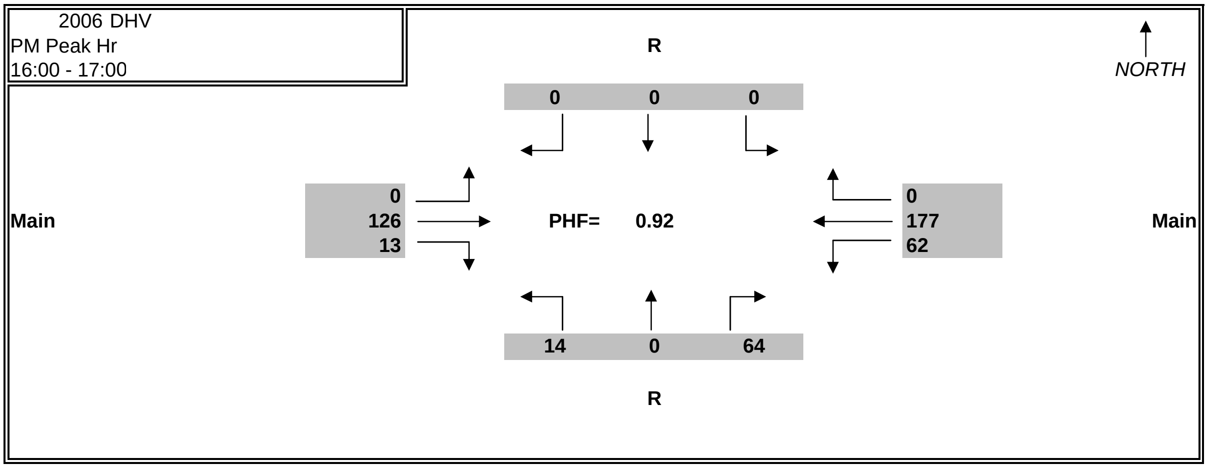
Seasonal Factor = 1.17

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



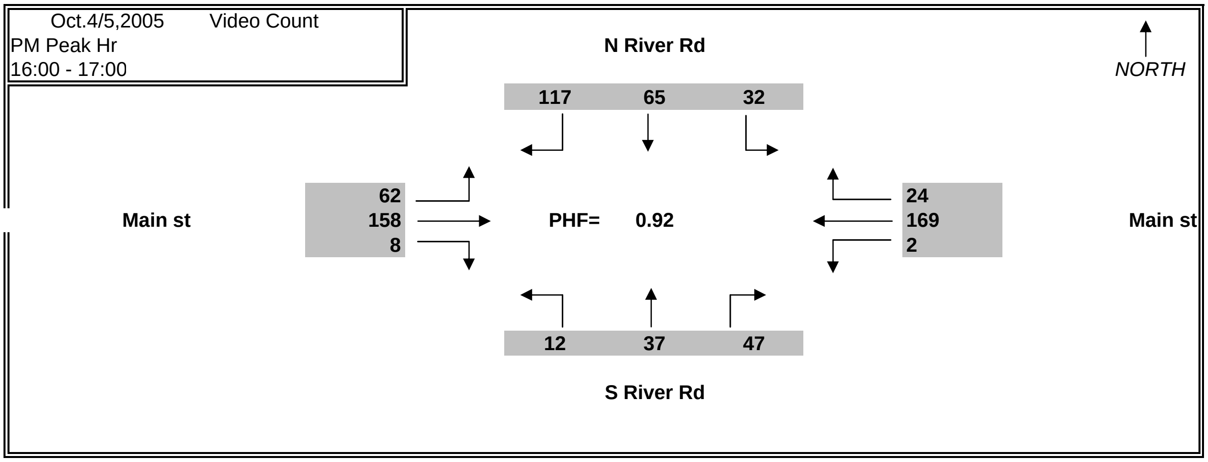
Seasonal Factor = 1.09



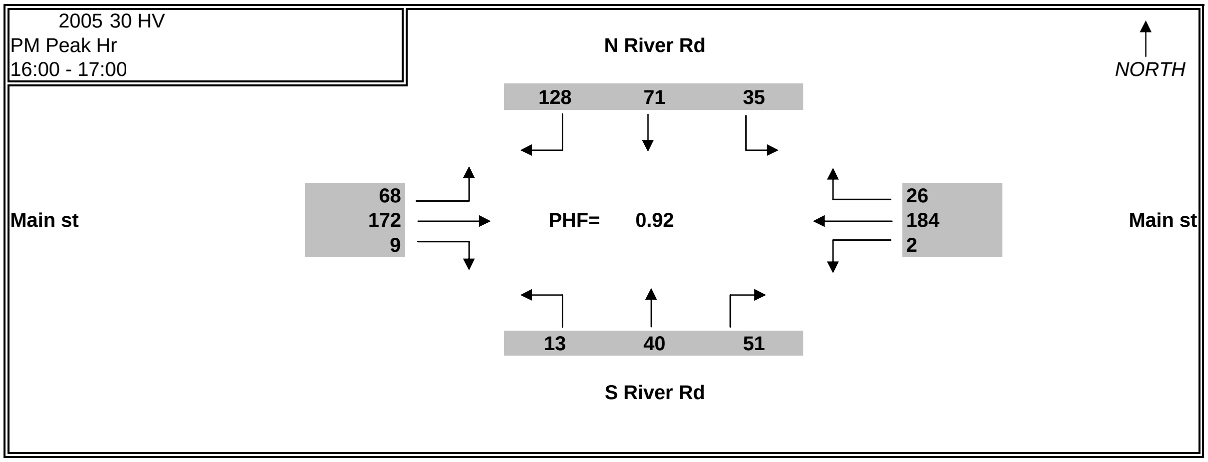


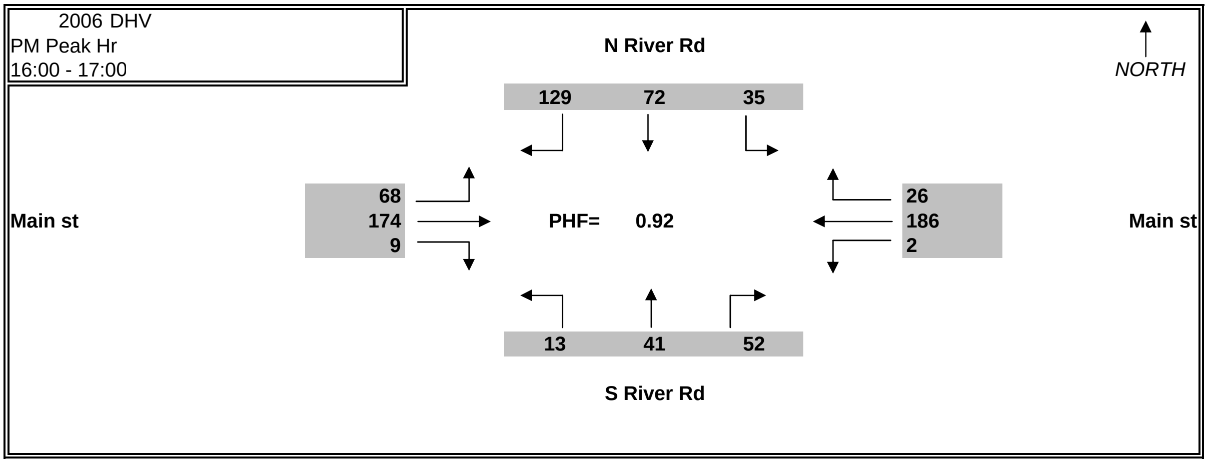
Seasonal Factor = 1.09

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



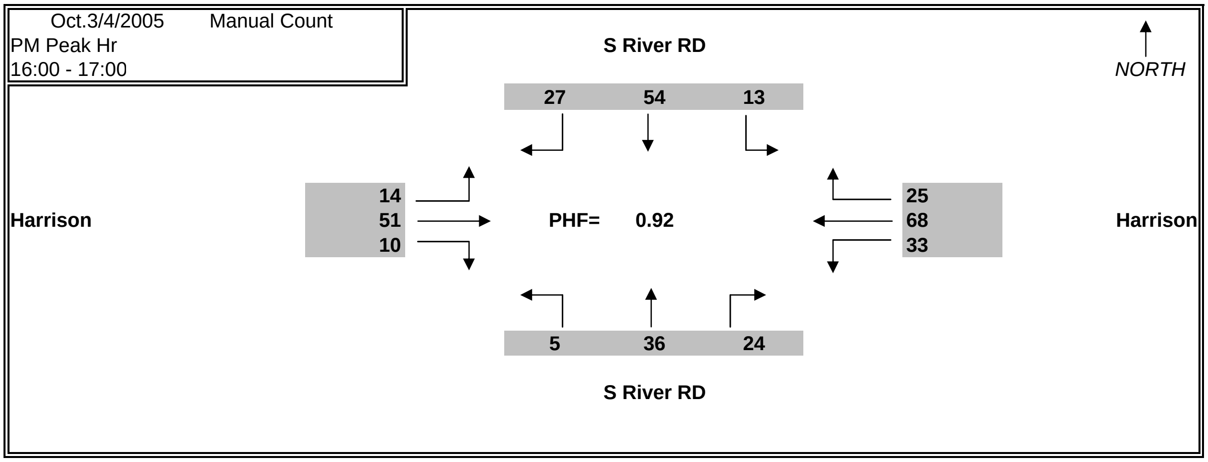
Seasonal Factor = 1.09



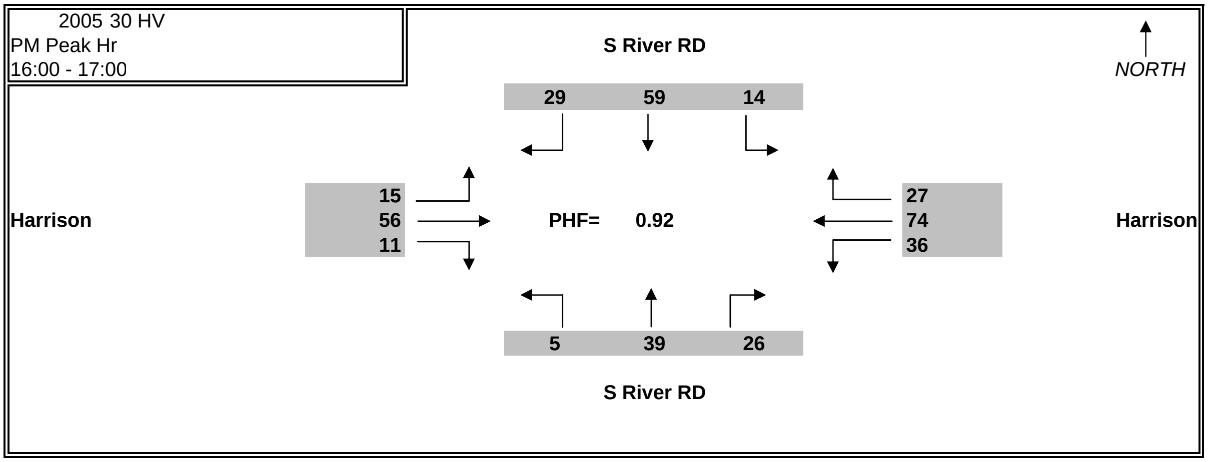


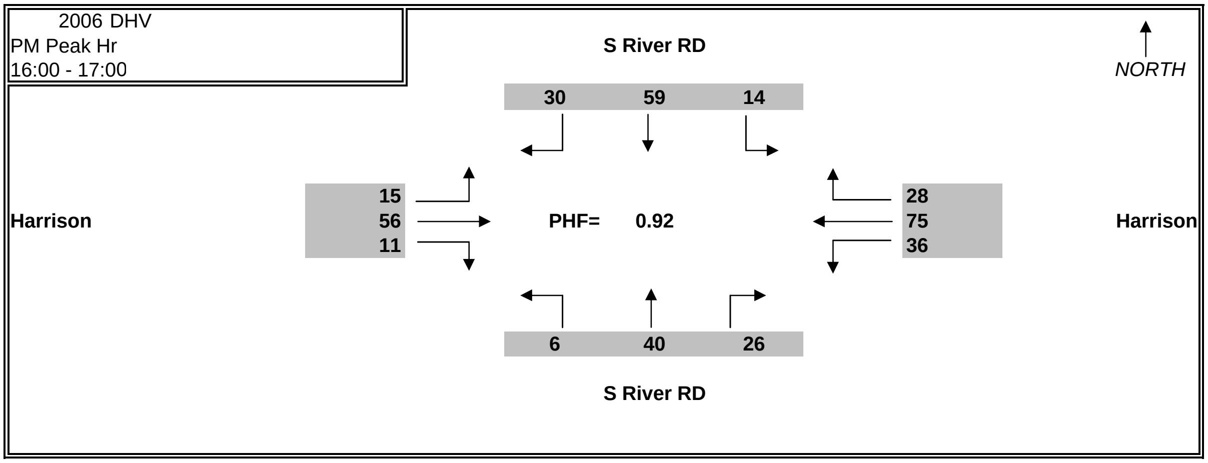
Seasonal Factor = 1.09

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1



Seasonal Factor = 1.09





Seasonal Factor = 1.09

Hwy Annual Growth Rate (%) = 1.1
Minor Approach Annual Growth Rate (%) = 1.1

APPENDIX C: PM Peak Hour Level of Service Calculation Sheets – Existing Conditions

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                                Scenario Report
Scenario:             Default Scenario

Command:              Default Command
Volume:               Default Volume
Geometry:             Default Geometry
Impact Fee:           Default Impact Fee
Trip Generation:      Default Trip Generation
Trip Distribution:    Default Trip Distribution
Paths:                Default Paths
Routes:               Default Routes
Configuration:        Default Configuration
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                            Impact Analysis Report
                               Level Of Service

Intersection                          Base            Future       Change
                                    Del/   V/       Del/   V/        in
                                 LOS Veh    C    LOS Veh    C
#  1 Main@R                      B  10.0 0.000   B  10.0 0.000   + 0.000 D/V

#  2 Main@River                  B  16.7 0.406   B  16.7 0.406   + 0.000 D/V

#  3 Harrison@River              A   8.5 0.217   A   8.5 0.217   + 0.000 V/C

#  5 99@Woodson                  A   9.9 0.581   A   9.9 0.581   + 0.000 D/V

#  6 99@Main                     D  50.2 0.712   D  50.2 0.712   + 0.000 D/V

#  7 99@6th                      B  10.5 0.328   B  10.5 0.328   + 0.000 D/V

#  8 99@4th                      B  18.7 0.325   B  18.7 0.325   + 0.000 D/V

#  9 99@S.River                  B  13.1 0.000   B  13.1 0.000   + 0.000 D/V

# 10 10th@Monroe                 B  10.1 0.000   B  10.1 0.000   + 0.000 D/V

# 11 8th@Taylor                  A   7.9 0.181   A   7.9 0.181   + 0.000 V/C

# 12 6th@I5 off                  B  11.2 0.000   B  11.2 0.000   + 0.000 D/V

# 13 6th @ I5 ON                     0.0 0.000       0.0 0.000   + 0.000 V/C

# 14 Main@16th                   B  16.8 0.593   B  16.8 0.593   + 0.000 D/V

# 15 Main@Gateway                C  27.9 0.780   C  27.9 0.780   + 0.000 D/V

# 16 I5 SB  Ramps & Gateway @ CGC  D  43.6 0.876   D  43.6 0.876   + 0.000 D/V

# 17 I5 NB OFF ramp              B  11.3 0.000   B  11.3 0.000   + 0.000 D/V

# 18 I5 NB ramp                  B  13.7 0.533   B  13.7 0.533   + 0.000 D/V

#401 99@CGC (OR 99 NB and SB)    C  15.5 0.000   C  15.5 0.000   + 0.000 D/V

#402 OR 99 @ CGC (OR 99 EB turning  C  22.5 0.000   C  22.5 0.000   + 0.000 D/V

#403 OR 99 @ CGC (CGC NB rights)   A   9.2 0.000   A   9.2 0.000   + 0.000 D/V
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Main@R
********************************************************************************
Average Delay (sec/veh):      2.7       Worst Case Level Of Service: B[ 10.0]
********************************************************************************
Street Name:                 R                                Main
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14    0    63     0    0     0     0  126    13    67  187     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14    0    63     0    0     0     0  126    13    67  187     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    15    0    68     0    0     0     0  137    14    73  203     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    15    0    68     0    0     0     0  137    14    73  203     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  494 xxxx   145  xxxx xxxx xxxxx  xxxx xxxx xxxxx   152 xxxx xxxxx
Potent Cap.:  538 xxxx   908  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1429 xxxx xxxxx
Move Cap.:    516 xxxx   907  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1427 xxxx xxxxx
Volume/Cap:  0.03 xxxx  0.08  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.05 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     *    *     *     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  797 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx 10.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx
Shared LOS:     *    B     *     *    *     *     *    *     *     A    *     *
ApproachDel:      10.0           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        B                 *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Main@River
********************************************************************************
Cycle (sec):          70               Critical Vol./Cap.(X):           0.406
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):          16.7
Optimal Cycle:        34               Level Of Service:                    B
********************************************************************************
Street Name:              River                               Main
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected          Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:         0  1  0  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   41    67    45   72   129    68  224     9     7  236    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   13   41    67    45   72   129    68  224     9     7  236    36
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    14   45    73    49   78   140    74  243    10     8  257    39
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   14   45    73    49   78   140    74  243    10     8  257    39
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    14   45    73    49   78   140    74  243    10     8  257    39
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.99 0.99  0.85  0.95 0.90  0.90  0.48 0.96  0.96  0.54 0.97  0.97
Lanes:       0.24 0.76  1.00  1.00 0.36  0.64  1.00 0.96  0.04  1.00 0.87  0.13
Final Sat.:   428 1350  1530  1710  583  1044   855 1655    66   964 1515   231
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.05  0.03 0.13  0.13  0.09 0.15  0.15  0.01 0.17  0.17
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.08 0.26  0.26  0.15 0.33  0.33  0.42 0.42  0.42  0.42 0.42  0.42
Volume/Cap:  0.41 0.13  0.19  0.19 0.41  0.41  0.21 0.35  0.35  0.02 0.41  0.41
Uniform Del: 30.6 20.0  20.3  25.8 18.1  18.1  13.0 14.0  14.0  12.0 14.3  14.3
IncremntDel:  1.9  0.1   0.2   0.3  0.5   0.5   0.3  0.3   0.3   0.0  0.4   0.4
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   32.4 20.1  20.5  26.1 18.6  18.6  13.3 14.3  14.3  12.0 14.7  14.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.4 20.1  20.5  26.1 18.6  18.6  13.3 14.3  14.3  12.0 14.7  14.7
LOS by Move:    C    C     C     C    B     B     B    B     B     B    B     B
HCM2kAvgQ:      2    1     1     1    4     4     1    4     4     0    5     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Harrison@River
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.217
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):         8.5
Optimal Cycle:         0               Level Of Service:                  A
********************************************************************************
Street Name:              River                            Harrison
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6   40    39    21   59    30    15   83    11    39   80    33
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    6   40    39    21   59    30    15   83    11    39   80    33
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     7   43    42    23   64    33    16   90    12    42   87    36
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    7   43    42    23   64    33    16   90    12    42   87    36
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     7   43    42    23   64    33    16   90    12    42   87    36
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.47  0.46  0.19 0.54  0.27  1.00 0.88  0.12  0.26 0.52  0.22
Final Sat.:    53  356   347   143  401   204   619  607    80   195  401   165
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.12  0.16 0.16  0.16  0.03 0.15  0.15  0.22 0.22  0.22
Crit Moves:       ****                    ****       ****       ****
Delay/Veh:    8.1  8.1   8.1   8.4  8.4   8.4   8.5  8.6   8.6   8.7  8.7   8.7
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.1  8.1   8.1   8.4  8.4   8.4   8.5  8.6   8.6   8.7  8.7   8.7
LOS by Move:   A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       8.1              8.4              8.6              8.7
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.1              8.4              8.6              8.7
LOS by Appr:        A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.2  0.2   0.2   0.0  0.2   0.2   0.3  0.3   0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 99@Woodson
********************************************************************************
Cycle (sec):          45               Critical Vol./Cap.(X):         0.581
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):         9.9
Optimal Cycle:        40               Level Of Service:                  A
********************************************************************************
Street Name:                99                             Woodson
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Prot+Permit      Prot+Permit       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  0    0  0  1  0  1    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  428     0     0  460   213   179    0    23     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  428     0     0  460   213   179    0    23     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94
PHF Volume:    29  455     0     0  489   227   190    0    24     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29  455     0     0  489   227   190    0    24     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    29  455     0     0  489   227   190    0    24     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.91 0.96  1.00  1.00 0.98  0.83  0.91 1.00  0.91  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.00  1.00  0.89 0.00  0.11  0.00 0.00  0.00
Final Sat.:  1644 1732     0     0 1764  1499  1448    0   186     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.26  0.00  0.00 0.28  0.15  0.13 0.00  0.13  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.60 0.51  0.00  0.00 0.48  0.48  0.23 0.00  0.23  0.00 0.00  0.00
Volume/Cap:  0.08 0.52  0.00  0.00 0.58  0.32  0.58 0.00  0.58  0.00 0.00  0.00
Uniform Del:  4.6  7.4   0.0   0.0  8.5   7.2  15.5  0.0  15.5   0.0  0.0   0.0
IncremntDel:  0.1  0.5   0.0   0.0  1.0   0.3   2.3  0.0   2.3   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Delay/Veh:    4.7  8.0   0.0   0.0  9.5   7.5  17.9  0.0  17.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   4.7  8.0   0.0   0.0  9.5   7.5  17.9  0.0  17.9   0.0  0.0   0.0
LOS by Move:   A    A     A     A    A     A     B    A     B     A    A     A
HCM2kAvgQ:      0    5     0     0    6     2     4    0     4     0    0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 99@Main
********************************************************************************
Cycle (sec):          145                 Critical Vol./Cap.(X):         0.712
Loss Time (sec):       16 (Y+R=4.0 sec)   Average Delay (sec/veh):        50.2
Optimal Cycle:         78                 Level Of Service:                  D
********************************************************************************
Street Name:                    99                                Main
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        1  0  1  0  1   1  0  0  1  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      26  232   247  184  250    59   73  275    19  242  209   163
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   26  232   247  184  250    59   73  275    19  242  209   163
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    28  252   268  200  272    64   79  299    21  263  227   177
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   28  252   268  200  272    64   79  299    21  263  227   177
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    28  252   268  200  272    64   79  299    21  263  227   177
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800 1800 1800  1800 1800 1800  1800 1800 1800  1800
Adjustment:  0.94 0.99  0.84 0.94 0.96  0.96 0.93 0.97  0.97 0.94 0.92  0.92
Lanes:       1.00 1.00  1.00 1.00 0.81  0.19 1.00 0.94  0.06 1.00 0.56  0.44
Final Sat.:  1693 1782  1515 1693 1400   330 1676 1634   113 1693  935   729
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.14  0.18 0.12 0.19  0.19 0.05 0.18  0.18 0.16 0.24  0.24
Crit Moves:             **** ****                  ****       ****
Green/Cycle: 0.03 0.25  0.25 0.17 0.38  0.38 0.08 0.26  0.26 0.22 0.40  0.40
Volume/Cap:  0.51 0.57  0.71 0.71 0.51  0.51 0.61 0.71  0.71 0.71 0.61  0.61
Uniform Del: 69.0 47.7  49.7 57.2 34.4  34.4 64.8 49.0  49.0 52.5 34.8  34.8
IncremntDel:  7.6  1.8   6.3  8.3  0.7   0.7  8.3  5.3   5.3  6.4  1.7   1.7
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:   76.5 49.4  56.0 65.5 35.0  35.0 73.0 54.3  54.3 58.9 36.4  36.4
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  76.5 49.4  56.0 65.5 35.0  35.0 73.0 54.3  54.3 58.9 36.4  36.4
LOS by Move:    E    D     E    E    D     D    E    D     D    E    D     D
HCM2kAvgQ:      2   10    12   10   11    11    4   14    14   12   14    14
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #7 99@6th
********************************************************************************
Cycle (sec):           80                 Critical Vol./Cap.(X):         0.328
Loss Time (sec):        8 (Y+R=4.0 sec)   Average Delay (sec/veh):        10.5
Optimal Cycle:         24                 Level Of Service:                  B
********************************************************************************
Street Name:                    99                                6th
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        0  1  0  1  0   0  1  0  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  365     1  122  352     2    3   56    21   14   81   100
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0  365     1  122  352     2    3   56    21   14   81   100
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.87 0.87  0.87 0.87 0.87  0.87 0.87 0.87  0.87 0.87 0.87  0.87
PHF Volume:     0  420     1  140  405     2    3   64    24   16   93   115
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0  420     1  140  405     2    3   64    24   16   93   115
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0  420     1  140  405     2    3   64    24   16   93   115
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800 1800 1800  1800 1800 1800  1800 1800 1800  1800
Adjustment:  0.95 0.94  0.94 0.70 0.70  0.70 0.96 0.96  0.96 0.93 0.93  0.83
Lanes:       0.00 1.99  0.01 0.51 1.48  0.01 0.04 0.70  0.26 0.15 0.85  1.00
Final Sat.:     0 3377     9  643 1856    11   65 1206   452  247 1428  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.12  0.12 0.22 0.22  0.22 0.05 0.05  0.05 0.07 0.07  0.08
Crit Moves:                       ****                                    ****
Green/Cycle: 0.00 0.66  0.66 0.66 0.66  0.66 0.24 0.24  0.24 0.24 0.24  0.24
Volume/Cap:  0.00 0.19  0.19 0.33 0.33  0.33 0.23 0.23  0.23 0.28 0.28  0.33
Uniform Del:  0.0  5.1   5.1  5.8  5.8   5.8 24.7 24.7  24.7 25.0 25.0  25.3
IncremntDel:  0.0  0.0   0.0  0.1  0.1   0.1  0.3  0.3   0.3  0.4  0.4   0.6
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:    0.0  5.2   5.2  5.9  5.9   5.9 25.0 25.0  25.0 25.4 25.4  25.9
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0  5.2   5.2  5.9  5.9   5.9 25.0 25.0  25.0 25.4 25.4  25.9
LOS by Move:    A    A     A    A    A     A    C    C     C    C    C     C
HCM2kAvgQ:      0    2     2    3    3     3    2    2     2    2    2     3
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*********************************************************************************
Intersection #8 99@4th
*********************************************************************************
Cycle (sec):          85                  Critical Vol./Cap.(X):         0.325
Loss Time (sec):      12 (Y+R=4.0 sec)    Average Delay (sec/veh):        18.7
Optimal Cycle:        32                  Level Of Service:                  B
*********************************************************************************
Street Name:                 99                                4th
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       1  0  0  1  0   1  0  1  0  1   1  0  0  1  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      5  204    42   66  224    85   97   45     7   28   68    47
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   5  204    42   66  224    85   97   45     7   28   68    47
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    5  222    46   72  243    92  105   49     8   30   74    51
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   5  222    46   72  243    92  105   49     8   30   74    51
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    5  222    46   72  243    92  105   49     8   30   74    51
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800 1800 1800  1800 1800 1800  1800 1800 1800  1800
Adjustment:  0.54 0.95  0.94 0.51 0.95  0.81 0.95 0.98  0.98 0.96 0.96  0.83
Lanes:       1.00 0.83  0.17 1.00 1.00  1.00 1.00 0.87  0.13 0.29 0.71  1.00
Final Sat.:   976 1411   290  918 1714  1454 1710 1527   237  503 1221  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.16  0.16 0.08 0.14  0.06 0.06 0.03  0.03 0.06 0.06  0.03
Crit Moves:       ****                        ****                  ****
Green/Cycle: 0.48 0.48  0.48 0.48 0.48  0.48 0.19 0.13  0.13 0.25 0.19  0.19
Volume/Cap:  0.01 0.33  0.33 0.16 0.29  0.13 0.33 0.25  0.25 0.25 0.33  0.18
Uniform Del: 11.4 13.5  13.5 12.3 13.2  12.1 29.8 33.2  33.2 25.7 30.0  29.2
IncremntDel:  0.0  0.2   0.2  0.2  0.2   0.1  0.6  0.6   0.6  0.3  0.6   0.3
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:   11.4 13.7  13.7 12.5 13.4  12.2 30.3 33.8  33.8 26.0 30.6  29.5
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  11.4 13.7  13.7 12.5 13.4  12.2 30.3 33.8  33.8 26.0 30.6  29.5
LOS by Move:   B    B     B    B    B     B    C    C     C    C    C     C
HCM2kAvgQ:     0    4     4    1    4     1    3    2     2    2    3     1
*********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
             2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #9 99@S.River
*********************************************************************************
Average Delay (sec/veh):      3.2       Worst Case Level Of Service: B[ 13.1]
*********************************************************************************
Street Name:                 99                              S.River
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     37  183     0    0  227    23   67    0    54    0    0     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  37  183     0    0  227    23   67    0    54    0    0     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:   40  199     0    0  247    25   73    0    59    0    0     0
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Final Vol.:   40  199     0    0  247    25   73    0    59    0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  274 xxxx xxxxx  xxxx xxxx xxxxx   541 xxxx   261  xxxx xxxx xxxxx
Potent Cap.: 1272 xxxx xxxxx  xxxx xxxx xxxxx   492 xxxx   763  xxxx xxxx xxxxx
Move Cap.:   1270 xxxx xxxxx  xxxx xxxx xxxxx   479 xxxx   762  xxxx xxxx xxxxx
Volume/Cap:  0.03 xxxx  xxxx  xxxx xxxx  xxxx  0.15 xxxx  0.08  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx   574 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx   0.9 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  13.1 xxxxx xxxxx xxxx xxxxx
Shared LOS:    A    *     *     *    *     *     *     B    *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             13.1            xxxxxx
ApproachLOS:       *                *                 B                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #10 10th@Monroe
********************************************************************************
Average Delay (sec/veh):      1.9      Worst Case Level Of Service: B[ 10.1]
********************************************************************************
Street Name:                 10th                          Monroe
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17   74     0     0  100    52    33    0     7     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17   74     0     0  100    52    33    0     7     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    18   80     0     0  109    57    36    0     8     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    18   80     0     0  109    57    36    0     8     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  171 xxxx xxxxx  xxxx xxxx xxxxx   261 xxxx   144  xxxx xxxx xxxxx
Potent Cap.: 1418 xxxx xxxxx  xxxx xxxx xxxxx   730 xxxx   906  xxxx xxxx xxxxx
Move Cap.:   1411 xxxx xxxxx  xxxx xxxx xxxxx   718 xxxx   901  xxxx xxxx xxxxx
Volume/Cap:  0.01 xxxx  xxxx  xxxx xxxx  xxxx  0.05 xxxx  0.01  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  745 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 10.1 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    B     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx             10.1            xxxxxx
ApproachLOS:        *                *                 B                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #11 8th@Taylor
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):        0.181
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):        7.9
Optimal Cycle:         0               Level Of Service:                 A
********************************************************************************
Street Name:                 8th                           Taylor
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    6    21     2    6     7     4   93    19    42   94     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    6    21     2    6     7     4   93    19    42   94     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    18    7    23     2    7     8     4  101    21    46  102     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   18    7    23     2    7     8     4  101    21    46  102     3
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    18    7    23     2    7     8     4  101    21    46  102     3
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.38 0.14  0.48  0.13 0.40  0.47  0.03 0.81  0.16  0.30 0.68  0.02
Final Sat.:   303  107   374   102  307   358    29  686   140   252  565    18
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.06  0.06  0.02 0.02  0.02  0.15 0.15  0.15  0.18 0.18  0.18
Crit Moves:       ****             ****             ****             ****
Delay/Veh:    7.6  7.6   7.6   7.5  7.5   7.5   7.8  7.8   7.8   8.2  8.2   8.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   7.6  7.6   7.6   7.5  7.5   7.5   7.8  7.8   7.8   8.2  8.2   8.2
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:        7.6              7.5              7.8              8.2
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         7.6              7.5              7.8              8.2
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.0  0.0   0.0   0.2  0.2   0.2   0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #12 6th@I5 off
********************************************************************************
Average Delay (sec/veh):      4.5       Worst Case Level Of Service: B[ 11.2]
********************************************************************************
Street Name:               6th                           I5 off ramp
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0    0  0  1  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92     0     0  164     0     0    0     0   145    0    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   92     0     0  164     0     0    0     0   145    0    30
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0  100     0     0  178     0     0    0     0   158    0    33
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  100     0     0  178     0     0    0     0   158    0    33
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   279 xxxx   101
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   698 xxxx   938
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   697 xxxx   937
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.23 xxxx  0.03
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.9 xxxx   0.1
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx  11.7 xxxx   9.0
LOS by Move:    *    *     *     *    *     *     *    *     *     B    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             11.2
ApproachLOS:        *                *                *                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                      Level Of Service Computation Report
                   Unknown Method (Base Volume Alternative)
********************************************************************************
Intersection #13 6th @ I5 ON
********************************************************************************

********************************************************************************
Street Name:               6th                              I5 ON
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled     Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   97    61    32  269     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Vol.:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module: >> Population: 0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Potent Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
LOS by Move:
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Main@16th
********************************************************************************
Cycle (sec):         105                Critical Vol./Cap.(X):         0.593
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        16.8
Optimal Cycle:        48                Level Of Service:                  B
********************************************************************************
Street Name:               16th                              Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      16   19     9    77   37    63    25  567    27     4  490   102
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16   19     9    77   37    63    25  567    27     4  490   102
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    17   21    10    84   40    68    27  616    29     4  533   111
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   17   21    10    84   40    68    27  616    29     4  533   111
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    17   21    10    84   40    68    27  616    29     4  533   111
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.83 0.83  0.83  0.80 0.80  0.79  0.94 0.98  0.98  0.93 0.95  0.95
Lanes:       0.36 0.43  0.21  0.43 0.21  0.36  1.00 0.95  0.05  1.00 0.83  0.17
Final Sat.:   545  648   307   623  299   509  1693 1689    80  1676 1422   296
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.13 0.13  0.13  0.02 0.36  0.36  0.00 0.37  0.37
Crit Moves:                        ****        ****                     ****
Green/Cycle: 0.23 0.23  0.23  0.23 0.23  0.23  0.03 0.65  0.65  0.00 0.63  0.63
Volume/Cap:  0.14 0.14  0.14  0.59 0.59  0.59  0.59 0.56  0.56  0.56 0.59  0.59
Uniform Del: 32.4 32.4  32.4  36.3 36.3  36.3  50.5  9.9   9.9  52.1 11.4  11.4
IncremntDel:  0.2  0.2   0.2   2.9  2.9   2.9  19.1  0.6   0.6  67.8  0.9   0.9
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   32.6 32.6  32.6  39.2 39.2  39.2  69.6 10.5  10.5 119.9 12.3  12.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.6 32.6  32.6  39.2 39.2  39.2  69.6 10.5  10.5 119.9 12.3  12.3
LOS by Move:   C    C     C     D    D     D     E    B     B     F    B     B
HCM2kAvgQ:      1    1     1     6    6     6     2   11    11     1   12    12
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Main@Gateway
********************************************************************************
Cycle (sec):          65                Critical Vol./Cap.(X):         0.780
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        27.9
Optimal Cycle:        65                Level Of Service:                  C
********************************************************************************
Street Name:             Gateway                             Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8   54    83    23   91   184   233  391     8   105  380    19
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    8   54    83    23   91   184   233  391     8   105  380    19
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     9   59    90    25   99   200   253  425     9   114  413    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9   59    90    25   99   200   253  425     9   114  413    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     9   59    90    25   99   200   253  425     9   114  413    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.95 1.00  0.85  0.93 0.88  0.88  0.94 0.99  0.99  0.94 0.98  0.98
Lanes:       1.00 1.00  1.00  1.00 0.33  0.67  1.00 0.98  0.02  1.00 0.95  0.05
Final Sat.:  1710 1800  1530  1676  525  1062  1693 1741    36  1693 1685    84
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.03  0.06  0.01 0.19  0.19  0.15 0.24  0.24  0.07 0.25  0.25
Crit Moves:  ****                  ****        ****                     ****
Green/Cycle: 0.01 0.20  0.20  0.05 0.24  0.24  0.19 0.40  0.40  0.11 0.31  0.31
Volume/Cap:  0.78 0.16  0.30  0.30 0.78  0.78  0.78 0.62  0.62  0.62 0.78  0.78
Uniform Del: 32.2 21.6  22.2  29.8 23.0  23.0  25.0 15.7  15.7  27.6 20.2  20.2
IncremntDel:149.0  0.2   0.6   2.0  9.9   9.9  11.5  1.6   1.6   6.1  7.0   7.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  181.3 21.8  22.8  31.8 32.9  32.9  36.5 17.3  17.3  33.7 27.2  27.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 181.3 21.8  22.8  31.8 32.9  32.9  36.5 17.3  17.3  33.7 27.2  27.2
LOS by Move:   F    C     C     C    C     C     D    B     B     C    C     C
HCM2kAvgQ:      1    1     2     1    8     8     7    8     8     3   10    10
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #16 I5 SB  Ramps & Gateway @ CGC
*******************************************************************************
Cycle (sec):          90                  Critical Vol./Cap.(X):        0.876
Loss Time (sec):      16 (Y+R=4.0 sec)    Average Delay (sec/veh):       43.6
Optimal Cycle:        90                  Level Of Service:                 D
*******************************************************************************
Street Name:      I5 SB Ramps / Gateway                      CGC
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected         Protected         Protected
Rights:          Include          Ignore            Include          Ignore
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  0  2  0  1    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      78   67   190   216  283   272    22  399    85   125  242    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   78   67   190   216  283   272    22  399    85   125  242    53
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.00  0.92 0.92  0.92  0.92 0.92  0.00
PHF Volume:    85   73   207   235  308     0    24  434    92   136  263     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   85   73   207   235  308     0    24  434    92   136  263     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:    85   73   207   235  308     0    24  434    92   136  263     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.90 0.85  0.85  0.90 0.90  1.00  0.92 0.95  0.95  0.90 0.95  1.00
Lanes:       1.00 0.26  0.74  1.00 2.00  1.00  1.00 0.82  0.18  1.00 1.00  1.00
Final Sat.:  1628  397  1126  1628 3256  1800  1660 1403   299  1628 1714  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.18  0.18  0.14 0.09  0.00  0.01 0.31  0.31  0.08 0.15  0.00
Crit Moves:       ****        ****                   ****       ****
Green/Cycle: 0.13 0.21  0.21  0.16 0.24  0.00  0.04 0.35  0.35  0.10 0.41  0.00
Volume/Cap:  0.39 0.88  0.88  0.88 0.39  0.00  0.37 0.88  0.88  0.88 0.37  0.00
Uniform Del: 35.7 34.4  34.4  36.7 28.6   0.0  42.2 27.3  27.3  40.2 18.5   0.0
IncremntDel:  1.2 22.7  22.7  25.9  0.3   0.0   3.7 13.6  13.6  38.7  0.3   0.0
InitQueueDel: 0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   36.9 57.1  57.1  62.6 28.9   0.0  45.9 40.9  40.9  78.9 18.9   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  36.9 57.1  57.1  62.6 28.9   0.0  45.9 40.9  40.9  78.9 18.9   0.0
LOS by Move:    D    E     E     E    C     A     D    D     D     E    B     A
HCM2kAvgQ:      3   11    11     9    4     0     1   17    17     6    5     0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 I5 NB OFF ramp
*******************************************************************************
Average Delay (sec/veh):      0.7       Worst Case Level Of Service: B[ 11.3]
*******************************************************************************
Street Name:           I5 NB OFF ramp                       Row River Rd
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  0  0  1    0  0  1  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0    75     0  813     0     0  345     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0    75     0  813     0     0  345     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0     0    0    82     0  884     0     0  375     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0     0    0    82     0  884     0     0  375     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx   6.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx   3.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx   375  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx   656  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx   656  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  0.12  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   0.4  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  11.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     B     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             11.3            xxxxxx            xxxxxx
ApproachLOS:        *                B                 *                 *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #18 I5 NB ramp
********************************************************************************
Cycle (sec):         110              Critical Vol./Cap.(X):        0.533
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):      13.7
Optimal Cycle:        43              Level Of Service:                B
********************************************************************************
Street Name:             I5 ramp                         Row River Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Prot+Permit      Prot+Permit
Rights:           Include        Ignore             Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    61    0    70   318  495     0     0  345   230
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    61    0    70   318  495     0     0  345   230
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.00  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    66    0     0   346  538     0     0  375   250
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0    66    0     0   346  538     0     0  375   250
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0    66    0     0   346  538     0     0  375   250
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  0.87 1.00  1.00  0.91 0.96  1.00  1.00 0.94  0.79
Lanes:       0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Final Sat.:     0    0     0  1571    0     0  1645 1732     0     0 1683  1431
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.04 0.00  0.00  0.21 0.31  0.00  0.00 0.22  0.17
Crit Moves:                   ****              ****                   ****
Green/Cycle: 0.00 0.00  0.00  0.08 0.00  0.00  0.85 0.81  0.00  0.00 0.42  0.42
Volume/Cap:  0.00 0.00  0.00  0.53 0.00  0.00  0.37 0.38  0.00  0.00 0.53  0.42
Uniform Del:  0.0  0.0   0.0  48.7  0.0   0.0   3.7  2.8   0.0   0.0 24.0  22.6
IncremntDel:  0.0  0.0   0.0   4.4  0.0   0.0   0.3  0.2   0.0   0.0  0.8   0.5
InitQueueDel: 0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Delay/Veh:    0.0  0.0   0.0  53.1  0.0   0.0   3.9  3.0   0.0   0.0 24.8  23.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  53.1  0.0   0.0   3.9  3.0   0.0   0.0 24.8  23.1
LOS by Move:   A    A     A     D    A     A     A    A     A     A    C     C
HCM2kAvgQ:      0    0     0     3    0     0     3    5     0     0   10     6
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #401 99@CGC (OR 99 NB and SB)
********************************************************************************
Average Delay (sec/veh):      5.1       Worst Case Level Of Service: C[ 15.5]
********************************************************************************
Street Name:                99                               CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Ignore           Include          Include          Include
Lanes:        0  0  1  0  0    0  0  0  0  2    0  0  0  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  102     0     0    0   154     0    0     0     0  486     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  102     0     0    0   154     0    0     0     0  486     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.00  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0  111     0     0    0   167     0    0     0     0  528     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  111     0     0    0   167     0    0     0     0  528     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  6.5 xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx  4.0 xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  529 xxxxx  xxxx xxxx   529  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx  455 xxxxx  xxxx xxxx   547  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx  455 xxxxx  xxxx xxxx   547  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx 0.24  xxxx  xxxx xxxx  0.31  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  0.9 xxxxx  xxxx xxxx   1.3  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx 15.5 xxxxx xxxxx xxxx  14.5 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    C     *     *    *     B     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:      15.5             14.5           xxxxxx           xxxxxx
ApproachLOS:        C                B                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #402 OR 99 @ CGC (OR 99 EB turning left)
********************************************************************************
Average Delay (sec/veh):      0.8       Worst Case Level Of Service: C[ 22.5]
********************************************************************************
Street Name:              OR 99                                CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  0  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0    39    0     0     0  488     0     0  486    76
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    39    0     0     0  488     0     0  486    76
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:      0    0     0    42    0     0     0  530     0     0  528    83
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0    42    0     0     0  530     0     0  528    83
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1059 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   248 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   248 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.17 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.6 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  22.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     C    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              22.5            xxxxxx           xxxxxx
ApproachLOS:        *                  C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #403 OR 99 @ CGC (CGC NB rights)
********************************************************************************
Average Delay (sec/veh):      2.7       Worst Case Level Of Service: A[  9.2]
********************************************************************************
Street Name:              OR 99                                CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:        0  0  1  0  0   0  1  1  0  0   0  0  0  0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0  102     0    39  154     0     0    0     0     0    0    76
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0  102     0    39  154     0     0    0     0     0    0    76
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:      0  111     0    42  167     0     0    0     0     0    0    83
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0  111     0    42  167     0     0    0     0     0    0    83
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   111 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   112
Potent Cap.: xxxx xxxx xxxxx  1473 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   938
Move Cap.:   xxxx xxxx xxxxx  1473 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   938
Volume/Cap:  xxxx xxxx  xxxx  0.03 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.09
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.3
Control Del:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   9.2
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx           xxxxxx              9.2
ApproachLOS:        *                *                *                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

APPENDIX D: PM Peak Hour Level of Service Calculation Sheets – Future Conditions – No-Build

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                                Scenario Report
Scenario:             Default Scenario

Command:              Default Command
Volume:               Default Volume
Geometry:             Default Geometry
Impact Fee:           Default Impact Fee
Trip Generation:      Default Trip Generation
Trip Distribution:    Default Trip Distribution
Paths:                Default Paths
Routes:               Default Routes
Configuration:        Default Configuration
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                            Impact Analysis Report
                               Level Of Service

Intersection                              Base          Future       Change
                                       Del/   V/      Del/   V/        in
                                    LOS Veh    C    LOS Veh    C
#  1 Main@R                         B  10.0 0.000   B  13.5 0.000  + 3.419 D/V

#  2 Main@River                     B  16.7 0.406   C  24.3 0.833  + 7.580 D/V

#  3 Harrison@River                 A   8.4 0.209   E  42.2 1.061  + 0.852 V/C

#  5 99@Woodson                     B  13.1 0.491   C  26.6 0.922  +13.533 D/V

#  6 99@Main                        D  49.3 0.690   F 137.8 1.214  +88.495 D/V

#  7 99@6th                         B  10.4 0.308   C  20.5 0.861  +10.075 D/V

#  8 99@4th                         B  18.7 0.325   C  26.3 0.736  + 7.609 D/V

#  9 99@S.River                     B  12.8 0.000   F  68.0 0.000  +55.111 D/V

# 10 10th@Monroe                    B  10.1 0.000   B  11.1 0.000  + 0.961 D/V

# 11 8th@Taylor                     A   7.9 0.181   B  13.1 0.657  + 0.476 V/C

# 12 6th@I5 off                     B  11.2 0.000   B  11.2 0.000  + 0.016 D/V

# 13 6th @ I5 ON                        0.0 0.000       0.0 0.000  + 0.000 V/C

# 14 Main@16th                      B  16.4 0.574   C  25.1 0.874  + 8.732 D/V

# 15 Main@Gateway                   C  26.8 0.755   F  91.7 1.188  +64.936 D/V

# 16 I5 SB  Ramps & Gateway @ CGC   D  41.1 0.848   F 140.7 1.345  +99.601 D/V

# 17 I5 NB OFF ramp                 B  11.3 0.000   C  20.5 0.000  + 9.272 D/V

# 18 I5 NB ramp                     B  11.7 0.516   C  29.1 0.947  +17.431 D/V

#401 99@CGC (OR 99 NB and SB)       F 206.0 0.000   F 206.0 0.000  + 0.000 D/V

#402 OR 99 @ CGC (OR 99 EB turning  F 637.0 0.000   F 637.0 0.000  + 0.000 D/V

#403 OR 99 @ CGC (CGC NB rights)    B  13.6 0.000   B  13.6 0.000  + 0.000 D/V
```

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #1 Main@R
******************************************************************************
Average Delay (sec/veh):      4.0      Worst Case Level Of Service: B[ 13.5]
******************************************************************************
Street Name:                 R                                Main
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  0  0  0   0  0  0  1  0   0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14    0    63     0    0     0     0  126    13    67  187     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14    0    63     0    0     0     0  126    13    67  187     0
Added Vol:     18    0   103     0    0     0     0   73    24    42  159     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   32    0   166     0    0     0     0  199    37   109  346     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    35    0   180     0    0     0     0  216    40   118  376     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    35    0   180     0    0     0     0  216    40   118  376     0
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  850 xxxx   237  xxxx xxxx xxxxx  xxxx xxxx xxxxx   258 xxxx xxxxx
Potent Cap.:  333 xxxx   807  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1307 xxxx xxxxx
Move Cap.:    308 xxxx   806  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1306 xxxx xxxxx
Volume/Cap:  0.11 xxxx  0.22  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.09 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.0 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  639 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  1.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.3 xxxx xxxxx
Shrd ConDel:xxxxx 13.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.0 xxxx xxxxx
Shared LOS:     *    B     *     *    *     *     *    *     *     A    *     *
ApproachDel:      13.5            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        B                *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #2 Main@River
******************************************************************************
Cycle (sec):          70                 Critical Vol./Cap.(X):        0.833
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):        24.3
Optimal Cycle:        70                 Level Of Service:                C
******************************************************************************
Street Name:                River                             Main
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:       0  1  0  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   41    67    45   72   129    68  224     9     7  236    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   13   41    67    45   72   129    68  224     9     7  236    36
Added Vol:     52   38    51     0   11    72    24  190    29    71  391     2
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   65   79   118    45   83   201    92  414    38    78  627    38
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    71   86   128    49   90   218   100  450    41    85  682    41
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   71   86   128    49   90   218   100  450    41    85  682    41
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    71   86   128    49   90   218   100  450    41    85  682    41
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.98 0.98  0.85  0.95 0.89  0.89  0.16 0.95  0.95  0.35 0.98  0.98
Lanes:       0.45 0.55  1.00  1.00 0.29  0.71  1.00 0.92  0.08  1.00 0.94  0.06
Final Sat.:   795  966  1530  1710  470  1139   281 1565   144   624 1665   101
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.09  0.08  0.03 0.19  0.19  0.36 0.29  0.29  0.14 0.41  0.41
Crit Moves:  ****                  ****                                ****
Green/Cycle: 0.11 0.26  0.26  0.08 0.23  0.23  0.49 0.49  0.49  0.49 0.49  0.49
Volume/Cap:  0.83 0.35  0.33  0.35 0.83  0.83  0.73 0.58  0.58  0.28 0.83  0.83
Uniform Del: 30.7 21.3  21.2  30.4 25.7  25.7  14.1 12.7  12.7  10.5 15.3  15.3
IncremntDel: 26.0  0.5   0.5   1.5 14.8  14.8  17.4  1.1   1.1   0.5  6.9   6.9
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   56.6 21.8  21.7  31.9 40.5  40.5  31.5 13.8  13.8  11.0 22.3  22.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  56.6 21.8  21.7  31.9 40.5  40.5  31.5 13.8  13.8  11.0 22.3  22.3
LOS by Move:    E    C     C     C    D     D     C    B     B     B    C     C
HCM2kAvgQ:      6    3     3     1    9     9     3    8     8     1   16    16
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Note: Queue reported is the number of cars per lane.
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Harrison@River
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap.(X):        1.061
Loss Time (sec):      0 (Y+R=4.0 sec)   Average Delay (sec/veh):       42.2
Optimal Cycle:        0                 Level Of Service:                 E
********************************************************************************
Street Name:                River                          Harrison
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6   40    39    21   59    30    15   83    11    39   80    33
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    6   40    39    21   59    30    15   83    11    39   80    33
Added Vol:     67   34    51     0   23    87   100  126    57     2  401     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   73   74    90    21   82   117   115  209    68    41  481    40
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    77   78    95    22   86   123   121  220    72    43  506    42
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   77   78    95    22   86   123   121  220    72    43  506    42
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    77   78    95    22   86   123   121  220    72    43  506    42
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.31 0.31  0.38  0.10 0.37  0.53  1.00 0.75  0.25  0.07 0.86  0.07
Final Sat.:   147  149   181    46  179   255   456  376   122    41  477    40
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.52 0.52  0.52  0.48 0.48  0.48  0.27 0.58  0.58  1.06 1.06  1.06
Crit Moves:       ****             ****                   ****        ****
Delay/Veh:   17.3 17.3  17.3  16.2 16.2  16.2  13.1 18.6  18.6  80.4 80.4  80.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  17.3 17.3  17.3  16.2 16.2  16.2  13.1 18.6  18.6  80.4 80.4  80.4
LOS by Move:    C    C     C     C    C     C     B    C     C     F    F     F
ApproachDel:      17.3             16.2             17.0             80.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       17.3             16.2             17.0             80.4
LOS by Appr:        C                C                C                F
AllWayAvgQ:   0.9  0.9   0.9   0.8  0.8   0.8   0.3  1.2   1.2  11.0 11.0  11.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 99@Woodson
********************************************************************************
Cycle (sec):          85                Critical Vol./Cap.(X):         0.922
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        26.6
Optimal Cycle:        85                Level Of Service:                  C
********************************************************************************
Street Name:                99                             Woodson
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Prot+Permit      Prot+Permit       Protected         Protected
Rights:           Include          Include          Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  0    0  0  1  0  1    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  428     0     0  460   213   179    0    23     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  428     0     0  460   213   179    0    23     0    0     0
Added Vol:      0  435     0     0  469   106   139    0     2     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   27  863     0     0  929   319   318    0    25     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    28  908     0     0  978   336   335    0    26     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   28  908     0     0  978   336   335    0    26     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    28  908     0     0  978   336   335    0    26     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.91 0.96  1.00  1.00 0.98  0.83  0.91 1.00  0.91  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.00  1.00  0.93 0.00  0.07  0.00 0.00  0.00
Final Sat.:  1645 1732     0     0 1764  1499  1519    0   119     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.52  0.00  0.00 0.55  0.22  0.22 0.00  0.22  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.67 0.62  0.00  0.00 0.60  0.60  0.24 0.00  0.24  0.00 0.00  0.00
Volume/Cap:  0.23 0.85  0.00  0.00 0.92  0.37  0.92 0.00  0.92  0.00 0.00  0.00
Uniform Del: 14.9 12.9   0.0   0.0 15.2   8.7  31.6  0.0  31.6   0.0  0.0   0.0
IncremntDel:  1.0  6.4   0.0   0.0 12.9   0.3  26.9  0.0  26.9   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Delay/Veh:   15.9 19.3   0.0   0.0 28.0   9.0  58.5  0.0  58.5   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.9 19.3   0.0   0.0 28.0   9.0  58.5  0.0  58.5   0.0  0.0   0.0
LOS by Move:   B    B     A     A    C     A     E    A     E     A    A     A
HCM2kAvgQ:      1   22     0     0   28     5    13    0    13     0    0     0
********************************************************************************
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 99@Main
********************************************************************************
Cycle (sec):         145                Critical Vol./Cap.(X):         1.214
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):       137.8
Optimal Cycle:       145                Level Of Service:                  F
********************************************************************************
Street Name:                99                                Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      26  232   247   184  250    59    73  275    19   242  209   163
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   26  232   247   184  250    59    73  275    19   242  209   163
Added Vol:    139  320   141    27  351    88    62  153    22   141  261    38
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  165  552   388   211  601   147   135  428    41   383  470   201
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   174  581   408   222  633   155   142  451    43   403  495   212
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  174  581   408   222  633   155   142  451    43   403  495   212
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   174  581   408   222  633   155   142  451    43   403  495   212
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.94 0.99  0.84  0.94 0.96  0.96  0.93 0.97  0.97  0.94 0.95  0.95
Lanes:       1.00 1.00  1.00  1.00 0.80  0.20  1.00 0.91  0.09  1.00 0.70  0.30
Final Sat.:  1693 1782  1515  1693 1389   340  1676 1589   152  1693 1192   510
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.33  0.27  0.13 0.46  0.46  0.08 0.28  0.28  0.24 0.42  0.42
Crit Moves:  ****                  ****             ****        ****
Green/Cycle: 0.08 0.33  0.33  0.13 0.38  0.38  0.07 0.23  0.23  0.20 0.36  0.36
Volume/Cap:  1.21 0.99  0.82  0.99 1.21  1.21  1.16 1.21  1.21  1.21 1.16  1.16
Uniform Del: 66.4 48.6  44.8  62.9 45.3  45.3  67.2 55.6  55.6  58.3 46.6  46.6
IncremntDel:143.9 35.7  10.6  58.5  110 110.0 131.8  117 116.9 120.7 90.4  90.4
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  210.3 84.3  55.4 121.4  155 155.3 199.0  172 172.4 179.0  137 137.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 210.3 84.3  55.4 121.4  155 155.3 199.0  172 172.4 179.0  137 137.1
LOS by Move:   F    F     E     F    F     F     F    F     F     F    F     F
HCM2kAvgQ:     14   32    19    14   54    54    11   35    35    29   46    46
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Note: Queue reported is the number of cars per lane.
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #7 99@6th
*******************************************************************************
Cycle (sec):          80                Critical Vol./Cap.(X):        0.861
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):       20.5
Optimal Cycle:        76                Level Of Service:                 C
*******************************************************************************
Street Name:                  99                               6th
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  365     1  122  352     2    3   56    21   14   81   100
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   0  365     1  122  352     2    3   56    21   14   81   100
Added Vol:     8  304    20   68  419    26   24    5     7   73   42   272
PasserByVol:   0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   8  669    21  190  771    28   27   61    28   87  123   372
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    9  727    23  207  838    30   29   66    30   95  134   404
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   9  727    23  207  838    30   29   66    30   95  134   404
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    9  727    23  207  838    30   29   66    30   95  134   404
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800 1800 1800  1800 1800 1800  1800 1800 1800  1800
Adjustment:  0.89 0.89  0.89 0.59 0.59  0.59 0.88 0.88  0.87 0.81 0.81  0.83
Lanes:       0.02 1.92  0.06 0.38 1.56  0.06 0.23 0.53  0.24 0.41 0.59  1.00
Final Sat.:    37 3054    96  411 1667    61  367  828   380  601  850  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.24  0.24 0.50 0.50  0.50 0.08 0.08  0.08 0.16 0.16  0.27
Crit Moves:                       ****                                    ****
Green/Cycle: 0.58 0.58  0.58 0.58 0.58  0.58 0.32 0.32  0.32 0.32 0.32  0.32
Volume/Cap:  0.41 0.41  0.41 0.86 0.86  0.86 0.25 0.25  0.25 0.50 0.50  0.86
Uniform Del:  9.1  9.1   9.1 13.9 13.9  13.9 20.3 20.3  20.3 22.2 22.2  25.7
IncremntDel:  0.1  0.1   0.1  6.3  6.3   6.3  0.3  0.3   0.3  0.9  0.9  14.9
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:    9.2  9.2   9.2 20.2 20.2  20.2 20.6 20.6  20.6 23.1 23.1  40.6
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   9.2  9.2   9.2 20.2 20.2  20.2 20.6 20.6  20.6 23.1 23.1  40.6
LOS by Move:   A    A     A    C    C     C    C    C     C    C    C     D
HCM2kAvgQ:     6    6     6   15   15    15    2    2     2    5    5    13
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #8 99@4th
********************************************************************************
Cycle (sec):          85                 Critical Vol./Cap.(X):        0.736
Loss Time (sec):      12 (Y+R=4.0 sec)   Average Delay (sec/veh):       26.3
Optimal Cycle:        62                 Level Of Service:                 C
********************************************************************************
Street Name:                   99                                4th
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    1  0  0  1  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5  204    42    66  224    85    97   45     7    28   68    47
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5  204    42    66  224    85    97   45     7    28   68    47
Added Vol:      0  239    39     0  260   239    92   40    54    38  150     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    5  443    81    66  484   324   189   85    61    66  218    47
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     5  482    88    72  526   352   205   92    66    72  237    51
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    5  482    88    72  526   352   205   92    66    72  237    51
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     5  482    88    72  526   352   205   92    66    72  237    51
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.27 0.95  0.95  0.23 0.95  0.81  0.95 0.94  0.94  0.96 0.96  0.83
Lanes:       1.00 0.84  0.16  1.00 1.00  1.00  1.00 0.58  0.42  0.23 0.77  1.00
Final Sat.:   491 1443   264   416 1714  1453  1710  982   705   402 1327  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.33  0.33  0.17 0.31  0.24  0.12 0.09  0.09  0.18 0.18  0.03
Crit Moves:       ****                         ****                   ****
Green/Cycle: 0.45 0.45  0.45  0.45 0.45  0.45  0.16 0.14  0.14  0.27 0.24  0.24
Volume/Cap:  0.02 0.74  0.74  0.38 0.68  0.53  0.74 0.67  0.67  0.67 0.74  0.14
Uniform Del: 12.9 19.1  19.1  15.4 18.3  16.8  33.8 34.7  34.7  27.9 29.7  25.3
IncremntDel:  0.0  3.7   3.7   1.3  2.4   0.9   9.8  7.4   7.4   3.9  6.7   0.2
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   12.9 22.8  22.8  16.6 20.8  17.6  43.7 42.1  42.1  31.8 36.4  25.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  12.9 22.8  22.8  16.6 20.8  17.6  43.7 42.1  42.1  31.8 36.4  25.4
LOS by Move:    B    C     C     B    C     B     D    D     D     C    D     C
HCM2kAvgQ:      0   14    14     2   12     7     7    5     5     8    9     1
********************************************************************************
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #9 99@S.River
********************************************************************************
Average Delay (sec/veh):     11.0       Worst Case Level Of Service: F[ 68.0]
********************************************************************************
Street Name:                99                             S.River
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  183     0     0  227    23    67    0    54     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   37  183     0     0  227    23    67    0    54     0    0     0
Added Vol:     75  250     0     0  274    77    29    0    53     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  112  433     0     0  501   100    96    0   107     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   118  456     0     0  527   105   101    0   113     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:   118  456     0     0  527   105   101    0   113     0    0     0
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  635 xxxx xxxxx  xxxx xxxx xxxxx  1274 xxxx   582  xxxx xxxx xxxxx
Potent Cap.:  934 xxxx xxxxx  xxxx xxxx xxxxx   179 xxxx   502  xxxx xxxx xxxxx
Move Cap.:    933 xxxx xxxxx  xxxx xxxx xxxxx   160 xxxx   501  xxxx xxxx xxxxx
Volume/Cap:  0.13 xxxx  xxxx  xxxx xxxx  xxxx  0.63 xxxx  0.22  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.4 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  9.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  250 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  7.0 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  9.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 68.0 xxxxx xxxxx xxxx xxxxx
Shared LOS:    A    *     *     *    *     *     *    F     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             68.0           xxxxxx
ApproachLOS:        *                *                F                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #10 10th@Monroe
********************************************************************************
Average Delay (sec/veh):      1.7       Worst Case Level Of Service: B[ 11.1]
********************************************************************************
Street Name:               10th                             Monroe
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17   74     0     0  100    52    33    0     7     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17   74     0     0  100    52    33    0     7     0    0     0
Added Vol:      4   66     0     0   31     9     7    0     1     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   21  140     0     0  131    61    40    0     8     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    23  152     0     0  142    66    43    0     9     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    23  152     0     0  142    66    43    0     9     0    0     0
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  215 xxxx xxxxx  xxxx xxxx xxxxx   380 xxxx   183  xxxx xxxx xxxxx
Potent Cap.: 1367 xxxx xxxxx  xxxx xxxx xxxxx   624 xxxx   863  xxxx xxxx xxxxx
Move Cap.:   1360 xxxx xxxxx  xxxx xxxx xxxxx   612 xxxx   858  xxxx xxxx xxxxx
Volume/Cap:  0.02 xxxx  xxxx  xxxx xxxx  xxxx  0.07 xxxx  0.01  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  643 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.3 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 11.1 xxxxx xxxxx xxxx xxxxx
Shared LOS:    A    *     *     *    *     *     *    B     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             11.1           xxxxxx
ApproachLOS:        *                *                B                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #11 8th@Taylor
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):        0.657
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):       13.1
Optimal Cycle:         0                Level Of Service:                  B
********************************************************************************
Street Name:                 8th                              Taylor
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    6    21     2    6     7     4   93    19    42   94     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    6    21     2    6     7     4   93    19    42   94     3
Added Vol:      5    0     0     0    0     0     0  374    11     1   44     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   22    6    21     2    6     7     4  467    30    43  138     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    24    7    23     2    7     8     4  508    33    47  150     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   24    7    23     2    7     8     4  508    33    47  150     3
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    24    7    23     2    7     8     4  508    33    47  150     3
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.45 0.12  0.43  0.13 0.40  0.47  0.01 0.93  0.06  0.23 0.75  0.02
Final Sat.:   269   73   256    78  233   272     7  773    50   174  560    12
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.09  0.09  0.03 0.03  0.03  0.66 0.66  0.66  0.27 0.27  0.27
Crit Moves:       ****        ****                  ****        ****
Delay/Veh:    8.8  8.8   8.8   8.6  8.6   8.6  15.0 15.0  15.0   9.4  9.4   9.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.8  8.8   8.8   8.6  8.6   8.6  15.0 15.0  15.0   9.4  9.4   9.4
LOS by Move:   A    A     A     A    A     A     B    B     B     A    A     A
ApproachDel:       8.8              8.6             15.0              9.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.8              8.6             15.0              9.4
LOS by Appr:        A                A                B                A
AllWayAvgQ:   0.1  0.1   0.1   0.0  0.0   0.0   1.8  1.8   1.8   0.3  0.3   0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #12 6th@I5 off
********************************************************************************
Average Delay (sec/veh):      5.3       Worst Case Level Of Service: B[ 11.2]
********************************************************************************
Street Name:                 6th                           I5 off ramp
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0    0  0  1  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92     0     0  164     0     0    0     0   145    0    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   92     0     0  164     0     0    0     0   145    0    30
Added Vol:      0    4     0     0   83     0     0    0     0     0    0   137
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   96     0     0  247     0     0    0     0   145    0   167
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0  104     0     0  268     0     0    0     0   158    0   182
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  104     0     0  268     0     0    0     0   158    0   182
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   374 xxxx   105
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   615 xxxx   933
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   615 xxxx   932
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.26 xxxx  0.19
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   1.0 xxxx   0.7
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx  12.9 xxxx   9.8
LOS by Move:   *    *     *     *    *     *     *    *     *     B    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             11.2
ApproachLOS:        *                *                *                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                 Unknown Method (Future Volume Alternative)
********************************************************************************
Intersection #13 6th @ I5 ON
********************************************************************************

********************************************************************************
Street Name:                 6th                               I5 ON
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled     Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   97    61    32  269     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
Added Vol:      0    4     1    79    3     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Vol.:     0    0     0     0    0     0     0    0     0     0    0     0
Critical Gap Module: >> Population: 0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Potent Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
LOS by Move:
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
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                     Level Of Service Computation Report
          2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main@16th
********************************************************************************
Cycle (sec):         105               Critical Vol./Cap.(X):        0.874
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):       25.1
Optimal Cycle:       101               Level Of Service:                 C
********************************************************************************
Street Name:                 16th                              Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      16   19     9    77   37    63    25  567    27     4  490   102
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16   19     9    77   37    63    25  567    27     4  490   102
Added Vol:      1    4     0     0    0    21    37  289     3     3  369    12
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   17   23     9    77   37    84    62  856    30     7  859   114
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    18   24     9    81   39    88    65  901    32     7  904   120
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   18   24     9    81   39    88    65  901    32     7  904   120
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    18   24     9    81   39    88    65  901    32     7  904   120
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.80 0.80  0.79  0.81 0.81  0.80  0.94 0.99  0.99  0.93 0.96  0.96
Lanes:       0.35 0.47  0.18  0.39 0.18  0.43  1.00 0.97  0.03  1.00 0.88  0.12
Final Sat.:   498  674   264   563  270   614  1693 1713    60  1676 1529   203
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.04  0.04  0.14 0.14  0.14  0.04 0.53  0.53  0.00 0.59  0.59
Crit Moves:                        ****        ****                   ****
Green/Cycle: 0.16 0.16  0.16  0.16 0.16  0.16  0.04 0.71  0.71  0.01 0.68  0.68
Volume/Cap:  0.22 0.22  0.22  0.87 0.87  0.87  0.87 0.74  0.74  0.74 0.87  0.87
Uniform Del: 38.0 38.0  38.0  42.8 42.8  42.8  49.9  9.0   9.0  52.1 13.4  13.4
IncremntDel:  0.5  0.5   0.5  27.9 27.9  27.9  63.0  2.3   2.3 137.1  7.5   7.5
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   38.4 38.4  38.4  70.7 70.7  70.7 112.9 11.3  11.3 189.2 20.9  20.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  38.4 38.4  38.4  70.7 70.7  70.7 112.9 11.3  11.3 189.2 20.9  20.9
LOS by Move:    D    D     D     E    E     E     F    B     B     F    C     C
HCM2kAvgQ:      2    2     2    10   10     9     4   19    19     1   29    29
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #15 Main@Gateway
********************************************************************************
Cycle (sec):          65                  Critical Vol./Cap.(X):        1.188
Loss Time (sec):      16 (Y+R=4.0 sec)    Average Delay (sec/veh):       91.7
Optimal Cycle:        65                  Level Of Service:                 F
********************************************************************************
Street Name:                 Gateway                                Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8   54    83   23   91   184  233  391     8  105  380    19
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    8   54    83   23   91   184  233  391     8  105  380    19
Added Vol:      2   12   299    2   29    13   13  274     2   19  369    13
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   10   66   382   25  120   197  246  665    10  124  749    32
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95 0.95 0.95  0.95 0.95 0.95  0.95 0.95 0.95  0.95
PHF Volume:    11   69   402   26  126   207  259  700    11  131  788    34
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   11   69   402   26  126   207  259  700    11  131  788    34
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    11   69   402   26  126   207  259  700    11  131  788    34
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800 1800 1800  1800 1800 1800  1800 1800 1800  1800
Adjustment:  0.95 1.00  0.85 0.93 0.89  0.89 0.94 0.99  0.99 0.94 0.98  0.98
Lanes:       1.00 1.00  1.00 1.00 0.38  0.62 1.00 0.99  0.01 1.00 0.96  0.04
Final Sat.:  1710 1800  1530 1676  606   994 1693 1752    26 1693 1699    73
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.04  0.26 0.02 0.21  0.21 0.15 0.40  0.40 0.08 0.46  0.46
Crit Moves:             **** ****            ****                  ****
Green/Cycle: 0.01 0.22  0.22 0.01 0.23  0.23 0.13 0.44  0.44 0.08 0.39  0.39
Volume/Cap:  0.92 0.17  1.19 1.19 0.92  0.92 1.19 0.92  0.92 0.92 1.19  1.19
Uniform Del: 32.3 20.5  25.3 32.1 24.5  24.5 28.3 17.3  17.3 29.5 19.8  19.8
IncremntDel:218.2  0.2 110.4 255.0 27.1  27.1 121.1 15.8  15.8 51.3 98.7  98.7
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:  250.4 20.7 135.7 287.1 51.6  51.6 149.4 33.0  33.0 80.9  119 118.5
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 250.4 20.7 135.7 287.1 51.6  51.6 149.4 33.0  33.0 80.9  119 118.5
LOS by Move:   F    C     F    F    D     D    F    C     C    F    F     F
HCM2kAvgQ:      1    1    19    3   11    11   13   18    18    6   36    36
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #16 I5 SB  Ramps & Gateway @ CGC
********************************************************************************
Cycle (sec):          90                Critical Vol./Cap.(X):         1.345
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):       140.7
Optimal Cycle:        90                Level Of Service:                  F
********************************************************************************
Street Name:      I5 SB Ramps / Gateway                      CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Ignore           Include          Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  2  0  1    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      78   67   190   216  283   272    22  399    85   125  242    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   78   67   190   216  283   272    22  399    85   125  242    53
Added Vol:      8    7    50   118   31   199    15  440    12    28  321   118
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   86   74   240   334  314   471    37  839    97   153  563   171
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.00
PHF Volume:    91   78   253   352  331     0    39  883   102   161  593     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   91   78   253   352  331     0    39  883   102   161  593     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:    91   78   253   352  331     0    39  883   102   161  593     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.90 0.84  0.84  0.90 0.90  1.00  0.92 0.96  0.96  0.90 0.95  1.00
Lanes:       1.00 0.24  0.76  1.00 2.00  1.00  1.00 0.90  0.10  1.00 1.00  1.00
Final Sat.:  1628  357  1159  1628 3256  1800  1660 1542   178  1628 1714  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.22  0.22  0.22 0.10  0.00  0.02 0.57  0.57  0.10 0.35  0.00
Crit Moves:       ****        ****                  ****        ****
Green/Cycle: 0.11 0.16  0.16  0.16 0.21  0.00  0.03 0.43  0.43  0.07 0.47  0.00
Volume/Cap:  0.49 1.34  1.34  1.34 0.49  0.00  0.74 1.34  1.34  1.34 0.74  0.00
Uniform Del: 37.4 37.7  37.7  37.8 31.4   0.0  43.2 25.8  25.8  41.7 19.5   0.0
IncremntDel:  2.0  180 179.8 178.5  0.6   0.0  42.3  164 164.2 200.5  3.7   0.0
InitQueueDel: 0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   39.4  218 217.5 216.3 31.9   0.0  85.5  190 190.0 242.2 23.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  39.4  218 217.5 216.3 31.9   0.0  85.5  190 190.0 242.2 23.2   0.0
LOS by Move:   D    F     F     F    C     A     F    F     F     F    C     A
HCM2kAvgQ:      3   22    22    23    5     0     2   60    60    12   15     0
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #17 I5 NB OFF ramp
********************************************************************************
Average Delay (sec/veh):      1.0       Worst Case Level Of Service: C[ 20.5]
********************************************************************************
Street Name:          I5 NB OFF ramp                     Row River Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  0  0  1    0  0  1  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0    75     0  813     0     0  345     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0    75     0  813     0     0  345     0
Added Vol:      0    0     0     0    0    39     0  608     0     0  429     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0     0    0   114     0 1421     0     0  774     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0     0    0   124     0 1545     0     0  841     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0     0    0   124     0 1545     0     0  841     0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx   6.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx   3.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx   841  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx   354  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx   354  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  0.35  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   1.5  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  20.5 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     C     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx             20.5           xxxxxx           xxxxxx
ApproachLOS:        *                C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #18 I5 NB ramp
********************************************************************************
Cycle (sec):         110                Critical Vol./Cap.(X):          0.947
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):         29.1
Optimal Cycle:       110                Level Of Service:                  C
********************************************************************************
Street Name:             I5 ramp                         Row River Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase      Prot+Permit      Prot+Permit
Rights:           Include          Ignore           Include          Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    61    0    70   318  495     0     0  345   230
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    61    0    70   318  495     0     0  345   230
Added Vol:      0    0     0    17    0     0   162  446     0     0  429    83
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    78    0    70   480  941     0     0  774   313
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.00
PHF Volume:     0    0     0    82    0     0   505  991     0     0  815     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0    82    0     0   505  991     0     0  815     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:     0    0     0    82    0     0   505  991     0     0  815     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  0.87 1.00  1.00  0.91 0.96  1.00  1.00 0.94  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Final Sat.:     0    0     0  1571    0     0  1645 1732     0     0 1683  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.05 0.00  0.00  0.31 0.57  0.00  0.00 0.48  0.00
Crit Moves:                   ****             ****                  ****
Green/Cycle: 0.00 0.00  0.00  0.06 0.00  0.00  0.87 0.84  0.00  0.00 0.51  0.00
Volume/Cap:  0.00 0.00  0.00  0.95 0.00  0.00  0.81 0.68  0.00  0.00 0.95  0.00
Uniform Del:  0.0  0.0   0.0  51.8  0.0   0.0  27.5  3.5   0.0   0.0 25.5   0.0
IncremntDel:  0.0  0.0   0.0  78.8  0.0   0.0   8.1  1.4   0.0   0.0 19.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00
Delay/Veh:    0.0  0.0   0.0 130.6  0.0   0.0  35.5  4.8   0.0   0.0 44.4   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 130.6  0.0   0.0  35.5  4.8   0.0   0.0 44.4   0.0
LOS by Move:   A    A     A     F    A     A     D    A     A     A    D     A
HCM2kAvgQ:      0    0     0     5    0     0    10   14     0     0   31     0
********************************************************************************
```

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Note: Queue reported is the number of cars per lane.
```

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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*****************************************************************************
Intersection #401 99@CGC (OR 99 NB and SB)
*****************************************************************************
Average Delay (sec/veh):     77.1       Worst Case Level Of Service: F[206.0]
*****************************************************************************
Street Name:                99                               CGC
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Ignore          Include          Include          Include
Lanes:        0  0  1  0  0    0  0  0  0  2    0  0  0  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  352     0     0    0   369     0    0     0     0  851     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  352     0     0    0   369     0    0     0     0  851     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  352     0     0    0   369     0    0     0     0  851     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0  371     0     0    0   388     0    0     0     0  896     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  371     0     0    0   388     0    0     0     0  896     0
Critical Gap Module:
Critical Gp:xxxxx  6.5 xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx  4.0 xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  897 xxxxx  xxxx xxxx   897  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx  279 xxxxx  xxxx xxxx   337  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx  279 xxxxx  xxxx xxxx   337  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx 1.33  xxxx  xxxx xxxx  1.15  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx 18.8 xxxxx  xxxx xxxx  10.3  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx  206 xxxxx xxxxx xxxx 132.1 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    F     *     *    *     F     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     206.0            132.1           xxxxxx           xxxxxx
ApproachLOS:        F                F               *                *
*****************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*****************************************************************************
Intersection #402 OR 99 @ CGC (OR 99 EB turning left)
*****************************************************************************
Average Delay (sec/veh):     59.7       Worst Case Level Of Service: F[637.0]
*****************************************************************************
Street Name:                  OR 99                              CGC
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  0  0    0  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   196    0     0     0  805     0     0  851   240
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   196    0     0     0  805     0     0  851   240
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   196    0     0     0  805     0     0  851   240
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0    0     0   206    0     0     0  847     0     0  896   253
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   206    0     0     0  847     0     0  896   253
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1743 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  2.18 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  18.2 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx 637.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            637.0          xxxxxx           xxxxxx
ApproachLOS:        *                F               *                *
*****************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #403 OR 99 @ CGC (CGC NB rights)
********************************************************************************
Average Delay (sec/veh):      4.3       Worst Case Level Of Service: B[ 13.6]
********************************************************************************
Street Name:                 OR 99                                 CGC
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign         Stop Sign
Rights:           Include          Include          Include           Include
Lanes:        0  0  1  0  0    0  1  1  0  0    0  0  0  0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  352     0   196  369     0     0    0     0     0    0   240
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  352     0   196  369     0     0    0     0     0    0   240
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  352     0   196  369     0     0    0     0     0    0   240
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0  371     0   206  388     0     0    0     0     0    0   253
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  371     0   206  388     0     0    0     0     0    0   253
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   371 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   372
Potent Cap.: xxxx xxxx xxxxx  1182 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   672
Move Cap.:   xxxx xxxx xxxxx  1182 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   672
Volume/Cap:  xxxx xxxx  xxxx  0.17 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.38
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.6 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   1.8
Control Del:xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  13.6
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     B
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            xxxxxx            xxxxxx              13.6
ApproachLOS:        *                 *                 *                 B
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

APPENDIX E: PM Peak Hour Level of Service Calculation Sheets – Future Conditions – with Future Streets

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                                Scenario Report
Scenario:              Default Scenario

Command:               Default Command
Volume:                Default Volume
Geometry:              Default Geometry
Impact Fee:            Default Impact Fee
Trip Generation:       Default Trip Generation
Trip Distribution:     Default Trip Distribution
Paths:                 Default Paths
Routes:                Default Routes
Configuration:         Default Configuration
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                            Impact Analysis Report
                               Level Of Service

Intersection                           Base            Future        Change
                                     Del/   V/       Del/   V/         in
                                  LOS Veh    C    LOS Veh    C
#  1 Main@R                        B  10.0 0.000   C  15.6 0.000  + 5.543 D/V

#  2 Main@River                    B  16.7 0.406   B  19.5 0.718  + 2.754 D/V

#  3 Harrison@River                A   8.4 0.209   B  14.7 0.680  + 0.471 V/C

#  5 99@Woodson                    B  13.1 0.491   C  22.5 0.869  + 9.408 D/V

#  6 99@Main                       D  49.3 0.690   F 108.0 1.079  +58.779 D/V

#  7 99@6th                        B  10.4 0.308   B  13.0 0.664  + 2.613 D/V

#  8 99@4th                        B  18.7 0.325   C  20.9 0.542  + 2.218 D/V

#  9 99@S.River                    B  12.8 0.000   C  23.0 0.000  +10.125 D/V

# 10 10th@Monroe                   B  10.1 0.000   B  10.5 0.000  + 0.396 D/V

# 11 8th@Taylor                    A   7.9 0.181   A   8.6 0.278  + 0.097 V/C

# 12 6th@I5 off                    B  11.2 0.000   B  11.3 0.000  + 0.063 D/V

# 13 6th @ I5 ON                       0.0 0.000       0.0 0.000  + 0.000 V/C

# 14 Main@16th                     B  16.4 0.574   C  24.4 0.866  + 8.006 D/V

# 15 Main@Gateway                  D  37.2 0.657   F  85.5 1.105  +48.307 D/V

# 16 I5 SB  Ramps & Gateway @ CGC  D  41.1 0.848   F 136.3 1.326  +95.226 D/V

# 17 I5 NB OFF ramp                B  11.3 0.000   C  17.6 0.000  + 6.332 D/V

# 18 I5 NB ramp                    B  11.7 0.516   C  23.7 0.888  +12.011 D/V

#401 99@CGC (OR 99 NB and SB)      F 206.0 0.000   F 206.0 0.000  + 0.000 D/V

#402 OR 99 @ CGC (OR 99 EB turning F 637.0 0.000   F 637.0 0.000  + 0.000 D/V

#403 OR 99 @ CGC (CGC NB rights)   B  13.6 0.000   B  13.6 0.000  + 0.000 D/V
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Main@R
********************************************************************************
Average Delay (sec/veh):      6.0       Worst Case Level Of Service: C[ 15.6]
********************************************************************************
Street Name:                R                                Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14    0    63     0    0     0     0  126    13    67  187     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14    0    63     0    0     0     0  126    13    67  187     0
Added Vol:     29    0   197     0    0     0     0   68    26    53  110     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   43    0   260     0    0     0     0  194    39   120  297     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    47    0   283     0    0     0     0  211    42   130  323     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    47    0   283     0    0     0     0  211    42   130  323     0
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  817 xxxx   233  xxxx xxxx xxxxx  xxxx xxxx xxxxx   254 xxxx xxxxx
Potent Cap.:  349 xxxx   811  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1311 xxxx xxxxx
Move Cap.:    320 xxxx   810  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1310 xxxx xxxxx
Volume/Cap:  0.15 xxxx  0.35  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.10 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.1 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  666 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  2.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.3 xxxx xxxxx
Shrd ConDel:xxxxx 15.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.1 xxxx xxxxx
Shared LOS:    *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:      15.6           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        C                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Main@River
********************************************************************************
Cycle (sec):          70                Critical Vol./Cap.(X):         0.718
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        19.5
Optimal Cycle:        56                Level Of Service:                  B
********************************************************************************
Street Name:              River                              Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   41    67    45   72   129    68  224     9     7  236    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   13   41    67    45   72   129    68  224     9     7  236    36
Added Vol:     20   24    51     0   11    72    24  182    26    71  283     2
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   33   65   118    45   83   201    92  406    35    78  519    38
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    36   71   128    49   90   218   100  441    38    85  564    41
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   36   71   128    49   90   218   100  441    38    85  564    41
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    36   71   128    49   90   218   100  441    38    85  564    41
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.98 0.98  0.85  0.95 0.89  0.89  0.24 0.95  0.95  0.35 0.98  0.98
Lanes:       0.34 0.66  1.00  1.00 0.29  0.71  1.00 0.92  0.08  1.00 0.93  0.07
Final Sat.:   596 1174  1530  1710  470  1139   424 1575   136   625 1644   120
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.06  0.08  0.03 0.19  0.19  0.24 0.28  0.28  0.14 0.34  0.34
Crit Moves:  ****                  ****                              ****
Green/Cycle: 0.08 0.26  0.26  0.09 0.27  0.27  0.48 0.48  0.48  0.48 0.48  0.48
Volume/Cap:  0.72 0.23  0.32  0.32 0.72  0.72  0.49 0.59  0.59  0.28 0.72  0.72
Uniform Del: 31.3 20.3  20.8  29.9 23.3  23.3  12.5 13.3  13.3  11.0 14.5  14.5
IncremntDel: 15.6  0.3   0.5   1.2  5.8   5.8   1.9  1.1   1.1   0.5  3.0   3.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   46.9 20.6  21.3  31.1 29.0  29.0  14.4 14.4  14.4  11.6 17.5  17.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  46.9 20.6  21.3  31.1 29.0  29.0  14.4 14.4  14.4  11.6 17.5  17.5
LOS by Move:   D    C     C     C    C     C     B    B     B     B    B     B
HCM2kAvgQ:      4    2     2     1    8     8     2    8     8     1   12    12
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Harrison@River
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.680
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):        14.7
Optimal Cycle:         0                Level Of Service:                  B
********************************************************************************
Street Name:              River                            Harrison
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       6   40    39    21   59    30    15   83    11    39   80    33
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    6   40    39    21   59    30    15   83    11    39   80    33
Added Vol:     30    6    36     0   21    87    85  106    35     2  235     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   36   46    75    21   80   117   100  189    46    41  315    40
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    38   48    79    22   84   123   105  199    48    43  332    42
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   38   48    79    22   84   123   105  199    48    43  332    42
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    38   48    79    22   84   123   105  199    48    43  332    42
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.23 0.29  0.48  0.09 0.37  0.54  1.00 0.80  0.20  0.10 0.80  0.10
Final Sat.:   119  152   247    53  202   295   511  452   110    63  488    62
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.32 0.32  0.32  0.42 0.42  0.42  0.21 0.44  0.44  0.68 0.68  0.68
Crit Moves:       ****              ****              ****              ****
Delay/Veh:   11.6 11.6  11.6  12.6 12.6  12.6  11.1 13.2  13.2  19.0 19.0  19.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  11.6 11.6  11.6  12.6 12.6  12.6  11.1 13.2  13.2  19.0 19.0  19.0
LOS by Move:  B    B     B     B    B     B     B    B     B     C    C     C
ApproachDel:      11.6              12.6              12.5              19.0
Delay Adj:        1.00              1.00              1.00              1.00
ApprAdjDel:       11.6              12.6              12.5              19.0
LOS by Appr:        B                 B                 B                 C
AllWayAvgQ:   0.4  0.4   0.4   0.6  0.6   0.6   0.2  0.7   0.7   1.8  1.8   1.8
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 99@Woodson
********************************************************************************
Cycle (sec):          85                Critical Vol./Cap.(X):         0.869
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        22.5
Optimal Cycle:        85                Level Of Service:                  C
********************************************************************************
Street Name:                99                             Woodson
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Prot+Permit      Prot+Permit       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  0    0  0  1  0  1    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  428     0     0  460   213   179    0    23     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  428     0     0  460   213   179    0    23     0    0     0
Added Vol:      0  402     0     0  408   106   124    0     2     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   27  830     0     0  868   319   303    0    25     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    28  874     0     0  914   336   319    0    26     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   28  874     0     0  914   336   319    0    26     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    28  874     0     0  914   336   319    0    26     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.91 0.96  1.00  1.00 0.98  0.83  0.91 1.00  0.91  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.00  1.00  0.92 0.00  0.08  0.00 0.00  0.00
Final Sat.:  1645 1732     0     0 1764  1499  1514    0   125     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.50  0.00  0.00 0.52  0.22  0.21 0.00  0.21  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.66 0.62  0.00  0.00 0.60  0.60  0.24 0.00  0.24  0.00 0.00  0.00
Volume/Cap:  0.18 0.82  0.00  0.00 0.87  0.38  0.87 0.00  0.87  0.00 0.00  0.00
Uniform Del: 12.7 12.6   0.0   0.0 14.4   8.9  30.9  0.0  30.9   0.0  0.0   0.0
IncremntDel:  0.5  5.1   0.0   0.0  7.9   0.3  18.1  0.0  18.1   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  0.00 0.00  0.00
Delay/Veh:   13.2 17.7   0.0   0.0 22.2   9.2  49.0  0.0  49.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.2 17.7   0.0   0.0 22.2   9.2  49.0  0.0  49.0   0.0  0.0   0.0
LOS by Move:   B    B     A     A    C     A     D    A     D     A    A     A
HCM2kAvgQ:      0   20     0     0   23     5    12    0    12     0    0     0
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 99@Main
********************************************************************************
Cycle (sec):         145                Critical Vol./Cap.(X):         1.079
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):       108.0
Optimal Cycle:       145                Level Of Service:                  F
********************************************************************************
Street Name:                99                                Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        26  232   247   184  250    59    73  275    19   242  209   163
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     26  232   247   184  250    59    73  275    19   242  209   163
Added Vol:       29  287    59    27  290    88    62  151    13   128  261    38
PasserByVol:      0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     55  519   306   211  540   147   135  426    32   370  470   201
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:      58  546   322   222  568   155   142  448    34   389  495   212
Reduct Vol:       0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:     58  546   322   222  568   155   142  448    34   389  495   212
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:      58  546   322   222  568   155   142  448    34   389  495   212
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.94 0.99  0.84  0.94 0.96  0.96  0.93 0.97  0.97  0.94 0.95  0.95
Lanes:       1.00 1.00  1.00  1.00 0.79  0.21  1.00 0.93  0.07  1.00 0.70  0.30
Final Sat.:  1693 1782  1515  1693 1356   369  1676 1624   122  1693 1192   510
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.31  0.21  0.13 0.42  0.42  0.08 0.28  0.28  0.23 0.42  0.42
Crit Moves:  ****                  ****             ****        ****
Green/Cycle: 0.03 0.29  0.29  0.13 0.39  0.39  0.08 0.26  0.26  0.21 0.39  0.39
Volume/Cap:  1.08 1.04  0.72  1.04 1.08  1.08  1.07 1.08  1.08  1.08 1.07  1.07
Uniform Del: 70.2 51.2  45.8  63.4 44.3  44.3  66.7 53.9  53.9  57.0 44.3  44.3
IncremntDel:146.5 50.5   5.7  72.9 57.9  57.9  96.4 65.3  65.3  69.9 53.6  53.6
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  216.7  102  51.6 136.2  102 102.2 163.1  119 119.2 127.0 97.8  97.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 216.7  102  51.6 136.2  102 102.2 163.1  119 119.2 127.0 97.8  97.8
LOS by Move:    F    F     D     F    F     F     F    F     F     F    F     F
HCM2kAvgQ:        5   32    14    15   42    42    11   30    30    25   41    41
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #7 99@6th
********************************************************************************
Cycle (sec):          80                Critical Vol./Cap.(X):         0.664
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):        13.0
Optimal Cycle:        43                Level Of Service:                  B
********************************************************************************
Street Name:                99                               6th
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  365     1   122  352     2     3   56    21    14   81   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  365     1   122  352     2     3   56    21    14   81   100
Added Vol:      8  231     4    59  346    26    24    5     7    13   32   121
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    8  596     5   181  698    28    27   61    28    27  113   221
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     9  648     5   197  759    30    29   66    30    29  123   240
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9  648     5   197  759    30    29   66    30    29  123   240
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     9  648     5   197  759    30    29   66    30    29  123   240
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.89 0.89  0.89  0.63 0.63  0.63  0.88 0.88  0.88  0.90 0.90  0.83
Lanes:       0.02 1.96  0.02  0.40 1.54  0.06  0.23 0.53  0.24  0.19 0.81  1.00
Final Sat.:    42 3122    26   452 1742    70   370  836   384   314 1313  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.21  0.21  0.44 0.44  0.44  0.08 0.08  0.08  0.09 0.09  0.16
Crit Moves:                        ****                                    ****
Green/Cycle: 0.66 0.66  0.66  0.66 0.66  0.66  0.24 0.24  0.24  0.24 0.24  0.24
Volume/Cap:  0.32 0.32  0.32  0.66 0.66  0.66  0.33 0.33  0.33  0.38 0.38  0.66
Uniform Del:  6.0  6.0   6.0   8.4  8.4   8.4  24.9 24.9  24.9  25.2 25.2  27.3
IncremntDel:  0.1  0.1   0.1   1.1  1.1   1.1   0.5  0.5   0.5   0.6  0.6   4.6
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:    6.0  6.0   6.0   9.5  9.5   9.5  25.3 25.3  25.3  25.9 25.9  31.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   6.0  6.0   6.0   9.5  9.5   9.5  25.3 25.3  25.3  25.9 25.9  31.9
LOS by Move:   A    A     A     A    A     A     C    C     C     C    C     C
HCM2kAvgQ:      4    4     4     9    9     9     3    3     3     3    3     7
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #8 99@4th
********************************************************************************
Cycle (sec):          85                Critical Vol./Cap.(X):        0.542
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        20.9
Optimal Cycle:        43                Level Of Service:                  C
********************************************************************************
Street Name:                 99                               4th
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0    0     0    0    0     0    0    0     0    0    0
Lanes:       1  0  0  1  0    1  0  1  0  1    1  0  0  1  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5  204    42    66  224    85    97   45     7    28   68    47
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5  204    42    66  224    85    97   45     7    28   68    47
Added Vol:      0  154     3     0  176   190    89   20    42     7   43     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    5  358    45    66  400   275   186   65    49    35  111    47
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     5  389    49    72  435   299   202   71    53    38  121    51
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    5  389    49    72  435   299   202   71    53    38  121    51
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     5  389    49    72  435   299   202   71    53    38  121    51
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.37 0.95  0.95  0.36 0.95  0.81  0.95 0.94  0.94  0.96 0.96  0.83
Lanes:       1.00 0.89  0.11  1.00 1.00  1.00  1.00 0.57  0.43  0.24 0.76  1.00
Final Sat.:   658 1526   192   641 1714  1453  1710  961   724   414 1313  1486
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26  0.11 0.25  0.21  0.12 0.07  0.07  0.09 0.09  0.03
Crit Moves:       ****                         ****                   ****
Green/Cycle: 0.47 0.47  0.47  0.47 0.47  0.47  0.22 0.17  0.17  0.22 0.17  0.17
Volume/Cap:  0.02 0.54  0.54  0.24 0.54  0.44  0.54 0.43  0.43  0.43 0.54  0.20
Uniform Del: 12.0 16.0  16.0  13.4 15.9  15.0  29.5 31.4  31.4  28.8 32.3  30.3
IncremntDel:  0.0  0.8   0.8   0.4  0.7   0.4   1.6  1.0   1.0   0.8  2.1   0.4
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   12.0 16.7  16.7  13.8 16.7  15.4  31.1 32.4  32.4  29.6 34.3  30.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  12.0 16.7  16.7  13.8 16.7  15.4  31.1 32.4  32.4  29.6 34.3  30.7
LOS by Move:    B    B     B     B    B     B     C    C     C     C    C     C
HCM2kAvgQ:      0    9     8     1    8     5     5    3     3     4    5     1
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #9 99@S.River
********************************************************************************
Average Delay (sec/veh):      4.5       Worst Case Level Of Service: C[ 23.0]
********************************************************************************
Street Name:                     99                              S.River
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  183     0     0  227    23    67    0    54     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   37  183     0     0  227    23    67    0    54     0    0     0
Added Vol:     10  128     0     0  163    63    29    0    29     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   47  311     0     0  390    86    96    0    83     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    49  327     0     0  411    91   101    0    87     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    49  327     0     0  411    91   101    0    87     0    0     0
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  503 xxxx xxxxx  xxxx xxxx xxxxx   884 xxxx   458  xxxx xxxx xxxxx
Potent Cap.: 1046 xxxx xxxxx  xxxx xxxx xxxxx   308 xxxx   591  xxxx xxxx xxxxx
Move Cap.:   1044 xxxx xxxxx  xxxx xxxx xxxxx   296 xxxx   590  xxxx xxxx xxxxx
Volume/Cap:  0.05 xxxx  xxxx  xxxx xxxx  xxxx  0.34 xxxx  0.15  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  385 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  2.6 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  8.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 23.0 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx             23.0            xxxxxx
ApproachLOS:        *                *                 C                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #10 10th@Monroe
********************************************************************************
Average Delay (sec/veh):      1.8       Worst Case Level Of Service: B[ 10.5]
********************************************************************************
Street Name:                    10th                              Monroe
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17   74     0     0  100    52    33    0     7     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17   74     0     0  100    52    33    0     7     0    0     0
Added Vol:      2   23     0     0   21     5     2    0     1     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   19   97     0     0  121    57    35    0     8     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    21  105     0     0  132    62    38    0     9     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    21  105     0     0  132    62    38    0     9     0    0     0
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  199 xxxx xxxxx  xxxx xxxx xxxxx   316 xxxx   170  xxxx xxxx xxxxx
Potent Cap.: 1385 xxxx xxxxx  xxxx xxxx xxxxx   679 xxxx   877  xxxx xxxx xxxxx
Move Cap.:   1378 xxxx xxxxx  xxxx xxxx xxxxx   667 xxxx   872  xxxx xxxx xxxxx
Volume/Cap:  0.01 xxxx  xxxx  xxxx xxxx  xxxx  0.06 xxxx  0.01  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  698 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 10.5 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    B     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx             10.5            xxxxxx
ApproachLOS:        *                *                 B                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #11 8th@Taylor
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap.(X):         0.278
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):         8.6
Optimal Cycle:         0                Level Of Service:                  A
********************************************************************************
Street Name:                  8th                              Taylor
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    6    21     2    6     7     4   93    19    42   94     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    6    21     2    6     7     4   93    19    42   94     3
Added Vol:      5    0     0     0    1     0     0   88    11     1   26     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   22    6    21     2    7     7     4  181    30    43  120     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    24    7    23     2    8     8     4  197    33    47  130     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   24    7    23     2    8     8     4  197    33    47  130     3
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    24    7    23     2    8     8     4  197    33    47  130     3
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.45 0.12  0.43  0.12 0.44  0.44  0.02 0.84  0.14  0.26 0.72  0.02
Final Sat.:   321   88   306    87  306   306    16  709   117   209  584    15
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.07  0.07  0.02 0.02  0.02  0.28 0.28  0.28  0.22 0.22  0.22
Crit Moves:       ****             ****             ****             ****
Delay/Veh:    8.0  8.0   8.0   7.8  7.8   7.8   8.8  8.8   8.8   8.6  8.6   8.6
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.0  8.0   8.0   7.8  7.8   7.8   8.8  8.8   8.8   8.6  8.6   8.6
LOS by Move:   A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       8.0              7.8              8.8              8.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.0              7.8              8.8              8.6
LOS by Appr:        A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.0  0.0   0.0   0.4  0.4   0.4   0.3  0.3   0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #12 6th@I5 off
********************************************************************************
Average Delay (sec/veh):      5.1       Worst Case Level Of Service: B[ 11.3]
********************************************************************************
Street Name:               6th                             I5 off ramp
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0    0  0  1  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92     0     0  164     0     0    0     0   145    0    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   92     0     0  164     0     0    0     0   145    0    30
Added Vol:      0    4     0     0   83     0     0    0     0     0    0   110
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   96     0     0  247     0     0    0     0   145    0   140
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0  104     0     0  268     0     0    0     0   158    0   152
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  104     0     0  268     0     0    0     0   158    0   152
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   6.5 xxxx   6.3
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   3.6 xxxx   3.4
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   374 xxxx   105
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   615 xxxx   933
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   615 xxxx   932
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.26 xxxx  0.16
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   1.0 xxxx   0.6
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx  12.9 xxxx   9.6
LOS by Move:   *    *     *     *    *     *     *    *     *     B    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             11.3
ApproachLOS:        *                *                *                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  Unknown Method (Future Volume Alternative)
********************************************************************************
Intersection #13 6th @ I5 ON
********************************************************************************

********************************************************************************
Street Name:               6th                              I5 ON
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled     Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   97    61    32  269     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
Added Vol:      0    4     1    79    3     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Vol.:     0    0     0     0    0     0     0    0     0     0    0     0
Critical Gap Module: >> Population: 0 << >> Run Speed(N/S): 30 MPH <<
Critical Gp:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Potent Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
LOS by Move:
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:    0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main@16th
********************************************************************************
Cycle (sec):         105                Critical Vol./Cap.(X):        0.866
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        24.4
Optimal Cycle:        98                Level Of Service:                  C
********************************************************************************
Street Name:               16th                              Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      16   19     9    77   37    63    25  567    27     4  490   102
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16   19     9    77   37    63    25  567    27     4  490   102
Added Vol:      1    4     0     0    8    21    27  207     3     3  355    17
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   17   23     9    77   45    84    52  774    30     7  845   119
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    18   24     9    81   47    88    55  815    32     7  889   125
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   18   24     9    81   47    88    55  815    32     7  889   125
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    18   24     9    81   47    88    55  815    32     7  889   125
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.80 0.80  0.79  0.81 0.81  0.80  0.94 0.98  0.98  0.93 0.96  0.96
Lanes:       0.35 0.47  0.18  0.37 0.22  0.41  1.00 0.96  0.04  1.00 0.88  0.12
Final Sat.:   498  673   263   544  318   594  1693 1705    66  1676 1518   214
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.04  0.04  0.15 0.15  0.15  0.03 0.48  0.48  0.00 0.59  0.59
Crit Moves:                        ****        ****                    ****
Green/Cycle: 0.17 0.17  0.17  0.17 0.17  0.17  0.04 0.71  0.71  0.01 0.68  0.68
Volume/Cap:  0.21 0.21  0.21  0.87 0.87  0.87  0.87 0.68  0.68  0.68 0.87  0.87
Uniform Del: 37.3 37.3  37.3  42.3 42.3  42.3  50.3  8.6   8.6  52.0 13.3  13.3
IncremntDel:  0.4  0.4   0.4  25.6 25.6  25.6  68.0  1.5   1.5 101.5  7.0   7.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   37.8 37.8  37.8  67.9 67.9  67.9 118.3 10.1  10.1 153.6 20.3  20.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  37.8 37.8  37.8  67.9 67.9  67.9 118.3 10.1  10.1 153.6 20.3  20.3
LOS by Move:   D    D     D     E    E     E     F    B     B     F    C     C
HCM2kAvgQ:      2    2     2    10   10    10     4   16    16     1   28    28
********************************************************************************
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #15 Main@Gateway
********************************************************************************
Cycle (sec):         120               Critical Vol./Cap.(X):        1.105
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):       85.5
Optimal Cycle:       120               Level Of Service:                 F
********************************************************************************
Street Name:                 Gateway                             Main
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8   54    83    23   91   184   233  391     8   105  380    19
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    8   54    83    23   91   184   233  391     8   105  380    19
Added Vol:      7   75   401     2   26    13    12  194     2   116  356    13
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   15  129   484    25  117   197   245  585    10   221  736    32
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    16  136   509    26  123   207   258  616    11   233  775    34
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   16  136   509    26  123   207   258  616    11   233  775    34
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    16  136   509    26  123   207   258  616    11   233  775    34
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.95 1.00  0.85  0.93 0.89  0.89  0.94 0.99  0.99  0.94 0.98  0.98
Lanes:       1.00 1.00  1.00  1.00 0.37  0.63  1.00 0.98  0.02  1.00 0.96  0.04
Final Sat.:  1710 1800  1530  1676  596  1003  1693 1747    30  1693 1698    74
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.08  0.33  0.02 0.21  0.21  0.15 0.35  0.35  0.14 0.46  0.46
Crit Moves:             ****  ****             ****                  ****
Green/Cycle: 0.01 0.30  0.30  0.01 0.30  0.30  0.14 0.40  0.40  0.15 0.41  0.41
Volume/Cap:  0.68 0.25  1.10  1.10 0.68  0.68  1.10 0.89  0.89  0.89 1.10  1.10
Uniform Del: 58.9 31.7  41.9  59.1 36.8  36.8  51.7 33.8  33.8  49.7 35.2  35.2
IncremntDel: 61.0  0.2  73.5 218.8  4.1   4.1  89.8 13.3  13.3  28.8 65.7  65.7
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  119.9 31.9 115.4 278.0 40.9  40.9 141.5 47.1  47.1  78.5  101 100.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 119.9 31.9 115.4 278.0 40.9  40.9 141.5 47.1  47.1  78.5  101 100.9
LOS by Move:    F    C     F     F    D     D     F    D     D     E    F     F
HCM2kAvgQ:      2    4    29     3   12    12    16   25    25    11   43    43
********************************************************************************
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #16 I5 SB  Ramps & Gateway @ CGC
********************************************************************************
Cycle (sec):          90                  Critical Vol./Cap.(X):         1.326
Loss Time (sec):      16 (Y+R=4.0 sec)    Average Delay (sec/veh):       136.3
Optimal Cycle:        90                  Level Of Service:                  F
********************************************************************************
Street Name:      I5 SB Ramps / Gateway                      CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Ignore          Include          Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  2  0  1    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      78   67   190   216  283   272    22  399    85   125  242    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   78   67   190   216  283   272    22  399    85   125  242    53
Added Vol:      8    6    72   118   31   153     8  396    12    23  304    49
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   86   73   262   334  314   425    30  795    97   148  546   102
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.00
PHF Volume:    91   77   276   352  331     0    32  837   102   156  575     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   91   77   276   352  331     0    32  837   102   156  575     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:    91   77   276   352  331     0    32  837   102   156  575     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  0.90 0.84  0.84  0.90 0.90  1.00  0.92 0.96  0.96  0.90 0.95  1.00
Lanes:       1.00 0.22  0.78  1.00 2.00  1.00  1.00 0.89  0.11  1.00 1.00  1.00
Final Sat.:  1628  330  1183  1628 3256  1800  1660 1533   187  1628 1714  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.23  0.23  0.22 0.10  0.00  0.02 0.55  0.55  0.10 0.34  0.00
Crit Moves:       ****        ****                  ****        ****
Green/Cycle: 0.12 0.18  0.18  0.16 0.22  0.00  0.03 0.41  0.41  0.07 0.46  0.00
Volume/Cap:  0.46 1.33  1.33  1.33 0.46  0.00  0.73 1.33  1.33  1.33 0.73  0.00
Uniform Del: 36.9 37.1  37.1  37.7 30.6   0.0  43.5 26.5  26.5  41.8 19.9   0.0
IncremntDel:  1.7  171 170.6 170.7  0.5   0.0  47.9  157 156.6 194.1  3.6   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   38.7  208 207.7 208.3 31.1   0.0  91.5  183 183.1 235.8 23.5   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  38.7  208 207.7 208.3 31.1   0.0  91.5  183 183.1 235.8 23.5   0.0
LOS by Move:   D    F     F     F    C     A     F    F     F     F    C     A
HCM2kAvgQ:      3   23    23    23    5     0     2   56    56    11   14     0
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #17 I5 NB OFF ramp
********************************************************************************
Average Delay (sec/veh):      0.8       Worst Case Level Of Service: C[ 17.6]
********************************************************************************
Street Name:          I5 NB OFF ramp                     Row River Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  0  0  1    0  0  1  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0    75     0  813     0     0  345     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0    75     0  813     0     0  345     0
Added Vol:      0    0     0     0    0    31     0  587     0     0  345     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0     0    0   106     0 1400     0     0  690     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0     0    0   115     0 1522     0     0  750     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0     0    0   115     0 1522     0     0  750     0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx   6.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx   3.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx   750  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx   400  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx   400  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  0.29  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx   1.2  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx  17.6 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     C     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            17.6           xxxxxx           xxxxxx
ApproachLOS:        *                C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #18 I5 NB ramp
********************************************************************************
Cycle (sec):         110                Critical Vol./Cap.(X):         0.888
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.7
Optimal Cycle:       109                Level Of Service:                  C
********************************************************************************
Street Name:             I5 ramp                         Row River Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase      Prot+Permit      Prot+Permit
Rights:           Include          Ignore           Include          Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    61    0    70   318  495     0     0  345   230
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    61    0    70   318  495     0     0  345   230
Added Vol:      0    0     0    17    0     0   162  424     0     0  345    83
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    78    0    70   480  919     0     0  690   313
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.00
PHF Volume:     0    0     0    82    0     0   505  967     0     0  726     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0    82    0     0   505  967     0     0  726     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:     0    0     0    82    0     0   505  967     0     0  726     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  0.87 1.00  1.00  0.91 0.96  1.00  1.00 0.94  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Final Sat.:     0    0     0  1571    0     0  1645 1732     0     0 1683  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.05 0.00  0.00  0.31 0.56  0.00  0.00 0.43  0.00
Crit Moves:                   ****             ****                  ****
Green/Cycle: 0.00 0.00  0.00  0.06 0.00  0.00  0.87 0.83  0.00  0.00 0.49  0.00
Volume/Cap:  0.00 0.00  0.00  0.89 0.00  0.00  0.74 0.67  0.00  0.00 0.89  0.00
Uniform Del:  0.0  0.0   0.0  51.4  0.0   0.0  22.4  3.5   0.0   0.0 25.6   0.0
IncremntDel:  0.0  0.0   0.0  58.5  0.0   0.0   4.2  1.3   0.0   0.0 11.6   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00  1.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00
Delay/Veh:    0.0  0.0   0.0 109.9  0.0   0.0  26.6  4.8   0.0   0.0 37.2   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 109.9  0.0   0.0  26.6  4.8   0.0   0.0 37.2   0.0
LOS by Move:   A    A     A     F    A     A     C    A     A     A    D     A
HCM2kAvgQ:      0    0     0     5    0     0     8   13     0     0   25     0
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Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #401 99@CGC (OR 99 NB and SB)
********************************************************************************
Average Delay (sec/veh):     77.1       Worst Case Level Of Service: F[206.0]
********************************************************************************
Street Name:                99                                CGC
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:          Ignore           Include          Include           Include
Lanes:       0  0  1  0  0    0  0  0  0  2    0  0  0  0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  352     0     0    0   369     0    0     0     0  851     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  352     0     0    0   369     0    0     0     0  851     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  352     0     0    0   369     0    0     0     0  851     0
User Adj:    1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.00  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0  371     0     0    0   388     0    0     0     0  896     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  371     0     0    0   388     0    0     0     0  896     0
Critical Gap Module:
Critical Gp:xxxxx  6.5 xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx  4.0 xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  897 xxxxx  xxxx xxxx   897  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx  279 xxxxx  xxxx xxxx   337  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx  279 xxxxx  xxxx xxxx   337  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx 1.33  xxxx  xxxx xxxx  1.15  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx 18.8 xxxxx  xxxx xxxx  10.3  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx  206 xxxxx xxxxx xxxx 132.1 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    F     *     *    *     F     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     206.0            132.1           xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #402 OR 99 @ CGC (OR 99 EB turning left)
********************************************************************************
Average Delay (sec/veh):     59.7       Worst Case Level Of Service: F[637.0]
********************************************************************************
Street Name:                OR 99                             CGC
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:          Include          Include          Include           Include
Lanes:       0  0  0  0  0    1  0  0  0  0    0  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   196    0     0     0  805     0     0  851   240
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   196    0     0     0  805     0     0  851   240
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   196    0     0     0  805     0     0  851   240
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0    0     0   206    0     0     0  847     0     0  896   253
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   206    0     0     0  847     0     0  896   253
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1743 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    95 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  2.18 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  18.2 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx 637.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     F    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx           637.0           xxxxxx           xxxxxx
ApproachLOS:        *                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #403 OR 99 @ CGC (CGC NB rights)
********************************************************************************
Average Delay (sec/veh):      4.3       Worst Case Level Of Service: B[ 13.6]
********************************************************************************
Street Name:              OR 99                              CGC
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0    0  1  1  0  0    0  0  0  0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  352     0   196  369     0     0    0     0     0    0   240
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  352     0   196  369     0     0    0     0     0    0   240
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  352     0   196  369     0     0    0     0     0    0   240
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     0  371     0   206  388     0     0    0     0     0    0   253
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  371     0   206  388     0     0    0     0     0    0   253
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   371 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   372
Potent Cap.: xxxx xxxx xxxxx  1182 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   672
Move Cap.:   xxxx xxxx xxxxx  1182 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   672
Volume/Cap:  xxxx xxxx  xxxx  0.17 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.38
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.6 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   1.8
Control Del:xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  13.6
LOS by Move:   *    *     *     A    *     *     *    *     *     *    *     B
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             13.6
ApproachLOS:        *                *                *                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

APPENDIX F: 2025 Traffic Volume Forecasting Methodology Memo

DKS Associates
TRANSPORTATION SOLUTIONS

MEMORANDUM

DATE: March 2007

TO: Savannah Crawford, ODOT Region 2
Dorothy Upton, ODOT Transportation Planning Analysis Unit

FROM: Mat Dolata, DKS Associates

SUBJECT: **Cottage Grove 2025 Traffic Volume Forecasting Methodology**

P06097-000-000

The purpose of this memorandum is to summarize the methodology used to forecast the 2025 traffic volumes utilized for analysis in the Cottage Grove TSP Update. The project scope specifies that a "Level 2 Cumulative Analysis or similar forecasting methodology" be used for traffic volume forecasting. As such, the approach described replicates the methodology defined in TPAU's Analysis Procedure Manual (APM) wherever feasible. The Cumulative Analysis method described in the APM divides future growth into three distinct segments: External-External, Internal-Internal, and Internal-External/External-Internal. Trip growth is based on forecasted growth on external roadways and forecasted land use changes within the Cottage Grove TSP Update study area.

Land Use Changes

The following section summarizes the forecasted growth that will influence future travel within Cottage Grove. Land use projections were developed by Winterbrook Planning and summarized in the attached memorandum[1]. Projected land uses changes were developed for the study area and reflect information provided from several sources. The land use changes were identified for the Transportation Analysis Zone (TAZ) system developed by the Lane Council of Governments (LCOG). The forecasts were verified by City of Cottage Grove staff to include local expertise and knowledge of known developments.

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[1] *Cottage Grove TSP Future Land Use Forecast Methods and Assumptions* Memorandum, Winterbrook Planning, December 10, 2006.

Household Growth

Lane County's 2025 coordinated population projection for Cottage Grove was used to estimate expected growth in households (assuming 2.55 persons per household) within the Cottage Grove UGB.

> In 2005, Lane County adopted a 2025 coordinated population projection for the Cottage Grove UGB of 12,500. The Base Year persons per household figures for each TAZ were used to convert population growth to dwelling units. The Lane County forecast does not allocate any future population growth to areas outside UGBs. However, the areas surrounding the Cottage Grove UGB are zoned for rural residential development on 5-acre and 10-acre lots. Therefore, additional rural residential development has been allocated to the rural TAZs totaling approximately 10 percent of the Cottage Grove population growth.

The growth of households outside of the UGB is allocated across an area of approximately 1,200 acres of space. Table 1 identifies how household growth is divided between areas within the UGB and areas outside of the UGB.

Table 1: Household Growth Summary

Location	HH-Base	HH-Growth	HH-Future
In UGB	3,459	1,433	4,892
Out of UGB	380	170	550
Total	3,839	1,603	5,442

Employment Growth

The 2001 Cottage Grove Buildable Lands Analysis was used as the basis of employment forecasts. Local knowledge of known and expected developments was used to supplement and adjust the land use forecasts where appropriate. The text below describes the development of projections within the UGB. No employment growth was projected outside of the UGB, but this has since been revised to allocate some employment outside of the UGB.

> The 2001 Cottage Grove Buildable Lands Analysis included a 2020 employment projection based on historical trends of 4,900 employees. This projection was adjusted upwards to account for economic development incentives, activities, and policies, for a final total of 5,400 employees in 2020. The 2020 projection was adjusted to the 2025 future year by using the population annual growth rate of 1.37 percent[2].

Table 2 identifies how employment growth is divided between areas within the UGB and areas outside of the UGB. *(In UGB Base of 3093 + total growth 2677 = 5770)*

Table 2: Employment Growth Summary

Location	Emp-Base	Emp-Growth	Emp-Future
In UGB	3,093	2,592	5,685
Out of UGB	332	85	417
Total	3,425	2,677	6,102

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[2] The 1.37% annual growth rate is based on the Lane County Coordinated Population Projections for Cottage Grove.

This land use forecast included growth by various types of employment including retail, service, education, government and industrial.

> The future year employment was allocated to the employment sectors based on the base year allocation, except for the agricultural sector which was shifted to the industrial sector to reflect the urbanization of Cottage Grove.

Table 3 identifies the existing allocation of employment by sector (within the Cottage Grove UGB). The service and retail sectors make up almost 80% of employment.

Table 3: Existing Employment by Type

Sector	Base Year	%
AGRICULTURAL	71	2.3%
INDUSTRIAL	277	9.0%
RETAIL	733	23.7%
SERVICE	1,676	54.2%
EDUCATION	111	3.6%
GOVERNMENT	111	3.6%
OTHER	114	3.7%
TOTAL	**3,093**	100.0%

Study Area Growth Summary

Table 4 summarizes the land uses for the 2005 base and future 2025 scenarios within the Cottage Grove TSP Update study area (both inside and outside of the UGB).

Table 4: Cottage Grove TSP Study Area Land Use Summary

Land Use	2005	2025	Increase	Percent Increase
Households	3,839	5,442	1,603	42%
Employees	3,425	6,102	2,677	78%

Growth Allocation

The land use projections identified were allocated between 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 attached. An illustration of the LCOG TAZ system is also attached. Figures illustrating employment and household growth by TAZ are included in the Cottage Grove TSP update (Figure 5-1 and 5-2).

Internal Trip Growth

Internal trips within Cottage Grove were based on local trip generation – trips resulting from the employment and households projections identified in Table 4. Forecasted PM peak hour trip growth was calculated by applying the ITE Trip Generation rates to the land use growth forecasts for TAZs.

Trip Generation

The trip generation process translated 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 based on Institute of Transportation Engineers (ITE) research. Table 5 provides a listing of PM peak hour trip rates used in this analysis.

Table 5: ITE[3] PM Peak Hour Trip Rates

Growth Segment	Land Use Description	ITE Code	Vehicle Trips Per Land Use Unit	Comments
Residential Households	Single Family Detached Housing	210	1.01	Avg. per dwelling unit, peak hour of adjacent street traffic. (pg. 271)
Industrial Employment	General Light Industrial	110	0.42	Avg. per employee, peak hour of adjacent street traffic (pg.92)
Retail Employment	Shopping Center	820	4.38	The PM Peak Hour trip rate per thousand square feet (ksf) rate was converted to a per employee rate by estimating employees per ksf. The per ksf rate (6.26 trips/ksf) is based upon the fitted curve equation provided by ITE (pg.1453) assuming a 100,000 square foot facility. The rate is converted by assuming one employee per ksf of retail space. A pass-by trip percentage of 30% was applied to yield a per employee rate of 4.36.
Service Employment	Specialty Retail	814	1.89	PM Peak Hour per thousand square feet (ksf) rate was converted to a per employee rate by estimating employees per ksf. The rate is based on average trip rate of 2.71 trips per ksf of leasable area (pg.1339). The rate is converted by assuming one employee per ksf of retail space. A pass-by trip percentage of 30% was applied to yield a per employee rate of 1.89
Education Employment	High School	530	1.55	Avg.per employee, peak hour of adjacent street traffic (pg.92)
Government Employment	Government Office Building	730	0.30	Although a per employee rate exists in the ITE Trip Generation Manual for the government office code (730), the 1.91 trip per employee rate is based on only one study and was that of the generator's peak not adjacent street traffic peak (4-6 pm). Although the per thousand square foot (ksf) rate was only based on two studies, its rate is used (1.21 trips per ksf (pg.1201), and converted assumed 4 employees per ksf to get 0.3 trips per employee). The per employee study indicated a 74% entering rate for PM generator peak, which is counter to both expectations and the two studies based on KSF facilities (31% entering). Considering the government office building code is used as an approximation of all types of government employment, and the rate didn't intuitively seem correct, the methodology described above is employed instead of the per employee rate identified in the ITE Trip Generation Manual.
Other Employment	Office Park	750	0.39	Avg/ per employee, peak hour of generator (pg.1251)

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[3] ITE Trip Generation, 7th Edition, Institute of Transportation Engineers.

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.

The shopping center ITE code was used to represent retail land uses. The service employment trip rate was calculated with the same methodology and also assumed a 30% pass-by rate and one employee per thousand square feet. The government trip rate (1.21 trips/ksf) was calculated using an estimate of four employees per thousand square feet, with no adjustment for pass-by trips.

Total trip growth was divided into outbound trips (productions) and inbound trip (attractions) based on the percentages identified in the ITE Trip Generation. Table 6 illustrates the estimated growth in vehicle trip ends (trip productions and attractions) generated within the Cottage Grove study area during the PM peak hour between 2005 and 2025. This forecast identifies the internal-internal as well as the internal-external and external-internal trip growth segments.

Table 6: PM Peak Hour Vehicle Trip Generation Growth Forecast

Growth Segment	Total Trip Growth	Attractions	Productions
Residential Households	1,619	1,020	599
Industrial Employment	126	26	100
Retail Employment	2,777	1,305	1,472
Service Employment	2,742	1,207	1,536
Education Employment	149	80	68
Government Employment	29	9	20
Other Employment	39	6	33
TOTAL	7,481	3,653	3,828

External Trip Growth

Growth of external trips (trips that have an origin and/or destination outside of Cottage Grove) was projected based on forecasted traffic growth on external roadways. Three roadways were identified as significant routes by which external trips (those with at least one end located outside of the study area) may travel:

- I-5
- Highway 99 (The Goshen Divide Highway)
- Cottage Grove–Lorane Road / Gowdyville Road

External nodes just outside of the study area were defined on these roadways. External growth volumes were forecasted at these points to identify External-External and External-Internal/Internal-External trip growth for the Cottage Grove study area.

Row River Road and Mosby Creek Road were also considered as candidates for analysis as external roadways. However, count data was not available on these roadways at points which would adequately characterize external traffic. Moreover, the growth in external volume on these roadways was believed to be minor and therefore not expected to significantly impact study intersection performance.

Design Hour Volumes at External Nodes

Existing volumes were used in conjunction with growth percentages to calculate PM peak hour growth at external nodes. Where possible, study intersections located near external nodes were used to estimate existing volumes. Existing design hour volumes were calculated for study intersections during the existing conditions analysis. The methodology for these calculations was described in the *Revised Cottage Grove DHV Methodology* memorandum dated October 3rd, 2006. Growth rates are based upon ODOT future volume tables and are applied to existing design hour volumes.

For external nodes on Hwy 99, the study intersection at the Cottage Grove Connector was used to estimate volume at the north node, and the study intersection at River Road was used to estimate volume at the south node. For the external node at Cottage Grove-Lorane Road/Gowdyville Road, the intersection of Main Street and R Street was used to estimate volumes.

Since volumes for I-5 were not collected for this study, peak hour volumes on the highway were estimated using the Martins Creek Automatic Traffic Recorder (ATR #20-020) located 4 miles south of Cottage Grove at milepoint 169.2. ATR data for 2005 indicated that the 30 highest (design) hour volumes are 1,319 northbound and 1,352 southbound. These 2005 volumes were then multiplied by the average annual growth factor identified in the future volume table for ATR #20-020 (1.7% growth) to result in a 2006 peak hour estimate of 1,341 northbound vehicles and 1,375 southbound. This estimate was used as the volume on the southern node of I-5. Design hour volumes were added and subtracted at the highway interchanges in Cottage Grove to estimate volumes at the northern external node (1,846 northbound and 2,179 southbound).

Percentage of External-External Trips

I-5 and Hwy 99 are the only “through” roadways that have ends on both sides of the Cottage Grove study area. Therefore, Cottage Grove–Lorane Road, Row River Road, and Mosby Creek Road were assumed to have zero External-External trip growth and all growth was assigned to External-Internal (or Internal-External) trips.

External-External percentages were calculated by removing turns at each intersection through the corridor, as described in section 4.4.2 of the APM. The volumes were calculated by removing off turns (taken from ramp counts) from the ATR counts. Ramp counts where converted into design hour volumes at the ramps during existing conditions analysis. Starting with ATR counts (at the 30th highest hour for 2005, converted to 2006 values) at the south node, the appropriate ramp volumes are added or subtracted to yield the volumes at the north node. The directional counts at the south end are compared to the resulting directional counts at the north end to yield the external-external trip percentages, as described in the APM. I-5 was calculated to have 90% External-External trips both southbound and northbound at the south node, and 56% southbound and 65% northbound at the north node.

Highway 99 travels through the heart of downtown Cottage Grove and includes many Internal-Internal trips traveling within the city. Following the APM procedure of removing turns along Hwy 99 resulted in negative values, which indicated no External-External trips. While the

External-External trip percentage was thought to be small, a zero value was unrealistic. Therefore, a 5% External-External trip percentage is assumed at Hwy 99 external nodes.

Like Highway 99, the Cottage Grove-Lorane Highway / Gowdyville Road External-External volumes could not be computed due to the high turn volumes along the route. A 5% External-External percentage was also applied to the Cottage Grove-Lorane Highway / Gowdyville Road node. The external trips were split evenly between southbound (via Highway 99) and northbound (via the Cottage Grove Connector to I-5) external nodes.

No growth in External-External trips were assumed to occur that cross between I-5 and Highway 99. These roadways are parallel corridors and no data was available to estimate the degree of crossing between these roadways. Moreover, the impacts of growth of these volumes were not believed to significantly impact future study intersection operations.

Growth Rates

The forecasted growth on external roadways is based on the future volume table (ODOT's 2025 Future Volume Table[4]). The growth identified in the future volume tables is used to calculate an annual growth rate which is then applied to the 2006 DHV to result in a 2025 volume, as shown in Table 7.

Growth of external trips was projected based on forecasted traffic growth on I-5 and the Goshen Divide Highway. I-5 and Hwy 99 were the two ODOT facilities for which future volumes are available in the study area. The Future Volume Table identifies 2025 traffic volume forecasts at several points along the Goshen Divide Highway and I-5 based on historical growth trends.

The I-5 growth rate was calculated as 1.8% per year (total growth of 40% from 2006 to 2025) based on future volume table data for the three nearest locations to Cottage Grove (4 miles south of Cottage Grove, 0.1 mile south of the Cottage Grove Interchange, and 0.3 miles south of the Saginaw Interchange).

The Highway 99 future volume table indicated a average growth rate of 1.1 % per year (23% total growth from 2006 to 2025), based on the three locations listed within Cottage Grove with RSQ values above 0.5 (north city limits, 0.01 mile north of the Cottage Grove Connector, and 0.04 miles south of the Cottage Grove Connector). These values vary from 0.4% annual growth to 2.0% annual growth. As such, the middle value of 0.8% annual growth (taken just south of the the Cottage Grove Connector) was selected to result in a 16% total growth from 2006 to 2025. Since no projection data were available for growth rates along Cottage Grove-Lorane Road, the Highway 99 growth rate was applied at this external node as well.

External Trip Growth Summary

The projected growth on external roadways, at each external location, is illustrated in Table 7. The table shows the volume entering and exiting at each external point identified. Volumes that "enter" the external node originate in the study area (or other external zones) while volumes that

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[4] *2024 Secondary Highway Future Volume Table*. Retrieved June 2006, from Oregon Dept. of Transportation Web site: http://www.oregon.gov/ODOT/TD/TP/TADR.shtml

"exit" the external node begin outside of the study area and travel to the study area via the external node.

Table 7: 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

External-Internal & Internal-External Trip Growth

As described above, an estimate was made of the probability of external trip growth being external-external (E-E,) as opposed to Internal-External (I-E) or External-Internal (I-E). Table 8 shows the expected trip growth for E-E and E-I/I-E trips using design hour volumes, growth rates, and E-E trip probability as inputs.

Table 8: 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

Table 6 indicates that I-5 would experience 486 additional through trips northbound and 499 additional through trips southbound in 2025. The volumes are shown twice in the Table 8, once as they enter at a node and again at the exit node. Highway 99 would experience 2 additional northbound through trips and 2 additional southbound through trips. The west external node would experience 2 additional trips both outbound and inbound. These 2 trips are divided evenly between between the north end (I-5) and south end (Highway 99).

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 were defined based on ITE trip generation research. The productions and attractions for each zone were 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 were 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 were included in the analysis as well.

This section identifies how the identified growth of internal trips and external trips were combined to result in a trip table of future growth in Cottage Grove.

TAZ System

The expected growth identified for each LCOG TAZ was aggregated into 17 TAZs within the study area. Five external TAZs were added at the external nodes (access points to areas outside of the study area) at I-5 and Goshen Divide Highway north and south of Cottage Grove and Cottage Grove – Lorane Road west of Cottage Grove. The resulting 22 zones made up the TAZ system used for traffic forecasting in this study. The model zone boundaries for the 22 zone system are included as Figure 5-3 in the TSP Update. These TAZs represent land use and access to the transportation system in Cottage Grove.

Allocation of Internal Trip Generation

The forecasted growth in internal trips (productions and attractions) was aggregated to the 17 project TAZs within Cottage Grove. Table 9 shows the productions and attractions generated for each of the 17 internal study zones. The total in and out trips (7,466) matches the trip generation total identified in Table 6.

Table 9: Internal Trip Growth

Zone	IN trips	OUT trips
1	233.5	278.3
2	6.4	3.7
3	336.0	329.6
4	42.4	26.0
5	8.0	5.2
6	60.7	64.1
7	1110.7	1309.0
8	337.4	394.7
9	114.0	67.6
10	537.1	531.5
11	358.8	236.3
12	68.1	92.4
13	172.7	200.1
14	12.8	8.1
15	63.6	70.6
16	167.3	190.6
17	24.0	19.7
Total	**3653**	**3828**

Production and Attraction Probability

Table 10 shows the production and attraction probabilities for the 17 TAZs within Cottage Grove. The productions and attractions in each zone were used to calculate and attraction and production probability for each zone. These probabilities are based on the values in Table 7 (e.g. Zone 12 has 92.4 out trips. 92.4 trips / 3820 trips = 2% production probability.)

Table 10: TAZ Attraction and Production Probabilities

Zone	Attraction Probability	Production Probability
1	6%	7%
2	0%	0%
3	9%	9%
4	1%	1%
5	0%	0%
6	2%	2%
7	30%	34%
8	9%	10%
9	3%	2%
10	15%	14%
11	10%	6%
12	2%	2%
13	5%	5%
14	0%	0%
15	2%	2%
16	5%	5%
17	1%	1%
Total	100%	100%

External-Internal & Internal-External Trip Distribution

The external-internal(E-I) and internal-external(I-E) trips identified in Table 8 were distributed across TAZs based on the percentages identified in Table 10. E-I trips were distributed based on attraction probabilities and I-E trips were distributed based on production probabilities.

Internal-Internal Trip Distribution

So as not to double-count the external-internal and internal-external trips, the growth in these trips was subtracted from the total internal trip growth. I-E trips were subtracted from productions and E-I trips were subtracted from attractions. The remaining trips represented internal-internal (I-I) trips.

The production and attraction probabilities were used to distribute internal trips to and from the appropriate TAZs. This resulted in a productions trip table and an attractions trip table. To balance the trip productions and attractions and avoid double counting (since the trip generation process identifies trip ends, and every trip has two trip ends), the production and attraction trip tables were averaged to result in a final I-I trip table.

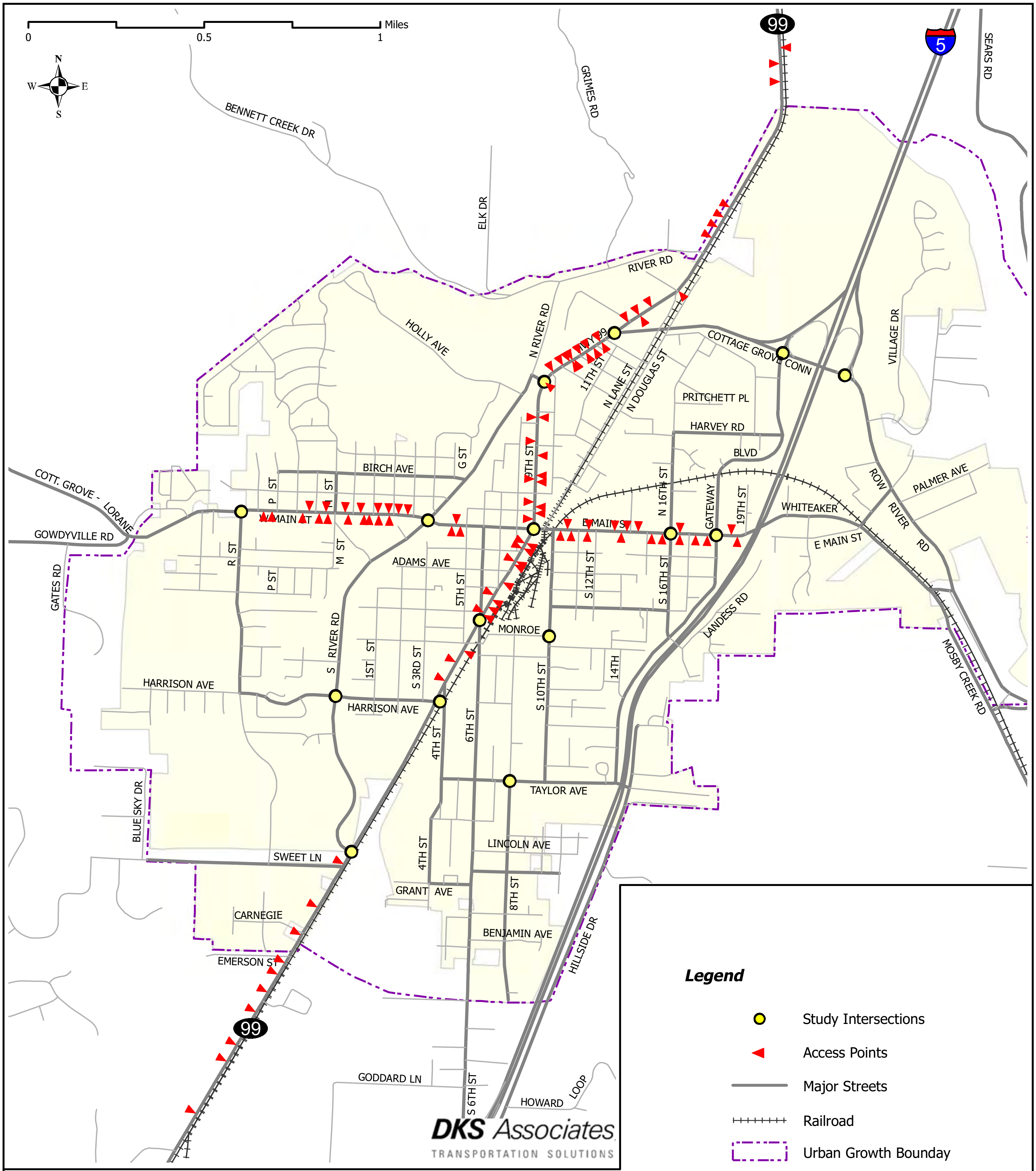
Final Trip Table

Internal trip productions and attractions were balanced to result in a trip table that specified the number of trips from each internal zone to each other internal zone in the network. The I-I trip table was combined with the I-E and I-E trip tables to address all identified internal growth. The E-E trips were added to complete the trip table including both internal and external growth. The resulting trip table was the travel growth that was added to the existing traffic in Cottage Grove for 2025 traffic volume projections.

Trip Assignment

In this process, the final trip table (representing trips traveling form one zone to another) was assigned to specific travel routes in the network, and resulting trip volumes were 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. The Traffix output file showing forecasted 2025 traffic volumes assigned to study intersection turning movements is attached.

APPENDIX G: Access Locations – Main Street and OR 99



CITY OF
COTTAGE GROVE
OREGON

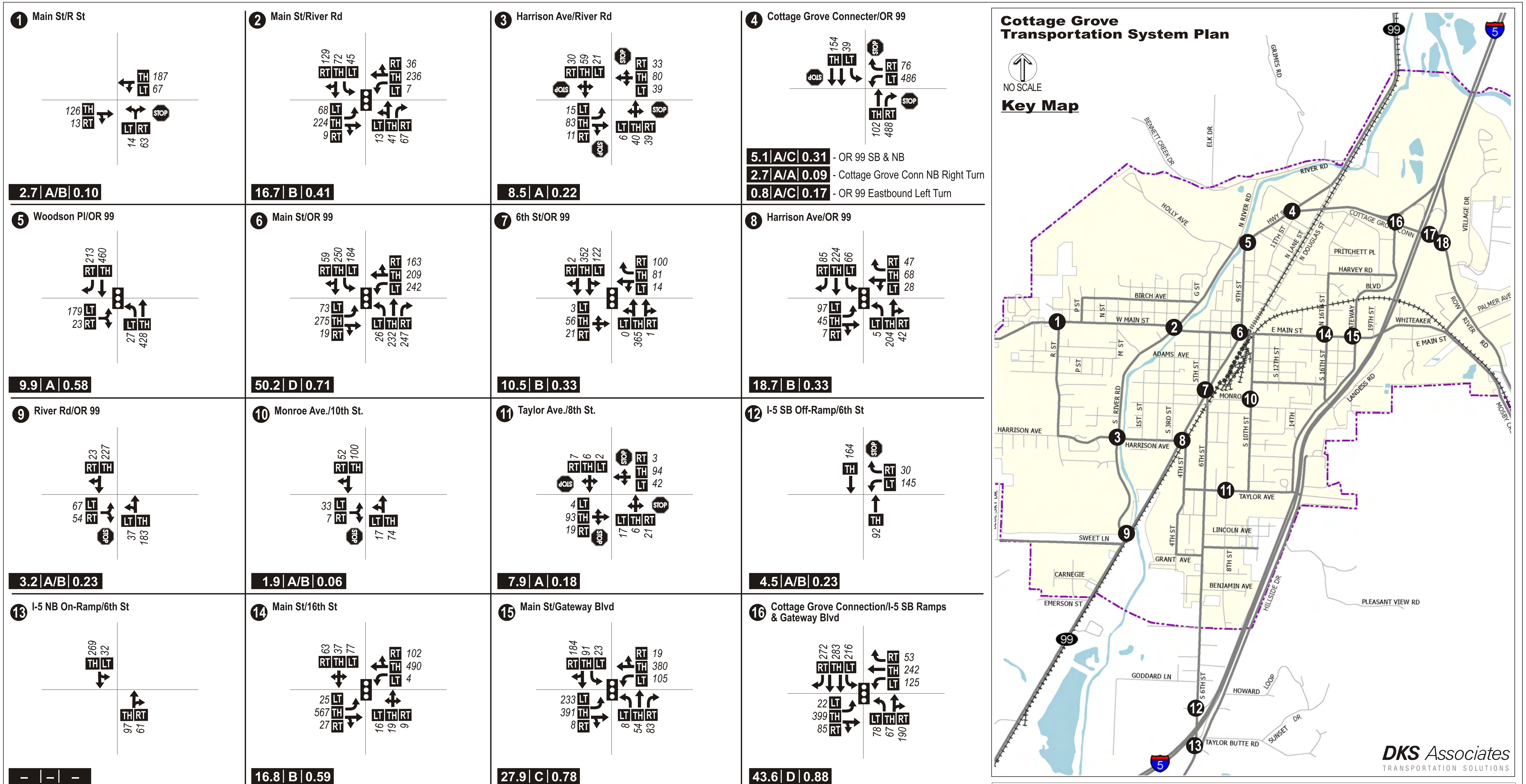
Transportation System Plan

FIGURE 2

Access

2006, real urban geographics

APPENDIX H: PM Peak Hour Intersection – Traffic Volumes and Intersection Geometry

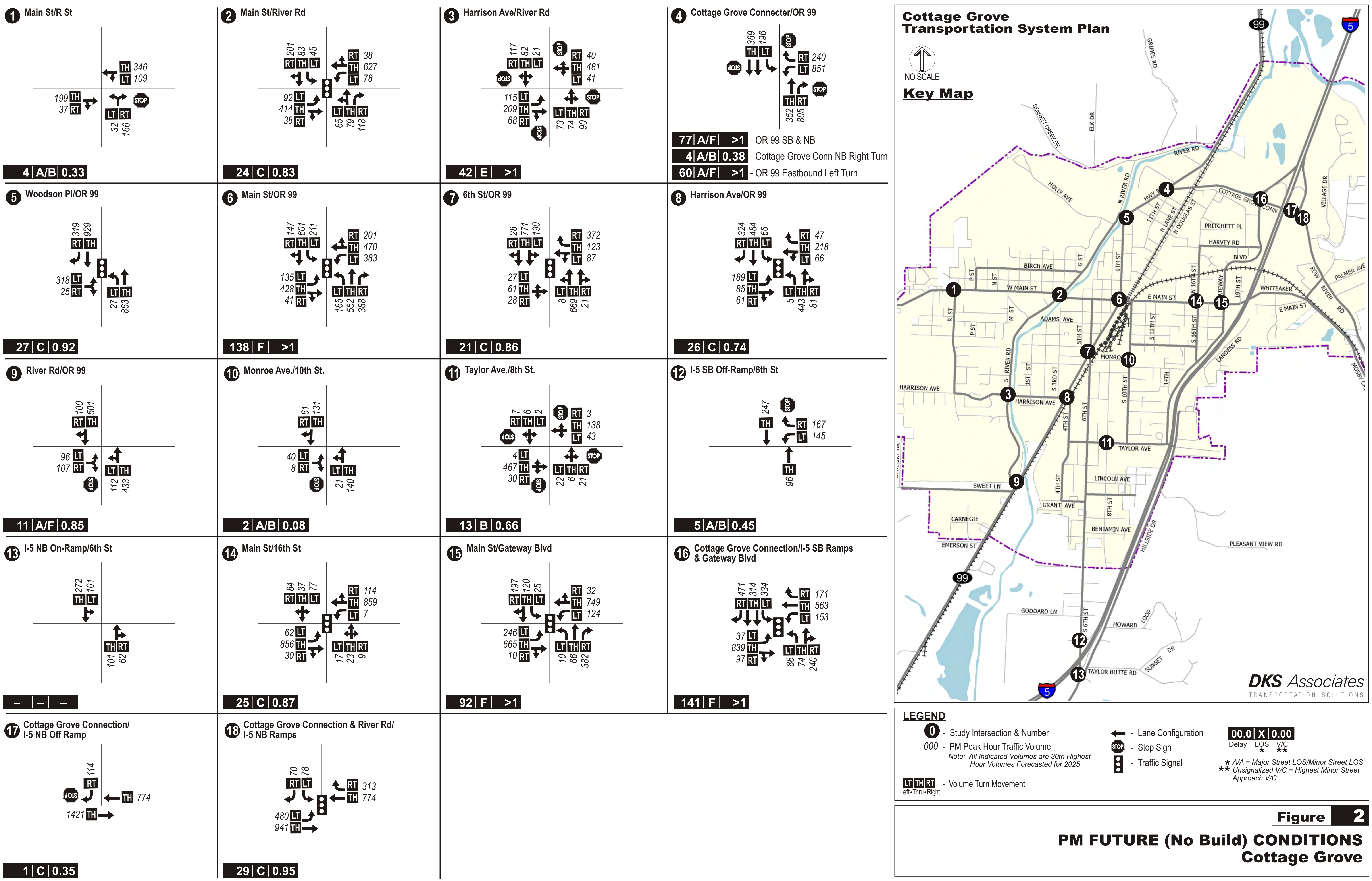


LEGEND

- ⓪ - Study Intersection & Number
- 000 - PM Peak Hour Traffic Volume
  - Note: All Indicated Volumes are 30th Highest Hour Volumes Calculated for 2006 Based on Count Data
- LT TH RT (Left•Thru•Right) - Volume Turn Movement
- ← - Lane Configuration
- STOP - Stop Sign
- ⁝ - Traffic Signal
- 00.0 | X | 0.00 - Delay, LOS *, V/C **
  - * A/A = Major Street LOS/Minor Street LOS
  - ** Unsignalized V/C = Highest Minor Street Approach V/C

Figure 1

PM EXISTING CONDITIONS
Cottage Grove



LEGEND

0 - Study Intersection & Number

000 - PM Peak Hour Traffic Volume

Note: All Indicated Volumes are 30th Highest Hour Volumes Forecasted for 2025

LT TH RT - Volume Turn Movement (Left•Thru•Right)

← - Lane Configuration

STOP - Stop Sign

⁝ - Traffic Signal

00.0 | X | 0.00 — Delay, LOS *, V/C **

* A/A = Major Street LOS/Minor Street LOS

** Unsignalized V/C = Highest Minor Street Approach V/C

Figure 2

PM FUTURE (No Build) CONDITIONS
Cottage Grove

APPENDIX I: Future Land Use Memo and Data by Lane County TAZ

MEMORANDUM

To: Carl Springer, DKS Associates
From: Tom Armstrong
Date: December 10, 2006
Cottage Grove TSP
Re: Future Land Use Forecast Methods and Assumptions

The purpose of this memo is to document the methods and assumptions used to prepare the future land use forecast and TAZ allocation for the future travel demand model.

OVERALL FORECASTS

Population

In 2005, Lane County adopted a 2025 coordinated population projection for the Cottage Grove UGB of 12,500. The Base Year persons per household figures for each TAZ were used to convert population growth to dwelling units. The Lane County forecast does not allocate any future population growth to areas outside UGBs. However, the areas surrounding the Cottage Grove UGB are zoned for rural residential development on 5-acre and 10-acre lots. Therefore, additional rural residential development has been allocated to the rural TAZs totaling approximately 10 percent of the Cottage Grove population growth.

Employment

The 2001 Cottage Grove Buildable Lands Analysis included a 2020 employment projection based on historical trends of 4,900 employees. This projection was adjusted upwards to account for economic development incentives, activities, and policies, for a final total of 5,400 employees in 2020. The 2020 projection was adjusted to the 2025 future year by using the population annual growth rate of 1.37 percent. The 2025 future employment total is 5,770 employees.

The future year employment was allocated to the employment sectors based on the base year allocation, except for the agricultural sector which was shifted to the industrial sector to reflect the urbanization of Cottage Grove.

Sector	Base Year	%	Future Year 2025	Growth Increment
AGRI	71	2.3%	71	-
INDY	277	9.0%	517	300
RETL	733	23.7%	1,367	634
SERV	1,676	54.2%	3,127	1,451
EDUC	111	3.6%	207	96
GOVT	111	3.6%	207	96
OTHR	114	3.7%	213	99

Winterbrook Planning
310 SW Fourth Avenue, Suite 1100
Portland, OR 97204
503.827.4422 ▪ 503.827.4350 (fax)
tom@winterbrookplanning.com

TOTAL	**3,093**		**5,770**	**2,676**

ALLOCATION ASSUMPTIONS

The TAZ allocation utilized the 2005 vacant land inventory, zoning map and aerial photos to identify future growth areas. There are a few specific assumptions that need additional consideration:

- The Base Year employment total of 3,093 jobs appears to be low. The 2001 Cottage Grove Buildable Lands Analysis included a 1998 covered employment of 3,975 jobs for Census Tracts 12 and 13.

- The Base Year employment sector allocation for education appears to be low and is not allocated to individual school sites. It is concentrated in TAZ 80.

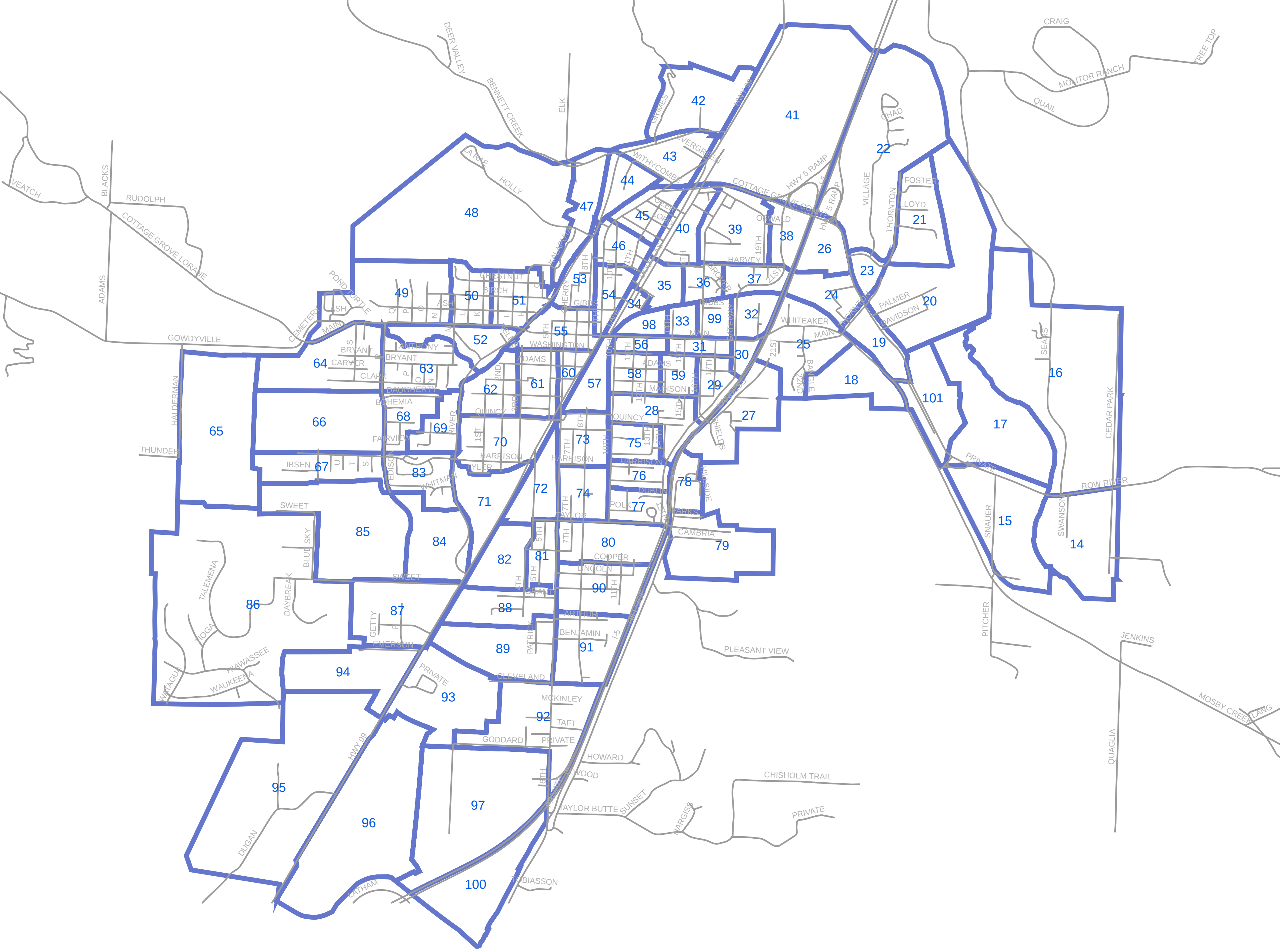
- School enrollment for the Future Year was assumed to have the same proportion to the population as the Base Year. The allocation assumes enrollment at existing facilities will increase by 15%. The new high school is assumed to have an enrollment of 400 students. One additional school (250 students) was allocated to TAZ 91.

- No college enrollment has been allocated to the new LCC campus in TAZ 85.

- Existing large employers were allocated up to 10% new employees.

- The new Peace Health hospital and Wal-Mart supercenter have been allocated to TAZ 22.

LCOG TAZ	Households	Population	Households	Population	Total Employment	Agricultrual Employment	Industrial Employment	Retail Employment	Service Employment	Education Employment	Government Employment	Other Employment	Total Employment	Agricultrual Employment	Industrial Employment	Retail Employment	Service Employment	Education Employment	Government Employment	Other Employment	DKS TAZ
	Base		Growth		Base								Growth								
Outside UGB																					
14	33	88	16	38	0	0	0	0	0	0	0	0									7
15	17	45	11	26	4	0	0	0	4	0	0	0									7
16	40	107	28	66	12	0	0	1	0	0	9	2									7
42	13	34	5	11	25	0	0	16	9	0	0	0									8
65	19	51	21	50	0	0	0	0	0	0	0	0									9
86	102	272	53	128	16	0	3	0	4	0	0	9									1
92	69	184	11	27	2	0	0	0	2	0	0	0	5			5					3
93	30	74	6	15	0	0	0	0	0	0	0	0									1
94	26	58	1	3	0	0	0	0	0	0	0	0	15			15					1
95	17	45	7	16	30	0	30	0	0	0	0	0	25			15	10				1
96	1	3	0	0	243	0	243	0	0	0	0	0	40				40				1
97	5	13	1	3	0	0	0	0	0	0	0	0									3
100	8	21	10	24	0	0	0	0	0	0	0	0									2
Subtotal	380	995	170	407	332	0	276	17	19	0	9	11	85	0	0	35	50	0	0	0	
Inside UGB																					
17	18	48		0	0	0	0	0	0	0	0	0	0								7
18	1	3		0	61	0	61	0	0	0	0	0	20		20						17
19	4	11		0	93	0	0	36	44	0	0	13	47			25	20			2	7
20	4	11		0	312	0	168	79	65	0	0	0	175		50	50	75				7
21	30	80	20	50	19	0	0	0	0	0	0	19	2							2	7
22	106	283		0	28	0	0	0	28	0	0	0	400			200	200				7
23	0	0	0	0	8	0	0	8	0	0	0	0	50			20	10			20	7
24	2	5	0	0	159	0	0	158	0	0	0	1	110			60	50				7
25	107	255	10	28	20	0	0	10	10	0	0	0	0								17
26	0	0		0	15	0	0	1	14	0	0	0	10				10				7
27	17	45	20	56	0	0	0	0	0	0	0	0	0								17
28	87	211	5	14	8	3	0	0	5	0	0	0	0								6
29	39	104	5	14	0	0	0	0	0	0	0	0	0								6
30	4	11	5	14	10	0	0	0	10	0	0	0	0								17
31	42	100		0	43	4	0	2	37	0	0	0	0								6
32	5	13		0	107	0	4	65	32	0	6	0	0								17
33	0	0	5	12	102	0	0	96	6	0	0	0	50				40			10	13
34	7	19		0	0	0	0	0	0	0	0	0	0								13
35	5	13		0	0	0	0	0	0	0	0	0	0								13
36	42	112	5	12	0	0	0	0	0	0	0	0	0								13
37	18	48	5	12	8	0	0	0	8	0	0	0	25				20			5	13
38	1	3		0	228	17	0	3	208	0	0	0	30				20			10	13
39	96	256	15	37	14	0	0	0	14	0	0	0	0								13
40	125	289	10	25	2	0	0	0	2	0	0	0	0								13
41	4	11		0	0	0	0	0	0	0	0	0	250			115	115		20		8
43	109	237		0	17	0	3	0	14	0	0	0	0								8
44	45	104		0	204	0	0	111	75	0	0	18	2							2	14
45	60	154		0	9	0	0	8	1	0	0	0	35			20	15				16
46	54	144	5	12	18	7	0	0	10	0	0	1	35			20	15				16
47	33	77	20	54	37	0	0	0	36	0	0	1	0								14
48	36	90	350	938	0	0	0	0	0	0	0	0	0								11
49	66	176	80	214	197	12	0	0	185	0	0	0	45				45				11
50	71	187	5	13	0	0	0	0	0	0	0	0	0								11
51	94	248	20	54	19	0	0	8	11	0	0	0	0								11
52	96	212	50	121	3	0	0	0	0	0	3	0	0								11
53	68	172		0	33	0	0	9	24	0	0	0	0								15
54	49	127	5	12	47	0	0	9	35	0	0	3	35			20	15				16
55	9	23	30	72	378	4	11	66	193	2	102	0	81				50		31		15
56	16	40		0	66	0	0	3	63	0	0	0	0								6
57	4	11		0	4	0	0	0	4	0	0	0	70		70						12
58	69	184	5	14	29	0	18	0	9	0	0	2	0								6
59	48	125		0	0	0	0	0	0	0	0	0	50				50				6
60	9	22		0	79	0	0	12	67	0	0	0	20				20				12
61	125	287	5	11	114	0	0	9	90	0	0	15	26				20	4		2	12
62	77	203	10	23	0	0	0	0	0	0	0	0	0								12
63	139	371	5	12	11	0	0	0	6	5	0	0	0								10
64	131	347	158	422	21	4	0	0	0	0	0	17	2							2	9
66	1	3	75	200	59	0	0	0	59	0	0	0	4					4			10
67	94	250	10	27	4	0	0	0	0	0	0	4	0								10
68	49	128	10	24	39	2	0	0	32	0	0	5	0								10
69	31	83	10	24	0	0	0	0	0	0	0	0	0								10
70	100	267	5	11	48	0	0	27	21	0	0	0	15				15				12
71	6	16	75	170	6	0	0	1	5	0	0	0	361				311		25	25	10
72	50	134	10	27	13	7	0	0	6	0	0	0	0								3
73	77	202	5	13	3	0	0	0	3	0	0	0	0								5
74	107	259	5	13	4	0	0	0	4	0	0	0	2					2			5
75	76	200	5	13	4	0	0	0	0	0	0	4	0								6
76	56	149	5	13	0	0	0	0	0	0	0	0	0								6
77	60	160	5	13	11	11	0	0	0	0	0	0	0								6
78	7	19	15	42	0	0	0	0	0	0	0	0	0								4
79	41	109	20	56	0	0	0	0	0	0	0	0	0								4
80	47	125	25	67	115	0	0	0	11	104	0	0	5					5			4
81	61	162		0	5	0	0	0	0	0	0	5	0								3
82	0	0		0	78	0	0	0	78	0	0	0	20				15	5			3
83	87	232	10	24	14	0	0	0	13	0	0	1	0								10
84	21	50		0	0	0	0	0	0	0	0	0	25				25				10
85	19	51	125	334	0	0	0	0	0	0	0	0	56					56			10
87	13	29		0	0	0	0	0	0	0	0	0	189		100	19	45		20	5	1
88	62	157	40	84	106	0	0	0	106	0	0	0	75			25	50				3
89	41	109	70	148	0	0	0	0	0	0	0	0	75			25	50				3
90	74	197	20	54	1	0	0	0	0	0	0	1	0								3
91	31	82	15	40	0	0	0	0	0	0	0	0	20					20			3
98	4	11	10	25	15	0	0	12	3	0	0	0	40				40				13
99	72	148	10	25	38	0	12	0	26	0	0	0	40				40				13
101	0	0		0	7	0	0	0	3	0	0	4	95		60		20			15	7
Subtotal	3459	8804	1433	3694	3093	71	277	733	1676	111	111	114	2592	0	300	599	1401	96	96	100	
Total	**3839**	**9799**	**1603**	**4101**	**3425**	**71**	**553**	**750**	**1695**	**111**	**120**	**125**	**2677**	**0**	**300**	**634**	**1451**	**96**	**96**	**100**	**0**


CRAIG
TREE TOP
MONITOR RANCH
QUAIL
DEER VALLEY
BENNETT CREEK
ELK
GRIMES
42
HWY 99
41
CHAD
22
VEATCH
BLACKS
RUDOLPH
COTTAGE GROVE LORANE
ADAMS
48
LA RAE
HOLLY
43
EVERGREEN
WITHYCOMBE
44
47
45
40
39
HWY 5 RAMP
COTTAGE GROVE CONNECTOR
I-5
HWY 5 RAMP
VILLAGE
THORNTON
FOSTER
LLOYD
21
ORDWALD
38
26
19TH
HARVEY
46
KALAPUYA
23
POND TURTLE
49
ASH
CEMETERY
MAIN
GOWDYVILLE
50
51
CHESTNUT
BIRCH
53
8TH
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11TH
CHERRY
GIBBS
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PALMER
DAVIDSON
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WASHINGTON
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WHITEAKER
MAIN
THORNTON
19
64
BRYANT
CARVER
CLARK
ANTHONY
BRYANT
63
DAUGHERTY
62
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ADAMS
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ADAMS
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SEARS
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21ST
22ND
BARKLEY
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HALDERMAN
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BOHEMIA
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RIVER
QUINCY
70
1ST
3RD
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QUINCY
27
SHIELDS
17
THUNDER
FAIRVIEW
73
8TH
7TH
75
13TH
10TH
CEDAR PARK
HARRISON
HARRISON
HARRISON
IBSEN
67
83
EDISON
WHITMAN
TYLER
76
78
HILLSIDE
PRIVATE
71
72
74
DUBLIN
ROW RIVER
SWEET
85
84
POLK
77
PARKS
TAYLOR
15
SNAUER
SWANSON
14
BLUE SKY
CAMBRIA
79
80
82
81
5TH
7TH
COOPER
LINCOLN
TALEMENA
86
DAYBREAK
SWEET
4TH
5TH
GRANT
90
11TH
87
88
ARTHUR
GETTY
TIOGA
EMERSON
89
PATRICK
BENJAMIN
91
I-5
HILLSIDE
PLEASANT VIEW
PITCHER
JENKINS
WAWASSEE
WAUKEENA
WATAUGA
94
PRIVATE
93
CLEVELAND
MCKINLEY
92
TAFT
MOSBY CREEK
LANG
GODDARD
PRIVATE
HWY 99
HOWARD
WOOD
CHISHOLM TRAIL
QUAGLIA
95
97
6TH
96
TAYLOR BUTTE
SUNSET
NARGIS
PRIVATE
DUGAN
100
TOBIASSON
LATHAM

APPENDIX J: Traffic Impact Study Requirements

4.1.900 Traffic Impact Studies

The purpose of this section of the code is to assist in determining which road authorities participate in land use decisions, and to implement Section 660-012-0045 (2) (e) of the State Transportation Planning Rule that requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. This Chapter establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Study must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the Study.

A. **When a Traffic Impact Study is Required.** The City or other road authority with jurisdiction may require a Traffic Impact Study (TIS) as part of an application for development, a change in use, or a change in access. A TIS shall be required when a land use application involves one or more of the following actions:

1. A change in zoning or a plan amendment designation; or

2. Any proposed development or land use action that a road authority states may cause or be adversely impacted by operational or safety concerns along its facility(ies); or

3. Land divisions with 30 or more lots; or

4. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more; or

5. An increase in peak hour volume of a particular movement to and from the State highway by 20 percent or more; or

6. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or

7. The location of the access driveway does not meet minimum sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, creating a safety hazard; or

8. A change in internal traffic patterns that may cause safety problems, such as back up onto a street or greater potential for traffic accidents.

B. **Traffic Impact Study Preparation.** A Traffic Impact Study shall be prepared by a professional transportation engineer in accordance with the requirements of the road authority and paid for by the applicant. If the road authority is the Oregon Department of Transportation (ODOT), consult ODOT's regional development review planner and OAR 734-051-180.

C. Traffic Impact Study Requirements.

1. Traffic Impact Study (TIS) Scope. evaluations shall evaluate the access, circulation and other transportation requirements. The scope of the TIS shall be established by the City Engineer to address issues related to a specific development proposal. If the land use will affect a State Highway or County Road, then ODOT and/or Lane County should be consulted on the scope of the TIS.

2. Trips. Trips shall be defined by the Institute of Transportation Engineers (ITE), Trip Generation Manual, 7th Edition (or subsequent document updates), or trip generation studies of comparable uses prepared by an engineer and approved by the Community Development Department.

3. Level of Service (LOS). The Level of Service standard to determine what is acceptable or unacceptable traffic flow on streets shall be based on a volume to capacity ratio. State highways shall continue to operate according to the standards in the Oregon Highway Plan. Street intersections shall maintain a LOS of "D" during the PM peak hour of the day. A lesser standard may be accepted for local street intersections or driveway access points that intersect with collector or arterial streets, if these intersections are found to operate safely.

2. Mitigation. Where a development causes traffic impacts that bring a road below acceptable levels of service, or impacts a road that is already operating below acceptable levels of service, or impacts a road that has a documented safety problem, the TIS shall identify traffic impacts attributable to the development and appropriate mitigation measures. The developer may be required to implement mitigation measures as a condition of approval. The mitigation measures shall be implemented prior to the final inspection of the building permit for the development.

3. Traffic Signals. Traffic signals shall be required with development when traffic signal warrants are met, in conformance with the Highway Capacity Manual and the Manual of Uniform Traffic Control Devices.

4. Coordination of Development Review. The City will provide written notice and opportunity to comment on all Traffic Impact Studies to the applicable road authorities and the Cottage Grove School District.

APPENDIX K: Vehicle Collision Data

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

City of Cottage Grove
January 1, 2000 Through December 31, 2004

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2004														
ANGLE	0	0	5	5	0	0	0	3	2	4	1	5	0	0
BACKING	0	0	3	3	0	0	0	3	0	3	0	0	0	1
FIXED / OTHER OBJECT	0	2	2	4	0	3	0	3	1	2	2	0	0	4
PARKING MOVEMENTS	0	0	2	2	0	0	0	1	1	1	1	0	0	0
REAR-END	0	7	7	14	0	7	0	12	2	14	0	0	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	1	0	0	0	0
SIDESWIPE - OVERTAKING	1	1	5	7	1	3	0	5	2	2	5	0	0	5
TURNING MOVEMENTS	0	3	12	15	0	4	0	12	3	13	2	8	0	0
2004 TOTAL	1	13	37	51	1	17	0	40	11	40	11	13	0	10
YEAR: 2003														
ANGLE	0	1	5	6	0	1	0	6	0	6	0	6	0	0
BACKING	0	0	2	2	0	0	0	2	0	2	0	0	0	0
FIXED / OTHER OBJECT	0	4	2	6	0	4	0	2	4	1	5	0	0	6
HEAD-ON	0	1	0	1	0	1	0	0	1	0	1	0	0	0
PEDESTRIAN	0	1	0	1	0	1	0	1	0	0	1	0	0	0
REAR-END	1	2	17	20	1	3	0	16	4	17	3	0	0	1
SIDESWIPE - MEETING	0	0	2	2	0	0	0	1	1	1	1	0	0	1
SIDESWIPE - OVERTAKING	0	0	5	5	0	0	0	4	1	5	0	0	0	2
TURNING MOVEMENTS	0	2	16	18	0	2	0	13	5	13	5	10	0	0
2003 TOTAL	1	11	49	61	1	12	0	45	16	45	16	16	0	10
YEAR: 2002														
ANGLE	0	3	7	10	0	4	0	7	3	7	3	10	0	0
BACKING	0	2	9	11	0	3	0	10	1	7	4	2	0	4
FIXED / OTHER OBJECT	0	0	5	5	0	0	0	2	3	2	3	0	0	4
PARKING MOVEMENTS	0	0	3	3	0	0	0	3	0	3	0	0	0	0
REAR-END	0	8	10	18	0	12	0	15	3	15	3	2	0	1
SIDESWIPE - OVERTAKING	0	0	4	4	0	0	0	4	0	2	2	0	0	4
TURNING MOVEMENTS	0	5	14	19	0	5	0	11	8	11	8	13	0	0
2002 TOTAL	0	18	52	70	0	24	0	52	18	47	23	27	0	13
YEAR: 2001														
ANGLE	0	4	6	10	0	4	0	8	2	7	3	9	0	0
BACKING	0	0	8	8	0	0	1	8	0	7	1	3	0	1
FIXED / OTHER OBJECT	0	0	2	2	0	0	0	1	1	1	1	0	0	2
REAR-END	0	8	11	19	0	10	0	16	3	16	3	5	0	1
SIDESWIPE - MEETING	0	0	3	3	0	0	0	2	1	1	2	0	0	2
SIDESWIPE - OVERTAKING	0	0	7	7	0	0	0	6	1	7	0	0	0	5
TURNING MOVEMENTS	0	2	13	15	0	4	0	12	3	11	4	12	0	0
2001 TOTAL	0	14	50	64	0	18	1	53	11	50	14	29	0	11

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

City of Cottage Grove
January 1, 2000 Through December 31, 2004

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2000														
ANGLE	0	5	10	15	0	6	0	13	2	14	1	15	0	0
BACKING	0	0	3	3	0	0	0	2	1	3	0	0	0	0
FIXED / OTHER OBJECT	0	1	3	4	0	1	1	2	2	2	2	0	0	4
HEAD-ON	0	0	1	1	0	0	0	1	0	1	0	0	0	0
PARKING MOVEMENTS	0	1	2	3	0	1	0	2	1	2	1	0	0	2
PEDESTRIAN	0	2	0	2	0	2	0	0	2	2	0	2	0	0
REAR-END	0	13	12	25	0	20	0	16	9	21	4	8	0	1
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	0	1	0	0	1
SIDESWIPE - OVERTAKING	0	2	5	7	0	2	0	5	2	3	4	0	0	2
TURNING MOVEMENTS	1	11	12	24	1	13	1	17	7	19	5	18	0	1
2000 TOTAL	1	35	49	85	1	45	2	59	26	67	18	43	0	11
FINAL TOTAL	3	91	237	331	3	116	3	249	82	249	82	128	0	55

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

```
001 PACIFIC                                                                                             City of Cottage Grove
                                                                                              January 1, 2000 Through December 31, 2004

       S   D
       P   R S W                               CLASS                                    INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY             COMPNT    CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                   A S
SER#   E L G H R DAY        CITY               MLG TYP   FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM       PRTC INJ    G E LICNS PED
INVEST D C S L K TIME       URBAN AREA         MILEPNT   SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO      P# TYPE SVRTY  E X RES   LOC ERROR         ACTN EVENT       CAUSE

05428  N N N     12/29/2003 LANE                 11                           CURVE             N           Y RAIN PRKD MV    01 NONE    0 STRGHT                                                  005,089     01
STATE            Mon        COTTAGE GROVE         0 0    01902                N         (DIVMD) UNKNOWN     N WET  REAR          PRVTE     S  N                                               000  089         00
                 10P        COTGE GR UA        173.52    09205                01                            N DARK FAT           PSNGR CAR         01 DRVR INJC  23 M OR-Y      026           000              01
                                                                                         (04)                                                                         OR<25

                                                                                                                              02 NONE    0 PRKD-I
                                                                                                                                 PRVTE     S  N                                               008              00
                                                                                                                                 PSNGR CAR
                                                                                                                                           UNK     01 PED  KILL  37 M        04 000           000  005         00
                                                                                                                                           UN UN

95428  N N N     12/29/2003 LANE                 11                           CURVE             N           Y RAIN FIX OBJ    01 NONE    0 STRGHT                                                  079,010,089 01
STATE            Mon        COTTAGE GROVE         0 0    01902                N         (DIVMD) UNKNOWN     N WET  FIX           PRVTE     S  N                                               000  079,010     00
                 10P        COTGE GR UA        173.52    09205                06                            N DARK INJ           PSNGR CAR         01 DRVR INJA  31 F OR-Y      047,081       017              01
                                                                                         (04)                                                                         OR>25

                                                                                                                              02 NONE    0 STRGHT
                                                                                                                                 PRVTE     S  N                                               022              00
                                                                                                                                 PSNGR CAR         01 DRVR NONE  37 M OR-Y      000           000              00
                                                                                                                                                                      OR>25

03759  Y N N N N 07/19/2000 LANE                 11                           STRGHT            N           Y CLR  FIX OBJ    01 NONE    0 STRGHT                                                  079,010     01
STATE            Wed        COTTAGE GROVE         0 0    01902                N         (DIVMD) UNKNOWN     N DRY  FIX           PRVTE     N  S                                                    079,010     01
                 10A        COTGE GR UA        174.00    09206                06           0                N DAY  INJ           PSNGR CAR         01 DRVR INJB  46 M OR-Y      047           025              01
                                                                                         (02)                                                                         OR<25

03421  N N N N N 07/02/2001 LANE                 11                           STRGHT            N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                              01
NONE             Mon        COTTAGE GROVE         0 0    01902                S         (DIVMD) UNKNOWN     N DRY  REAR          PRVTE     S  N                                               000              01
                 1P         COTGE GR UA        174.75    09206                03           0                N DAY  INJ           PSNGR CAR         01 DRVR NONE  22 F OR-Y      026                            01
                                                                                         (02)                                                                         OR>25

                                                                                                                              02 NONE    0 STOP
                                                                                                                                 PRVTE     S  N                                               011
                                                                                                                                 PSNGR CAR         01 DRVR INJC  53 F OR-Y      000
                                                                                                                                                                      OR<25

04844  N N N N N 09/01/2000 LANE                 11                           STRGHT            N           N RAIN S-1STOP    01 NONE    0 STRGHT                                                              01
NONE             Fri        COTTAGE GROVE         0 0    01902                UN        (DIVMD) UNKNOWN     N WET  REAR          PRVTE     S  N                                               000              01
                 1P         COTGE GR UA        999.99    00000                03           0                N DAY  PDO           PSNGR CAR         01 DRVR NONE  00 U UNK       026                            01
                                                                                         (02)                                                                         UNK

                                                                                                                              02 NONE    0 STOP
                                                                                                                                 PRVTE     S  N                                               011
                                                                                                                                 PSNGR CAR         01 DRVR NONE  26 M OR-Y      000
                                                                                                                                                                      OR<25

00789  N N N N N 02/11/2000 LANE                 11                           STRGHT            N           N RAIN S-1STOP    01 NONE    0 STRGHT                                                              01
NONE             Fri        COTTAGE GROVE         0 0    01902                UN        (DIVMD) UNKNOWN     N WET  REAR          PRVTE     N  S                                               000              01
                 4P         COTGE GR UA        999.99    00000                04           0                N DAY  PDO           PSNGR CAR         01 DRVR NONE  00 U UNK       026                            01
                                                                                         (02)                                                                         UNK
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       S   D
       P   R S W                                  CLASS                                 INT-TYP                                    SPCL USE
       E A U C O DATE       COUNTY                COMPNT   CONN #              RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                      A  S
SER#   E L G H R DAY        CITY                  MLG TYP  FIRST  STREET       DIRECT    LEGS    TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM     PRTC INJ        G  E  LICNS PED
INVEST D C S L K TIME       URBAN AREA            MILEPNT  SECOND STREET       LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO    P# TYPE SVRTY     E  X  RES   LOC  ERROR         ACTN EVENT        CAUSE

                                                                                                                           02 NONE   0 STOP
                                                                                                                              PRVTE    N  S                                                   011
                                                                                                                             PSNGR CAR        01 DRVR NONE  18  F  OR-Y       000
                                                                                                                                                                  OR<25

04649  Y N N N N 08/31/2000 LANE                   11                          STRGHT            N               Y CLR  FIX OBJ   01 NONE   1 STRGHT                                                   079          01
STATE            Thu        COTTAGE GROVE          0 0     01902               UN       (DIVMD)  UNKNOWN         N DRY  FIX          PRVTE    N  S                                                    079          01
                 1P         COTGE GR UA           999.99   00000               06           0                    N DAY  PDO          SEMI TOW         01 DRVR NONE  31  M  OR-Y       047           017                01
                                                                                           (02)                                                                           OR<25

06603  N N N        12/29/2003 LANE                19      1                   STRGHT            N               N SNOW O-STRGHT  01 NONE   0 STRGHT                                                                05
CITY             Mon        COTTAGE GROVE          6 0     00410               E         (NONE)  UNKNOWN         N ICE  HEAD         PRVTE    W  E                                                    000                00
                 9P         COTGE GR UA           174.18   00905               04                                N DARK INJ          PSNGR CAR        01 DRVR NONE  34  M  OR-Y       039           017                05
                                                                                           (02)                                                                           OR<25

                                                                                                                           02 NONE   0 STRGHT
                                                                                                                              PRVTE    E  W                                                   000                00
                                                                                                                             PSNGR CAR        01 DRVR INJB  59  M  OR-Y       000           000                00
                                                                                                                                                                  OR<25

06320  N N N        12/15/2003 LANE                19      1                   STRGHT            N               Y CLR  FIX OBJ   01 NONE   0 STRGHT                                                   043,010      01
CITY             Mon        COTTAGE GROVE          6 0     00410               E         (NONE)  UNKNOWN         N ICE  FIX          PRVTE    W  E                                               000  043,010      00
                 4A         COTGE GR UA           174.19   00905               01                                N DLIT INJ          PSNGR CAR        01 DRVR INJB  32  F  OR-Y       047,081       017                01
                                                                                           (02)                                                                           OR<25

04151  N N N N N 08/05/2000 LANE                   14      1                   INTER      3-LEG  N               N CLR  ANGL-OTH  01 NONE   0 STRGHT                                                                02
NO RPT           Sat        COTTAGE GROVE          6 0     COTTAGE GROVE CONN  CN                UNKNOWN         N DRY  TURN         PRVTE    E  W                                                    000
                 8P         COTGE GR UA           174.54   WB EXTO COTG GRV C  01           0                    N DAY  INJ          PSNGR CAR        01 DRVR INJC  40  F  OR-Y       000
                                                                                                                                                                  OR<25

                                                                                                                           02 NONE   0 TURN-R
                                                                                                                              PRVTE    NE W                                                   000
                                                                                                                             PSNGR CAR        01 DRVR INJC  22  F  OR-Y       028                              02
                                                                                                                                                                  OR>25

02826  N N N N N 05/28/2000 LANE                   16      1                   STRGHT            N               N CLR  S-1STOP   01 NONE   0 STRGHT                                                                01
NONE             Sun        COTTAGE GROVE          6 0     00410               W         (NONE)  UNKNOWN         N DRY  REAR         PRVTE    W  E                                                    000                01
                 3P         COTGE GR UA           174.62   00910               03           0                    N DAY  PDO          PSNGR CAR        01 DRVR NONE  00  U  UNK        026                              01
                                                                                           (02)                                                                           UNK

                                                                                                                           02 NONE   0 STOP
                                                                                                                              PRVTE    W  E                                                   011
                                                                                                                             PSNGR CAR        01 DRVR NONE  44  F  OR-Y       000
                                                                                                                                                                  OR<25

03939  N N N N N 07/29/2001 LANE                   14      1                   INTER      CROSS  N               N CLR  S-1TURN   01 NONE   0 STRGHT                                                                08
NONE             Sun        COTTAGE GROVE          6 0     COTTAGE GROVE CONN  CN                UNKNOWN         N DRY  TURN         PRVTE    E  W                                                    000
                 1P         COTGE GR UA           174.63   GATEWAY BLVD        01           1                    N DAY  PDO          PSNGR CAR        01 DRVR NONE  25  M  OR-Y       000
                                                                                                                                                                  OR<25

                                                                                                                           02 NONE   0 TURN-L
                                                                                                                              PRVTE    E  S                                                   000
                                                                                                                             PSNGR CAR        01 DRVR NONE  18  F  OR-Y       006                              08
                                                                                                                                                                  OR<25
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001 PACIFIC

City of Cottage Grove
January 1, 2000 Through December 31, 2004

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       S   D
       P   R S W                                     CLASS                                   INT-TYP                                          SPCL USE
       E A U C O DATE        COUNTY             COMPNT    CONN #                  RD CHAR (MEDIAN) INT-REL  OFFRD WTHR  CRASH TYP      TRLR QTY  MOVE                    A  S
SER#   E L G H R DAY         CITY               MLG TYP   FIRST  STREET           DIRECT    LEGS   TRAF-    RNDBT SURF  COLL TYP       OWNER     FROM      PRTC INJ     G  E  LICNS PED
INVEST D C S L K TIME        URBAN AREA         MILEPNT   SECOND STREET           LOCTN  (#LANES) CNTL      DRVWY LIGHT SVRTY      V# VEH TYPE  TO     P# TYPE SVRTY  E  X  RES   LOC  ERROR         ACTN EVENT       CAUSE

03924  N N N N N 07/24/2000  LANE                 14      1                       INTER     CROSS  N            N CLR  O-1TURN    01 NONE    0 STRGHT                                                                08
CITY             Mon         COTTAGE GROVE         6 0    COTTAGE GROVE CONN      CN               UNKNOWN      N DRY  TURN          PRVTE     E  W                                              000
                 12P         COTGE GR UA          174.63  GATEWAY BLVD            02           1                N DAY  INJ          PSNGR CAR          01 DRVR INJB  64 F  OR-Y       000
                                                                                                                                                                 OR<25

                                                                                                                              02 NONE    0 TURN-L
                                                                                                                                 PRVTE     W  N                                              000
                                                                                                                                PSNGR CAR          01 DRVR NONE  47 M  OTH-Y      004                             08
                                                                                                                                                                 N-RES

04619  N N N N N 08/27/2000  LANE                 14      1                       INTER     CROSS  N            N CLR  ANGL-OTH   01 NONE    0 STRGHT                                                                02
NO RPT           Sun         COTTAGE GROVE         6 0    COTTAGE GROVE CONN      CN               UNKNOWN      N DRY  ANGL          PRVTE     S  N                                              000
                 10P         COTGE GR UA          174.63  GATEWAY BLVD            02           1                N DLIT PDO          PSNGR CAR          01 DRVR NONE  17 M  OR-Y       028                             02
                                                                                                                                                                 OR>25

                                                                                                                              02 NONE    0 STRGHT
                                                                                                                                 PRVTE     E  W                                              000
                                                                                                                                PSNGR CAR          01 DRVR NONE  67 M  OR-Y       000
                                                                                                                                                                 OR<25

07095  N N N N N 12/28/2000  LANE                 14      1                       INTER     CROSS  N            N CLR  O-1TURN    01 NONE    0 STRGHT                                                                02
CITY             Thu         COTTAGE GROVE         6 0    COTTAGE GROVE CONN      CN               UNKNOWN      N DRY  TURN          PRVTE     E  W                                              000
                 4P          COTGE GR UA          174.63  GATEWAY BLVD            02           1                N DAY  INJ          PSNGR CAR          01 DRVR NONE  68 M  OR-Y       000
                                                                                                                                                                 OR<25

                                                                                                                              02 NONE    0 TURN-L
                                                                                                                                 PRVTE     W  N                                              000
                                                                                                                                PSNGR CAR          01 DRVR INJC  60 F  OR-Y       004                             02
                                                                                                                                                                 OR<25

01911  N N N N N 04/19/2001  LANE                 14      1                       INTER     CROSS  N            N CLR  O-1TURN    01 NONE    0 STRGHT                                                                02
CITY             Thu         COTTAGE GROVE         6 0    COTTAGE GROVE CONN      CN               UNKNOWN      N DRY  TURN          PRVTE     E  W                                              000
                 3P          COTGE GR UA          174.63  GATEWAY BLVD            02           1                N DAY  INJ          PSNGR CAR          01 DRVR INJB  47 M  OR-Y       000
                                                                                                                                                                 OR<25
                                                                                                                                                   02 PSNG INJB  20 M
                                                                                                                                                   03 PSNG INJB  73 M

                                                                                                                              02 NONE    0 TURN-L
                                                                                                                                 PRVTE     W  N                                              000
                                                                                                                                PSNGR CAR          01 DRVR NONE  80 M  OTH-Y      004                             02
                                                                                                                                                                 N-RES

01358  N N N N N 03/05/2000  LANE                 14      1                       INTER     CROSS  N            N CLR  ANGL-OTH   01 NONE    0 STRGHT                                                                04
CITY             Sun         COTTAGE GROVE         6 0    COTTAGE GROVE CONN      CN               TRF SIGNAL   N DRY  ANGL          PRVTE     W  E                                              000
                 8A          COTGE GR UA          174.63  GATEWAY BLVD            04           1                N DAY  INJ          PSNGR CAR          01 DRVR INJB  35 M  OR-Y       000
                                                                                                                                                                 OR<25

                                                                                                                              02 NONE    0 STRGHT
                                                                                                                                 PRVTE     S  N                                              000
                                                                                                                                PSNGR CAR          01 DRVR INJA  42 F  OTH-Y      020                             04
                                                                                                                                                                 N-RES
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001 PACIFIC                                                                                     City of Cottage Grove
                                                                                     January 1, 2000 Through December 31, 2004

       S   D
       P   R S W
                                               CLASS                                  INT-TYP                                   SPCL USE
       E A U C O DATE       COUNTY             COMPNT   CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                   A  S
SER#   E L G H R DAY        CITY               MLG TYP  FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM       PRTC INJ    G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA         MILEPNT  SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO      P# TYPE SVRTY  E  X RES   LOC ERROR         ACTN EVENT        CAUSE

01792  N N N N N 04/04/2000 LANE                14      2                    INTER     3-LEG  N            N CLR  O-1TURN    01 NONE    0 STRGHT                                                                02
CITY             Tue        COTTAGE GROVE        6 0    COTTAGE GROVE CONN   CN               UNKNOWN      N DRY  TURN          PRVTE     E  W                                                000
                 11A        COTGE GR UA        174.72   NB EX-EN COTG GV C   02           2                N DAY  INJ          PSNGR CAR          01 DRVR NONE  77 M OR-Y      000
                                                                                                                                                                      OR<25
                                                                                                                                                  02 PSNG INJA  00 F

                                                                                                                             02 NONE    0 TURN-L
                                                                                                                                PRVTE     W  N                                                000
                                                                                                                               PSNGR CAR          01 DRVR NONE  24 M OR-Y      004                             02
                                                                                                                                                                      OR<25

00199  N N N     01/23/2004 LANE                16      1                    INTER     3-LEG  N            N RAIN O-1TURN    01 NONE    0 STRGHT                                                                02
NONE             Fri        COTTAGE GROVE        6 0    COTTAGE GROVE CON    CN               UNKNOWN      N WET  TURN          PRVTE     E  W                                                000               00
                 7P         COTGE GR UA        174.83   NB EX-EN COTG GV     02          99                N DLIT INJ          PSNGR CAR          01 DRVR NONE  35 M OR-Y      000           000               00
                                                                                                                                                                      OR<25

                                                                                                                             02 NONE    0 TURN-L
                                                                                                                                PRVTE     W  N                                                000               00
                                                                                                                               PSNGR CAR          01 DRVR INJB  18 F OR-Y      004           000               02
                                                                                                                                                                      OR<25
                                                                                                                                                  02 PSNG INJB  20 F           000           000               00

01356  N N N     04/23/2004 LANE                19      1                    INTER     3-LEG  N            N CLR  O-1TURN    01 NONE    0 STRGHT                                                                02
NONE             Fri        COTTAGE GROVE        6 0    COTTAGE GROVE CON    CN               UNKNOWN      N DRY  TURN          PRVTE     E  W                                                000               00
                 1P         COTGE GR UA        174.83   NB EX-EN COTG GV     02          99                N DAY  PDO          PSNGR CAR          01 DRVR NONE  47 M OR-Y      000           000               00
                                                                                                                                                                      OR<25

                                                                                                                             02 NONE    0 TURN-L
                                                                                                                                PRVTE     W  N                                                000               00
                                                                                                                               PSNGR CAR          01 DRVR NONE  78 F OR-Y      004           000               02
                                                                                                                                                                      OR<25

03873  N N N N N 08/03/2002 LANE                14      6                    INTER     3-LEG  N            N CLR  O-1TURN    01 NONE    0 TURN-L                                                                02
NO RPT           Sat        COTTAGE GROVE        6 0    COTTAGE GROVE CONN   CN               TRF SIGNAL   N DRY  TURN          PRVTE     NW NE                                               000
                 6A         COTGE GR UA        174.83   NB EX-EN COTG GV C   02           0                N DAWN PDO          PSNGR CAR          01 DRVR NONE  16 F OR-Y      004                             02
                                                                                                                                                                      OR>25

                                                                                                                             02 NONE    0 STRGHT
                                                                                                                                PRVTE     SW NE                                               000
                                                                                                                               PSNGR CAR          01 DRVR NONE  25 M OR-Y      000
                                                                                                                                                                      OR<25

03761  N N N N N 07/19/2001 LANE                11      3                    INTER     CROSS  N            N CLR  O-1STOP    01 NONE    0 BACK                                                                  10
NONE             Thu        COTTAGE GROVE        6 0    COTTAGE GROVE CONN   N                UNKNOWN      N DRY  BACK          PRVTE     S  N                                                000
                 4P         COTGE GR UA        175.34   SB EX-EN COTG GV C   06           1                N DAY  PDO          PSNGR CAR          01 DRVR NONE  26 M OR-Y      011                             10
                                                                                                                                                                      OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     N  S                                                011
                                                                                                                               PSNGR CAR          01 DRVR NONE  32 F OR-Y      000
                                                                                                                                                                      OR<25
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226 GOSHEN-DIVIDE

City of Cottage Grove
January 1, 2000 Through December 31, 2004

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       S   D
       P   R S W                              CLASS                                   INT-TYP                                   SPCL USE
       E A U C O DATE       COUNTY            COMPNT    CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                   A  S
SER#   E L G H R DAY        CITY              MLG TYP   FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM       PRTC INJ    G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA        MILEPNT   SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY    V# VEH TYPE  TO       P# TYPE SVRTY  E  X RES   LOC ERROR        ACTN EVENT        CAUSE

04374  N N N    08/25/2003 LANE                16                           STRGHT            N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                                01
NONE             Mon        COTTAGE GROVE        0 0    00410                NE        (NONE)  UNKNOWN     N DRY  REAR          PRVTE     NE SW                                               000            00
                 2P         COTGE GR UA        14.06    00905                04                            N DAY  PDO          PSNGR CAR          01 DRVR NONE  50  F OR-Y      026        000            01
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     NE SW                                               011            00
                                                                                                                               PSNGR CAR          01 DRVR NONE  62  M OR-Y      000        000            00
                                                                                                                                                                      OR<25

00485  Y N N N N 01/26/2002 LANE                16                           INTER     3-LEG  N           N SNOW ANGL-OTH   01 NONE    0 TURN-L                                                  013          01
NONE             Sat        COTTAGE GROVE        0 0    COTTAGE GROVE CONN   SW                UNKNOWN     N ICE  TURN          PRVTE     W  SW                                               000 013        01
                 3P         COTGE GR UA        14.07    GOSHEN-DIVIDE HY     06           0                N DAY  PDO          PSNGR CAR          01 DRVR NONE  27  M OR-Y      047        017            01
                                                                                                                                                                      OR<25

                                                                                                                             02 NONE    0 STRGHT
                                                                                                                                PRVTE     SW NE                                               000
                                                                                                                               PSNGR CAR          01 DRVR NONE  20  M OR-Y      000
                                                                                                                                                                      OR<25

                                                                                                                             03 NONE    0 STRGHT
                                                                                                                                PRVTE     SW NE                                               000
                                                                                                                               PSNGR CAR          01 DRVR NONE  43  F OR-Y      000
                                                                                                                                                                      OR<25

05583  N N N N N 10/17/2001 LANE                14                           STRGHT            N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                                01
NO RPT           Wed        COTTAGE GROVE        0 0    00905                SW        (NONE)  UNKNOWN     N DRY  REAR          PRVTE     NE SW                                               000            01
                 5P         COTGE GR UA        14.08    00410                03           0                N DAY  PDO          PSNGR CAR          01 DRVR NONE  19  M OR-Y      026                       01
                                                                                        (04)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     NE SW                                               011
                                                                                                                               PSNGR CAR          01 DRVR NONE  44  F OR-Y      000
                                                                                                                                                                      OR<25

02151  N N N    06/24/2004 LANE                16                           STRGHT            N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                                01
NONE             Thu        COTTAGE GROVE        0 0    00905                SW        (NONE)  UNKNOWN     N DRY  REAR          PRVTE     SW NE                                               000            00
                 1P         COTGE GR UA        14.08    00410                06                            N DAY  INJ          PSNGR CAR          01 DRVR NONE  26  F OR-Y      026        000            01
                                                                                        (04)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     SW NE                                               011            00
                                                                                                                               PSNGR CAR          01 DRVR INJC  47  F OR-Y      000        000            00
                                                                                                                                                                      OR<25

00803  N N N N N 02/19/2002 LANE                16                           ALLEY             N           N CLR  ANGL-OTH   01 NONE    0 TURN-L                                                                02
NONE             Tue        COTTAGE GROVE        0 0    00905                S         (NONE)  UNKNOWN     N DRY  TURN          PRVTE     E  S                                                018
                 6P         COTGE GR UA        14.11    00403                06           0                Y DLIT PDO          PSNGR CAR          01 DRVR NONE  43  F OR-Y      028                       02
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE    0 STRGHT
                                                                                                                                PRVTE     S  N                                                000
                                                                                                                               PSNGR CAR          01 DRVR NONE  78  M OR-Y      000
                                                                                                                                                                      OR<25
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226 GOSHEN-DIVIDE                                                                          City of Cottage Grove
                                                                                    January 1, 2000 Through December 31, 2004

       S   D
       P   R S W                                       CLASS                                  INT-TYP                                 SPCL USE
       E A U C O DATE        COUNTY              COMPNT    CONN #                RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP     TRLR QTY   MOVE                     A  S
SER#   E L G H R DAY         CITY                MLG TYP   FIRST  STREET         DIRECT    LEGS    TRAF-   RNDBT SURF  COLL TYP      OWNER      FROM      PRTC INJ       G  E  LICNS PED
INVEST D C S L K TIME        URBAN AREA          MILEPNT   SECOND STREET         LOCTN   (#LANES)  CNTL    DRVWY LIGHT SVRTY     V#  VEH TYPE   TO     P# TYPE SVRTY  E  X  RES   LOC  ERROR         ACTN EVENT        CAUSE

02673  N N N     06/02/2003  LANE                  14                            STRGHT            N           Y CLR   FIX OBJ   01 NONE    0 STRGHT                                                          040          01
CITY             Mon         COTTAGE GROVE          0 0      00905               SW        (NONE)  UNKNOWN     N DRY   FIX          PRVTE       SW NE                                               000  040          00
                 11P         COTGE GR UA         14.11       00909               08                            N DLIT  INJ          MTRCYCLE           01 DRVR INJC  63 M  OR-Y        047,081       017               01
                                                                                           (04)                                                                          OR<25

00239  N N N N N 01/15/2001  LANE                  16                            INTER      3-LEG  N           N CLR   O-1STOP   01 NONE    0 BACK                                                                         10
NO RPT           Mon         COTTAGE GROVE          0 0      CHAMBERLAIN AVE     NE                UNKNOWN     N DRY   BACK         PRVTE       SW NE                                               000
                 2P          COTGE GR UA         14.12       GOSHEN-DIVIDE HY    06           0                N DAY   PDO         PSNGR CAR           01 DRVR NONE  55 M  OR-Y        011                             10
                                                                                                                                                                         OR<25

                                                                                                                                 02 NONE    0 STOP
                                                                                                                                    PRVTE       NE SW                                               011
                                                                                                                                   PSNGR CAR           01 DRVR NONE  65 F  OR-Y        000
                                                                                                                                                                         OR<25

02301  N N N     07/10/2004  LANE                  14                            INTER      3-LEG  N           N CLR   ANGL-OTH  01 NONE    0 STRGHT                                                                       02
NONE             Sat         COTTAGE GROVE          0 0      CHAMBERLAIN AVE     CN                UNKNOWN     N DRY   TURN         PRVTE       SW NE                                               000               00
                 9A          COTGE GR UA         14.12       GOSHEN-DIVIDE HY    02          99                N DAY   PDO         PSNGR CAR           01 DRVR NONE  33 F  OR-Y        000           000               00
                                                                                                                                                                         OR<25

                                                                                                                                 02 NONE    0 TURN-L
                                                                                                                                    PRVTE       E  SW                                               000               00
                                                                                                                                   PSNGR CAR           01 DRVR NONE  00 U  UNK         028           000               02
                                                                                                                                                                         UNK

00076  N N N N N 01/05/2001  LANE                  16                            INTER      3-LEG  N           N CLR   ANGL-OTH  01 NONE    0 STRGHT                                                                       02
NO RPT           Fri         COTTAGE GROVE          0 0      CHAMBERLAIN AVE     CN                UNKNOWN     N DRY   TURN         PRVTE       NE SW                                               000
                 4P          COTGE GR UA         14.12       GOSHEN-DIVIDE HY    03                            Y DUSK  PDO         PSNGR CAR           01 DRVR NONE  77 F  OR-Y        000
                                                                                                                                                                         OR<25

                                                                                                                                 02 NONE    0 TURN-L
                                                                                                                                    PRVTE       W  NE                                               000
                                                                                                                                   PSNGR CAR           01 DRVR NONE  36 M  OR-Y        028                             02
                                                                                                                                                                         OR<25

06451  N N N N N 11/29/2000  LANE                  17                            ALLEY             N           N RAIN  ANGL-OTH  01 NONE    0 STRGHT                                                                       02
NO RPT           Wed         COTTAGE GROVE          0 0      00905               SW        (NONE)  UNKNOWN     N WET   TURN         PRVTE       SW NE                                               000
                 6P          COTGE GR UA         14.13       00402               05           0                Y DLIT  PDO         PSNGR CAR           01 DRVR NONE  16 F  OR-Y        000
                                                                                           (04)                                                                          OR<25

                                                                                                                                 02 NONE    0 TURN-L
                                                                                                                                    PRVTE       E  SW                                               018
                                                                                                                                   PSNGR CAR           01 DRVR NONE  57 M  OR-Y        028                             02
                                                                                                                                                                         OR<25

07095  Y N N N N 12/26/2001  LANE                  16                            STRGHT            N           Y CLR   FIX OBJ   01 NONE    0 STRGHT                                                          040,088      01
CITY             Wed         COTTAGE GROVE          0 0      00905               NE        (NONE)  UNKNOWN     N DRY   FIX          PRVTE       NE SW                                                    040,088      01
                 4A          COTGE GR UA         14.14       00902               01           0                N DLIT  PDO         PSNGR CAR           01 DRVR NONE  31 M  OR-Y        047           017               01
                                                                                           (04)                                                                          OR<25

05564  N N N N N 10/29/2002  LANE                  14                            INTER      3-LEG  N           N CLR   O-1TURN   01 NONE    0 STRGHT                                                                       02
NONE             Tue         COTTAGE GROVE          0 0      GEER AVE            CN                UNKNOWN     N DRY   TURN         PRVTE       SW NE                                               000
                 6P          COTGE GR UA         14.15       GOSHEN-DIVIDE HY    04           0                N DUSK  INJ         PSNGR CAR           01 DRVR NONE  18 M  OR-Y        000
                                                                                                                                                                         OR<25
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       S   D
       P   R S W                              CLASS                                   INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY            COMPNT    CONN #              RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                   A S
SER#   E L G H R DAY        CITY              MLG TYP   FIRST  STREET       DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM       PRTC INJ    G E LICNS  PED
INVEST D C S L K TIME       URBAN AREA        MILEPNT   SECOND STREET       LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO      P# TYPE SVRTY  E X RES    LOC ERROR         ACTN EVENT       CAUSE

                                                                                                                            02 NONE    0 TURN-L
                                                                                                                               PRVTE     NE E                                                000
                                                                                                                              PSNGR CAR          01 DRVR INJB  58 M OR-Y       004                            02
                                                                                                                                                                    OR<25

05539  N N N N N 10/19/2001 LANE                14                          INTER      3-LEG  N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                               01
NONE             Fri        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY    NE                UNKNOWN     N DRY  REAR          PRVTE     NE SW                                               000              01
                 11A        COTGE GR UA        14.21    LORD AVE            06            0               N DAY  PDO          PSNGR CAR          01 DRVR NONE  70 M OR-Y       026                            01
                                                                                                                                                                    OR<25

                                                                                                                            02 NONE    0 STOP
                                                                                                                               PRVTE     NE SW                                               011
                                                                                                                              PSNGR CAR          01 DRVR NONE  39 M OR-Y       000
                                                                                                                                                                    OR<25

01985  N N N     05/21/2004 LANE                14                          STRGHT            N           N CLR  S-STRGHT   01 NONE    0 STRGHT                                                               06
                 Fri        COTTAGE GROVE        0 0    00905               SW        (NONE)  UNKNOWN     N DRY  SS-O          PRVTE     NE SW                                               000              00
                 4P         COTGE GR UA        14.22    01405               03                            N DAY  PDO          PSNGR CAR          01 DRVR NONE  00 M OR-Y       045           000              06
                                                                                       (04)                                                                         OR<25

                                                                                                                            02 NONE    0 STRGHT
                                                                                                                               PRVTE     NE SW                                               000              00
                                                                                                                              PSNGR CAR          01 DRVR NONE  20 F OR-Y       000           000              00
                                                                                                                                                                    OR>25

00841  N N N N N 02/08/2000 LANE                16                          INTER      3-LEG  N           N RAIN ANGL-OTH   01 NONE    0 STRGHT                                                               02
NONE             Tue        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY    CN                UNKNOWN     N WET  TURN          PRVTE     SW NE                                               000
                 10A        COTGE GR UA        14.24    PENNOYER AVE        04            0               N DAY  INJ          PSNGR CAR          01 DRVR NONE  70 M OR-Y       000
                                                                                                                                                                    OR<25

                                                                                                                            02 NONE    0 TURN-L
                                                                                                                               PRVTE     SE SW                                               000
                                                                                                                              PSNGR CAR          01 DRVR INJB  34 F OR-Y       028                            02
                                                                                                                                                                    OR<25

07026  N N N N N 12/22/2000 LANE                16                          INTER      CROSS  N           N RAIN O-1TURN    01 NONE    0 STRGHT                                                               02
NO RPT           Fri        COTTAGE GROVE        0 0    E  GIBBS AVE        CN                UNKNOWN     N WET  TURN          PRVTE     SW NE                                               000
                 8P         COTGE GR UA        14.27    10TH ST             04            0               N DLIT INJ          PSNGR CAR          01 DRVR INJC  49 M OR-Y       000
                                                                                                                                                                    OR<25

                                                                                                                            02 NONE    0 TURN-L
                                                                                                                               PRVTE     NE S                                                000
                                                                                                                              PSNGR CAR          01 DRVR NONE  59 M OR-Y       004                            02
                                                                                                                                                                    OR<25

01078  N N N     03/05/2003 LANE                14                          INTER      3-LEG  N           N RAIN ANGL-STP   01 NONE    0 TURN-R                                                               08
NONE             Wed        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY    SE                UNKNOWN     N WET  TURN          PRVTE     SW SE                                               000              00
                 10A        COTGE GR UA        14.33    WOODSON PL          06           99               N DAY  PDO          PSNGR CAR          01 DRVR NONE  62 M OR-Y       001           000              08
                                                                                                                                                                    OR<25

                                                                                                                            02 NONE    0 STOP
                                                                                                                               PRVTE     SE NW                                               011              00
                                                                                                                              PSNGR CAR          01 DRVR NONE  26 M OR-Y       000           000              00
                                                                                                                                                                    OR<25
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226 GOSHEN-DIVIDE

City of Cottage Grove
January 1, 2000 Through December 31, 2004

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       S   D
       P   R S W                               CLASS                                   INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY             COMPNT   CONN #               RD CHAR  (MEDIAN) INT-REL  OFFRD WTHR  CRASH TYP   TRLR QTY MOVE                    A  S
SER#   E L G H R DAY        CITY               MLG TYP  FIRST  STREET        DIRECT     LEGS   TRAF-    RNDBT SURF  COLL TYP    OWNER    FROM        PRTC INJ    G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA         MILEPNT  SECOND STREET        LOCTN    (#LANES) CNTL     DRVWY LIGHT SVRTY    V# VEH TYPE TO       P# TYPE SVRTY  E  X RES   LOC ERROR         ACTN EVENT       CAUSE

02071  N N N     04/28/2003 LANE                14                           INTER      3-LEG N           N CLR  O-1TURN   01 NONE   0 STRGHT                                                                02
NONE             Mon        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               UNKNOWN      N DRY  TURN         PRVTE    NE SW                                                000           00
                 6A         COTGE GR UA        14.33    WOODSON PL           01          99                N DAY  PDO         PSNGR CAR          01 DRVR NONE  38  F OR-Y      000        000           00
                                                                                                                                                                      OR<25

                                                                                                                             02 NONE   0 TURN-L
                                                                                                                                PRVTE    SW NW                                                000           00
                                                                                                                               PSNGR CAR          01 DRVR NONE  19  F OR-Y      004        000           02
                                                                                                                                                                      OR<25

05117  N N N     10/16/2003 LANE                14                           STRGHT           N           N CLR  S-1STOP   01 NONE   0 STRGHT                                                                01
NONE             Thu        COTTAGE GROVE        0 0    00905                SW        (NONE) UNKNOWN      N DRY  REAR         PRVTE    SW NE                                                000           00
                 4P         COTGE GR UA        14.34    02606                04                            N DAY  PDO         PSNGR CAR          01 DRVR NONE  39  F OR-Y      026        000           01
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE   0 STOP
                                                                                                                                PRVTE    SW NE                                                011           00
                                                                                                                               PSNGR CAR          01 DRVR NONE  20  M OR-Y      000        000           00
                                                                                                                                                                      OR<25

02980  N N N N N 06/07/2001 LANE                16                           STRGHT           N           N CLR  S-1STOP   01 NONE   0 STRGHT                                                                01
NO RPT           Thu        COTTAGE GROVE        0 0    00905                SW        (NONE) UNKNOWN      N DRY  REAR         PRVTE    SW NE                                                000           01
                 1P         COTGE GR UA        14.35    02606                04           0                N DAY  PDO         PSNGR CAR          01 DRVR NONE  45  F OR-Y      026                      01
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE   0 STOP
                                                                                                                                PRVTE    SW NE                                                011
                                                                                                                               PSNGR CAR          01 DRVR NONE  33  F OR-Y      000
                                                                                                                                                                      OR<25

05556  N N N     11/10/2003 LANE                14                           STRGHT           N           N CLR  S-1STOP   01 NONE   0 STRGHT                                                                01
NONE             Mon        COTTAGE GROVE        0 0    08009                N         (NONE) UNKNOWN      N DRY  REAR         PRVTE    N  S                                                 000           00
                 9A         COTGE GR UA        14.41    02303                03                            N DAY  PDO         PSNGR CAR          01 DRVR NONE  81  F OR-Y      026        000           01
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE   0 STOP
                                                                                                                                PRVTE    N  S                                                 011           00
                                                                                                                               PSNGR CAR          01 DRVR NONE  57  M OR-Y      000        000           00
                                                                                                                                                                      OR<25

02718  N N N     06/04/2003 LANE                14                           STRGHT           N           N CLR  O-STRGHT  01 NONE   0 STRGHT                                                                05
NONE             Wed        COTTAGE GROVE        0 0    08009                S         (NONE) UNKNOWN      N DRY  SS-M         PRVTE    E  W                                                 000           00
                 6P         COTGE GR UA        14.43    02303                03                            N DAY  PDO         PSNGR CAR          01 DRVR NONE  38  M OR-Y      039        000           02
                                                                                        (02)                                                                          OR<25

                                                                                                                             02 NONE   0 STRGHT
                                                                                                                                PRVTE    W  E                                                 000           00
                                                                                                                               PSNGR CAR          01 DRVR NONE  41  F OR-Y      000        000           00
                                                                                                                                                                      OR<25

02814  N N N N N 06/12/2002 LANE                14                           ALLEY            N           N CLR  ANGL-STP  01 NONE   0 BACK                                                                  10
NONE             Wed        COTTAGE GROVE        0 0    08009                N         (NONE) UNKNOWN      N DRY  BACK         PRVTE    W  E                                                 018
                 10A        COTGE GR UA        14.44    00402                04           0                Y DAY  INJ         PSNGR CAR          01 DRVR NONE  41  F OR-Y      011                      10
                                                                                        (03)                                                                          OR<25
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                                                TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
                                                           CONTINUOUS SYSTEM CRASH LISTING
226 GOSHEN-DIVIDE                                                     City of Cottage Grove
                                                          January 1, 2000 Through December 31, 2004

       S   D
       P   R S W                                CLASS                                     INT-TYP                                    SPCL USE
       E A U C O DATE       COUNTY              COMPNT    CONN #                RD CHAR   (MEDIAN) INT-REL  OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                    A  S
SER#   E L G H R DAY        CITY                MLG TYP   FIRST  STREET         DIRECT      LEGS   TRAF-    RNDBT SURF  COLL TYP      OWNER    FROM        PRTC INJ      G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA          MILEPNT   SECOND STREET         LOCTN     (#LANES) CNTL     DRVWY LIGHT SVRTY     V# VEH TYPE  TO       P# TYPE SVRTY  E  X RES   LOC   ERROR         ACTN EVENT        CAUSE

                                                                                                                                  02 NONE    0 STOP
                                                                                                                                     PRVTE     S  N                                                   012
                                                                                                                                    PSNGR CAR           01 DRVR INJC   43 F OR-Y        000
                                                                                                                                                                            OR<25

04063  N N N N N 08/13/2002 LANE                  14                            STRGHT             N           N CLR   S-1STOP    01 NONE    0 STRGHT                                                                   01
NONE             Tue        COTTAGE GROVE          0 0    08009                 N          (NONE)  UNKNOWN     N DRY   REAR          PRVTE     S  N                                                   000               01
                 5P         COTGE GR UA          14.50    00908                 04            0                N DAY   INJ          PSNGR CAR           01 DRVR NONE   35 M OR-Y        026                             01
                                                                                            (02)                                                                            OR<25

                                                                                                                                  02 NONE    0 STOP
                                                                                                                                     PRVTE     S  N                                                   011
                                                                                                                                    PSNGR CAR           01 DRVR INJC   48 M OR-Y        000
                                                                                                                                                                            OR<25

02227  N N N     05/08/2003 LANE                  14                            STRGHT             N           N CLR   S-STRGHT   01 NONE    0 STRGHT                                                                   06
NONE             Thu        COTTAGE GROVE          0 0    00903                 S         (RSDMD)  UNKNOWN     N DRY   SS-O          PRVTE     S  N                                                   000               00
                 12P        COTGE GR UA          14.66    08009                 06                             N DAY   PDO          PSNGR CAR           01 DRVR NONE   28 F OR-Y        045           000               06
                                                                                            (04)                                                                            OR<25

                                                                                                                                  02 NONE    0 STRGHT
                                                                                                                                     PRVTE     S  N                                                   000               00
                                                                                                                                    PSNGR CAR           01 DRVR NONE   22 F OR-Y        000           000               00
                                                                                                                                                                            OR<25

01713  N N N N N 04/06/2001 LANE                  17                            INTER      3-LEG   N           N CLR   ANGL-OTH   01 NONE    0 STRGHT                                                                   02
NONE             Fri        COTTAGE GROVE          0 0    WILLAMETTE CT         CN                 STOP SIGN   N DRY   TURN          PRVTE     E  W                                                   015
                 11A        COTGE GR UA          14.70    9TH ST                01            0                N DAY   PDO          PSNGR CAR           01 DRVR NONE   29 M OR-Y        028                             02
                                                                                                                                                                            OR<25

                                                                                                                                  02 NONE    0 TURN-L
                                                                                                                                     PRVTE     N  E                                                   000
                                                                                                                                    PSNGR CAR           01 DRVR NONE   38 F OR-Y        000
                                                                                                                                                                            OR<25

01992  N N N N N 04/26/2002 LANE                  16                            STRGHT             N           N RAIN  S-1STOP    01 NONE    0 STRGHT                                                                   01
NONE             Fri        COTTAGE GROVE          0 0    08009                 N         (RSDMD)  UNKNOWN     N WET   REAR          PRVTE     N  S                                                   000               01
                 6P         COTGE GR UA          14.75    01503                 03            0                N DUSK  PDO          PSNGR CAR           01 DRVR NONE   21 F OR-Y        026                             01
                                                                                            (04)                                                                            OR<25

                                                                                                                                  02 NONE    0 STOP
                                                                                                                                     PRVTE     N  S                                                   011
                                                                                                                                    PSNGR CAR           01 DRVR NONE   18 M OR-Y        000
                                                                                                                                                                            OR<25

04576  N N N     09/17/2003 LANE                  14                            STRGHT             N           N CLR   S-1STOP    01 NONE    0 STRGHT                                                                   01
NONE             Wed        COTTAGE GROVE          0 0    08009                 N         (RSDMD)  UNKNOWN     N DRY   REAR          PRVTE     N  S                                                   000               00
                 4P         COTGE GR UA          14.75    01503                 03                             N DAY   PDO          PSNGR CAR           01 DRVR NONE   60 M OR-Y        026           000               01
                                                                                            (04)                                                                            OR<25

                                                                                                                                  02 NONE    0 STOP
                                                                                                                                     PRVTE     N  S                                                   011               00
                                                                                                                                    PSNGR CAR           01 DRVR NONE   53 M OR-Y        000           000               00
                                                                                                                                                                            OR<25
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       S   D
       P   R S W                              CLASS                                  INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY            COMPNT   CONN #               RD CHAR (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                  A S
SER#   E L G H R DAY        CITY              MLG TYP  FIRST  STREET        DIRECT    LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM      PRTC INJ    G E LICNS PED
INVEST D C S L K TIME       URBAN AREA        MILEPNT  SECOND STREET        LOCTN   (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO     P# TYPE SVRTY  E X RES   LOC ERROR         ACTN EVENT       CAUSE

00751  N N N     03/09/2004 LANE               14                           ALLEY            N           N CLR  ANGL-OTH   01 NONE    0 STRGHT                                                             10
NONE             Tue        COTTAGE GROVE       0 0    08009                N        (RSDMD) UNKNOWN     N DRY  BACK          PRVTE     N  S                                              000              00
                 1P         COTGE GR UA       14.75    01503                03                           N DAY  PDO          PSNGR CAR         01 DRVR NONE  20 F OR-Y      000           000              00
                                                                                      (04)                                                                        OR<25

                                                                                                                           02 NONE    0 BACK
                                                                                                                              PRVTE     W  E                                              018              00
                                                                                                                             PSNGR CAR         01 DRVR NONE  14 F OR-Y      011           000              10
                                                                                                                                                                  OR<25

01542  N N N     05/06/2004 LANE               14                           STRGHT           N           N CLR  S-1STOP    01 NONE    0 STRGHT                                                             01
NONE             Thu        COTTAGE GROVE       0 0    08009                N        (RSDMD) UNKNOWN     N DRY  REAR          PRVTE     N  S                                              000              00
                 3P         COTGE GR UA       14.75    01503                03                           N DAY  INJ          PSNGR CAR         01 DRVR NONE  74 M OR-Y      026           000              01
                                                                                      (04)                                                                        OR<25

                                                                                                                           02 NONE    0 STOP
                                                                                                                              PRVTE     N  S                                              011              00
                                                                                                                             PSNGR CAR         01 DRVR INJA  37 F OR-Y      000           000              00
                                                                                                                                                                  OR<25

06757  N N N N N 12/12/2001 LANE               16                           INTER     CROSS  N           N RAIN S-1STOP    01 NONE    0 STRGHT                                                             01
NONE             Wed        COTTAGE GROVE       0 0    MAIN ST              W                UNKNOWN     N WET  REAR          PRVTE     W  E                                              000              01
                 4P         COTGE GR UA       14.76    9TH ST               06           0               N DUSK PDO          PSNGR CAR         01 DRVR NONE  22 F OR-Y      026                            01
                                                                                                                                                                  OR<25
                                                                                                                                               02 PSNG NO<5  02 M

                                                                                                                           02 NONE    0 STOP
                                                                                                                              PRVTE     W  E                                              011
                                                                                                                             PSNGR CAR         01 DRVR NONE  65 M OR-Y      000
                                                                                                                                                                  OR<25

03797  N N N     10/23/2004 LANE               14                           INTER     CROSS  N           N RAIN ANGL-OTH   01 NONE    0 TURN-L                                                             02
                 Sat        COTTAGE GROVE       0 0    MAIN ST              CN               UNKNOWN     N WET  TURN          PRVTE     W  N                                              000              00
                 2P         COTGE GR UA       14.76        9TH ST           02          99               N DAY  PDO          PSNGR CAR         01 DRVR NONE  16 M OR-Y      028           000              02
                                                                                                                                                                  OR<25

                                                                                                                           02 NONE    0 STRGHT
                                                                                                                              PRVTE     S  N                                              000              00
                                                                                                                             PSNGR CAR         01 DRVR NONE  56 M OR-Y      000           000              00
                                                                                                                                                                  OR<25

01232  N N N N N 03/07/2001 LANE               16                           INTER     CROSS  N           N CLR  ANGL-OTH   01 NONE    0 STRGHT                                                             04
NO RPT           Wed        COTTAGE GROVE       0 0    MAIN ST              CN               TRF SIGNAL  N DRY  ANGL          PRVTE     N  S                                              000
                 6P         COTGE GR UA       14.76    9TH ST               03           0               N DUSK INJ          PSNGR CAR         01 DRVR NONE  17 M OR-Y      000
                                                                                                                                                                  OR<25

                                                                                                                           02 NONE    0 STRGHT
                                                                                                                              PRVTE     W  E                                              000
                                                                                                                             PSNGR CAR         01 DRVR INJB  61 F OR-Y      020                            04
                                                                                                                                                                  OR<25
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       S   D
       P   R S W                               CLASS                                   INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY             COMPNT   CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                  A  S
SER#   E L G H R DAY        CITY               MLG TYP  FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM      PRTC INJ   G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA         MILEPNT  SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO      P# TYPE SVRTY E  X RES   LOC ERROR         ACTN EVENT       CAUSE

03589  N N N     07/25/2003 LANE                14                           STRGHT            N           N CLR  S-1STOP    01 NONE   0 STRGHT                                                              01
NONE             Fri        COTTAGE GROVE        0 0    01503                S         (RSDMD) UNKNOWN     N DRY  REAR          PRVTE     N  S                                               000              00
                 12P        COTGE GR UA         14.77   08009                03                            N DAY  PDO          PSNGR CAR          01 DRVR NONE  18 M OR-Y      026           000              01
                                                                                        (04)
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0 STOP
                                                                                                                                PRVTE     N  S                                               011              00
                                                                                                                               PSNGR CAR          01 DRVR NONE  20 M OR-Y      000           000              00
                                                                                                                                                                     OR<25

04220  N N N     08/30/2003 LANE                14                           ALLEY             N           N CLR  BIKE       01 NONE   0 TURN-L                                                              02
NONE             Sat        COTTAGE GROVE        0 0    08009                S         (RSDMD) UNKNOWN     N DRY  TURN          PRVTE     W  N                                               018              00
                 3P         COTGE GR UA         14.80   01503                03                            N DAY  INJ          PSNGR CAR          01 DRVR NONE  62 M OR-Y      027           000              02
                                                                                        (04)
                                                                                                                                                                     OR<25
                                                                                                                                          STRGHT  01 BIKE INJC  13 M           000           000              00
                                                                                                                                          N  S

06535  N N N N N 12/13/2002 LANE                16                           INTER      3-LEG  N           N RAIN S-1STOP    01 NONE   0 STRGHT                                                              01
CITY             Fri        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     SW                UNKNOWN     N WET  REAR          PRVTE     SW NE                                              000              01
                 4P         COTGE GR UA         14.87   WASHINGTON AVE       06           0                N DAY  INJ          PSNGR CAR          01 DRVR NONE  17 F OR-Y      026                            01
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0 STOP
                                                                                                                                PRVTE     SW NE                                              011
                                                                                                                               PSNGR CAR          01 DRVR INJC  29 F OR-Y      000
                                                                                                                                                                     OR<25
                                                                                                                                                  02 PSNG INJC  06 M

00993  N N N     02/25/2003 LANE                14                           INTER      3-LEG  N           N CLR  ANGL-OTH   01 NONE   0 TURN-L                                                              02
NONE             Tue        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN                UNKNOWN     N DRY  TURN          PRVTE     W  NE                                              000              00
                 11A        COTGE GR UA         14.87   WASHINGTON AVE       02          99                N DAY  PDO          PSNGR CAR          01 DRVR NONE  00 M OR-Y      028           000              02
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0 STRGHT
                                                                                                                                PRVTE     SW NE                                              000              00
                                                                                                                               PSNGR CAR          01 DRVR NONE  34 M OR-Y      000           000              00
                                                                                                                                                                     OR<25

04846  N N N N N 09/12/2001 LANE                16                           INTER      3-LEG  N           N CLR  O-1TURN    01 NONE   0 STRGHT                                                              02
CITY             Wed        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN                UNKNOWN     N DRY  TURN          PRVTE     SW NE                                              000
                 8A         COTGE GR UA         14.87   WASHINGTON AVE       04                            Y DAY  PDO          PSNGR CAR          01 DRVR NONE  34 F OR-Y      000
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0 TURN-L
                                                                                                                                PRVTE     NE E                                               019
                                                                                                                               PSNGR CAR          01 DRVR NONE  65 M OR-Y      004                            02
                                                                                                                                                                     OR<25

00180  N N N N N 01/11/2000 LANE                16                           STRGHT            N           N SLT  S-1STOP    01 NONE   0 STRGHT                                                              01
CITY             Tue        COTTAGE GROVE        0 0    08009                SW        (RSDMD) UNKNOWN     N SNO  REAR          PRVTE     S  N                                               000              01
                 12P        COTGE GR UA         14.91   02603                05           0                N DAY  PDO          PSNGR CAR          01 DRVR NONE  50 M OR-Y      026                            01
                                                                                        (04)
                                                                                                                                                                     OR<25
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       S   D
       P   R S W                              CLASS                                   INT-TYP                                   SPCL USE
       E A U C O DATE       COUNTY            COMPNT    CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                   A S
SER#   E L G H R DAY        CITY              MLG TYP   FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM       PRTC INJ    G E LICNS PED
INVEST D C S L K TIME       URBAN AREA        MILEPNT   SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO      P# TYPE SVRTY  E X RES   LOC ERROR         ACTN EVENT       CAUSE

                                                                                                                             02 NONE   0  STOP
                                                                                                                                PRVTE     S  N                                               011
                                                                                                                               PSNGR CAR          01 DRVR NONE  17 F OR-Y      000
                                                                                                                                                                     OR<25

06356  N N N N N 11/09/2000 LANE                17                           STRGHT           N            N RAIN S-STRGHT   01 NONE   0  STRGHT                                                              06
NO RPT           Thu        COTTAGE GROVE        0 0    00905                NE       (RSDMD) UNKNOWN      N WET  SS-O          PRVTE     NE SW                                              000
                 7P         COTGE GR UA        14.95    01203                03           0                N DLIT PDO          PSNGR CAR          01 DRVR NONE  55 M OR-Y      045                            06
                                                                                        (04)                                                                         OR<25

                                                                                                                             02 NONE   0  STRGHT
                                                                                                                                PRVTE     NE SW                                              000
                                                                                                                               PSNGR CAR          01 DRVR NONE  52 F OR-Y      000
                                                                                                                                                                     OR<25

03796  N N N N N 07/27/2002 LANE                14                           ALLEY            N            N CLR  ANGL-OTH   01 NONE   0  TURN-R                                                              02
NONE             Sat        COTTAGE GROVE        0 0    00905                SW       (RSDMD) UNKNOWN      N DRY  TURN          PRVTE     W  SW                                              018
                 9P         COTGE GR UA        14.95    00101                03           0                Y DLIT PDO          PSNGR CAR          01 DRVR NONE  70 M OR-Y      028                            02
                                                                                        (04)                                                                         OR<25

                                                                                                                             02 NONE   0  STRGHT
                                                                                                                                PRVTE     NE SW                                              000
                                                                                                                               PSNGR CAR          01 DRVR NONE  48 F OR-Y      000
                                                                                                                                                                     OR<25

05112  N N N N N 09/20/2000 LANE                14                           STRGHT           N            Y CLR  PRKD MV    01 NONE   0  STRGHT                                                              01
NO RPT           Wed        COTTAGE GROVE        0 0    00905                SW       (RSDMD) UNKNOWN      N DRY  SS-O          PRVTE     NE SW                                              000              01
                 8P         COTGE GR UA        15.06    08006                02           0                N DLIT PDO          PSNGR CAR          01 DRVR NONE  44 M OR-Y      026                            01
                                                                                        (04)                                                                         OR<25

                                                                                                                             02 NONE   0  PRKD-P
                                                                                                                                PRVTE     NE SW                                              008
                                                                                                                               PSNGR CAR

00897  N N N N N 02/10/2000 LANE                16                           INTER     5-LEG  N            N RAIN O-1TURN    01 NONE   0  STRGHT                                                              02
CITY             Thu        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               UNKNOWN      N WET  TURN          PRVTE     NE SW                                              000
                 3P         COTGE GR UA        15.06    6TH ST               01           0                N DAY  PDO          PSNGR CAR          01 DRVR NONE  27 M OR-Y      000
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0  TURN-L
                                                                                                                                PRVTE     SW W                                               000
                                                                                                                               PSNGR CAR          01 DRVR NONE  16 F OR-Y      004                            02
                                                                                                                                                                     OR<25

01024  N N N N N 02/27/2001 LANE                14                           INTER     5-LEG  N            N CLD  O-1TURN    01 NONE   0  STRGHT                                                              02
NO RPT           Tue        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               UNKNOWN      N WET  TURN          PRVTE     SW NE                                              000
                 7P         COTGE GR UA        15.07    6TH ST               04           0                N DLIT PDO          PSNGR CAR          01 DRVR NONE  34 M OR-Y      000
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE   0  TURN-L
                                                                                                                                PRVTE     NE S                                               000
                                                                                                                               PSNGR CAR          01 DRVR NONE  52 M OR-Y      004                            02
                                                                                                                                                                     OR<25
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226 GOSHEN-DIVIDE

City of Cottage Grove
January 1, 2000 Through December 31, 2004

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       S   D
       P   R S W                              CLASS                                   INT-TYP                                   SPCL USE
       E A U C O DATE       COUNTY            COMPNT    CONN #               RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                  A  S
SER#   E L G H R DAY        CITY              MLG TYP   FIRST  STREET        DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM      PRTC INJ    G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA        MILEPNT   SECOND STREET        LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY     V# VEH TYPE  TO     P# TYPE SVRTY  E  X RES   LOC ERROR         ACTN EVENT        CAUSE

01954  N N N     06/09/2004 LANE                14                           STRGHT           N           N CLR   S-1STOP    01 NONE    0 STRGHT                                                               01
NONE             Wed        COTTAGE GROVE        0 0    00905                SW       (RSDMD) UNKNOWN     N DRY   REAR          PRVTE     NE SW                                              000               00
                 5P         COTGE GR UA        15.08    08006                03                           N DAY   INJ          PSNGR CAR         01 DRVR NONE   28 F OR-Y       026          000               01
                                                                                       (04)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     NE SW                                              011               00
                                                                                                                               PSNGR CAR         01 DRVR INJB   38 M OR-Y       000          000               00
                                                                                                                                                                     OR<25

01370  N N N     04/24/2004 LANE                14                           INTER     6-LEG  N           N CLR   ANGL-OTH   01 NONE    0 STRGHT                                                               02
NONE             Sat        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               UNKNOWN     N DRY   ANGL          PRVTE     E  W                                               000               00
                 5P         COTGE GR UA        15.15    QUINCY AVE           01          99               N DAY   PDO          PSNGR CAR         01 DRVR NONE   44 M OR-Y       028          000               02
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE    0 STRGHT
                                                                                                                                PRVTE     NE SW                                              000               00
                                                                                                                               PSNGR CAR         01 DRVR NONE   00 M OR-Y       000          000               00
                                                                                                                                                                     OR<25

00211  N N N N N 01/11/2002 LANE                16                           STRGHT           N           N CLR   S-1STOP    01 NONE    0 STRGHT                                                               01
CITY             Fri        COTTAGE GROVE        0 0    00905                N         (NONE) UNKNOWN     N DRY   REAR          PRVTE     S  N                                               000               01
                 4P         COTGE GR UA        15.29    08004                06           0               N DAY   INJ          PSNGR CAR         01 DRVR NONE   22 M OR-Y       026                            01
                                                                                       (04)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     S  N                                               011
                                                                                                                               PSNGR CAR         01 DRVR INJC   22 F OR-Y       000
                                                                                                                                                                     OR<25

05234  N N N N N 09/25/2000 LANE                14                           INTER     3-LEG  N           N CLR   ANGL-OTH   01 NONE    0 TURN-L                                                               02
NO RPT           Mon        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               STOP SIGN   N DRY   TURN          PRVTE     W  NE                                              015
                 11A        COTGE GR UA        15.32    HARRISON AVE         03           0               N DAY   PDO          PSNGR CAR         01 DRVR NONE   37 M OR-Y       028                            02
                                                                                                                                                                     OR<25

                                                                                                                             02 NONE    0 STRGHT
                                                                                                                                PRVTE     NE SW                                              000
                                                                                                                               PSNGR CAR         01 DRVR NONE   36 M OR-Y       000
                                                                                                                                                                     OR<25

04262  N N N N N 08/22/2002 LANE                14                           STRGHT           N           N CLR   S-1STOP    01 NONE    0 STRGHT                                                               01
NONE             Thu        COTTAGE GROVE        0 0    00905                SW        (NONE) UNKNOWN     N DRY   REAR          PRVTE     SW NE                                              000               01
                 5P         COTGE GR UA        15.35    01002                04           0               N DAY   INJ          PSNGR CAR         01 DRVR NONE   18 M OR-Y       026                            01
                                                                                       (02)                                                                          OR<25

                                                                                                                             02 NONE    0 STOP
                                                                                                                                PRVTE     SW NE                                              011
                                                                                                                               PSNGR CAR         01 DRVR INJC   17 M OR-Y       000
                                                                                                                                                                     OR<25

00460  N N N N N 01/31/2002 LANE                16                           INTER     3-LEG  N           N CLD   ANGL-OTH   01 NONE    0 STRGHT                                                               02
NO RPT           Thu        COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN               STOP SIGN   N WET   TURN          PRVTE     NE SW                                              000
                 12P        COTGE GR UA        15.36    HARRISON AVE         03           0               N DAY   INJ          PSNGR CAR         01 DRVR INJC   29 M OR-Y       000
                                                                                                                                                                     OR<25
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       S   D
       P   R S W                                CLASS                                    INT-TYP                                    SPCL USE
       E A U C O DATE        COUNTY             COMPNT    CONN #               RD CHAR   (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP     TRLR QTY   MOVE                   A  S
SER#   E L G H R DAY         CITY               MLG TYP   FIRST  STREET        DIRECT      LEGS   TRAF-   RNDBT SURF  COLL TYP      OWNER      FROM       PRTC INJ    G  E LICNS  PED
INVEST D C S L K TIME        URBAN AREA         MILEPNT   SECOND STREET        LOCTN     (#LANES) CNTL    DRVWY LIGHT SVRTY      V# VEH TYPE   TO      P# TYPE SVRTY  E  X RES    LOC ERROR         ACTN EVENT        CAUSE

                                                                                                                                 02 NONE    0  TURN-L
                                                                                                                                    PRVTE      W  NE                                                   015
                                                                                                                                   PSNGR CAR           01 DRVR NONE   28 M OR-Y       028                             02
                                                                                                                                                                           OR<25

00800  N N N     02/15/2003  LANE                14                            INTER      3-LEG  N            N RAIN ANGL-OTH   01 NONE    0  STRGHT                                                                 02
NONE             Sat         COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN                 UNKNOWN      N WET  TURN          PRVTE      NE SW                                                  000            00
                 5P          COTGE GR UA        15.36    HARRISON AVE         03            99                N DLIT PDO          PSNGR CAR           01 DRVR NONE   36 F OR-Y       000           000            00
                                                                                                                                                                           OR<25

                                                                                                                                 02 NONE    0  TURN-L
                                                                                                                                    PRVTE      W  NE                                                   000            00
                                                                                                                                   PSNGR CAR           01 DRVR NONE   27 F OR-Y       028           000            02
                                                                                                                                                                           OR<25

02097  N N N     05/01/2003  LANE                14                            INTER      3-LEG  N            N CLR  ANGL-OTH   01 NONE    0  STRGHT                                                                 02
NONE             Thu         COTTAGE GROVE        0 0    GOSHEN-DIVIDE HY     CN                 UNKNOWN      N DRY  TURN          PRVTE      NE SW                                                  000            00
                 2P          COTGE GR UA        15.36    HARRISON AVE         03            99                N DAY  PDO          PSNGR CAR           01 DRVR NONE   17 M OR-Y       000           000            00
                                                                                                                                                                           OR<25

                                                                                                                                 02 NONE    0  TURN-L
                                                                                                                                    PRVTE      W  NE                                                   000            00
                                                                                                                                   PSNGR CAR           01 DRVR NONE   78 F OR-Y       028           000            02
                                                                                                                                                                           OR<25

00843  N N N     02/17/2003  LANE                14                            STRGHT             N           Y RAIN FIX OBJ    01 NONE    0  STRGHT                                                    043       01
NONE             Mon         COTTAGE GROVE        0 0    00902                NE         (NONE) UNKNOWN      N WET  FIX           PRVTE      NE SW                                                  000  043       00
                 5P          COTGE GR UA        15.37    01002                06                              N DAY  PDO          PSNGR CAR           01 DRVR NONE   19 M OR-Y       047,081       017            01
                                                                                           (02)                                                                            OR<25

04318  N N N     09/04/2003  LANE                14                            STRGHT             N           N CLR  S-1STOP    01 NONE    0  STRGHT                                                                 01
NONE             Thu         COTTAGE GROVE        0 0    00905                S          (NONE) UNKNOWN      N DRY  REAR          PRVTE      NE SW                                                  000            00
                 4P          COTGE GR UA        15.37    01002                03                              N DAY  PDO          PSNGR CAR           01 DRVR NONE   77 F OR-Y       026           000            01
                                                                                           (02)                                                                            OR<25

                                                                                                                                 02 NONE    0  STOP
                                                                                                                                    PRVTE      NE SW                                                  011            00
                                                                                                                                   PSNGR CAR           01 DRVR NONE   22 F OR-Y       000           000            00
                                                                                                                                                                           OR<25

04914  N N N     10/06/2003  LANE                14                            STRGHT             N           N CLR  S-1STOP    01 NONE    0  STRGHT                                                                 01
CITY             Mon         COTTAGE GROVE        0 0    00905                SW         (NONE) UNKNOWN      N DRY  REAR          PRVTE      SW NE                                                  000            00
                 11A         COTGE GR UA        15.37    01002                04                              N DAY  PDO          PSNGR CAR           01 DRVR NONE   61 F OR-Y       026           000            01
                                                                                           (02)                                                                            OR<25

                                                                                                                                 02 NONE    0  STOP
                                                                                                                                    PRVTE      SW NE                                                  011            00
                                                                                                                                   PSNGR CAR           01 DRVR NONE   70 M OR-Y       000           000            00
                                                                                                                                                                           OR<25

00864  N N N N N 02/20/2001  LANE                14                            STRGHT             N           N RAIN S-STRGHT   01 NONE    0  STRGHT                                                                 06
NONE             Tue         COTTAGE GROVE        0 0    00905                SW         (NONE) UNKNOWN      N WET  SS-O          PRVTE      SW NE                                                  000
                 7A          COTGE GR UA        15.38    01002                06             0                N DAY  PDO          PSNGR CAR           01 DRVR NONE   67 M OR-Y       045                             06
                                                                                           (04)                                                                            OR<25
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226 GOSHEN-DIVIDE                                                                                            City of Cottage Grove
                                                                                                   January 1, 2000 Through December 31, 2004

       S   D
       P   R S W                               CLASS                                   INT-TYP                                  SPCL USE
       E A U C O DATE       COUNTY             COMPNT    CONN #              RD CHAR  (MEDIAN) INT-REL OFFRD WTHR  CRASH TYP    TRLR QTY  MOVE                  A  S
SER#   E L G H R DAY        CITY               MLG TYP   FIRST  STREET       DIRECT     LEGS   TRAF-   RNDBT SURF  COLL TYP     OWNER     FROM      PRTC INJ    G  E LICNS PED
INVEST D C S L K TIME       URBAN AREA         MILEPNT   SECOND STREET       LOCTN    (#LANES) CNTL    DRVWY LIGHT SVRTY    V# VEH TYPE  TO     P# TYPE SVRTY  E  X RES   LOC ERROR         ACTN EVENT        CAUSE

                                                                                                                              02 NONE   0 STRGHT
                                                                                                                                 PRVTE     SW NE                                              000
                                                                                                                                PSNGR CAR         01 DRVR NONE  42 M OR-Y      000
                                                                                                                                                                   OR<25

03151  N N N N N 06/16/2001 LANE                16                               ALLEY             N          N CLR  ANGL-OTH   01 NONE   0 STRGHT                                                                       02
NO RPT           Sat        COTTAGE GROVE        0 0     00905                   UN        (NONE)  UNKNOWN    N DRY  TURN          PRVTE     NE SW                                              000
                 6P         COTGE GR UA        999.99    00000                   03           0               Y DAY  PDO          PSNGR CAR         01 DRVR NONE  17 F OR-Y      000
                                                                                            (04)                                                                   OR<25

                                                                                                                              02 NONE   0 TURN-L
                                                                                                                                 PRVTE     W  NE                                              018
                                                                                                                                PSNGR CAR         01 DRVR NONE  16 M OR-Y      028                                02
                                                                                                                                                                   OR<25

01871  N N N N N 04/07/2000 LANE                16                               INTER      CROSS  N          N CLR  O-1TURN    01 NONE   0 STRGHT                                                                       02
NONE             Fri        COTTAGE GROVE        0 0     GOSHEN-DIVIDE HY        CN                UNKNOWN    N DRY  TURN          PRVTE     N  S                                               000
                 8P         COTGE GR UA        999.99                            01           0               N DLIT PDO          PSNGR CAR         01 DRVR NONE  00 U UNK       000
                                                                                                                                                                   UNK

                                                                                                                              02 NONE   0 TURN-L
                                                                                                                                 PRVTE     S  W                                               000
                                                                                                                                PSNGR CAR         01 DRVR NONE  17 M OR-Y      004                                02
                                                                                                                                                                   OR<25
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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove
January 1, 2000 Through December 31, 2004

```
        S   D
        P   R S W                                                           INT-TYP                                        SPCL USE
        E A U C O  DATE        CLASS  CITY STREET                RD CHAR   (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP       TRLR QTY   MOVE                  A S
SER#    E L G H R  DAY         DIST   FIRST STREET               DIRECT     LEGS    TRAF-   RNDBT  SURF  COLL TYP        OWNER      FROM       PRTC INJ    G E LICNS  PED
INVEST  D C S L K  TIME        FROM   SECOND STREET              LOCTN    (#LANES)  CONTL   DRVWY  LIGHT SVRTY       V# VEH TYPE   TO      P# TYPE SVRTY  E X RES    LOC ERROR       ACTN EVENT       CAUSE
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05456   N N N      11/02/2003  16        6TH ST                  ALLEY              N            N RAIN  ANGL-OTH    01 NONE   0 STRGHT                                                                   02
NONE               Sun          100   ADAMS AVE                  S         (NONE)   UNKNOWN      N WET   TURN           PRVTE      S   N                                            000              00
                   2P                                            08                              N DAY   PDO          PSNGR CAR             01 DRVR NONE   18 F OR-Y       000          000              00
                                                                            (02)                                                                        OR<25

                                                                                                                     02 NONE   0 TURN-L
                                                                                                                        PRVTE      E   S                                            018              00
                                                                                                                      PSNGR CAR             01 DRVR NONE   23 M OR-Y       028          000              02
                                                                                                                                                                OR<25

03773   N N N      10/21/2004  16        6TH ST                  STRGHT             N            Y CLR   PRKD MV     01 NONE   0 STRGHT                                                                   01
                   Thu          100   GIBBS AVE                  S         (NONE)   UNKNOWN      N DRY   SS-O           PRVTE      N   S                                            000              00
                   8P                                            07                              N DLIT  PDO          PSNGR CAR             01 DRVR NONE   19 M OR-Y       026          000              01
                                                                            (02)                                                                        OR<25

                                                                                                                     02 NONE   0 PRKD-P
                                                                                                                        PRVTE      N   S                                            008              00
                                                                                                                      PSNGR CAR

00123   N N N      01/13/2004  16        6TH ST                  STRGHT             N            N RAIN  S-1STOP     01 NONE   0 STRGHT                                                                   01
NONE               Tue          20    LINCOLN AVE                N         (NONE)   UNKNOWN      N WET   REAR           PRVTE      N   S                                            000              00
                   7A                                            06                              N DAY   PDO          PSNGR CAR             01 DRVR NONE   64 F OR-Y       026          000              01
                                                                            (02)                                                                        OR<25

                                                                                                                     02 NONE   0 STOP
                                                                                                                        PRVTE      N   S                                            011              00
                                                                                                                      PSNGR CAR             01 DRVR NONE   38 F OR-Y       000          000              00
                                                                                                                                                                OR<25

00977   N Y N      02/22/2003  17        6TH ST                  STRGHT             N            Y RAIN  FIX OBJ     01 NONE   0 STRGHT                                                  040,088          01
STATE              Sat          200   TAYLOR AVE                 S         (NONE)   UNKNOWN      N WET   FIX            PRVTE      N   S                                            000 040,088      00
                   1A                                            07                              N DLIT  PDO          PSNGR CAR             01 DRVR NONE   74 M OR-Y       047,081      017              01
                                                                            (02)                                                                        OR<25
03660   N N N      10/15/2004  19        7TH ST                  STRGHT             N            Y CLR   PRKD MV     01 NONE   0 STRGHT                                                                   01
                   Fri          300   WASHINGTON AVE             N         (NONE)   UNKNOWN      N DRY   SS-O           PRVTE      N   S                                            000              00
                   3P                                            08                              N DAY   PDO          PSNGR CAR             01 DRVR NONE   54 F OR-Y       026          000              01
                                                                            (02)                                                                        OR<25

                                                                                                                     02 NONE   0 PRKD-P
                                                                                                                        PRVTE      N   S                                            008              00
                                                                                                                      PSNGR CAR

03937   Y Y N N N  10/09/2004  19        8TH ST                  STRGHT             N            Y RAIN  PRKD MV     01 NONE   0 STRGHT                                                  053,062,080      01
CITY               Sat          250   TAYLOR AVE                 S         (NONE)   NONE         N WET   SS-O           PRVTE      S   N                                            000 053,062      00
                   12A                                           08                              N DARK  FAT          PSNGR CAR             01 DRVR KILL   18 M NONE       047          017              01
                                                                            (02)                                                                        OR<25
                                                                                                                                                                                    053,062
                                                                                                                                            02 PSNG INJA   17 M            000          000              00
                                                                                                                                                                                    053,062
                                                                                                                                            03 PSNG INJC   18 M            000          000              00

                                                                                                                     02 NONE   0 PRKD-P
                                                                                                                        PRVTE      S   N                                            008              00
                                                                                                                      PSNGR CAR
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CITY OF COTTAGE GROVE,  LANE COUNTY                                                                   City of Cottage Grove
                                                                                             January 1, 2000 Through December 31, 2004

        S   D
        P   R S W
                                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT       CAUSE

                                                                                                                         03  NONE   0  PRKD-P
                                                                                                                             PRVTE      W   E                                                 032 080          00
                                                                                                                            PSNGR CAR

00167   N N N       01/19/2004  19        8TH ST                   STRGHT              N            Y  RAIN  PRKD MV     01  NONE   0  STRGHT                                                                  01
NONE                Mon          100    WASHINGTON AVE             S           (NONE)  UNKNOWN      N  WET   SS-O            PRVTE      N   S                                                 000              00
                    2A                                             07                               N  DLIT  PDO            PSNGR CAR          01  DRVR NONE  37  F OR-Y          026         000              01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  PRKD-P
                                                                                                                             PRVTE      N   S                                                 008              00
                                                                                                                            PSNGR CAR

02091   N N N       06/19/2004  19       10TH ST                   ALLEY               N            N  CLR   O-1TURN     01  NONE   0  STRGHT                                                                  02
NONE                Sat          300    GOSHEN-DIVIDE HY           N           (NONE)  UNKNOWN      N  DRY   TURN            PRVTE      S   N                                                 000              00
                    2P                                             07                               N  DAY   PDO            PSNGR CAR          01  DRVR NONE  54  F OR-Y          000         000              00
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  TURN-L
                                                                                                                             PRVTE      N   E                                                 019              00
                                                                                                                            PSNGR CAR          01  DRVR NONE  33  M OR-Y          004         000              02
                                                                                                                                                                     OR<25
04048   N N N       11/06/2004  19       11TH ST                   STRGHT              N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
                    Sat          100    MAIN ST                    N           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      N   S                                                 000              00
                    1P                                             08                               N  DAY   PDO            PSNGR CAR          01  DRVR NONE  53  M OR-Y          026         000              01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      N   S                                                 011              00
                                                                                                                            PSNGR CAR          01  DRVR NONE  62  F OR-Y          000         000              00
                                                                                                                                                                     OR<25
04164   N N N N N   08/10/2001  16      00409                      INTER        CROSS  N            N  CLR   O-1TURN     01  NONE   0  STRGHT                                                                  02
NONE                Fri           0     01518                      CN                  UNKNOWN      N  DRY   TURN            PRVTE      E   W                                                 000
                    12P                                            02             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE  46  F OR-Y          000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE   0  TURN-L
                                                                                                                             PRVTE      W   N                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE  18  F OR-Y          004                          02
                                                                                                                                                                     OR<25
01586   N N N N N   03/31/2001  19      00601                      ALLEY               N            N  CLR   ANGL-OTH    01  NONE   0  BACK                                                                    10
NONE                Sat          100    FILLMORE AVE               E           (NONE)  UNKNOWN      N  DRY   BACK            PRVTE      S   N                                                 018
                    2P                                             07             0                 Y  DAY   PDO            PSNGR CAR          01  DRVR NONE  73  F OR-Y          011                          10
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  STRGHT
                                                                                                                             PRVTE      W   E                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE  34  M OR-Y          000
                                                                                                                                                                     OR<25
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       S   D
       P   R S W                                                    INT-TYP                                   SPCL USE
       E A U C O DATE       CLASS  CITY STREET             RD CHAR (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP    TRLR QTY MOVE                  A S
SER#   E L G H R DAY        DIST   FIRST STREET            DIRECT    LEGS   TRAF-   RNDBT  SURF  COLL TYP     OWNER    FROM      PRTC INJ    G E LICNS PED
INVEST D C S L K TIME       FROM   SECOND STREET           LOCTN   (#LANES) CONTL   DRVWY  LIGHT SVRTY     V# VEH TYPE TO     P# TYPE SVRTY  E X RES   LOC ERROR      ACTN EVENT      CAUSE

02977  N N N N N 06/17/2002 19     06002                   INTER     CROSS  N          N  CLR   ANGL-OTH  01 NONE   0 STRGHT                                                         02
NONE             Mon         0     6TH ST                  CN               STOP SIGN  N  DRY   ANGL         PRVTE    SW  NE                                          015
                 9P                                        04          1               N  DLIT  PDO        PSNGR CAR         01 DRVR NONE  21 M OR-Y      028                        02
                                                                                                                                                 OR<25

                                                                                                           02 NONE   0 STRGHT
                                                                                                              PRVTE    N   S                                          000
                                                                                                            PSNGR CAR         01 DRVR NONE  45 F OR-Y      000
                                                                                                                                                 OR<25
05685  N N N N N 11/01/2002 19     10TH ST                 STRGHT           N          N  CLR   S-STRGHT  01 NONE   0 PARKNG                                                         10
NO RPT           Fri         20    HARRISON AVE            S        (NONE)  UNKNOWN    N  DRY   PARK         PRVTE    N   S                                          008
                 8A                                        05          0               N  DAY   PDO        PSNGR CAR         01 DRVR NONE  28 F OR-Y      018                        10
                                                                     (02)                                                                        OR<25

                                                                                                           02 NONE   0 STRGHT
                                                                                                              PRVTE    N   S                                          000
                                                                                                            PSNGR CAR         01 DRVR NONE  16 F OR-Y      000
                                                                                                                                                 OR<25
00302  N N N N N 01/21/2002 19     10TH ST                 STRGHT           N          N  SNOW  S-1STOP   01 NONE   0 STRGHT                                                         01
NONE             Mon         30    JEFFERSON AVE           N        (NONE)  UNKNOWN    N  ICE   REAR         PRVTE    N   S                                          000         01
                 4P                                        06          0               N  DAY   PDO        PSNGR CAR         01 DRVR NONE  17 M OR-Y      026                        01
                                                                     (02)                                                                        OR<25

                                                                                                           02 NONE   0 STOP
                                                                                                              PRVTE    N   S                                          011
                                                                                                            PSNGR CAR         01 DRVR NONE  38 M OR-Y      000
                                                                                                                                                 OR<25
00842  N N N N N 02/18/2001 17     10TH ST                 STRGHT           N          Y  RAIN  PRKD MV   01 NONE   0 STRGHT                                                         01
NONE             Sun         450   MAIN ST                 N        (NONE)  UNKNOWN    N  WET   SS-M         PRVTE    S   N                                                      01
                 1A                                        08          0               N  DARK  PDO        PSNGR CAR         01 DRVR NONE  43 M OR-Y      026         017         01
                                                                     (02)                                                                        OR<25

                                                                                                           02 NONE   0 PRKD-P
                                                                                                              PRVTE    N   S                                          008
                                                                                                            PSNGR CAR
01269  N N N N N 03/10/2000 17     10TH ST                 STRGHT           N          N  RAIN  S-STRGHT  01 NONE   0 STRGHT                                                         10
CITY             Fri         20    TAYLOR AVE              N        (NONE)  UNKNOWN    N  WET   PARK         PRVTE    S   N                                          000
                 2P                                        05          0               N  DAY   INJ        PSNGR CAR         01 DRVR NONE  17 M OR-Y      000
                                                                     (02)                                                                        OR<25

                                                                                                           02 NONE   0 PARKNG
                                                                                                              PRVTE    S   N                                          008
                                                                                                            PSNGR CAR         01 DRVR INJC  17 F OR-Y      018                        10
                                                                                                                                                 OR<25
01661  N N N N N 03/27/2000 17     10TH ST                 STRGHT           N          Y  CLR   FIX OBJ   01 NONE   0 TURN-L                                              040,062    01
CITY             Mon         24    TYLER AVE               N        (NONE)  NONE       N  WET   FIX          PRVTE    W   N                                               040,062    01
                 7P                                        05          0               N  DLIT  PDO        PSNGR CAR         01 DRVR NONE  17 M OR-Y      001         017         01
                                                                     (02)                                                                        OR<25
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY  MOVE                    A   S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER     FROM         PRTC INJ   G   E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE  TO      P#  TYPE SVRTY E   X RES    LOC  ERROR       ACTN  EVENT        CAUSE

03342   Y N N N N   06/21/2000  19      11TH ST                    STRGHT              N            Y  CLR   PRKD MV     01  NONE    0 STRGHT                                                                   01
NONE                Wed          300    LORD AVE                   NE          (NONE)  UNKNOWN      N  DRY   SS-M            PRVTE     NE  SW                                                                   01
                    3A                                             08             0                 N  DARK  PDO            PSNGR CAR           01  DRVR NONE  16 M OR-Y        047          017              01
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    0 PRKD-P
                                                                                                                             PRVTE     SW  NE                                                 008
                                                                                                                            PSNGR CAR

05473   N N N N N   10/15/2001  19      16TH ST                    STRGHT              N            N  CLR   O-STRGHT    01  NONE    0 STRGHT                                                                   05
NO RPT              Mon          15     MAIN ST                    S           (NONE)  UNKNOWN      N  DRY   SS-M            PRVTE     S   N                                                  000
                    1P                                             05             0                 N  DAY   PDO            PSNGR CAR           01  DRVR NONE  20 F OR-Y        039                          05
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    0 STRGHT
                                                                                                                             PRVTE     N   S                                                  000
                                                                                                                            PSNGR CAR           01  DRVR NONE  68 F OR-Y        000
                                                                                                                                                                        OR<25

00779   N N N N N   02/13/2001  19      19TH ST                    STRGHT              N            Y  CLR   PRKD MV     01  NONE    0 STRGHT                                                                   01
NO RPT              Tue          400    HARVEY RD                  N           (NONE)  UNKNOWN      N  DRY   SS-M            PRVTE     S   N                                                                    01
                    4A                                             07             0                 N  DLIT  PDO            PSNGR CAR           01  DRVR NONE  26 M OR-Y        026          017              01
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    0 PRKD-P
                                                                                                                             PRVTE     N   S                                                  008
                                                                                                                            PSNGR CAR

04051   N N N N N   07/31/2000  17      4TH ST                     STRGHT              N            Y  CLR   PRKD MV     01  NONE    0 STRGHT                                                                   01
NONE                Mon          999    00000                      UN          (NONE)  UNKNOWN      N  DRY   SS-O            PRVTE     S   N                                                  000              01
                    1P                                             00             0                 N  DAY   PDO            PSNGR CAR           01  DRVR NONE  38 M OR-Y        026                          01
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    1 PRKD-P
                                                                                                                             PRVTE     S   N                                                  008
                                                                                                                            PSNGR CAR

03453   N N N N N   07/05/2001  19      4TH ST                     STRGHT              N            Y  CLD   PRKD MV     01  NONE    0 STRGHT                                                                   01
NO RPT              Thu          999    GOSHEN-DIVIDE HY           S           (NONE)  UNKNOWN      N  WET   REAR            PRVTE     S   N                                                  000              01
                    4P                                             06             0                 N  DAWN  PDO            PSNGR CAR           01  DRVR NONE  50 F OR-Y        026                          01
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    0 PRKD-P
                                                                                                                             PRVTE     S   N                                                  008
                                                                                                                            PSNGR CAR

05909   N N N N N   11/03/2001  19      4TH ST                     STRGHT              N            N  CLR   S-1STOP     01  NONE    0 STRGHT                                                                   01
NONE                Sat          100    GOSHEN-DIVIDE HY           S           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE     S   N                                                  000              01
                    12P                                            08             0                 N  DAY   PDO            PSNGR CAR           01  DRVR NONE  75 M OR-Y        026                          01
                                                                                (02)                                                                                    OR<25

                                                                                                                         02  NONE    0 STOP
                                                                                                                             PRVTE     S   N                                                  011
                                                                                                                            PSNGR CAR           01  DRVR NONE  63 F OR-Y        000
                                                                                                                                                                        OR<25
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CITY OF COTTAGE GROVE,  LANE COUNTY                                                          City of Cottage Grove
                                                                                    January 1, 2000 Through December 31, 2004

       S   D
       P   R S W                                                       INT-TYP                                    SPCL USE
       E A U C O  DATE       CLASS  CITY STREET             RD CHAR  (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP     TRLR QTY  MOVE                 A  S
SER#   E L G H R  DAY        DIST   FIRST STREET            DIRECT     LEGS   TRAF-   RNDBT  SURF  COLL TYP      OWNER     FROM      PRTC INJ   G  E LICNS  PED
INVEST D C S L K  TIME       FROM   SECOND STREET           LOCTN    (#LANES) CONTL   DRVWY  LIGHT SVRTY      V# VEH TYPE  TO     P# TYPE SVRTY E  X RES    LOC ERROR      ACTN EVENT       CAUSE

00457  N N N N N  01/21/2000 19      5TH ST                  STRGHT            N          Y  CLR   PRKD MV    01 NONE   0  PARKNG                                                           10
CITY              Fri         41     ADAMS AVE               N        (NONE)  UNKNOWN     N  DRY   PARK          PRVTE     N  S                                            008
                  11A                                        05          0                N  DAY   PDO          PSNGR CAR       01 DRVR NONE  49 F OR-Y       018                         10
                                                                        (02)                                                                          OR<25

                                                                                                               02 NONE   0  PRKD-P
                                                                                                                  PRVTE     S  N                                            008
                                                                                                                 PSNGR CAR

04283  N N N N N  08/15/2001 19      5TH ST                  STRGHT            N          Y  CLR   PRKD MV    01 NONE   0  STRGHT                                                           01
NONE              Wed         90     MADISON AVE             N        (NONE)  UNKNOWN     N  DRY   SS-O          PRVTE     N  S                                            000             01
                  12P                                        08          0                N  DAY   PDO          PSNGR CAR       01 DRVR NONE  67 F OR-Y       026                         01
                                                                        (02)                                                                          OR<25

                                                                                                               02 NONE   0  PRKD-P
                                                                                                                  PRVTE     N  S                                            008
                                                                                                                 PSNGR CAR

05421  N N N N N  10/02/2000 19      6TH ST                  ALLEY             N          N  CLR   ANGL-OTH   01 NONE   0  BACK                                                             10
NONE              Mon         999    00000                   UN       (NONE)  UNKNOWN     N  DRY   BACK          PRVTE     E  W                                            018
                  8A                                         00          0                Y  DAY   PDO          PSNGR CAR       01 DRVR NONE  34 F OR-Y       011                         10
                                                                        (02)                                                                          OR<25

                                                                                                               02 NONE   0  STRGHT
                                                                                                                  PRVTE     N  S                                            000
                                                                                                                 PSNGR CAR       01 DRVR NONE  37 F OR-Y       000
                                                                                                                                                      OR<25

00205  Y N N N N  01/11/2001 19      6TH ST                  CURVE             N          Y  CLR   FIX OBJ    01 NONE   0  STRGHT                                               040,043     01
NONE              Thu         999    00000                   UN       (NONE)  UNKNOWN     N  ICE   FIX           PRVTE     N  S                                                040,043     01
                  8A                                         00          0                N  DAY   PDO          PSNGR CAR       01 DRVR NONE  24 M OR-Y       047          017             01
                                                                        (02)                                                                          OR<25

05770  N N N N N  11/06/2002 19      6TH ST                  STRGHT            N          N  CLR   FIX OBJ    01 NONE   0  STRGHT                                               088         12
NONE              Wed                ADAMS AVE               S        (NONE)  UNKNOWN     N  DRY   FIX           PRVTE     S  N                                            000 088
                  6P                                         08          0                N  DARK  PDO          PSNGR CAR       01 DRVR NONE  47 F OR-Y       000                         12
                                                                        (02)                                                                          OR<25

04401  N Y N N N  08/30/2002 19      6TH ST                  STRGHT            N          Y  CLR   PRKD MV    01 NONE   0  STRGHT                                                           09
NONE              Fri         135    FILLMORE AVE            S        (NONE)  UNKNOWN     N  DRY   REAR          PRVTE     N  S                                            000
                  2A                                         07          0                N  DLIT  INJ          PSNGR CAR       01 DRVR INJC  31 F OR-Y       026          017             09
                                                                        (02)                                                                          OR<25

                                                                                                               02 NONE   0  PRKD-P
                                                                                                                  PRVTE     N  S                                            008
                                                                                                                 PSNGR CAR

03340  N N N N N  06/28/2001 16      6TH ST                  STRGHT            N          N  CLR   BIKE       01 NONE   0  STRGHT                                                           02
NONE              Thu         999    GOSHEN-DIVIDE HY        S        (NONE)  UNKNOWN     N  DRY   ANGL          PRVTE     N  S                                            000
                  8P                                         07          0                N  DAY   INJ          PSNGR CAR       01 DRVR NONE  17 M OR-Y       000
                                                                        (02)                                                                          OR<25
                                                                                                                            STRGHT 01 BIKE INJC  15 M            028          000             02
                                                                                                                            W  E
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```
        S   D
        P   R S W                                                          INT-TYP                                         SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL  OFF-RD WTHR   CRASH TYP       TRLR QTY   MOVE                    A   S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-    RNDBT  SURF   COLL TYP        OWNER      FROM        PRTC  INJ   G   E LICNS  PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL    DRVWY  LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE  SVRTY E   X RES    LOC  ERROR       ACTN  EVENT        CAUSE

03504   N Y N       07/18/2003   19      6TH ST                     ALLEY               N             N CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                   02
CITY                Fri           500    HARRISON AVE               S           (NONE)  UNKNOWN       N DRY    TURN            PRVTE      S   N                                                  000               00
                    1P                                              08                                N DAY    PDO            PSNGR CAR           01  DRVR  NONE  52  M OR-Y        000          000               00
                                                                                 (02)                                                                                     OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      E   S                                                  018               00
                                                                                                                              PSNGR CAR           01  DRVR  NONE  70  M OR-Y        028          000               02
                                                                                                                                                                        OR<25

07082   N N N N N   12/26/2000   19      6TH ST                     STRGHT              N             Y CLR    S-STRGHT    01  NONE    0  PARKNG                                                                   10
NONE                Tue           25     MAIN ST                    S           (NONE)  UNKNOWN       N DRY    PARK            PRVTE      N   S                                                  008
                    5P                                              05             0                  N DLIT   PDO            PSNGR CAR           01  DRVR  NONE  20  F OR-Y        018                            10
                                                                                 (02)                                                                                   OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      N   S                                                  008
                                                                                                                              PSNGR CAR

06450   N N N N N   11/29/2001   19      6TH ST                     STRGHT              N             Y CLR    PRKD MV     01  NONE    0  STRGHT                                                                   01
NONE                Thu           20     TAYLOR AVE                 N           (NONE)  UNKNOWN       N DRY    SS-O            PRVTE      S   N                                                  000               01
                    8A                                              05             0                  N DAY    PDO            PSNGR CAR           01  DRVR  NONE  51  M OR-Y        026                            01
                                                                                 (02)                                                                                   OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      S   N                                                  008
                                                                                                                              PSNGR CAR

03754   N N N N N   07/31/2002   19      7TH ST                     STRGHT              N             Y CLR    PRKD MV     01  NONE    0  STRGHT                                                                   01
NONE                Wed           20     MAIN ST                    N           (NONE)  UNKNOWN       N DRY    SS-O            PUBLC      S   N                                                  000               01
                    4P                                              05             0                  N DAY    PDO            PSNGR CAR           01  DRVR  NONE  49  F OR-Y        026                            01
                                                                                 (02)                                                                                   OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      S   N                                                  008
                                                                                                                              PSNGR CAR

06294   N N N N N   12/02/2002   19      8TH ST                     ALLEY               N             N CLR    ANGL-OTH    01  NONE    0  BACK                                                                     10
NONE                Mon                  CHADWICK AVE               S           (NONE)  UNKNOWN       N DRY    BACK            PRVTE      E   W                                                  018
                    11A                                             07             0                  Y DAY    PDO            PSNGR CAR           01  DRVR  NONE  43  M OR-Y        011                            10
                                                                                 (02)                                                                                   OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      N   S                                                  000
                                                                                                                              PSNGR CAR           01  DRVR  NONE  46  M OR-Y        000
                                                                                                                                                                        OR<25

06708   N N N N N   12/24/2002   19      8TH ST                     STRGHT              N             Y CLR    PRKD MV     01  NONE    0  STRGHT                                                                   10
NONE                Tue           25     MAIN ST                    S           (NONE)  UNKNOWN       N DRY    SS-O            PRVTE      S   N                                                  000
                    3P                                              06             0                  N DAY    PDO            PSNGR CAR           01  DRVR  NONE  51  M OR-Y        000
                                                                                 (02)                                                                                   OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      S   N                                                  008
                                                                                                                              PSNGR CAR
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT      LEGS    TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

00549   N N N N N   01/31/2000  19      ADAMS AVE                  INTER       CROSS   N            N  CLD    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
CITY                Mon          0      11TH ST                    CN                  UNKNOWN      N  DRY    ANGL           PRVTE      S   N                                                 000
                    3P                                             02             0                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  26  M OR-Y        028                         02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      E   W                                                 000
                                                                                                                            PSNGR CAR           01  DRVR NONE  41  F OR-Y        000
                                                                                                                                                                     OR<25

05315   N N N N N   09/27/2000  19      ADAMS AVE                  INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NO RPT              Wed          0      12TH ST                    CN                  REG-SIGN     N  DRY    ANGL           PRVTE      W   E                                                 000
                    1P                                             04             0                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  40  F OR-Y        028                         02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                                 000
                                                                                                                            PSNGR CAR           01  DRVR NONE  65  M OR-Y        000
                                                                                                                                                                     OR<25

01103   N N N N N   03/09/2002  19      ADAMS AVE                  STRGHT              N            Y  CLR    PRKD MV    01  NONE    0  STRGHT                                                                  01
NONE                Sat          30     6TH ST                     E          (NONE)   UNKNOWN      N  DRY    SS-O           PRVTE      W   E                                                 000             01
                    1A                                             05             0                 N  DARK   PDO           PSNGR CAR           01  DRVR NONE  44  M OR-Y        026                         01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  PRKD-P
                                                                                                                             PRVTE      W   E                                                 008
                                                                                                                            PSNGR CAR

05337   N N N N N   09/29/2000  17      ADAMS AVE                  INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NO RPT              Fri          0      6TH ST                     CN                  UNKNOWN      N  DRY    ANGL           PRVTE      W   E                                                 000
                    7A                                             04             0                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  25  M OR-Y        028                         02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                                 000
                                                                                                                            PSNGR CAR           01  DRVR NONE  43  M OR-Y        000
                                                                                                                                                                     OR<25

05542   N N N N N   10/28/2002  19      ADAMS AVE                  INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NO RPT              Mon          0      6TH ST                     CN                  UNKNOWN      N  DRY    ANGL           PRVTE      W   E                                                 000
                    12P                                            04             0                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  31  F OR-Y        028                         02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                                 000
                                                                                                                            PSNGR CAR           01  DRVR NONE  64  F OR-Y        000
                                                                                                                                                                     OR<25

01617   N N N N N   03/28/2000  19      ADAMS AVE                  INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NO RPT              Tue          0      7TH ST                     CN                  UNKNOWN      N  DRY    ANGL           PRVTE      N   S                                                 000
                    4P                                             03             0                 N  DAY    INJ           PSNGR CAR           01  DRVR NONE  84  F OR-Y        028                         02
                                                                                                                                                                     OR<25
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       S   D
       P   R S W                                                       INT-TYP                                    SPCL USE
       E A U C O  DATE       CLASS  CITY STREET              RD CHAR  (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP     TRLR QTY  MOVE                 A  S
SER#   E L G H R  DAY        DIST   FIRST STREET             DIRECT    LEGS    TRAF-   RNDBT  SURF  COLL TYP      OWNER     FROM      PRTC INJ   G  E LICNS PED
INVEST D C S L K  TIME       FROM   SECOND STREET            LOCTN    (#LANES) CONTL   DRVWY  LIGHT SVRTY     V#  VEH TYPE  TO     P# TYPE SVRTY E  X RES   LOC ERROR       ACTN EVENT      CAUSE
                                                                                                              02  NONE   0  STRGHT
                                                                                                                  PRVTE     W  E                                             000
                                                                                                                PSNGR CAR          01 DRVR INJC  49 F OR-Y      000
                                                                                                                                                      OR<25
04583  N N N N N  09/10/2002  16     ADAMS AVE                INTER     3-LEG   N            N CLR   ANGL-OTH  01  NONE   0  STRGHT                                                          02
NONE              Tue          0     GATEWAY BLVD             CN                UNKNOWN      N DRY   TURN          PRVTE     N  S                                             000
                  3P                                          03          0                  N DAY   PDO         PSNGR CAR          01 DRVR NONE  76 F OR-Y      000
                                                                                                                                                      OR<25
                                                                                                              02  NONE   0  TURN-L
                                                                                                                  PRVTE     W  N                                             000
                                                                                                                PSNGR CAR          01 DRVR NONE  21 M OR-Y      028                         02
                                                                                                                                                      OR<25
06118  N N N N N  11/11/2000  16     AIRPORT RD               STRGHT            N            N CLR   S-1TURN   01  NONE   0  STRGHT                                                          08
NO RPT            Sat          999   THORNTON RD              SE       (NONE)   UNKNOWN      N DRY   TURN          PRVTE     SE NW                                            000
                  1P                                          08          0                  N DAY   PDO         PSNGR CAR          01 DRVR NONE  48 M OR-Y      000
                                                                       (02)                                                                           OR<25
                                                                                                              02  NONE   0  U-TURN
                                                                                                                  PRVTE     SE SE                                            000
                                                                                                                PSNGR CAR          01 DRVR NONE  68 F OR-Y      008                         08
                                                                                                                                                      OR<25
01573  N N N N N  03/23/2000  19     ANTHONY AVE              INTER     3-LEG   N            N CLR   ANGL-OTH  01  NONE   0  STRGHT                                                          02
NONE              Thu          0     M ST                     CN                STOP SIGN    N DRY   TURN          PRVTE     N  S                                             000
                  2P                                          03          0                  N DAY   PDO         PSNGR CAR          01 DRVR NONE  71 F OR-Y      000
                                                                                                                                                      OR<25
                                                                                                              02  NONE   0  TURN-L
                                                                                                                  PRVTE     W  N                                             015
                                                                                                                PSNGR CAR          01 DRVR NONE  80 M OR-Y      028                         02
                                                                                                                                                      OR<25
00619  N N N N N  01/31/2000  19     ANTHONY AVE              ALLEY             N            N RAIN  O-1TURN   01  NONE   0  STRGHT                                                          02
NONE              Mon          999   R ST                     S        (NONE)   UNKNOWN      N WET   TURN          PRVTE     N  S                                             000
                  1P                                          07          0                  Y DAY   PDO         PSNGR CAR          01 DRVR NONE  50 F OR-Y      000
                                                                       (02)                                                                           OR<25
                                                                                                              02  NONE   0  TURN-L
                                                                                                                  PRVTE     S  W                                             019
                                                                                                                PSNGR CAR          01 DRVR NONE  17 F OR-Y      004                         02
                                                                                                                                                      OR<25
05599  N N N N N  10/16/2000  19     ASH AVE                  INTER     CROSS   N            N CLR   ANGL-OTH  01  NONE   0  STRGHT                                                          02
NO RPT            Mon          0     J ST                     CN                UNKNOWN      N DRY   ANGL          PRVTE     W  E                                             000
                  5P                                          03          0                  N DAY   PDO         PSNGR CAR          01 DRVR NONE  20 F OR-Y      000
                                                                                                                                                      OR<25
                                                                                                              02  NONE   0  STRGHT
                                                                                                                  PRVTE     N  S                                             000
                                                                                                                PSNGR CAR          01 DRVR NONE  31 M OR-Y      028                         02
                                                                                                                                                      OR<25
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO     P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT       CAUSE

01264   N N N N N   03/06/2001  19      ASH AVE                    INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                 02
CITY                Tue          0      J ST                       CN                  UNKNOWN      N  DRY    ANGL           PRVTE      W   E                                                 000
                    3P                                             03            0                  N  DAY    PDO           PSNGR CAR           01  DRVR NONE  63  M OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                 000
                                                                                                                            PSNGR CAR           01  DRVR NONE  17  F OR-Y        028                           02
                                                                                                                                                                     OR<25

06426   N N N N N   11/28/2001  19      ASH AVE                    INTER       CROSS   N            N  CLR    O-1STOP    01  NONE    0  BACK                                                                   10
NONE                Wed          0      K ST                       E                   UNKNOWN      N  DRY    BACK           PRVTE      W   E                                                 000
                    11A                                            06            0                  N  DAY    PDO           TRUCK               01  DRVR NONE  00  U UNK         011                           10
                                                                                                                                                                     UNK

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                 011
                                                                                                                            PSNGR CAR           01  DRVR NONE  65  M OR-Y        000
                                                                                                                                                                     OR<25

04090   N N N       08/17/2003  19      ASH AVE                    INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                 02
NONE                Sun          0      P ST                       CN                  UNKNOWN      N  DRY    ANGL           PRVTE      E   W                                                 000              00
                    7P                                             01            99                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  41  M OR-Y        028          000              02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                 000              00
                                                                                                                            PSNGR CAR           01  DRVR NONE  17  F OR-Y        000          000              00
                                                                                                                                                                     OR<25

03164   N N N       09/07/2004  19      CHADWICK AVE               STRGHT              N            N  CLR    O-1STOP    01  NONE    0  BACK                                                                   10
                    Tue          1,200    10TH ST                  W          (NONE)  UNKNOWN      N  DRY    BACK           PRVTE      E   W                                                 000              00
                    12P                                            08                               N  DAY    PDO           PSNGR CAR           01  DRVR NONE  46  M OR-Y        011          000              10
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011              00
                                                                                                                            PSNGR CAR           01  DRVR NONE  50  F OR-Y        000          000              00
                                                                                                                                                                     OR<25

04324   N N N N N   08/27/2002  19      CHADWICK AVE               INTER       3-LEG   N            N  CLR    O-1STOP    01  NONE    0  BACK                                                                   10
CITY                Tue          0      9TH ST                     W                   UNKNOWN      N  DRY    BACK           PRVTE      E   W                                                 000
                    1P                                             06            0                  N  DAY    INJ           PSNGR CAR           01  DRVR NONE  50  M OR-Y        011                           10
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR           01  DRVR INJC  34  F OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                                02  PSNG INJA  34  F

04970   N N N N N   09/20/2001  16      COTTAGE GROVE CONN         INTER       CROSS   N            N  CLR    O-1TURN    01  NONE    0  STRGHT                                                                 02
CITY                Thu          0      ROW RIVER RD               S                   UNKNOWN      N  DRY    TURN           PRVTE      E   W                                                 000
                    7P                                             02            0                  N  DUSK   PDO           PSNGR CAR           01  DRVR NONE  63  M OR-Y        000
                                                                                                                                                                     OR>25
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        S   D
        P   R S W                                                             INT-TYP                                         SPCL USE
        E A U C O  DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                    A S
SER#    E L G H R  DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM        PRTC INJ    G E LICNS   PED
INVEST  D C S L K  TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E X RES     LOC ERROR       ACTN  EVENT        CAUSE

                                                                                                                          02  NONE    0  TURN-L
                                                                                                                              PRVTE      W   N                                                  000
                                                                                                                            PSNGR CAR            01  DRVR NONE   36 M OR-Y        004                            02
                                                                                                                                                                      OR<25

01024   N N N N N  02/29/2000   19      DAVIDSON AVE               STRGHT              N            Y  CLR    PRKD MV     01  NONE    0  STRGHT                                                                  01
CITY               Tue           60     ROW RIVER RD               E           (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                  000              01
                   5P                                              05             0                 N  DAY    PDO           PSNGR CAR            01  DRVR NONE   53 M OR-Y        026                            01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  PRKD-P
                                                                                                                              PRVTE      W   E                                                  008
                                                                                                                            PSNGR CAR

06758   N N N N N  12/12/2001   19      DOUGLAS ST                 INTER        CROSS  N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NO RPT             Wed            0     6TH ST                     CN                  UNKNOWN      N  DRY    ANGL            PRVTE      E   W                                                  000
                   3P                                              01              1                N  DAY    PDO           PSNGR CAR            01  DRVR NONE   22 M OR-Y        028                            02
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      NE  SW                                                 000
                                                                                                                            PSNGR CAR            01  DRVR NONE   39 F OR-Y        000
                                                                                                                                                                      OR<25

01768   N N N      04/28/2004   19      DOUGLAS ST                 STRGHT              N            N  CLR    O-STRGHT    01  NONE    0  STRGHT                                                                  05
CITY               Wed           100    CHAMBERLAIN AVE            NE          (NONE)  UNKNOWN      N  DRY    SS-M            PRVTE      NE  SW                                                 000              00
                   5P                                              07                               N  DAY    PDO           PSNGR CAR            01  DRVR NONE   21 M OR-Y        039         017              05
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      SW  NE                                                 000              00
                                                                                                                            PSNGR CAR            01  DRVR NONE   67 M OR-Y        000         000              00
                                                                                                                                                                      OR<25

00011   N N N N N  01/02/2002   19      E  GIBBS AVE               ALLEY               N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  10
NO RPT             Wed           10     16TH ST                    W           (NONE)  UNKNOWN      N  DRY    BACK            PRVTE      E   W                                                  000
                   2P                                              05             0                 Y  DAY    PDO           PSNGR CAR            01  DRVR NONE   21 M OR-Y        000
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  BACK
                                                                                                                              PRVTE      N   S                                                  018
                                                                                                                            PSNGR CAR            01  DRVR NONE   37 M OR-Y        011                            10
                                                                                                                                                                      OR<25

02491   N N N N N  05/08/2000   19      EDISON AVE                 INTER        3-LEG  N            N  CLR    S-1STOP     01  NONE    0  STRGHT                                                                  01
NO RPT             Mon            0     HARRISON AVE               CN                  UNKNOWN      N  DRY    REAR            PRVTE      E   W                                                  000              01
                   4P                                              02              0                N  DAY    INJ           PSNGR CAR            01  DRVR NONE   45 M OR-Y        026                            01
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STOP
                                                                                                                              PRVTE      E   W                                                  012
                                                                                                                            PSNGR CAR            01  DRVR INJC   50 M OR-Y        000
                                                                                                                                                                      OR<25
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CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove

January 1, 2000 Through December 31, 2004

```
        S   D
        P   R S W                                                              INT-TYP                                      SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT      LEGS    TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

00408   Y N N N N   01/21/2000  16      GATEWAY BLVD               STRGHT              N             Y CLD    FIX OBJ    01  NONE    0  STRGHT                                                    040,088      01
CITY                Fri          999    00000                      UN          (NONE)  UNKNOWN       N ICE    FIX            PRVTE      S   N                                                     040,088      01
                    6A                                             00             0                  N DLIT   PDO           PSNGR CAR          01  DRVR NONE   48 M OR-Y           047         017                 01
                                                                                (02)                                                                                     OR<25

00914   N N N N N   02/23/2001  16      GATEWAY BLVD               ALLEY               N             N CLR    S-1TURN    01  NONE    0  STRGHT                                                                 08
NONE                Fri          999    00000                      UN          (NONE)  UNKNOWN       N DRY    TURN           PRVTE      S   N                                               000
                    5P                                             00             0                  Y DAY    PDO           PSNGR CAR          01  DRVR NONE   51 M OR-Y           000
                                                                                (04)                                                                                     OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      S   W                                               019
                                                                                                                            MOTRHOME           01  DRVR NONE   00 U UNK            006                             08
                                                                                                                                                                     UNK

02107   N N N N N   05/06/2002  16      GATEWAY BLVD               INTER      CROSS    N             N CLR    O-1STOP    01  NONE    0  BACK                                                                   10
NONE                Mon           0     16TH ST                    SW                  UNKNOWN       N DRY    BACK           PRVTE      NE  SW                                              000
                    4P                                             06             0                  N DAY    PDO           PSNGR CAR          01  DRVR NONE   51 M OR-Y           011                             10
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      SW  NE                                              011
                                                                                                                            PSNGR CAR          01  DRVR NONE   47 F OR-Y           000
                                                                                                                                                                     OR<25

82710   N N N N N   06/07/2002  16      GATEWAY BLVD               INTER      CROSS    N             N CLR    O-1TURN    01  NONE    0  TURN-L                                                                 02
NO RPT              Fri           0     16TH ST                    CN                  UNKNOWN       N DRY    TURN           PRVTE      S   W                                               000
                    2P                                             01             0                  N DAY    PDO           PSNGR CAR          01  DRVR NONE   67 F OR-Y           004                             02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                               000
                                                                                                                            PSNGR CAR          01  DRVR NONE   20 F OR-Y           000
                                                                                                                                                                     OR<25

01069   N N N N N   03/06/2002  16      GATEWAY BLVD               INTER      CROSS    N             N RAIN   ANGL-OTH   01  NONE    0  TURN-L                                                                 02
NONE                Wed           0     16TH ST                    CN                  UNKNOWN       N WET    TURN           PRVTE      SW  N                                               000
                    4P                                             02             0                  N DAY    PDO           PSNGR CAR          01  DRVR NONE   21 F OR-Y           028                             02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      S   SW                                              000
                                                                                                                            PSNGR CAR          01  DRVR NONE   53 M OR-Y           000
                                                                                                                                                                     OR<25

02169   N N N       05/05/2003  16      GATEWAY BLVD               INTER      CROSS    N             N CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                 02
NONE                Mon           0     16TH ST                    CN                  UNKNOWN       N DRY    ANGL           PRVTE      SW  NE                                              000                 00
                    12P                                            04             99                 N DAY    INJ           PSNGR CAR          01  DRVR NONE   25 M OR-Y           028         000                 02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                               000                 00
                                                                                                                            PSNGR CAR          01  DRVR INJC   27 F OR-Y           000         000                 00
                                                                                                                                                                     OR<25
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CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove

January 1, 2000 Through December 31, 2004

```
        S   D
        P   R S W
                                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT  SURF  COLL TYP        OWNER      FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY  LIGHT SVRTY       V#  VEH TYPE   TO      P# TYPE  SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT       CAUSE

00572   N N N       02/03/2003  16      GATEWAY BLVD               STRGHT              N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Mon          10     18TH ST                    E           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      E   W                                                 000               00
                    6P                                             06                               N  DLIT  PDO            PSNGR CAR          01 DRVR  NONE  71  M OR-Y        026         000               01
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      E   W                                                 011               00
                                                                                                                            PSNGR CAR          01 DRVR  NONE  22  M OR-Y        000         000               00
                                                                                                                                                                     OR<25

01031   Y N N N N   03/04/2002  16      GATEWAY BLVD               STRGHT              N            Y  RAIN  FIX OBJ     01  NONE   0  STRGHT                                                    040,088      01
NO RPT              Mon                 ADAMS AVE                  S           (NONE)  UNKNOWN      N  WET   FIX             PRVTE      S   N                                                 000 040,088      01
                    4P                                             08             0                 N  DAY   PDO            PSNGR CAR          01 DRVR  NONE  18  F OR-Y        047         017               01
                                                                                (02)                                                                                     OR<25

01168   N N N N N   03/09/2001  16      GATEWAY BLVD               STRGHT              N            N  RAIN  S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Fri          10     COTTAGE GROVE CONN         S           (NONE)  UNKNOWN      N  WET   REAR            PRVTE      S   N                                                 000               01
                    5A                                             06             0                 N  DLIT  INJ            PSNGR CAR          01 DRVR  NONE  28  M OR-Y        026                           01
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      S   N                                                 011
                                                                                                                            PSNGR CAR          01 DRVR  INJC  56  F OR-Y        000
                                                                                                                                                                     OR<25

02613   N N N N N   06/01/2002  16      GATEWAY BLVD               ALLEY               N            Y  CLR   PRKD MV     01  NONE   0  BACK                                                                    10
NONE                Sat          100    E  GIBBS AVE               S           (NONE)  UNKNOWN      N  DRY   BACK            PRVTE      E   W                                                 018
                    1P                                             07             0                 Y  DAY   PDO            PSNGR CAR          01 DRVR  NONE  54  F OR-Y        011                           10
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE   0  PRKD-P
                                                                                                                             PRVTE      N   S                                                 008
                                                                                                                            PSNGR CAR

05098   N N N N N   10/03/2002  16      GATEWAY BLVD               ALLEY               N            N  RAIN  O-1TURN     01  NONE   0  STRGHT                                                                  02
NO RPT              Thu          20     HARVEY RD                  N           (NONE)  UNKNOWN      N  WET   TURN            PRVTE      S   N                                                 000
                    4P                                             05             0                 Y  DAY   PDO            PSNGR CAR          01 DRVR  NONE  17  F OR-Y        000
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE   0  TURN-L
                                                                                                                             PRVTE      N   E                                                 019
                                                                                                                            PSNGR CAR          01 DRVR  NONE  57  M OR-Y        004                           02
                                                                                                                                                                     OR<25

03175   Y Y N N N   08/23/2000  16      GATEWAY BLVD               ALLEY               N            N  CLR   O-1TURN     01  NONE   0  STRGHT
CITY                Wed          300    HARVEY RD                  N           (NONE)  UNKNOWN      N  DRY   TURN            PRVTE      S   N                                                 000
                    8P                                             07             0                 Y  DUSK  FAT            PSNGR CAR          01 DRVR  KILL  44  M OR-Y        047
                                                                                (04)                                                                                     OR<25

                                                                                                                         02  NONE   1  TURN-L
                                                                                                                             PRVTE      N   E                                                 019
                                                                                                                            SEMI TOW           01 DRVR  NONE  56  M OTH-Y       000
                                                                                                                                                                     N-RES
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        S   D
        P   R S W                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS  CITY STREET                 RD CHAR   (MEDIAN)  INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST   FIRST STREET                DIRECT      LEGS    TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME         FROM   SECOND STREET               LOCTN     (#LANES)  CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR        ACTN EVENT        CAUSE

02060   N N N N N   04/19/2000   19     GATEWAY BLVD                INTER       3-LEG   N            N  CLR   ANGL-OTH    01  NONE    0  TURN-L                                                                  02
NONE                Wed           0     HARVEY RD                   CN                  UNKNOWN      N  DRY   TURN            PRVTE      W   N                                                  000
                    2P                                              02            0                  N  DAY   PDO            PSNGR CAR           01  DRVR NONE   69 M OR-Y        028                            02
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                  000
                                                                                                                             PSNGR CAR           01  DRVR NONE   16 F OR-Y        000
                                                                                                                                                                      OR<25
01262   N N N       04/16/2004   16     GATEWAY BLVD                STRGHT              N            N  CLR   S-1STOP     01  NONE    0  STRGHT                                                                  01
NONE                Fri           50    MAIN ST                     N          (NONE)   UNKNOWN      N  DRY   REAR            PRVTE      N   S                                                  000              00
                    3P                                              06                               N  DAY   PDO            PSNGR CAR           01  DRVR NONE   28 F OR-Y        026            000              01
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE    0  STOP
                                                                                                                              PRVTE      N   S                                                  011              00
                                                                                                                             PSNGR CAR           01  DRVR NONE   36 M OR-Y        000            000              00
                                                                                                                                                                      OR<25
05860   N N N N N   10/24/2000   16     GATEWAY BLVD                STRGHT              N            N  CLR   S-STRGHT    01  NONE    0  STRGHT                                                                  06
NONE                Tue           75    MAIN ST                     N          (NONE)   UNKNOWN      N  DRY   SS-O            PRVTE      S   N                                                  000
                    10A                                             07            0                  N  DAY   PDO            PSNGR CAR           01  DRVR NONE   63 M OR-Y        045                            06
                                                                                 (03)                                                                                 OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                  000
                                                                                                                             PSNGR CAR           01  DRVR NONE   26 F OR-Y        000
                                                                                                                                                                      OR<25
03601   N N N N N   07/13/2001   16     GATEWAY BLVD                STRGHT              N            N  CLR   S-STRGHT    01  NONE    0  STRGHT                                                                  06
NO RPT              Fri           200   MAIN ST                     N          (NONE)   UNKNOWN      N  DRY   SS-O            PRVTE      S   N                                                  000
                    12P                                             07            0                  N  DAY   PDO            PSNGR CAR           01  DRVR NONE   59 F OR-Y        045                            06
                                                                                 (03)                                                                                 OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                  000
                                                                                                                             PSNGR CAR           01  DRVR NONE   18 M OR-Y        000
                                                                                                                                                                      OR<25
05325   N N N       10/28/2003   16     GATEWAY BLVD                ALLEY               N            N  CLR   ANGL-OTH    01  NONE    0  TURN-R                                                                  02
NONE                Tue           60    MAIN ST                     N          (NONE)   UNKNOWN      N  DRY   TURN            PRVTE      W   S                                                  018              00
                    5P                                              08                               N  DUSK  PDO            PSNGR CAR           01  DRVR NONE   76 M OR-Y        028            000              02
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      N   S                                                  000              00
                                                                                                                             PSNGR CAR           01  DRVR NONE   35 M OR-Y        000            000              00
                                                                                                                                                                      OR<25
02335   N N N       07/06/2004   16     GATEWAY BLVD                STRGHT              N            N  CLR   S-1STOP     01  NONE    0  STRGHT                                                                  01
NONE                Tue           20    MAIN ST                     S          (NONE)   UNKNOWN      N  DRY   REAR            PRVTE      S   N                                                  000              00
                    10A                                             06                               N  DAY   INJ            PSNGR CAR           01  DRVR NONE   31 F OR-Y        026            000              01
                                                                                 (02)                                                                                 OR<25
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       S   D
       P   R S W                                                       INT-TYP                                    SPCL USE
       E A U C O  DATE       CLASS  CITY STREET              RD CHAR  (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP      TRLR QTY  MOVE                 A  S
SER#   E L G H R  DAY        DIST   FIRST STREET             DIRECT     LEGS   TRAF-  RNDBT  SURF  COLL TYP       OWNER     FROM      PRTC INJ   G  E LICNS  PED
INVEST D C S L K  TIME       FROM   SECOND STREET            LOCTN    (#LANES) CONTL  DRVWY  LIGHT SVRTY     V#  VEH TYPE  TO     P# TYPE SVRTY E  X RES    LOC ERROR      ACTN EVENT       CAUSE
                                                                                                              02  NONE   0  STOP
                                                                                                                  PRVTE     S   N                                            011             00
                                                                                                                 PSNGR CAR         01 DRVR INJC  26 F OR-Y       000         000             00
                                                                                                                                                      OR<25
05359  N N N N N  10/18/2002 16     GATEWAY BLVD             STRGHT            N           N CLR   S-1STOP    01  NONE   0  STRGHT                                                           01
NONE              Fri         100   MAIN ST                  S         (NONE)  UNKNOWN     N DRY   REAR           PRVTE     N   S                                            000             01
                  7P                                         07           0                N DLIT  INJ           PSNGR CAR         01 DRVR NONE  18 M OR-Y       026                         01
                                                                        (02)                                                                          OR<25
                                                                                                              02  NONE   0  STOP
                                                                                                                  PRVTE     N   S                                            011
                                                                                                                 PSNGR CAR         01 DRVR INJC  34 F OR-Y       000
                                                                                                                                                      OR<25
                                                                                                                                   02 PSNG INJC  08 F
05948  N N N N N  10/28/2000 16     GATEWAY BLVD             STRGHT            N           N RAIN  S-STRGHT   01  NONE   0  STRGHT                                                           06
NONE              Sat         500   MAIN ST                  S         (NONE)  UNKNOWN     N WET   SS-O           PRVTE     N   S                                            000
                  5P                                         07           0                N DUSK  PDO           PSNGR CAR         01 DRVR NONE  50 F OR-Y       045                         06
                                                                        (04)                                                                          OR<25
                                                                                                              02  NONE   0  STRGHT
                                                                                                                  PRVTE     N   S                                            000
                                                                                                                 PSNGR CAR         01 DRVR NONE  31 M OR-Y       000
                                                                                                                                                      OR<25
04482  N N N      09/15/2003 16     GATEWAY BLVD             STRGHT            N           N CLR   S-1STOP    01  NONE   0  STRGHT                                                           01
NONE              Mon         1,200 MAIN ST                  S         (NONE)  UNKNOWN     N DRY   REAR           PRVTE     N   S                                            000             00
                  12P                                        07                            N DAY   PDO           PSNGR CAR         01 DRVR NONE  43 M OR-Y       026         000             01
                                                                        (02)                                                                          OR<25
                                                                                                              02  NONE   0  STOP
                                                                                                                  PRVTE     N   S                                            011             00
                                                                                                                 PSNGR CAR         01 DRVR NONE  54 F OR-Y       000         000             00
                                                                                                                                                      OR<25
00066  N N N N N  01/03/2000 19     GATEWAY BLVD             STRGHT            N           N RAIN  S-1STOP    01  NONE   0  STRGHT                                                           01
NONE              Mon         200   MAIN ST                  S         (NONE)  UNKNOWN     N WET   REAR           PRVTE     N   S                                            000             01
                  3P                                         08           0                N DAY   PDO           PSNGR CAR         01 DRVR NONE  18 F OR-Y       026                         01
                                                                        (02)                                                                          OR<25
                                                                                                              02  NONE   0  STOP
                                                                                                                  PRVTE     N   S                                            011
                                                                                                                 PSNGR CAR         01 DRVR NONE  42 M OR-Y       000
                                                                                                                                                      OR<25
03899  N N N      08/08/2003 16     GATEWAY BLVD             STRGHT            N           N CLR   S-STRGHT   01  NONE   0  STRGHT                                                           06
NONE              Fri         300   MAIN ST                  S         (NONE)  UNKNOWN     N DRY   SS-O           PRVTE     S   N                                            000             00
                  3P                                         08                            N DAY   PDO           PSNGR CAR         01 DRVR NONE  72 F OR-Y       045         000             06
                                                                        (03)                                                                          OR<25
                                                                                                              02  NONE   0  STRGHT
                                                                                                                  PRVTE     S   N                                            000             00
                                                                                                                 PSNGR CAR         01 DRVR NONE  65 F OR-Y       000         000             00
                                                                                                                                                      OR<25
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CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove

January 1, 2000 Through December 31, 2004

```
        S   D
        P   R S W                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                   A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM       PRTC  INJ   G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P# TYPE  SVRTY E  X RES    LOC  ERROR        ACTN EVENT        CAUSE

04754   N N N N N   09/08/2000  16      GATEWAY BLVD               INTER        CROSS  N            N  CLR    S-1STOP     01  NONE   0   STRGHT                                                                 01
CITY                Fri          0      MAIN ST                    W                   UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000              01
                    7P                                             06             0                 N  DAY    INJ           PSNGR CAR            01 DRVR  NONE  41 F OR-Y        026                            01
                                                                                                                                                                     OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR            01 DRVR  INJC  57 F OR-Y        000
                                                                                                                                                                     OR<25
00615   N N N N N   01/30/2000  16      GATEWAY BLVD               INTER        CROSS  N            N  CLD    ANGL-OTH    01  NONE   0   STRGHT                                                                 04
CITY                Sun          0      MAIN ST                    CN                  TRF SIGNAL   N  WET    ANGL            PRVTE      E   W                                                 000
                    10A                                            02             0                 N  DAY    INJ           PSNGR CAR            01 DRVR  NONE  48 M OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                                 02 PSNG  INJB  44 F

                                                                                                                          02  NONE   0   STRGHT
                                                                                                                              PRVTE      S   N                                                 000
                                                                                                                            PSNGR CAR            01 DRVR  NONE  49 F OR-Y        020                            04
                                                                                                                                                                     OR<25
01331   N N N N N   03/12/2001  16      GATEWAY BLVD               INTER        CROSS  N            N  CLR    S-1STOP     01  NONE   0   STRGHT                                                                 01
NONE                Mon          0      MAIN ST                    CN                  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000              01
                    6P                                             03             0                 N  DAY    INJ           PSNGR CAR            01 DRVR  NONE  46 M OR-Y        026                            01
                                                                                                                                                                     OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      W   E                                                 012
                                                                                                                            PSNGR CAR            01 DRVR  INJC  17 M OR-Y        000
                                                                                                                                                                     OR<25
06137   N N N N N   11/15/2001  16      GATEWAY BLVD               INTER        CROSS  N            N  RAIN   ANGL-OTH    01  NONE   0   STRGHT                                                                 04
CITY                Thu          0      MAIN ST                    CN                  TRF SIGNAL   N  WET    ANGL            PRVTE      W   E                                                 000
                    12P                                            03             0                 N  DAY    INJ           PSNGR CAR            01 DRVR  NONE  42 M OR-Y        020                            04
                                                                                                                                                                     OR<25

                                                                                                                          02  NONE   0   STRGHT
                                                                                                                              PRVTE      N   S                                                 000
                                                                                                                            PSNGR CAR            01 DRVR  INJC  34 F OR-Y        000
                                                                                                                                                                     OR<25
05111   N N N       10/15/2003  16      GATEWAY BLVD               INTER        CROSS  N            N  CLR    ANGL-OTH    01  NONE   0   STRGHT                                                                 04
NONE                Wed          0      MAIN ST                    CN                  TRF SIGNAL   N  DRY    ANGL            PRVTE      W   E                                                 000              00
                    6P                                             03             99                N  DAY    PDO           PSNGR CAR            01 DRVR  NONE  25 F OR-Y        020           000              04
                                                                                                                                                                     OR<25

                                                                                                                          02  NONE   0   STRGHT
                                                                                                                              PRVTE      N   S                                                 000              00
                                                                                                                            PSNGR CAR            01 DRVR  NONE  34 F OR-Y        000           000              00
                                                                                                                                                                     OR<25
03130   N N N N N   06/11/2000  16      GATEWAY BLVD               INTER        CROSS  N            N  RAIN   ANGL-OTH    01  NONE   0   STRGHT                                                                 02
NO RPT              Sun          0      MAIN ST                    CN                  UNKNOWN      N  WET    TURN            PRVTE      W   E                                                 000
                    8P                                             04             0                 N  DUSK   PDO           PSNGR CAR            01 DRVR  NONE  19 F OR-Y        000
                                                                                                                                                                     OR<25
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        S   D
        P   R S W                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR   (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT      LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM        PRTC  INJ   G  E LICNS  PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN     (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE  SVRTY E  X RES    LOC  ERROR        ACTN EVENT        CAUSE

                                                                                                                          02  NONE    0  TURN-L
                                                                                                                              PRVTE      S   W                                                  000
                                                                                                                             PSNGR CAR           01  DRVR  NONE  17 M OR-Y        028                            02
                                                                                                                                                                      OR<25

04263   N N N       11/24/2004   16      GATEWAY BLVD               ALLEY              N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
                    Wed           100    OSWALD WEST AVE            N          (NONE)  UNKNOWN      N  DRY    TURN            PRVTE      S   N                                                  000              00
                    4P                                              07                              N  DUSK   PDO            PSNGR CAR           01  DRVR  NONE  39 M OR-Y        000           000              00
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  TURN-L
                                                                                                                              PRVTE      E   S                                                  018              00
                                                                                                                             PSNGR CAR           01  DRVR  NONE  81 M OR-Y        028           000              02
                                                                                                                                                                      OR<25

03166   N N N N N   06/29/2002   16      GATEWAY BLVD               INTER       3-LEG  N            N  CLR    ANGL-OTH    01  NONE    0  TURN-L                                                                  02
NONE                Sat            0     OSWALD WEST AVE            CN                 UNKNOWN      N  DRY    TURN            PRVTE      E   S                                                  000
                    4P                                              03            0                 N  DAY    PDO            PSNGR CAR           01  DRVR  NONE  46 M OR-Y        028                            02
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      N   S                                                  000
                                                                                                                             PSNGR CAR           01  DRVR  NONE  51 M OR-Y        000
                                                                                                                                                                      OR<25

01866   N N N N N   04/21/2002   16      GATEWAY BLVD               ALLEY              N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Sun                  TAYLOR AVE                 N          (NONE)  UNKNOWN      N  DRY    TURN            PRVTE      N   S                                                  000
                    12P                                             06            0                 Y  DAY    PDO            PSNGR CAR           01  DRVR  NONE  26 F OR-Y        000
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  TURN-L
                                                                                                                              PRVTE      W   N                                                  018
                                                                                                                             PSNGR CAR           01  DRVR  NONE  17 F OR-Y        028                            02
                                                                                                                                                                      OR<25

04159   Y N N N N   08/18/2002   16      GATEWAY BLVD               STRGHT             N            Y  CLR    FIX OBJ     01  NONE    0  STRGHT                                                     079          01
NO RPT              Sun           20     TAYLOR AVE                 S          (NONE)  UNKNOWN      N  DRY    FIX             PRVTE      N   S                                                  000 079          01
                    10P                                             05            0                 N  DLIT   PDO            PSNGR CAR           01  DRVR  NONE  17 F OR-Y        047           017              01
                                                                                (02)                                                                                  OR<25

03251   N N N       09/12/2004   16      GATEWAY BLVD               STRGHT             N            Y  CLR    FIX OBJ     01  NONE    0  STRGHT                                                     043,088      01
                    Sun           10     TAYLOR AVE                 S          (NONE)  UNKNOWN      N  DRY    FIX             PRVTE      S   N                                                  000 043,088      00
                    1A                                              06                              N  DLIT   INJ            PSNGR CAR           01  DRVR  INJB  23 F OR-Y        047,081       017              01
                                                                                (02)                                                                                  OR<25

00904   N N N N N   02/23/2001   19      GATEWAY BLVD               INTER       3-LEG  N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Fri            0     TAYLOR AVE                 CN                 UNKNOWN      N  DRY    TURN            PRVTE      E   W                                                  000
                    9A                                              01            0                 N  DAY    PDO            PSNGR CAR           01  DRVR  NONE  46 F OR-Y        000
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  TURN-L
                                                                                                                              PRVTE      N   E                                                  000
                                                                                                                             PSNGR CAR           01  DRVR  NONE  29 F OR-Y        028                            02
                                                                                                                                                                      OR<25
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CITY OF COTTAGE GROVE,  LANE COUNTY                                                  City of Cottage Grove
                                                                           January 1, 2000 Through December 31, 2004

        S   D
        P   R S W
                                                                              INT-TYP                                        SPCL USE
        E A U C O  DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD WTHR   CRASH TYP       TRLR QTY   MOVE                  A  S
SER#    E L G H R  DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT  SURF   COLL TYP        OWNER      FROM       PRTC INJ   G  E LICNS   PED
INVEST  D C S L K  TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY  LIGHT  SVRTY       V#  VEH TYPE   TO      P# TYPE SVRTY E  X RES     LOC ERROR        ACTN EVENT        CAUSE

00056   N N N N N  01/02/2000   16      GATEWAY BLVD               STRGHT              N            N RAIN   S-1STOP     01  NONE    0  STRGHT                                                                01
NO RPT             Sun           20     TYLER AVE                  N           (NONE)  UNKNOWN      N WET    REAR            PRVTE      N   S                                                000              01
                   5P                                              06             0                 N DLIT   PDO            PSNGR CAR           01 DRVR NONE  00 M OR-Y        026                            01
                                                                                (02)                                                                                   OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      N   S                                                011
                                                                                                                            PSNGR CAR           01 DRVR NONE  17 F OR-Y        000
                                                                                                                                                                   OR<25
05846   N N N N N  11/08/2002   16      GATEWAY BLVD               ALLEY               N            N RAIN   ANGL-OTH    01  NONE    0  STRGHT                                                                02
NONE               Fri           50     TYLER AVE                  S           (NONE)  UNKNOWN      N WET    TURN            PRVTE      S   N                                                000
                   1P                                              06             0                 Y DAY    PDO            PSNGR CAR           01 DRVR NONE  80 F OR-Y        000
                                                                                (02)                                                                                   OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      E   S                                                018
                                                                                                                            PSNGR CAR           01 DRVR NONE  48 F OR-Y        028                            02
                                                                                                                                                                   OR<25
01953   N N N N N  04/11/2000   14      GOSHEN-DIVIDE HY           INTER       CROSS   N            N CLR    S-1STOP     01  NONE    0  STRGHT                                                   013          07
NONE               Tue           0      MAIN ST                    E                   TRF SIGNAL   N DRY    REAR            PRVTE      E   W                                                000
                   8P                                              06             0                 N DLIT   INJ            PSNGR CAR           01 DRVR NONE  00 U UNK         026                            07
                                                                                                                                                                   UNK

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011 013
                                                                                                                            PSNGR CAR           01 DRVR INJC  18 F OR-Y        000
                                                                                                                                                                   OR<25

                                                                                                                         03  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011
                                                                                                                            PSNGR CAR           01 DRVR INJC  19 M OR-Y        000
                                                                                                                                                                   OR<25
01954   N N N N N  04/11/2000   14      GOSHEN-DIVIDE HY           INTER       CROSS   N            N CLR    S-1STOP     01  NONE    0  STRGHT                                                                01
NONE               Tue           0      MAIN ST                    E                   TRF SIGNAL   N DRY    REAR            PRVTE      E   W                                                                 01
                   6P                                              06             0                 N DAY    PDO            PSNGR CAR           01 DRVR NONE  57 F OR-Y        026           038              01
                                                                                                                                                                   OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011
                                                                                                                            PSNGR CAR           01 DRVR NONE  52 F OR-Y        000
                                                                                                                                                                   OR<25
01354   N N N N N  03/05/2000   16      HARRISON AVE               STRGHT              N            N CLR    S-1STOP     01  NONE    0  STRGHT                                                   013          01
NO RPT             Sun           20     01908                      W           (NONE)  UNKNOWN      N DRY    REAR            PRVTE      W   E                                                000              01
                   1P                                              06             0                 N DAY    INJ            PSNGR CAR           01 DRVR NONE  34 F OR-Y        026                            01
                                                                                (02)                                                                                   OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                011 013
                                                                                                                            PSNGR CAR           01 DRVR NONE  41 M OR-Y        000
                                                                                                                                                                   OR<25
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CITY OF COTTAGE GROVE,  LANE COUNTY                                                                City of Cottage Grove
                                                                                          January 1, 2000 Through December 31, 2004

        S   D
        P   R S W                                                           INT-TYP                                      SPCL USE
        E A U C O  DATE        CLASS   CITY STREET               RD CHAR   (MEDIAN) INT-REL OFF-RD WTHR   CRASH TYP      TRLR QTY  MOVE                   A  S
SER#    E L G H R  DAY         DIST    FIRST STREET              DIRECT      LEGS   TRAF-   RNDBT  SURF   COLL TYP       OWNER     FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K  TIME        FROM    SECOND STREET             LOCTN     (#LANES) CONTL   DRVWY  LIGHT  SVRTY      V#  VEH TYPE  TO     P#  TYPE  SVRTY  E  X RES    LOC ERROR       ACTN  EVENT       CAUSE

                                                                                                                     03  NONE   0  STOP
                                                                                                                         PRVTE     W   E                                               011
                                                                                                                       PSNGR CAR           01 DRVR  INJC 38  M OR-Y       000
                                                                                                                                                               OR<25

04390   N N N N N  08/30/2002  17      HARRISON AVE              STRGHT             N           N  CLR    S-1STOP    01  NONE   0  STRGHT                                                               01
NONE               Fri          999    1ST ST                    E          (NONE)  UNKNOWN     N  DRY    REAR           PRVTE     E   W                                               000              01
                   2P                                            08            0                N  DAY    PDO          PSNGR CAR           01 DRVR  NONE 76  F OR-Y       026                           01
                                                                             (02)                                                                              OR<25

                                                                                                                     02  NONE   0  STOP
                                                                                                                         PRVTE     E   W                                               011
                                                                                                                       PSNGR CAR           01 DRVR  NONE 19  F OR-Y       000
                                                                                                                                                               OR<25

03277   N N N      07/06/2003  19      HARRISON AVE              STRGHT             N           N  CLR    S-1TURN    01  NONE   0  STRGHT                                                               08
NONE               Sun          100    R ST                      E          (NONE)  UNKNOWN     N  DRY    TURN           PRVTE     W   E                                               000              00
                   5P                                            05                             N  DAY    PDO          PSNGR CAR           01 DRVR  NONE 75  F OR-Y       000          000              00
                                                                             (02)                                                                              OR<25

                                                                                                                     02  NONE   0  U-TURN
                                                                                                                         PRVTE     W   W                                               000              00
                                                                                                                       PSNGR CAR           01 DRVR  NONE 35  F OR-Y       008          000              08
                                                                                                                                                               OR<25

01207   N N N      04/14/2004  17      HARRISON AVE              STRGHT             N           N  RAIN   S-1TURN    01  NONE   0  STRGHT                                                               08
NO RPT             Wed          100    RIVER RD                  W          (NONE)  UNKNOWN     N  WET    TURN           PRVTE     E   W                                               000              00
                   2P                                            07                             N  DAY    INJ          PSNGR CAR           01 DRVR  INJC 17  F OR-Y       000          000              00
                                                                             (02)                                                                              OR<25

                                                                                                                     02  NONE   0  U-TURN
                                                                                                                         PRVTE     E   E                                               000              00
                                                                                                                       PSNGR CAR           01 DRVR  NONE 22  F OR-Y       008          000              08
                                                                                                                                                               OR<25

06335   N N N N N  12/04/2002  16      HARRISON AVE              INTER      CROSS   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
NONE               Wed          0      RIVER RD                  CN                 STOP SIGN   N  WET    TURN           PRVTE     E   W                                               000
                   12P                                           01            0                N  DAY    INJ          PSNGR CAR           01 DRVR  INJC 36  M OR-Y       000
                                                                                                                                                               OR<25

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     N   E                                               015
                                                                                                                       PSNGR CAR           01 DRVR  NONE 26  M OR-Y       028                           02
                                                                                                                                                               OR>25

03546   N N N N N  07/14/2002  19      HARRISON AVE              INTER      CROSS   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
NONE               Sun          0      RIVER RD                  CN                 UNKNOWN     N  DRY    ANGL           PRVTE     W   E                                               000
                   9P                                            03            0                N  DUSK   INJ          PSNGR CAR           01 DRVR  NONE 00  M UNK        000
                                                                                                                                                               UNK

                                                                                                                     02  NONE   0  STRGHT
                                                                                                                         PRVTE     N   S                                               000
                                                                                                                       PSNGR CAR           01 DRVR  INJC 16  M OR-Y       028                           02
                                                                                                                                                               OR<25
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        S   D
        P   R S W                                                          INT-TYP                                      SPCL USE
        E A U C O  DATE        CLASS  CITY STREET               RD CHAR   (MEDIAN) INT-REL OFF-RD WTHR   CRASH TYP      TRLR QTY  MOVE                   A  S
SER#    E L G H R  DAY         DIST   FIRST STREET              DIRECT      LEGS   TRAF-   RNDBT  SURF   COLL TYP       OWNER     FROM       PRTC INJ    G  E LICNS  PED
INVEST  D C S L K  TIME        FROM   SECOND STREET             LOCTN     (#LANES) CONTL   DRVWY  LIGHT  SVRTY      V#  VEH TYPE  TO      P# TYPE SVRTY  E  X RES    LOC ERROR       ACTN EVENT        CAUSE

01999   N N N N N  04/15/2000  16     HARRISON AVE              INTER       CROSS  N            N CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
NONE               Sat          0     RIVER RD                  CN                 STOP SIGN    N DRY    ANGL           PRVTE     W   E                                               015
                   5P                                           04            0                 N DAY    PDO          PSNGR CAR           01 DRVR NONE  79 F OR-Y       028                           02
                                                                                                                                                              OR<25

                                                                                                                    02  NONE   0  STRGHT
                                                                                                                        PRVTE     S   N                                               000
                                                                                                                      PSNGR CAR           01 DRVR NONE  22 F OR-Y       000
                                                                                                                                                              OR<25
02928   N N N N N  06/02/2000  16     HARRISON AVE              INTER       CROSS  N            N CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
NO RPT             Fri          0     RIVER RD                  CN                 UNKNOWN      N DRY    ANGL           PRVTE     S   N                                               000
                   9A                                           04            0                 N DAY    PDO          PSNGR CAR           01 DRVR NONE  40 M OR-Y       000
                                                                                                                                                              OR<25

                                                                                                                    02  NONE   0  STRGHT
                                                                                                                        PRVTE     W   E                                               000
                                                                                                                      PSNGR CAR           01 DRVR NONE  52 F OR-Y       028                           02
                                                                                                                                                              OR<25
00289   N N N      01/28/2004  19     HARVEY RD                 INTER       CROSS  N            N RAIN   ANGL-OTH   01  NONE   0  STRGHT                                                               02
NONE               Wed          0       16TH ST                 CN                 UNKNOWN      N WET    ANGL           PRVTE     E   W                                               000           00
                   5P                                           01           99                 N DLIT   PDO          PSNGR CAR           01 DRVR NONE  53 M OR-Y       028       000           02
                                                                                                                                                              OR<25

                                                                                                                    02  NONE   0  STRGHT
                                                                                                                        PRVTE     N   S                                               000           00
                                                                                                                      PSNGR CAR           01 DRVR NONE  17 M OR-Y       000       000           00
                                                                                                                                                              OR<25
03491   N N N      10/02/2004  19     HARVEY RD                 INTER       3-LEG  N            N CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
                   Sat          0       19TH ST                 CN                 UNKNOWN      N DRY    TURN           PRVTE     E   W                                               000           00
                   11A                                          01           99                 N DAY    PDO          PSNGR CAR           01 DRVR NONE  80 M OR-Y       000       000           00
                                                                                                                                                              OR<25

                                                                                                                    02  NONE   0  TURN-L
                                                                                                                        PRVTE     N   E                                               000           00
                                                                                                                      PSNGR CAR           01 DRVR NONE  80 F OR-Y       028       000           02
                                                                                                                                                              OR<25
04774   N N N N N  09/09/2001  19     HARVEY RD                 INTER       CROSS  N            N CLR    ANGL-OTH   01  NONE   0  STRGHT                                                               02
NO RPT             Sun          0     16TH ST                   CN                 UNKNOWN      N DRY    ANGL           PRVTE     E   W                                               000
                   5P                                           01            0                 N DAY    PDO          PSNGR CAR           01 DRVR NONE  82 M OR-Y       028                           02
                                                                                                                                                              OR<25

                                                                                                                    02  NONE   0  STRGHT
                                                                                                                        PRVTE     N   S                                               000
                                                                                                                      PSNGR CAR           01 DRVR NONE  85 M OR-Y       000
                                                                                                                                                              OR<25
02540   N N N      05/26/2003  19     I ST                      ALLEY              N            N CLR    ANGL-OTH   01  NONE   0  BACK                                                                 10
NONE               Mon          50    CHESTNUT AVE              S          (NONE)  UNKNOWN      N DRY    BACK           PRVTE     E   W                                               018           00
                   11A                                          06                              N DAY    PDO          PSNGR CAR           01 DRVR NONE  45 M OR-Y       011       000           10
                                                                            (02)                                                                                              OR<25
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        S   D
        P   R S W                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS  CITY STREET                 RD CHAR   (MEDIAN)  INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST   FIRST STREET                DIRECT      LEGS    TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC  INJ   G  E LICNS   PED
INVEST  D C S L K   TIME         FROM   SECOND STREET               LOCTN     (#LANES)  CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE  SVRTY E  X RES     LOC ERROR        ACTN EVENT        CAUSE

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                 000               00
                                                                                                                             PSNGR CAR           01  DRVR  NONE  18 F OR-Y        000          000               00
                                                                                                                                                                      OR<25

02140   N N N N N   04/24/2000   16     I ST                        INTER       3-LEG   N            N  CLD    O-1TURN    01  NONE    0  TURN-L                                                                  08
CITY                Mon           0     MAIN ST                     CN                  UNKNOWN      N  DRY    TURN           PRVTE      W   N                                                 000
                    6A                                              02            0                  N  DAY    INJ           PSNGR CAR           01  DRVR  NONE  30 F OR-Y        004                            08
                                                                                                                                                                      OR<25
                                                                                                                                                 02  PSNG  NO<5  03 F
                                                                                                                                                 03  PSNG  NO<5  04 M

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      E   W                                                 000
                                                                                                                             PSNGR CAR           01  DRVR  INJC  17 F OR-Y        000
                                                                                                                                                                      OR<25

00823   N N N N N   02/20/2002   19     J ST                        ALLEY               N            Y  CLR    PRKD MV    01  NONE    0  BACK                                                                    10
NONE                Wed           40    ASH AVE                     S          (NONE)   UNKNOWN      N  DRY    BACK           PRVTE      W   E                                                 018
                    8P                                              06            0                  Y  DLIT   PDO           PSNGR CAR           01  DRVR  NONE  53 M OR-Y        011                            10
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE    0  PRKD-P
                                                                                                                              PRVTE      S   N                                                 008
                                                                                                                             PSNGR CAR

01047   N N N       02/28/2003   19     JEFFERSON AVE               INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NONE                Fri           0        3RD ST                   CN                  UNKNOWN      N  DRY    ANGL           PRVTE      W   E                                                 000               00
                    12P                                             04            99                 N  DAY    PDO           PSNGR CAR           01  DRVR  NONE  49 F OR-Y        028          000               02
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                 000               00
                                                                                                                             PSNGR CAR           01  DRVR  NONE  78 M OR-Y        000          000               00
                                                                                                                                                                      OR<25

02960   N N N       06/18/2003   19     JEFFERSON AVE               INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NONE                Wed           0     2ND ST                      CN                  UNKNOWN      N  DRY    ANGL           PRVTE      S   N                                                 000               00
                    4P                                              04            99                 N  DAY    PDO           PSNGR CAR           01  DRVR  NONE  19 F OR-Y        000          000               00
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      W   E                                                 000               00
                                                                                                                             PSNGR CAR           01  DRVR  NONE  49 F OR-Y        028          000               02
                                                                                                                                                                      OR<25

00705   N N N N N   02/04/2000   17     JEFFERSON AVE               INTER       CROSS   N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
CITY                Fri           0     6TH ST                      CN                  STOP SIGN    N  DRY    ANGL           PRVTE      W   E                                                 015
                    10A                                             04            0                  N  DAY    PDO           PSNGR CAR           01  DRVR  NONE  59 M OR-Y        028                            02
                                                                                                                                                                      OR<25

                                                                                                                          02  NONE    0  STRGHT
                                                                                                                              PRVTE      S   N                                                 000
                                                                                                                             PSNGR CAR           01  DRVR  NONE  73 M OR-Y        000
                                                                                                                                                                      OR<25
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                                            OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
                                                  TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
                                                                URBAN NON-SYSTEM CRASH LISTING
 CITY OF COTTAGE GROVE,  LANE COUNTY                                                           City of Cottage Grove
                                                                                      January 1, 2000 Through December 31, 2004

        S   D
        P   R S W                                                               INT-TYP                                     SPCL USE
        E A U C O  DATE         CLASS   CITY STREET                 RD CHAR    (MEDIAN) INT-REL OFF-RD WTHR   CRASH TYP      TRLR QTY  MOVE                        A S
SER#    E L G H R  DAY          DIST    FIRST STREET                DIRECT       LEGS   TRAF-   RNDBT  SURF   COLL TYP       OWNER     FROM        PRTC  INJ       G E LICNS  PED
INVEST  D C S L K  TIME         FROM    SECOND STREET               LOCTN    (#LANES)  CONTL   DRVWY  LIGHT  SVRTY      V#  VEH TYPE  TO       P#  TYPE  SVRTY     E X RES    LOC  ERROR        ACTN EVENT          CAUSE
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
00465   N N N N N  01/28/2001   19      JOHNSON AVE                 ALLEY                N           N  CLR    ANGL-OTH   01  NONE   0  BACK                                                                        10
NONE               Sun           999    9TH ST                      W          (NONE)   UNKNOWN     N  DRY    BACK           PRVTE     S   N                                                    018
                   2P                                               07            0                 Y  DAY    PDO          PSNGR CAR           01  DRVR  NONE  49 F OR-Y         011                            10
                                                                                (02)                                                                              OR<25

                                                                                                                     02  NONE   0  STRGHT
                                                                                                                         PRVTE     E   W                                                    000
                                                                                                                       PSNGR CAR           01  DRVR  NONE  23 M OR-Y         000
                                                                                                                                                                  OR<25
05768   N N N N N  10/10/2000   16      LANE ST                     INTER       3-LEG   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                                      02
CITY               Tue            0     MAIN ST                     CN                  STOP SIGN   N  DRY    TURN           PRVTE     E   W                                                    000
                   12P                                              01            0                 N  DAY    INJ          PSNGR CAR           01  DRVR  INJB  27 F OR-Y         000
                                                                                                                                                                  OR<25

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     N   E                                                    015
                                                                                                                       PSNGR CAR           01  DRVR  NONE  17 F OR-Y         028                            02
                                                                                                                                                                  OR<25
                                                                                                                                           02  PSNG  INJB  17 M
01539   N N N      03/31/2003   16      LANE ST                     INTER       3-LEG   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                                      02
NONE               Mon            0     MAIN ST                     CN                  UNKNOWN     N  DRY    TURN           PRVTE     E   W                                                    000               00
                   5P                                               01           99                 N  DAY    PDO          PSNGR CAR           01  DRVR  NONE  59 F OR-Y         000          000               00
                                                                                                                                                                  OR<25

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     NE  E                                                    000               00
                                                                                                                       PSNGR CAR           01  DRVR  NONE  16 M OR-Y         028          000               02
                                                                                                                                                                  OR<25
05834   N N N      11/25/2003   19      M ST                        STRGHT              N           Y  RAIN   PRKD MV    01  NONE   0  STRGHT                                                                      01
NONE               Tue           50     BIRCH AVE                   N          (NONE)   UNKNOWN     N  WET    SS-O           PRVTE     S   N                                                    000               00
                   3P                                               05                              N  DAY    PDO          PSNGR CAR           01  DRVR  NONE  19 M OR-Y         026          000               01
                                                                                (02)                                                                              OR<25

                                                                                                                     02  NONE   0  PRKD-P
                                                                                                                         PRVTE     S   N                                                    008               00
                                                                                                                       PSNGR CAR
06170   N N N N N  11/29/2002   16      M ST                        INTER       CROSS   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                                      02
NO RPT             Fri            0     MAIN ST                     CN                  STOP SIGN   N  DRY    ANGL           PRVTE     E   W                                                    000
                   4P                                               01            0                 N  DAY    PDO          PSNGR CAR           01  DRVR  NONE  40 M OR-Y         000
                                                                                                                                                                  OR<25

                                                                                                                     02  NONE   0  STRGHT
                                                                                                                         PRVTE     N   S                                                    015
                                                                                                                       PSNGR CAR           01  DRVR  NONE  45 M OR-Y         028                            02
                                                                                                                                                                  OR>25
01048   N N N      04/05/2004   19      MADISON AVE                 INTER       CROSS   N           N  CLR    ANGL-OTH   01  NONE   0  STRGHT                                                                      02
NONE               Mon            0       12TH ST                   CN                  UNKNOWN     N  DRY    TURN           PRVTE     E   W                                                    000               00
                   3P                                               01           99                 N  DAY    PDO          PSNGR CAR           01  DRVR  NONE  24 F OR-Y         000          000               00
                                                                                                                                                                  OR<25
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       S   D
       P   R S W
                                                                   INT-TYP                                     SPCL USE
       E A U C O DATE       CLASS CITY STREET             RD CHAR  (MEDIAN) INT-REL  OFF-RD WTHR  CRASH TYP    TRLR QTY MOVE                  A S
SER#   E L G H R DAY        DIST  FIRST STREET            DIRECT     LEGS   TRAF-    RNDBT  SURF  COLL TYP     OWNER    FROM      PRTC INJ    G E LICNS PED
INVEST D C S L K TIME       FROM  SECOND STREET           LOCTN    (#LANES) CONTL    DRVWY  LIGHT SVRTY    V# VEH TYPE TO     P# TYPE SVRTY  E X RES   LOC ERROR      ACTN EVENT     CAUSE

                                                                                                            02 NONE   0 TURN-L
                                                                                                               PRVTE    N   E                                           000           00
                                                                                                              PSNGR CAR        01 DRVR NONE  44 M OR-Y      028         000           02
                                                                                                                                                  OR<25

01771  N N N     05/28/2004 19    MADISON AVE             INTER     CROSS   N             N CLR   ANGL-OTH  01 NONE   0 STRGHT                                                        02
NONE             Fri         0      16TH ST               CN                UNKNOWN       N DRY   ANGL         PRVTE    W   E                                           000           00
                 2P                                       04          99                  N DAY   PDO         PSNGR CAR        01 DRVR NONE  24 M OR-Y      020         000           02
                                                                                                                                                  OR<25

                                                                                                            02 NONE   0 STRGHT
                                                                                                               PRVTE    S   N                                           000           00
                                                                                                              PSNGR CAR        01 DRVR NONE  17 F OR-Y      000         000           00
                                                                                                                                                  OR<25

04751  N N N N N 09/10/2001 19    MADISON AVE             STRGHT            N             Y CLR   PRKD MV   01 NONE   0 STRGHT                                                        01
NO RPT           Mon         20   3RD ST                  W         (NONE)  UNKNOWN       N DRY   SS-O         PRVTE    E   W                                           000           01
                 7A                                       05           0                  N DAY   PDO         PSNGR CAR        01 DRVR NONE  37 F OR-Y      026                       01
                                                                     (02)                                                                         OR<25

                                                                                                            02 NONE   0 PRKD-P
                                                                                                               PRVTE    E   W                                           008
                                                                                                              PSNGR CAR

06009  N N N N N 11/19/2002 19    MADISON AVE             INTER     CROSS   N             N CLR   ANGL-OTH  01 NONE   0 STRGHT                                                        02
NO RPT           Tue         0    5TH ST                  CN                UNKNOWN       N DRY   ANGL         PRVTE    N   S                                           000
                 9A                                       03           0                  N DAY   PDO         PSNGR CAR        01 DRVR NONE  51 F OR-Y      028                       02
                                                                                                                                                  OR<25

                                                                                                            02 NONE   0 STRGHT
                                                                                                               PRVTE    W   E                                           000
                                                                                                              PSNGR CAR        01 DRVR NONE  20 M OR-Y      000
                                                                                                                                                  OR<25

00480  N N N N N 01/26/2002 19    MADISON AVE             INTER     CROSS   N             N RAIN  ANGL-OTH  01 NONE   0 STRGHT                                                        02
CITY             Sat         0    5TH ST                  CN                STOP SIGN     N WET   ANGL         PRVTE    S   N                                           000
                 1P                                       04           0                  N DAY   PDO         PSNGR CAR        01 DRVR NONE  70 M OTH-Y     000
                                                                                                                                                  N-RES

                                                                                                            02 NONE   0 STRGHT
                                                                                                               PRVTE    W   E                                           015
                                                                                                              PSNGR CAR        01 DRVR NONE  47 F OR-Y      028                       02
                                                                                                                                                  OR<25

00081  N N N     01/08/2004 16    MAIN ST                 STRGHT            N             N CLR   S-1STOP   01 NONE   0 STRGHT                                                        01
NONE             Thu         10    5TH ST                 E         (NONE)  UNKNOWN       N DRY   REAR         PRVTE    E   W                                           000           00
                 10A                                      06                              N DAY   INJ         PSNGR CAR        01 DRVR NONE  44 F OR-Y      026         000           01
                                                                     (02)                                                                         OR<25

                                                                                                            02 NONE   0 STOP
                                                                                                               PRVTE    E   W                                           011           00
                                                                                                              PSNGR CAR        01 DRVR INJC  74 F OR-Y      000         000           00
                                                                                                                                                  OR<25
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CITY OF COTTAGE GROVE,  LANE COUNTY                                                      City of Cottage Grove
                                                                                 January 1, 2000 Through December 31, 2004

        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE  SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT       CAUSE

01340   N N N       04/25/2004  16      MAIN ST                    ALLEY               N            Y  CLR   PRKD MV     01  NONE    0  BACK                                                                    10
NONE                Sun          300       5TH ST                  E           (NONE)  UNKNOWN      N  DRY   BACK            PRVTE      N   S                                                 018            00
                    5P                                             07                               N  DAY   PDO            PSGNR CAR          01  DRVR  NONE  17  M OR-Y        011          000            10
                                                                                (02)                                                                                  OR<25

                                                                                                                         02  NONE    0  PRKD-P
                                                                                                                             PRVTE      W   E                                                 008            00
                                                                                                                            PSGNR CAR

00267   N N N       01/27/2004  16      MAIN ST                    STRGHT              N            N  RAIN  S-STRGHT    01  NONE    0  STRGHT                                                                  10
NONE                Tue          50        6TH ST                  W           (NONE)  UNKNOWN      N  WET   PARK            PRVTE      W   E                                                 008            00
                    6P                                             06                               N  DLIT  PDO            PSGNR CAR          01  DRVR  NONE  00  U UNK         018          000            10
                                                                                (02)                                                                                  UNK

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      W   E                                                 000            00
                                                                                                                            PSGNR CAR          01  DRVR  NONE  52  M OR-Y        000          000            00
                                                                                                                                                                      OR<25
05122   N N N       10/16/2003  16      MAIN ST                    INTER        CROSS  N            N  CLR   O-1TURN     01  NONE    0  STRGHT                                                                  02
NONE                Thu          0         7TH ST                  CN                  UNKNOWN      N  DRY   TURN            PRVTE      W   E                                                 000            00
                    4P                                             03             99                N  DAY   PDO            PSGNR CAR          01  DRVR  NONE  25  F OR-Y        000          000            00
                                                                                                                                                                      OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      E   S                                                 000            00
                                                                                                                            PSGNR CAR          01  DRVR  NONE  35  M OR-Y        004          000            02
                                                                                                                                                                      OR<25
02134   N N N       06/25/2004  16      MAIN ST                    ALLEY               N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Fri          100       8TH ST                  E           (NONE)  UNKNOWN      N  DRY   TURN            PRVTE      E   W                                                 000            00
                    12P                                            08                               N  DAY   PDO            PSGNR CAR          01  DRVR  NONE  18  F OR-Y        000          000            00
                                                                                (02)                                                                                  OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      N   E                                                 018            00
                                                                                                                            PSGNR CAR          01  DRVR  NONE  77  F OR-Y        028          000            02
                                                                                                                                                                      OR<25
01251   N N N       04/18/2004  16      MAIN ST                    STRGHT              N            N  RAIN  S-1STOP     01  NONE    0  STRGHT                                                                  01
NONE                Sun          50       10TH ST                  E           (NONE)  UNKNOWN      N  WET   REAR            PRVTE      W   E                                                 000            00
                    4P                                             05                               N  DAY   INJ            PSGNR CAR          01  DRVR  NONE  41  M OR-Y        026          000            01
                                                                                (02)                                                                                  OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011            00
                                                                                                                            PSGNR CAR          01  DRVR  INJC  22  F OR-Y        000          000            00
                                                                                                                                                                      OR<25
04908   N N N       10/03/2003  16      MAIN ST                    STRGHT              N            N  CLR   PED         01  NONE    0  STRGHT                                                                  02
CITY                Fri          40       10TH ST                  W           (NONE)  UNKNOWN      N  DRY   PED             PRVTE      W   E                                                 000            00
                    5A                                             06                               N  DLIT  INJ            PSGNR CAR          01  DRVR  NONE  75  M OR-Y        000          000            00
                                                                                (02)                                                                                  OR<25
                                                                                                                                        STRGHT  01  PED   INJC  63  F        04  057          037            02
                                                                                                                                        S   N
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        S   D
        P   R S W                                                          INT-TYP                                          SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                 RD CHAR   (MEDIAN) INT-REL  OFF-RD  WTHR   CRASH TYP        TRLR QTY   MOVE                      A  S
SER#    E L G H R   DAY         DIST    FIRST STREET                DIRECT      LEGS   TRAF-    RNDBT   SURF   COLL TYP         OWNER      FROM         PRTC  INJ      G  E  LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET               LOCTN     (#LANES) CONTL    DRVWY   LIGHT  SVRTY       V#   VEH TYPE   TO       P#  TYPE  SVRTY    E  X  RES    LOC  ERROR        ACTN  EVENT         CAUSE

03747   N N N       08/02/2003  16      MAIN ST                     STRGHT             N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                01
NONE                Sat          10       14TH ST                   E          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      E   W                                                 000           00
                    11A                                             06                              N  DAY    PDO           PSNGR CAR           01  DRVR  NONE   16  F  OR-Y         026          000           01
                                                                                (02)                                                                                       OR<25

                                                                                                                      02  NONE   0  STOP
                                                                                                                          PRVTE      E   W                                                 011           00
                                                                                                                        PSNGR CAR           01  DRVR  NONE   47  M  OR-Y         000          000           00
                                                                                                                                                                   OR<25

04313   N N N       11/28/2004  16      MAIN ST                     STRGHT             N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                01
CITY                Sun          12       14TH ST                   E          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      E   W                                                 000           00
                    2P                                              06                              N  DAY    INJ           PSNGR CAR           01  DRVR  NONE   19  M  OR-Y         026          000           01
                                                                                (02)                                                                                       OR<25

                                                                                                                      02  NONE   0  STOP
                                                                                                                          PRVTE      E   W                                                 011           00
                                                                                                                        PSNGR CAR           01  DRVR  INJC   57  F  OR-Y         000          000           00
                                                                                                                                                                   OR<25

05414   N N N       10/30/2003  16      MAIN ST                     STRGHT             N            N  RAIN   S-1STOP     01  NONE   0  STRGHT                                                                01
NONE                Thu          50       14TH ST                   E          (NONE)  UNKNOWN      N  WET    REAR            PRVTE      W   E                                                 000           00
                    10A                                             06                              N  DAY    PDO           PSNGR CAR           01  DRVR  NONE   46  M  OR-Y         026          000           01
                                                                                (02)                                                                                       OR<25

                                                                                                                      02  NONE   0  STOP
                                                                                                                          PRVTE      W   E                                                 011           00
                                                                                                                        PSNGR CAR           01  DRVR  NONE   40  M  OR-Y         000          000           00
                                                                                                                                                                   OR<25

03908   N N N       10/26/2004  16      MAIN ST                     STRGHT             N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                01
                    Tue          10       14TH ST                   W          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000           00
                    2P                                              06                              N  DAY    PDO           PSNGR CAR           01  DRVR  NONE   35  F  OR-Y         026          000           01
                                                                                (02)                                                                                       OR<25

                                                                                                                      02  NONE   0  STOP
                                                                                                                          PRVTE      W   E                                                 011           00
                                                                                                                        PSNGR CAR           01  DRVR  NONE   55  M  OR-Y         000          000           00
                                                                                                                                                                   OR<25

01367   N N N       04/24/2004  16      MAIN ST                     ALLEY              N            N  CLR    BIKE        01  NONE   0  TURN-L                                                                02
NONE                Sat          100      16TH ST                   E          (NONE)  UNKNOWN      N  DRY    TURN            PRVTE      N   E                                                 018           00
                    4P                                              08                              N  DAY    INJ           PSNGR CAR           01  DRVR  NONE   80  M  OR-Y         027          000           02
                                                                                (02)                                                                                       OR<25
                                                                                                                                     STRGHT  01  BIKE  INJC   54  M               000          000           00
                                                                                                                                     E   W

00692   N N N N N   02/02/2000  16      MAIN ST                     STRGHT             N            N  CLD    S-1STOP     01  NONE   0  STRGHT                                                                01
CITY                Wed          999    00000                       UN         (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000           01
                    3P                                              00            0                 N  DAY    INJ           PSNGR CAR           01  DRVR  NONE   30  F  OR-Y         026                        01
                                                                                (02)                                                                                       OR<25

                                                                                                                      02  NONE   0  STOP
                                                                                                                          PRVTE      W   E                                                 011
                                                                                                                        PSNGR CAR           01  DRVR  INJC   53  M  OR-Y         000
                                                                                                                                                                   OR<25
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        S   D
        P   R S W                                                               INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL  OFF-RD WTHR   CRASH TYP      TRLR QTY   MOVE                     A S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-    RNDBT  SURF   COLL TYP        OWNER      FROM        PRTC  INJ     G E  LICNS  PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL    DRVWY  LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE  SVRTY  E X  RES    LOC  ERROR       ACTN  EVENT       CAUSE
                                                                                                                                                  02  PSNG  INJC  16 M
                                                                                                                                                  03  PSNG  INJC  18 M

02840   N N N N N   05/30/2000   16      MAIN ST                    STRGHT              N             N RAIN   S-1STOP     01  NONE    0  STRGHT                                                                   01
NONE                Tue           999    00000                      UN          (NONE)  UNKNOWN       N WET    REAR            PRVTE      W   E                                                 000                01
                    11A                                             00             0                  N DAY    PDO           PSNGR CAR            01  DRVR  NONE  16 F  OR-Y        026                            01
                                                                                 (02)                                                                                                       OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      W   E                                                 011
                                                                                                                             PSNGR CAR            01  DRVR  NONE  16 M  OR-Y        000
                                                                                                                                                                        OR<25
02609   N N N N N   05/22/2000   16      MAIN ST                    STRGHT              N             N CLR    S-1STOP     01  NONE    0  STRGHT                                                                   01
CITY                Mon           50     10TH ST                    E           (NONE)  UNKNOWN       N DRY    REAR            PRVTE      E   W                                                 000                01
                    12P                                             06             0                  N DAY    PDO           PSNGR CAR            01  DRVR  NONE  81 M  OR-Y        026                            01
                                                                                 (02)                                                                                                       OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      E   W                                                 011
                                                                                                                             PSNGR CAR            01  DRVR  NONE  46 F  OR-Y        000
                                                                                                                                                                        OR<25
02319   N N N N N   05/11/2000   16      MAIN ST                    ALLEY               N             N CLD    ANGL-OTH    01  NONE    0  TURN-L                                                                   02
NONE                Thu           100    11TH ST                    W           (NONE)  UNKNOWN       N WET    TURN            PRVTE      S   W                                                 018
                    11A                                             08             0                  Y DAY    INJ           PSNGR CAR            01  DRVR  INJC  42 F  OR-Y        028                            02
                                                                                 (02)                                                                                                       OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      W   E                                                 000
                                                                                                                             PSNGR CAR            01  DRVR  NONE  40 F  OR-Y        000
                                                                                                                                                                        OR<25
01453   N N N N N   03/17/2000   16      MAIN ST                    INTER       3-LEG   N             N CLR    O-1TURN     01  NONE    0  STRGHT                                                                   02
CITY                Fri           0      11TH ST                    CN                  UNKNOWN       N DRY    TURN            PRVTE      W   E                                                 000
                    11A                                             03             0                  N DAY    PDO           PSNGR CAR            01  DRVR  NONE  32 F  OR-Y        000
                                                                                                                                                                        OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      E   S                                                 000
                                                                                                                             PSNGR CAR            01  DRVR  NONE  67 M  OR-Y        004                            02
                                                                                                                                                                        OR<25
01196   Y N N N N   03/13/2002   16      MAIN ST                    STRGHT              N             Y RAIN   FIX OBJ     01  NONE    0  STRGHT                                                      040,057      01
NO RPT              Wed                  12TH ST                    E           (NONE)  UNKNOWN       N WET    FIX             PRVTE      E   W                                                 000   040,057      01
                    9P                                              06             0                  N DLIT   PDO           PSNGR CAR            01  DRVR  NONE  43 F  OR-Y        047         017                01
                                                                                 (02)                                                                                                       OR<25
02146   N N N N N   04/25/2000   16      MAIN ST                    STRGHT              N             N CLD    S-1STOP     01  NONE    0  STRGHT                                                                   01
CITY                Tue           50     12TH ST                    W           (NONE)  NONE          N DRY    REAR            PRVTE      W   E                                                                    01
                    4P                                              06             0                  N DAY    INJ           PSNGR CAR            01  DRVR  INJB  18 M  OR-Y        026         038                01
                                                                                 (02)                                                                                                       OR<25
                                                                                                                                                  02  PSNG  INJB  14 F
```

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        S   D
        P   R S W                                                            INT-TYP                                       SPCL USE
        E A U C O  DATE         CLASS  CITY STREET                RD CHAR   (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY  MOVE                    A  S
SER#    E L G H R  DAY          DIST   FIRST STREET               DIRECT      LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER     FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K  TIME         FROM   SECOND STREET              LOCTN     (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE  TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN EVENT        CAUSE

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE     W   E                                                 011
                                                                                                                         PSNGR CAR           01  DRVR NONE   52 F OR-Y        000
                                                                                                                                                                  OR<25

03746   N N N N N  07/18/2000   16     MAIN ST                    INTER       3-LEG  N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                 01
CITY               Tue           0     14TH ST                    E                  UNKNOWN      N  DRY   REAR            PRVTE     E   W                                                 000              01
                   12P                                            06            0                 N  DAY   PDO           PSNGR CAR           01  DRVR NONE   58 F OR-Y        026                           01
                                                                                                                                                                  OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE     E   W                                                 011
                                                                                                                         PSNGR CAR           01  DRVR NONE   33 F OR-Y        000
                                                                                                                                                                  OR<25

                                                                                                                       03  NONE   0  STRGHT
                                                                                                                           PRVTE     E   W                                                 022
                                                                                                                         PSNGR CAR           01  DRVR NONE   36 M OR-Y        000
                                                                                                                                                                  OR<25

04665   N N N N N  09/11/2002   16     MAIN ST                    INTER       3-LEG  N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                    013          01
NO RPT             Wed           0     14TH ST                    E                  UNKNOWN      N  DRY   REAR            PRVTE     E   W                                                 000              01
                   8P                                             06            0                 N  DAY   INJ           PSNGR CAR           01  DRVR NONE   27 M OR-Y        026                           01
                                                                                                                                                                  OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE     E   W                                                 011 013
                                                                                                                         PSNGR CAR           01  DRVR INJC   46 F OR-Y        000
                                                                                                                                                                  OR<25

                                                                                                                       03  NONE   0  STOP
                                                                                                                           PRVTE     E   W                                                 011
                                                                                                                         PSNGR CAR           01  DRVR INJC   52 M OR-Y        000
                                                                                                                                                                  OR<25

04502   N N N N N  08/29/2001   16     MAIN ST                    STRGHT             N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                 01
CITY               Wed          50     14TH ST                    E          (NONE)  UNKNOWN      N  DRY   REAR            PRVTE     E   W                                                 000              01
                   4P                                             06            0                 N  DAY   INJ           PSNGR CAR           01  DRVR NONE   54 F OR-Y        026                           01
                                                                              (02)                                                                                OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE     E   W                                                 011
                                                                                                                         PSNGR CAR           01  DRVR INJC   24 M OR-Y        000
                                                                                                                                                                  OR<25

03144   N N N N N  06/16/2001   16     MAIN ST                    STRGHT             N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                    013          01
CITY               Sat          100    14TH ST                    E          (NONE)  UNKNOWN      N  DRY   REAR            PRVTE     E   W                                                 000              01
                   6P                                             08            0                 N  DAY   INJ           PSNGR CAR           01  DRVR NONE   16 M OR-Y        026                           01
                                                                              (02)                                                                                OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE     E   W                                                 011 013
                                                                                                                         PSNGR CAR           01  DRVR INJC   17 F OR-Y        000
                                                                                                                                                                  OR<25
```

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        S   D
        P   R S W                                                              INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS  CITY STREET                 RD CHAR   (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY  MOVE                    A S
SER#    E L G H R   DAY          DIST   FIRST STREET                DIRECT      LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER     FROM        PRTC INJ    G E LICNS  PED
INVEST  D C S L K   TIME         FROM   SECOND STREET               LOCTN     (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE  TO      P#  TYPE SVRTY  E X RES    LOC  ERROR        ACTN EVENT        CAUSE

                                                                                                                          03  NONE   0  STOP
                                                                                                                              PRVTE     E   W                                                 011 013
                                                                                                                            PSNGR CAR           01  DRVR INJC  57 F OR-Y        000
                                                                                                                                                                    OR<25

                                                                                                                          04  NONE   0  STOP
                                                                                                                              PRVTE     E   W                                                 011
                                                                                                                            PSNGR CAR           01  DRVR NONE  00 U UNK         000
                                                                                                                                                                    UNK
00445   N N N N N   01/26/2001   16     MAIN ST                     INTER       3-LEG  N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                    013          01
CITY                Fri           0     14TH ST                     W                  UNKNOWN      N  DRY    REAR            PRVTE     E   W                                                 000              01
                    3P                                              06            0                 N  DAY    INJ           PSNGR CAR           01  DRVR NONE  16 M OR-Y        026                            01
                                                                                                                                                                    OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE     E   W                                                 011 013
                                                                                                                            PSNGR CAR           01  DRVR INJC  55 M OR-Y        000
                                                                                                                                                                    OR<25

                                                                                                                          03  NONE   0  STOP
                                                                                                                              PRVTE     E   W                                                 011 013
                                                                                                                            PSNGR CAR           01  DRVR INJC  34 M OR-Y        000
                                                                                                                                                                    OR<25

                                                                                                                          04  NONE   0  STOP
                                                                                                                              PRVTE     E   W                                                 011
                                                                                                                            PSNGR CAR           01  DRVR NONE  48 F OR-Y        000
                                                                                                                                                                    OR<25
01557   N N N N N   04/05/2002   16     MAIN ST                     STRGHT             N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                 01
NONE                Fri           100   14TH ST                     W          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE     W   E                                                 000              01
                    12P                                             08            0                 N  DAY    PDO           PSNGR CAR           01  DRVR NONE  30 F OR-Y        026                            01
                                                                                (02)                                                                                OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE     W   E                                                 011
                                                                                                                            PSNGR CAR           01  DRVR NONE  63 F OR-Y        000
                                                                                                                                                                    OR<25
03215   N N N       07/03/2003   16     MAIN ST                     STRGHT             N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                 01
NONE                Thu           200   14TH ST                     W          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE     W   E                                                 000              00
                    1P                                              08                              N  DAY    PDO           PSNGR CAR           01  DRVR NONE  39 F OR-Y        026           000              01
                                                                                (02)                                                                                OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE     W   E                                                 011              00
                                                                                                                            PSNGR CAR           01  DRVR NONE  59 M OR-Y        000           000              00
                                                                                                                                                                    OR<25
05094   N N N N N   09/19/2000   16     MAIN ST                     STRGHT             N            N  CLR    BIKE                                                                                             06
NONE                Tue           300   14TH ST                     W          (NONE)  UNKNOWN      N  DRY    SS-O                                                                                             06
                    5P                                              08            0                 N  DAY    INJ                       STRGHT  01  BIKE INJC  38 M             045           000              06
                                                                                (02)                                                    W   E
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```
       S   D
       P   R S W                                                      INT-TYP                                    SPCL USE
       E A U C O  DATE       CLASS  CITY STREET             RD CHAR  (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP     TRLR QTY  MOVE                 A  S
SER#   E L G H R  DAY        DIST   FIRST STREET            DIRECT     LEGS   TRAF-   RNDBT  SURF  COLL TYP      OWNER     FROM      PRTC INJ   G  E LICNS PED
INVEST D C S L K  TIME       FROM   SECOND STREET           LOCTN    (#LANES) CONTL   DRVWY  LIGHT SVRTY      V# VEH TYPE  TO     P# TYPE SVRTY E  X RES   LOC ERROR      ACTN EVENT       CAUSE

                                                                                                              01 NONE   0  STRGHT
                                                                                                                 PRVTE     W  E                                           000
                                                                                                                PSNGR CAR         01 DRVR NONE  18 M OR-Y      000
                                                                                                                                                     OR<25

00548  N N N N N  01/31/2000 16     MAIN ST                 STRGHT            N           N  CLR   S-1STOP    01 NONE   0  STRGHT                                              013         01
CITY              Mon         999   16TH ST                 E         (NONE)  UNKNOWN     N  DRY   REAR          PRVTE     W  E                                           000              01
                  3P                                        05           0                N  DAY   INJ          PSNGR CAR         01 DRVR NONE  51 M OR-Y      026                         01
                                                                       (02)                                                                          OR<25

                                                                                                              02 NONE   0  STOP
                                                                                                                 PRVTE     W  E                                           011 013
                                                                                                                PSNGR CAR         01 DRVR NONE  49 F OR-Y      000
                                                                                                                                                     OR<25

                                                                                                              03 NONE   0  STOP
                                                                                                                 PRVTE     W  E                                           011 013
                                                                                                                PSNGR CAR         01 DRVR INJC  16 F OR-Y      000
                                                                                                                                                     OR<25
                                                                                                                                                                               013
                                                                                                                                  02 PSNG INJC  00 F

                                                                                                                                                                               013
                                                                                                                                  03 PSNG INJC  16 F

                                                                                                              04 NONE   0  STOP
                                                                                                                 PRVTE     W  E                                           011
                                                                                                                PSNGR CAR         01 DRVR NONE  25 M OR-Y      000
                                                                                                                                                     OR<25
03179  N N N N N  07/01/2002 16     MAIN ST                 STRGHT            N           N  CLR   S-1STOP    01 NONE   0  STRGHT                                                          01
NONE              Mon         40    16TH ST                 E         (NONE)  UNKNOWN     N  DRY   REAR          PRVTE     E  W                                           000              01
                  2P                                        06           0                N  DAY   PDO          PSNGR CAR         01 DRVR NONE  45 M OR-Y      026                         01
                                                                       (02)                                                                          OR<25

                                                                                                              02 NONE   0  STOP
                                                                                                                 PRVTE     E  W                                           011
                                                                                                                PSNGR CAR         01 DRVR NONE  74 M OR-Y      000
                                                                                                                                                     OR<25
03247  N N N N N  06/22/2001 16     MAIN ST                 STRGHT            N           N  CLR   S-1STOP    01 NONE   0  STRGHT                                              013         01
NONE              Fri         100   16TH ST                 E         (NONE)  UNKNOWN     N  DRY   REAR          PRVTE     E  W                                           000              01
                  4P                                        08           0                N  DAY   INJ          PSNGR CAR         01 DRVR NONE  25 F OR-Y      026                         01
                                                                       (02)                                                                          OR<25

                                                                                                              02 NONE   0  STOP
                                                                                                                 PRVTE     E  W                                           011 013
                                                                                                                PSNGR CAR         01 DRVR INJC  20 F OR-Y      000
                                                                                                                                                     OR<25

                                                                                                              03 NONE   0  STOP
                                                                                                                 PRVTE     E  W                                           011 013
                                                                                                                PSNGR CAR         01 DRVR NONE  39 F OR-Y      000
                                                                                                                                                     OR<25
```

```
        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN EVENT         CAUSE

                                                                                                                         04  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                 011
                                                                                                                            PSNGR CAR          01  DRVR NONE   16 F OR-Y        000
                                                                                                                                                                     OR<25

04404   N N N N N   08/18/2000  16      MAIN ST                    INTER       CROSS   N            N  CLR   BIKE        01  NONE    0  TURN-R                                                                  02
CITY                Fri          0      16TH ST                    S                   UNKNOWN      N  DRY   TURN            PRVTE      W   S                                                 000
                    2P                                             05             0                 N  DAY   INJ            PSNGR CAR          01  DRVR NONE   78 M OR-Y        027                         02
                                                                                                                                                                     OR<25
                                                                                                                                        STRGHT  01  BIKE INJC   12 M             000          000
                                                                                                                                        W   S

05275   N N N N N   10/15/2002  16      MAIN ST                    STRGHT              N            N  CLR   S-1STOP     01  NONE    0  STRGHT                                                                  07
NO RPT              Tue          150    16TH ST                    W           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      W   E                                                 000
                    11A                                            08             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   44 F OR-Y        026                         07
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR          01  DRVR NONE   46 M OR-Y        000
                                                                                                                                                                     OR<25

02032   N N N N N   04/20/2000  16      MAIN ST                    STRGHT              N            N  CLR   S-1STOP     01  NONE    0  STRGHT                                                                  01
NONE                Thu          500    16TH ST                    W           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      W   E                                                 000               01
                    4P                                             08             0                 N  DAY   INJ            PSNGR CAR          01  DRVR NONE   33 M OR-Y        026                         01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR          01  DRVR INJC   18 M OR-Y        000
                                                                                                                                                                     OR<25

02929   N N N N N   06/01/2001  16      MAIN ST                    INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  04
CITY                Fri          0      16TH ST                    CN                  TRF SIGNAL   N  DRY   ANGL            PRVTE      E   W                                                 000
                    2P                                             02             0                 N  DAY   INJ            PSNGR CAR          01  DRVR INJC   82 F OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE   30 F OR-Y        020                         04
                                                                                                                                                                     OR<25

04092   N N N N N   08/17/2002  16      MAIN ST                    INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  04
NO RPT              Sat          0      16TH ST                    CN                  TRF SIGNAL   N  DRY   ANGL            PRVTE      S   N                                                 000
                    4P                                             02             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   20 M OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      E   W                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE   46 M OR-Y        020                         04
                                                                                                                                                                     OR<25

01315   N N N N N   03/01/2000  16      MAIN ST                    INTER       CROSS   N            N  CLR   O-1TURN     01  NONE    0  STRGHT                                                                  02
CITY                Wed          0      16TH ST                    CN                  UNKNOWN      N  DRY   TURN            PRVTE      S   N                                                 000
                    3P                                             04             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   00 U UNK         000
                                                                                                                                                                     UNK
```

```
        S   D
        P   R S W                                                           INT-TYP                                      SPCL USE
        E A U C O  DATE        CLASS   CITY STREET               RD CHAR   (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP      TRLR QTY  MOVE                    A  S
SER#    E L G H R  DAY         DIST    FIRST STREET              DIRECT      LEGS   TRAF-   RNDBT   SURF  COLL TYP       OWNER     FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K  TIME        FROM    SECOND STREET             LOCTN     (#LANES) CONTL   DRVWY   LIGHT SVRTY      V#  VEH TYPE  TO      P#  TYPE SVRTY  E  X RES    LOC ERROR       ACTN EVENT        CAUSE

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     N   E                                                9000
                                                                                                                        PSNGR CAR          01  DRVR NONE  82  F OR-Y       004                           02
                                                                                                                                                                OR<25

00269   N N N N N  01/20/2002  16      MAIN ST                   INTER       CROSS  N            N  RAIN  O-1TURN    01  NONE   0  STRGHT                                                                02
NONE               Sun          0      16TH ST                   CN                 UNKNOWN      N  WET   TURN           PRVTE     S   N                                                000
                   8P                                            04            0                 N  DLIT  INJ           PSNGR CAR          01  DRVR INJC  37  F OR-Y       000
                                                                                                                                                                OR<25

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     N   E                                                000
                                                                                                                        PSNGR CAR          01  DRVR NONE  17  F OR-Y       004                           02
                                                                                                                                                                OR<25

01519   N N N N N  04/03/2002  16      MAIN ST                   INTER       CROSS  N            N  CLR   O-1TURN    01  NONE   0  STRGHT                                                                02
NO RPT             Wed          0      16TH ST                   CN                 UNKNOWN      N  DRY   TURN           PRVTE     S   N                                                000
                   7P                                            04            0                 N  DLIT  INJ           PSNGR CAR          01  DRVR NONE  19  F OR-Y       000
                                                                                                                                                                OR<25
                                                                                                                                           02  PSNG INJB  09  F

                                                                                                                     02  NONE   0  TURN-L
                                                                                                                         PRVTE     N   E                                                000
                                                                                                                        PSNGR CAR          01  DRVR NONE  42  M OR-Y       004                           02
                                                                                                                                                                OR<25

01625   N N N N N  04/09/2002  16      MAIN ST                   INTER       CROSS  N            N  CLR   O-1TURN    01  NONE   0  TURN-L                                                                02
NONE               Tue          0      16TH ST                   CN                 UNKNOWN      N  DRY   TURN           PRVTE     N   E                                                000
                   11A                                           04            0                 N  DAY   PDO           PSNGR CAR          01  DRVR NONE  58  F OR-Y       004                           02
                                                                                                                                                                OR<25

                                                                                                                     02  NONE   0  STRGHT
                                                                                                                         PRVTE     S   N                                                000
                                                                                                                        PSNGR CAR          01  DRVR NONE  75  M OR-Y       000
                                                                                                                                                                OR<25

03375   N N N N N  06/29/2001  16      MAIN ST                   STRGHT             N            N  CLR   S-1STOP    01  NONE   0  STRGHT                                                                01
NO RPT             Fri          30     17TH ST                   E          (NONE)  UNKNOWN      N  DRY   REAR           PRVTE     E   W                                                000              01
                   1P                                            06            0                 N  DAY   PDO           PSNGR CAR          01  DRVR NONE  39  M OR-Y       026                           01
                                                                             (02)                                                                               OR<25

                                                                                                                     02  NONE   0  STOP
                                                                                                                         PRVTE     E   W                                                011
                                                                                                                        PSNGR CAR          01  DRVR NONE  22  M OR-Y       000
                                                                                                                                                                OR<25

02801   N N N N N  05/26/2000  16      MAIN ST                   STRGHT             N            N  CLR   O-1STOP    01  NONE   0  BACK                                                                  10
NONE               Fri          999    17TH ST                   E          (NONE)  UNKNOWN      N  DRY   BACK           PRVTE     E   W                                                000
                   2P                                            07            0                 N  DAY   PDO           PSNGR CAR          01  DRVR NONE  35  M OR-Y       011                           10
                                                                             (02)                                                                               OR<25

                                                                                                                     02  NONE   0  STOP
                                                                                                                         PRVTE     W   E                                                011
                                                                                                                        PSNGR CAR          01  DRVR NONE  35  F OR-Y       000
                                                                                                                                                                OR<25
```

```
        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN EVENT         CAUSE

04898   N N N N N   09/14/2001  16      MAIN ST                    STRGHT              N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
NO RPT              Fri          50     17TH ST                    W           (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      W  E                                                 000               01
                    12P                                            06             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE  18 F OR-Y        026                           01
                                                                                (02)                                                                             OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      W  E                                                 011
                                                                                                                            PSNGR CAR          01  DRVR NONE  30 F OR-Y        000
                                                                                                                                                                 OR<25

06659   Y N N N N   12/18/2002  19      MAIN ST                    STRGHT              N            Y  RAIN  FIX OBJ     01  NONE   0  STRGHT                                                     053,013       01
NO RPT              Wed                 5TH ST                     E           (NONE)  UNKNOWN      N  WET   FIX             PRVTE      W  E                                                 000 053,013       01
                    4P                                             07             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE  50 M OR-Y        047         017               01
                                                                                (02)                                                                             OR<25

                                                                                                                         02  NONE   0  PRKD-P
                                                                                                                             PRVTE      W  E                                                 008
                                                                                                                            PSNGR CAR

05518   N N N N N   10/13/2000  16      MAIN ST                    INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE   0  STRGHT                                                                  02
NO RPT              Fri          0      5TH ST                     CN                  UNKNOWN      N  DRY   ANGL            PRVTE      W  E                                                 000
                    11A                                            03             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE  74 M OR-Y        000
                                                                                                                                                                 OR<25

                                                                                                                         02  NONE   0  STRGHT
                                                                                                                             PRVTE      N  S                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE  00 U UNK         028                           02
                                                                                                                                                                 UNK

03581   N N N N N   07/05/2000  16      MAIN ST                    INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE   0  STRGHT                                                                  02
NO RPT              Wed          0      6TH ST                     CN                  UNKNOWN      N  DRY   ANGL            PRVTE      E  W                                                 000
                    5P                                             01             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE  30 M OR-Y        028                           02
                                                                                                                                                                 OR<25

                                                                                                                         02  NONE   0  STRGHT
                                                                                                                             PRVTE      N  S                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE  56 M OR-Y        000
                                                                                                                                                                 OR<25

01265   N N N N N   03/06/2001  19      MAIN ST                    INTER       CROSS   N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Tue          0      6TH ST                     CN                  UNKNOWN      N  DRY   REAR            PRVTE      E  W                                                 000               01
                    10A                                            02             0                 N  DAY   INJ            PSNGR CAR          01  DRVR NONE  58 F OR-Y        026                           01
                                                                                                                                                                 OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      E  W                                                 012
                                                                                                                            PSNGR CAR          01  DRVR INJC  48 F OR-Y        000
                                                                                                                                                                 OR<25

01976   N N N N N   04/13/2000  16      MAIN ST                    INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE   0  STRGHT                                                                  04
NONE                Thu          0      6TH ST                     CN                  TRF SIGNAL   N  DRY   ANGL            PRVTE      W  E
                    3P                                             03             0                 N  DAY   INJ            PSNGR CAR          01  DRVR NONE  26 F OR-Y        020         038               04
                                                                                                                                                                 OR<25
```

```
        S   D
        P   R S W                                                           INT-TYP                                           SPCL USE
        E A U C O  DATE         CLASS   CITY STREET                 RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP          TRLR QTY   MOVE                        A  S
SER#    E L G H R  DAY          DIST    FIRST STREET                DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP           OWNER      FROM        PRTC  INJ     G  E  LICNS  PED
INVEST  D C S L K  TIME         FROM    SECOND STREET               LOCTN     (#LANES)  CONTL   DRVWY   LIGHT  SVRTY        V#    VEH TYPE   TO      P#  TYPE  SVRTY   E  X  RES    LOC  ERROR        ACTN  EVENT          CAUSE

                                                                                                                       02  NONE   0  STRGHT
                                                                                                                           PRVTE      N   S                                                     000
                                                                                                                         PSNGR CAR           01  DRVR  INJC   24  F  OR-Y        000
                                                                                                                                                                     OR<25

02380   N N N N N  05/02/2000   19      MAIN ST                     INTER       CROSS   N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                  01
NO RPT             Tue           0      7TH ST                      E                   UNKNOWN      N  DRY    REAR            PRVTE      E   W                                                     000                01
                   11A                                              06            0                  N  DAY    INJ           PSNGR CAR           01  DRVR  NONE   45  M  OR-Y        026                               01
                                                                                                                                                                     OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE      E   W                                                     011
                                                                                                                         PSNGR CAR           01  DRVR  INJC   33  F  OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                             02  PSNG  INJB   27  F

03340   N N N N N  07/09/2002   16      MAIN ST                     STRGHT              N            N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE               Tue           20     7TH ST                      E          (NONE)   UNKNOWN      N  DRY    REAR            PRVTE      E   W                                                     000                01
                   2P                                               06            0                  N  DAY    PDO           PSNGR CAR           01  DRVR  NONE   43  M  OR-Y        026                               01
                                                                                (02)                                                                                 OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE      E   W                                                     011
                                                                                                                         PSNGR CAR           01  DRVR  NONE   71  M  OR-Y        000
                                                                                                                                                                     OR<25

01980   N N N N N  04/17/2001   16      MAIN ST                     STRGHT              N            Y  CLR    PRKD MV     01  NONE   0  STRGHT                                                                  01
NO RPT             Tue           20     8TH ST                      W          (NONE)   UNKNOWN      N  DRY    SS-O            PRVTE      W   E                                                                        01
                   10A                                              06            0                  N  DAY    PDO           PSNGR CAR           01  DRVR  NONE   46  F  OR-Y        026          017                 01
                                                                                (02)                                                                                 OR<25

                                                                                                                       02  NONE   0  PRKD-P
                                                                                                                           PRVTE      W   E                                                     008
                                                                                                                         PSNGR CAR

05167   N N N N N  09/26/2001   16      MAIN ST                     INTER       CROSS   N            N  RAIN   O-1TURN     01  NONE   0  STRGHT                                                                  02
NO RPT             Wed           0      8TH ST                      CN                  UNKNOWN      N  WET    TURN            PRVTE      W   E                                                     000
                   10A                                              03            0                  N  DAY    INJ           PSNGR CAR           01  DRVR  NONE   33  F  OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                       02  NONE   0  TURN-L
                                                                                                                           PRVTE      E   S                                                     000
                                                                                                                         PSNGR CAR           01  DRVR  INJC   90  F  OR-Y        004                               02
                                                                                                                                                                     OR<25

05873   N N N N N  10/25/2000   16      MAIN ST                     INTER       CROSS   N            N  RAIN   S-1STOP     01  NONE   0  STRGHT                                                                  01
CITY               Wed           0      9TH ST                      N                   UNKNOWN      N  WET    REAR            PRVTE      N   S                                                     000                01
                   6P                                               06            0                  N  DUSK   INJ           PSNGR CAR           01  DRVR  NONE   18  M  OR-Y        026                               01
                                                                                                                                                                     OR<25

                                                                                                                       02  NONE   0  STOP
                                                                                                                           PRVTE      N   S                                                     011
                                                                                                                         PSNGR CAR           01  DRVR  INJC   40  F  OR-Y        000
                                                                                                                                                                     OR<25
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V# VEH TYPE   TO        P# TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

05616   N N N N N   10/18/2000  16      MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01 NONE    0  STRGHT                                                                  01
NO RPT              Wed          75     9TH ST                     W          (NONE)   UNKNOWN      N  DRY    REAR           PRVTE      W   E                                                000                01
                    2P                                             08             0                 N  DAY    PDO           PSNGR CAR           01 DRVR NONE  31 M OR-Y        026                          01
                                                                                (02)                                                                         OR<25

                                                                                                                          02 NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                011
                                                                                                                            PSNGR CAR           01 DRVR NONE  46 F OR-Y        000
                                                                                                                                                                     OR<25

02890   N N N       06/14/2003  16      MAIN ST                    STRGHT              N            Y  CLR    FIX OBJ     01 NONE    0  STRGHT                                                     040,053      01
NONE                Sat          50     GATEWAY BLVD               E          (NONE)   UNKNOWN      N  DRY    FIX            PRVTE      W   E                                                000 040,053      00
                    1A                                             05                               N  DLIT   INJ           PSNGR CAR           01 DRVR INJB  28 M OR-Y        047,081     017              01
                                                                                (02)                                                                         OR<25

00732   N N N       03/06/2004  16      MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01 NONE    0  STRGHT                                                                  01
NONE                Sat          10     GATEWAY BLVD               E          (NONE)   UNKNOWN      N  DRY    REAR           PRVTE      E   W                                                000                00
                    3P                                             06                               N  DAY    PDO           PSNGR CAR           01 DRVR NONE  23 F OR-Y        026         000              01
                                                                                (02)                                                                         OR<25

                                                                                                                          02 NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011                00
                                                                                                                            PSNGR CAR           01 DRVR NONE  23 F OR-Y        000         000              00
                                                                                                                                                                     OR<25

00165   N N N N N   01/12/2002  16      MAIN ST                    STRGHT              N            N  CLR    O-1STOP     01 NONE    0  BACK                                                                    10
NONE                Sat          15     GATEWAY BLVD               E          (NONE)   UNKNOWN      N  DRY    BACK           PRVTE      W   E                                                000
                    5P                                             06             0                 N  DLIT   PDO           PSNGR CAR           01 DRVR NONE  16 F OR-Y        011                          10
                                                                                (02)                                                                         OR<25

                                                                                                                          02 NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011
                                                                                                                            PSNGR CAR           01 DRVR NONE  20 M OR-Y        000
                                                                                                                                                                     OR<25

04963   N N N N N   09/11/2000  16      MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01 NONE    0  STRGHT                                                                  01
NONE                Mon          50     GATEWAY BLVD               E          (NONE)   UNKNOWN      N  DRY    REAR           PRVTE      E   W                                                000                01
                    1P                                             06             0                 N  DAY    INJ           PSNGR CAR           01 DRVR NONE  21 F OR-Y        026                          01
                                                                                (02)                                                                         OR<25

                                                                                                                          02 NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                011
                                                                                                                            PSNGR CAR           01 DRVR NONE  38 M OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                                02 PSNG INJC  31 F

01988   N N N       04/25/2003  16      MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01 NONE    0  STRGHT                                                                  01
NONE                Fri          100    GATEWAY BLVD               E          (NONE)   UNKNOWN      N  DRY    REAR           PRVTE      W   E                                                000                00
                    6P                                             07                               N  DAY    INJ           PSNGR CAR           01 DRVR INJC  17 F OR-Y        026         000              01
                                                                                (02)                                                                         OR<25

                                                                                                                          02 NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                011                00
                                                                                                                            PSNGR CAR           01 DRVR NONE  18 F OR-Y        000         000              00
                                                                                                                                                                     OR<25
```

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CITY OF COTTAGE GROVE,  LANE COUNTY                                                                    City of Cottage Grove
                                                                                             January 1, 2000 Through December 31, 2004

        S   D
        P   R S W                                                        INT-TYP                                         SPCL USE
        E A U C O   DATE         CLASS  CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                   A   S
SER#    E L G H R   DAY          DIST   FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM       PRTC  INJ   G   E LICNS  PED
INVEST  D C S L K   TIME         FROM   SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P# TYPE  SVRTY E   X RES    LOC  ERROR       ACTN  EVENT        CAUSE

06084   N N N       12/04/2003   16     MAIN ST                    STRGHT              N            N  RAIN   S-1STOP     01  NONE   0   STRGHT                                                                  01
NONE                Thu           400   GATEWAY BLVD               E           (NONE)  UNKNOWN      N  WET    REAR            PRVTE      E   W                                                 000               00
                    4P                                             08                               N  DUSK   PDO           PSNGR CAR            01 DRVR  NONE  22  M OR-Y        026          000               01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      E   W                                                 011               00
                                                                                                                            PSNGR CAR            01 DRVR  NONE  19  F OR-Y        000          000               00
                                                                                                                                                                      OR<25

05929   N N N N N   11/14/2002   16     MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01  NONE   0   STRGHT                                                                  01
NONE                Thu           100   GATEWAY BLVD               W           (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000               01
                    12P                                            08             0                 N  DAY    PDO           PSNGR CAR            01 DRVR  NONE  36  F OR-Y        026                            01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR            01 DRVR  NONE  33  F OR-Y        000
                                                                                                                                                                      OR<25

03918   N N N N N   07/27/2001   16     MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01  NONE   0   STRGHT                                                                  01
NONE                Fri           200   GATEWAY BLVD               W           (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000               01
                    5P                                             08             0                 N  DAY    PDO           PSNGR CAR            01 DRVR  NONE  49  F OR-Y        026                            01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR            01 DRVR  NONE  45  M OR-Y        000
                                                                                                                                                                      OR<25

01176   N N N       03/09/2003   16     MAIN ST                    STRGHT              N            N  RAIN   S-1STOP     01  NONE   0   STRGHT                                                                  01
NONE                Sun           10    GOSHEN-DIVIDE HY           E           (NONE)  UNKNOWN      N  WET    REAR            PRVTE      E   W                                                 000               00
                    5P                                             06                               N  DAY    INJ           PSNGR CAR            01 DRVR  NONE  99  M OR-Y        026          000               01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      E   W                                                 011               00
                                                                                                                            PSNGR CAR            01 DRVR  NONE  51  M OR-Y        000          000               00
                                                                                                                                                                      OR<25
                                                                                                                                                 02 PSNG  INJC  70  F             000          000               00

04179   N N N N N   08/10/2001   16     MAIN ST                    STRGHT              N            N  CLR    S-1STOP     01  NONE   0   STRGHT                                                                  01
NO RPT              Fri           200   GOSHEN-DIVIDE HY           E           (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                 000               01
                    4P                                             07             0                 N  DAY    PDO           PSNGR CAR            01 DRVR  NONE  17  F OR-Y        026                            01
                                                                                (02)                                                                                  OR<25

                                                                                                                          02  NONE   0   STOP
                                                                                                                              PRVTE      W   E                                                 011
                                                                                                                            PSNGR CAR            01 DRVR  NONE  18  M OR-Y        000
                                                                                                                                                                      OR<25

02858   N N N N N   06/02/2001   16     MAIN ST                    ALLEY               N            N  CLD    ANGL-OTH    01  NONE   0   BACK                                                                    10
NONE                Sat           100   O ST                       E           (NONE)  UNKNOWN      N  DRY    BACK            PRVTE      N   S                                                 018
                    5P                                             08             0                 Y  DAY    PDO           PSNGR CAR            01 DRVR  NONE  82  F OR-Y        011                            10
                                                                                (02)                                                                                  OR<25
```

```
        S   D
        P   R S W                                                              INT-TYP                                         SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL  OFF-RD WTHR   CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-    RNDBT  SURF   COLL TYP        OWNER      FROM       PRTC  INJ    G  E LICNS   PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL    DRVWY  LIGHT  SVRTY       V#  VEH TYPE   TO    P#  TYPE  SVRTY  E  X RES     LOC ERROR        ACTN EVENT        CAUSE

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      E   W                                                  000
                                                                                                                             PSNGR CAR           01  DRVR  NONE   53 F OR-Y        000
                                                                                                                                                                       OR<25

04569   N Y N N N   09/10/2002   16      MAIN ST                    STRGHT              N            Y  CLR    PRKD MV    01  NONE    0  STRGHT                                                                  09
CITY                Tue           50     Q ST                       E           (NONE)  UNKNOWN      N  DRY    SS-O           PRVTE      E   W                                                  000
                    11P                                             06             0                 N  DLIT   PDO          PSNGR CAR           01  DRVR  NONE   20 M OR-Y        026                            09
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      E   W                                                  008
                                                                                                                             PSNGR CAR

00131   N N N N N   01/06/2000   16      MAIN ST                    INTER       CROSS   N            N  RAIN   S-1STOP    01  NONE    0  STRGHT                                                                  01
CITY                Thu           0      RIVER RD                   E                   UNKNOWN      N  WET    REAR           PRVTE      E   W                                                  000              01
                    6P                                              06             0                 N  DLIT   INJ          PSNGR CAR           01  DRVR  NONE   48 M OR-Y        026                            01
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      E   W                                                  011
                                                                                                                             PSNGR CAR           01  DRVR  INJC   40 F OR-Y        000
                                                                                                                                                                       OR<25

03376   N N N N N   07/11/2002   16      MAIN ST                    STRGHT              N            N  CLR    S-1STOP    01  NONE    0  STRGHT                                                                  01
NONE                Thu           100    RIVER RD                   W           (NONE)  UNKNOWN      N  DRY    REAR           PRVTE      E   W                                                  000              01
                    4P                                              07             0                 N  DAY    PDO          PSNGR CAR           01  DRVR  NONE   17 M OR-Y        026                            01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      E   W                                                  011
                                                                                                                             PSNGR CAR           01  DRVR  NONE   17 M OR-Y        000
                                                                                                                                                                       OR<25

00309   N N N       01/30/2004   16      MAIN ST                    STRGHT              N            N  CLR    S-STRGHT   01  NONE    0  STRGHT                                                                  10
NONE                Fri           200    RIVER RD                   W           (NONE)  UNKNOWN      N  DRY    PARK           PRVTE      E   W                                                  008              00
                    3P                                              07                               N  DAY    PDO          PSNGR CAR           01  DRVR  NONE   60 F OR-Y        018          000              10
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      E   W                                                  000              00
                                                                                                                             PSNGR CAR           01  DRVR  NONE   21 F OR-Y        000          000              00
                                                                                                                                                                       OR<25

06881   N N N N N   12/16/2001   16      MAIN ST                    INTER       CROSS   N            N  RAIN   ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NO RPT              Sun           0      RIVER RD                   CN                  UNKNOWN      N  WET    ANGL           PRVTE      NE  SW                                                 000
                    6P                                              03             0                 N  DLIT   PDO          PSNGR CAR           01  DRVR  NONE   36 M OR-Y        028                            02
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      W   E                                                  000
                                                                                                                             PSNGR CAR           01  DRVR  NONE   37 M OR-Y        000
                                                                                                                                                                       OR<25
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        S   D
        P   R S W                                                             INT-TYP                                         SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT      LEGS    TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS   PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES     LOC ERROR        ACTN EVENT        CAUSE

04508   N N N       09/11/2003   16      MAIN ST                    INTER       CROSS   N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Thu           0      RIVER RD                   CN                  UNKNOWN      N  DRY    ANGL            PRVTE      W   E                                                  000              00
                    2P                                              03            99                 N  DAY    PDO           PSNGR CAR            01  DRVR NONE   38 F OR-Y        000         000              00
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      NE  SW                                                 000              00
                                                                                                                             PSNGR CAR            01  DRVR NONE   29 M OR-Y        028         000              02
                                                                                                                                                                       OR<25
01751   N N N       03/28/2004   16      MAIN ST                    INTER       CROSS   N            N  CLR    ANGL-OTH    01  NONE    0  STRGHT                                                                  02
                    Sun           0      RIVER RD                   CN                  STOP SIGN    N  DRY    TURN            PRVTE      NE  SW                                                 015              00
                    2P                                              03            99                 N  DAY    PDO           PSNGR CAR            01  DRVR NONE   00 M OR-Y        028         000              02
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      W   NE                                                 000              00
                                                                                                                             PSNGR CAR            01  DRVR NONE   20 F OR-Y        000         000              00
                                                                                                                                                                       OR<25
05218   N N N       10/21/2003   16      MAIN ST                    INTER       CROSS   N            N  CLR    O-1TURN     01  NONE    0  STRGHT                                                                  02
CITY                Tue           0      RIVER RD                   CN                  UNKNOWN      N  DRY    TURN            PRVTE      SW  NE                                                 000              00
                    8P                                              04            99                 N  DLIT   PDO           PSNGR CAR            01  DRVR NONE   43 M OR-Y        000         000              00
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      NE  E                                                  000              00
                                                                                                                             PSNGR CAR            01  DRVR NONE   16 F OR-Y        004         000              02
                                                                                                                                                                       OR<25
03410   N N N       09/23/2004   16      MAIN ST                    STRGHT              N            Y  CLR    FIX OBJ     01  NONE    0  STRGHT                                                     040          01
                    Thu           30     S ST                       E          (NONE)   UNKNOWN      N  DRY    FIX             PRVTE      E   W                                                  000 040          00
                    1A                                              06                               N  DLIT   PDO           PSNGR CAR            01  DRVR NONE   21 M OR-Y        047,081     017              01
                                                                                 (02)                                                                                  OR<25
01864   N N N       06/03/2004   16      MAIN ST                    STRGHT              N            Y  CLR    PRKD MV     01  NONE    0  STRGHT                                                                  01
CITY                Thu           50     S ST                       W          (NONE)   UNKNOWN      N  DRY    SS-O            PRVTE      E   W                                                  000              00
                    11P                                             05                               N  DLIT   INJ           PSNGR CAR            01  DRVR INJB   18 M OR-Y        026         017              01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  PRKD-P
                                                                                                                               PRVTE      E   W                                                  008              00
                                                                                                                             PSNGR CAR
01979   N N N N N   04/17/2001   16      MAIN ST                    ALLEY               N            N  CLR    S-1STOP     01  NONE    0  STRGHT                                                                  01
NONE                Tue           999    WHITEAKER AVE              W          (NONE)   UNKNOWN      N  DRY    REAR            PRVTE      W   E                                                  000              01
                    2P                                              06             0                 Y  DAY    PDO           PSNGR CAR            01  DRVR NONE   37 F OR-Y        026                          01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      W   E                                                  012
                                                                                                                             PSNGR CAR            01  DRVR NONE   23 M OR-Y        000
                                                                                                                                                                       OR<25
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CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove

January 1, 2000 Through December 31, 2004

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       S   D
       P   R S W                                                        INT-TYP                                    SPCL USE
       E A U C O  DATE        CLASS  CITY STREET              RD CHAR  (MEDIAN) INT-REL OFF-RD WTHR  CRASH TYP     TRLR QTY  MOVE                   A S
SER#   E L G H R  DAY         DIST   FIRST STREET             DIRECT     LEGS   TRAF-   RNDBT  SURF  COLL TYP      OWNER     FROM       PRTC INJ    G E LICNS  PED
INVEST D C S L K  TIME        FROM   SECOND STREET            LOCTN    (#LANES) CONTL   DRVWY  LIGHT SVRTY     V#  VEH TYPE  TO      P#  TYPE SVRTY  E X RES    LOC ERROR      ACTN EVENT       CAUSE

01018  N N N N N  03/01/2002  19     MAIN ST                  STRGHT            N           N  CLR   S-STRGHT  01  NONE   0  STRGHT                                                            10
NONE              Fri                WHITEAKER AVE            W         (NONE)  UNKNOWN     N  DRY   PARK          PRVTE     E   W                                             000
                  1P                                          07           0                N  DAY   PDO          PSNGR CAR          01 DRVR NONE  41 M OR-Y       000
                                                                         (02)                                                                           OR<25

                                                                                                               02  NONE   0  PARKNG
                                                                                                                   PRVTE     E   W                                             008
                                                                                                                  PSNGR CAR          01 DRVR NONE  18 M OR-Y       018                        10
                                                                                                                                                        OR<25
01164  N N N N N  03/02/2001  16     MAIN ST                  INTER      CROSS  N           N  RAIN  O-1TURN   01  NONE   0  STRGHT                                                            02
NONE              Fri          0     WHITEAKER AVE            CN                UNKNOWN     N  WET   TURN          PRVTE     S   N                                             000
                  5P                                          04           0                N  DUSK  PDO          PSNGR CAR          01 DRVR NONE  43 F OR-Y       000
                                                                                                                                                        OR<25

                                                                                                               02  NONE   0  TURN-L
                                                                                                                   PRVTE     N   E                                             000
                                                                                                                  PSNGR CAR          01 DRVR NONE  20 M OR-Y       004                        02
                                                                                                                                                        OR<25
00791  N N N      02/14/2003  19     OSTRANDER LN             CURVE             N           Y  RAIN  PRKD MV   01  NONE   0  STRGHT                                                            01
NONE              Fri          100     16TH ST                NW        (NONE)  UNKNOWN     N  WET   SS-M          PRVTE     NW  SE                                            000            00
                  11P                                         07                            N  DLIT  PDO          PSNGR CAR          01 DRVR NONE  17 M OR-Y       026         017            01
                                                                         (02)                                                                           OR<25

                                                                                                               02  NONE   0  PRKD-P
                                                                                                                   PRVTE     SE  NW                                            008            00
                                                                                                                  PSNGR CAR
03840  N N N N N  07/25/2001  19     OSTRANDER LN             ALLEY             N           Y  CLR   PRKD MV   01  NONE   0  BACK                                                              10
NONE              Wed          999   00000                    UN        (NONE)  UNKNOWN     N  DRY   BACK          PRVTE     E   W                                             018
                  6P                                          00           0                Y  DAY   PDO          PSNGR CAR          01 DRVR NONE  76 F OR-Y       011                        10
                                                                         (02)                                                                           OR<25

                                                                                                               02  NONE   0  PRKD-P
                                                                                                                   PRVTE     NW  SE                                            008
                                                                                                                  PSNGR CAR
01567  N N N N N  04/05/2002  19     OSTRANDER LN             ALLEY             N           Y  CLR   PRKD MV   01  NONE   0  BACK                                                              10
NONE              Fri                16TH ST                  SE        (NONE)  UNKNOWN     N  DRY   BACK          PRVTE     E   W                                             018
                  2P                                          07           0                Y  DAY   PDO          PSNGR CAR          01 DRVR NONE  75 M OR-Y       011                        10
                                                                         (02)                                                                           OR<25

                                                                                                               02  NONE   0  PRKD-P
                                                                                                                   PRVTE     NW  SE                                            008
                                                                                                                  PSNGR CAR
06182  N N N N N  11/29/2002  19     PARKS RD                 ALLEY             N           N  FOG   PRKD MV   01  NONE   0  BACK                                                              10
NONE              Fri          999   HILLSIDE DR              E         (NONE)  UNKNOWN     N  DRY   BACK          PRVTE     N   S                                             018
                  9P                                          07           0                Y  DARK  PDO          PSNGR CAR          01 DRVR NONE  46 M OR-Y       011                        10
                                                                         (02)                                                                           OR<25

                                                                                                               02  NONE   0  PRKD-P
                                                                                                                   PRVTE     W   E                                             008
                                                                                                                  PSNGR CAR
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        S   D
        P   R S W                                                     INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P# TYPE  SVRTY  E  X RES    LOC  ERROR       ACTN EVENT        CAUSE

01247   N N N N N   03/15/2002  19      PENNOYER AVE               ALLEY               N            Y  RAIN  PRKD MV     01  NONE    0  BACK                                                                    10
NONE                Fri          300    DOUGLAS ST                 NW          (NONE)  UNKNOWN      N  WET   BACK            PRVTE      E   W                                                 018
                    6P                                             08             0                 Y  DUSK  PDO            PSNGR CAR          01 DRVR  NONE   44 F OR-Y        011                            10
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE    0  PRKD-P
                                                                                                                             PRVTE      NW  SE                                                008
                                                                                                                            PSNGR CAR

03109   N N N       09/02/2004  19      QUINCY AVE                 INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  02
                    Thu          0         6TH ST                  CN                  UNKNOWN      N  DRY   ANGL            PRVTE      S   N                                                 000               00
                    9A                                             02            99                 N  DAY   PDO            PSNGR CAR          01 DRVR  NONE   71 F OR-Y        028         000               02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      E   W                                                 000               00
                                                                                                                            PSNGR CAR          01 DRVR  NONE   70 F OR-Y        000         000               00
                                                                                                                                                                     OR<25
01118   N N N       04/02/2004  19      QUINCY AVE                 INTER       3-LEG   N            N  CLR   ANGL-OTH    01  NONE    0  TURN-L                                                                  02
NONE                Fri          0        12TH ST                  CN                  UNKNOWN      N  DRY   TURN            PRVTE      S   W                                                 000               00
                    6P                                             01            99                 N  DAY   PDO            PSNGR CAR          01 DRVR  NONE   00 F OR-Y        028         000               02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      E   W                                                 000               00
                                                                                                                            PSNGR CAR          01 DRVR  NONE   16 F OR-Y        000         000               00
                                                                                                                                                                     OR<25
05663   N N N N N   11/05/2002  19      QUINCY AVE                 INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  02
CITY                Tue          0      6TH ST                     CN                  STOP SIGN    N  DRY   ANGL            PRVTE      E   W                                                 015
                    7P                                             01             0                 N  DLIT  INJ            PSNGR CAR          01 DRVR  INJC   18 F OR-Y        028                            02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                 000
                                                                                                                            PSNGR CAR          01 DRVR  NONE   17 F OR-Y        000
                                                                                                                                                                     OR<25
03878   N N N       08/10/2003  19      R ST                       STRGHT              N            Y  CLR   PRKD MV     01  NONE    0  STRGHT                                                                  01
CITY                Sun          100    BRYANT AVE                 S           (NONE)  UNKNOWN      N  DRY   SS-O            PRVTE      S   N                                                 000               00
                    7P                                             08                               N  DAY   PDO            PSNGR CAR          01 DRVR  NONE   22 F OTH-Y       026         000               01
                                                                                (02)                                                                                     N-RES

                                                                                                                         02  NONE    0  PRKD-P
                                                                                                                             PRVTE      S   N                                                 008               00
                                                                                                                            PSNGR CAR
00811   N N N       03/12/2004  19      R ST                       STRGHT              N            Y  CLR   FIX OBJ     01  NONE    0  STRGHT                                                    040,053       01
NONE                Fri          40     HARRISON AVE               N           (NONE)  UNKNOWN      N  DRY   FIX             PRVTE      N   S                                                 000 040,053       00
                    2P                                             06                               N  DAY   PDO            PSNGR CAR          01 DRVR  NONE   17 M OR-Y        047,081     017               01
                                                                                (02)                                                                                     OR<25
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        S   D
        P   R S W                                                               INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS   PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES     LOC  ERROR       ACTN EVENT         CAUSE

01682   N N N       05/25/2004   19      RIVER RD                   ALLEY               N            N  CLR    S-1STOP     01  NONE    0  STRGHT                                                                   01
NONE                Tue           150    H ST                       SW          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      SW  NE                                                 000               00
                    4P                                              08                               N  DAY    PDO            PSNGR CAR           01  DRVR NONE   59 F OR-Y         026          000               01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      SW  NE                                                 011               00
                                                                                                                              PSNGR CAR           01  DRVR NONE   41 F OR-Y         000          000               00
                                                                                                                                                                       OR<25
01890   N N N       04/20/2003   19      RIVER RD                   STRGHT              N            N  CLR    S-1STOP     01  NONE    0  STRGHT                                                                   01
NONE                Sun           500    MAIN ST                    NE          (NONE)  UNKNOWN      N  DRY    REAR            PRVTE      NE  SW                                                 000               00
                    11A                                             08                               N  DAY    PDO            PSNGR CAR           01  DRVR NONE   18 M OR-Y         026          000               01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STOP
                                                                                                                               PRVTE      NE  SW                                                 011               00
                                                                                                                              PSNGR CAR           01  DRVR NONE   45 M OR-Y         000          000               00
                                                                                                                                                                       OR<25
02288   N N N       07/09/2004   19      RIVER RD                   ALLEY               N            N  CLR    S-1TURN     01  NONE    0  STRGHT                                                                   06
NONE                Fri           100    WHITAKER AVE               SW          (NONE)  UNKNOWN      N  DRY    TURN            PRVTE      SW  NE                                                 000               00
                    5P                                              07                               N  DAY    PDO            PSNGR CAR           01  DRVR NONE   00 M OR-Y         032          000               06
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      SW  W                                                  019               00
                                                                                                                              PSNGR CAR           01  DRVR NONE   18 F OR-Y         000          000               00
                                                                                                                                                                       OR<25
02139   N N N N N   04/24/2000   16      RIVER RD                   STRGHT              N            N  CLR    O-STRGHT    01  NONE    0  STRGHT                                                                   01
NO RPT              Mon           999    WOODSON PL                 SW          (NONE)  UNKNOWN      N  DRY    HEAD            PRVTE      SW  NE                                                                   01
                    6A                                              07             0                 N  DAY    PDO            PSNGR CAR           01  DRVR NONE   47 M OR-Y         039          038               01
                                                                                 (02)                                                                                  OR<25

                                                                                                                           02  NONE    0  STRGHT
                                                                                                                               PRVTE      NE  SW                                                 000
                                                                                                                              PSNGR CAR           01  DRVR NONE   25 F OR-Y         000
                                                                                                                                                                       OR<25
05506   N N N       11/05/2003   16      RIVER RD                   INTER        3-LEG  N            N  RAIN   ANGL-OTH    01  NONE    0  STRGHT                                                                   02
CITY                Wed           0      WOODSON PL                 CN                  UNKNOWN      N  WET    TURN            PRVTE      NE  SW                                                 000               00
                    2P                                              03            99                 N  DAY    PDO            PSNGR CAR           01  DRVR NONE   32 F OR-Y         000          000               00
                                                                                                                                                                       OR<25

                                                                                                                           02  NONE    0  TURN-L
                                                                                                                               PRVTE      NW  NE                                                 000               00
                                                                                                                              PSNGR CAR           01  DRVR NONE   80 M OR-Y         028          000               02
                                                                                                                                                                       OR<25
00076   N N N N N   01/04/2000   16      ROW RIVER RD               STRGHT              N            N  RAIN   S-1STOP     01  NONE    0  STRGHT                                                                   01
NONE                Tue           999    00000                      UN          (NONE)  UNKNOWN      N  WET    REAR            PRVTE      S   N                                                  000               01
                    4P                                              00             0                 N  DAY    INJ            PSNGR CAR           01  DRVR NONE   57 M OR-Y         026          000               01
                                                                                 (02)                                                                                  OR<25
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY      V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      S   N                                                 011
                                                                                                                            PSNGR CAR           01  DRVR INJC  38  M OR-Y        000
                                                                                                                                                                     OR<25

04933   N N N       10/10/2003  16      ROW RIVER RD               ALLEY               N            N  CLR   O-1TURN     01  NONE   0  STRGHT                                                                  02
NONE                Fri          100    COTTAGE GROVE CON          S          (NONE)  UNKNOWN      N  DRY   TURN            PRVTE      S   N                                                 000               00
                    2P                                             08                               N  DAY   PDO         PSNGR CAR           01  DRVR NONE  24  M OR-Y        000          000               00
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  TURN-L
                                                                                                                             PRVTE      N   E                                                 019               00
                                                                                                                            PSNGR CAR           01  DRVR NONE  48  M OR-Y        004          000               02
                                                                                                                                                                     OR<25

03457   N N N       07/16/2003  16      ROW RIVER RD               STRGHT              N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Wed           10    COTTAGE GROVE CONN         S          (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      S   N                                                 000               00
                    12P                                            06                               N  DAY   PDO         PSNGR CAR           01  DRVR NONE  73  F OR-Y        026          000               01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  STOP
                                                                                                                             PRVTE      S   N                                                 011               00
                                                                                                                            PSNGR CAR           01  DRVR NONE  48  F OR-Y        000          000               00
                                                                                                                                                                     OR<25

04276   N N N N N   08/24/2002  16      ROW RIVER RD               STRGHT              N            N  CLR   S-1STOP     01  NONE   0  STRGHT                                                                  01
CITY                Sat           50    COTTAGE GROVE CONN         S          (NONE)  UNKNOWN      N  DRY   REAR            PRVTE      S   N                                                 000               01
                    5P                                             06             0                 N  DAY   INJ         PSNGR CAR           01  DRVR NONE  27  F OR-Y        026                            01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  STRGHT
                                                                                                                             PRVTE      S   N                                                 011
                                                                                                                            PSNGR CAR           01  DRVR INJB  34  F OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                                02  PSNG INJB  38  F

00839   N N N N N   02/16/2002  16      ROW RIVER RD               STRGHT              N            N  CLR   S-STRGHT    01  NONE   0  STRGHT                                                                  10
NONE                Sat                 COTTAGE GROVE CONN         S          (NONE)  UNKNOWN      N  DRY   PARK            PRVTE      N   S                                                 000
                    3P                                             07             0                 N  DAY   PDO         PSNGR CAR           01  DRVR NONE  54  M OR-Y        000
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  PARKNG
                                                                                                                             PRVTE      N   S                                                 008
                                                                                                                            PSNGR CAR           01  DRVR NONE  32  M OR-Y        018                            10
                                                                                                                                                                     OR<25

00850   N N N N N   02/21/2002  19      ROW RIVER RD               ALLEY               N            N  CLR   ANGL-OTH    01  NONE   0  STRGHT                                                                  02
NONE                Thu          300    COTTAGE GROVE CONN         S          (NONE)  UNKNOWN      N  DRY   TURN            PRVTE      S   N                                                 000
                    6P                                             08             0                 Y  DLIT  PDO         PSNGR CAR           01  DRVR NONE  46  M OR-Y        000
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE   0  TURN-L
                                                                                                                             PRVTE      E   S                                                 018
                                                                                                                            PSNGR CAR           01  DRVR NONE  32  M OR-Y        028                            02
                                                                                                                                                                     OR<25
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        S   D
        P   R S W
                                                                               INT-TYP                                       SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN EVENT       CAUSE

02004   N N N       06/12/2004  16      ROW RIVER RD               STRGHT              N             N CLR    S-STRGHT   01  NONE    0  STRGHT                                                                 06
NONE                Sat          100    DAVIDSON AVE               N           (NONE)  UNKNOWN       N DRY    SS-O           PRVTE      N   S                                                  000             00
                    2A                                             08                                N DLIT   PDO           PSNGR CAR          01  DRVR NONE   23 M OR-Y        045           000             06
                                                                                (04)                                                                                 OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                  000             00
                                                                                                                            PSNGR CAR          01  DRVR NONE   21 M OR-Y        000           000             00
                                                                                                                                                                     OR<25

03818   N N N       08/01/2003  17      ROW RIVER RD               STRGHT              N             N CLR    S-STRGHT   01  NONE    0  STRGHT                                                                 06
NONE                Fri          30     DAVIDSON AVE               S           (NONE)  UNKNOWN       N DRY    SS-O           PRVTE      N   S                                                  000             00
                    4P                                             05                                N DAY    PDO           PSNGR CAR          01  DRVR NONE   25 M OR-Y        045           000             06
                                                                                (04)                                                                                 OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                  000             00
                                                                                                                            PSNGR CAR          01  DRVR NONE   46 F OR-Y        000           000             00
                                                                                                                                                                     OR<25

03467   N N N       09/29/2004  19      ROW RIVER RD               CURVE               N             Y RAIN   FIX OBJ    01  NONE    0  STRGHT                                                     079,010     01
COUNTY              Wed          300    DAVIDSON AVE               S           (NONE)  UNKNOWN       N WET    FIX            PRVTE      S   N                                                  000 079,010     00
                    5P                                             08                                N DAY    INJ           PSNGR CAR          01  DRVR INJB   18 M OR-Y        047,081       017             01
                                                                                (02)                                                                                 OR<25
                                                                                                                                                                                                   079,010
                                                                                                                                                02  PSNG INJC   18 M             000           000             00
01343   N N N       04/23/2004  16      ROW RIVER RD               STRGHT              N             N CLR    S-1STOP    01  NONE    0  STRGHT                                                                 01
NONE                Fri          500    THORNTON LN                N           (NONE)  UNKNOWN       N DRY    REAR           PRVTE      S   N                                                  000             00
                    1P                                             07                                N DAY    PDO           PSNGR CAR          01  DRVR NONE   78 M OR-Y        042           000             01
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      S   N                                                  000             00
                                                                                                                            PSNGR CAR          01  DRVR NONE   47 M OR-Y        000           000             00
                                                                                                                                                                     OR<25
01716   N N N       05/21/2004  19      ROW RIVER RD               ALLEY               N             N CLR    O-1TURN    01  NONE    0  STRGHT                                                                 02
NONE                Fri          100    THORNTON LN                N           (NONE)  UNKNOWN       N DRY    TURN           PRVTE      N   S                                                  000             00
                    11A                                            08                                N DAY    PDO           PSNGR CAR          01  DRVR NONE   00 F UNK         000           000             00
                                                                                (02)                                                                                 UNK

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      S   W                                                  019             00
                                                                                                                            PSNGR CAR          01  DRVR NONE   54 F OR-Y        004           000             02
                                                                                                                                                                     OR<25
01321   N N N N N   03/01/2000  19      ROW RIVER RD               ALLEY               N             N CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                 02
CITY                Wed          500    THORNTON LN                S           (NONE)  NO-PASS-ZN    N DRY    TURN           PRVTE      N   S                                                  000
                    2P                                             07            0                   Y DAY    INJ           PSNGR CAR          01  DRVR NONE   42 F OR-Y        000
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      W   N                                                  018
                                                                                                                            PSNGR CAR          01  DRVR INJB   55 F OR-Y        028                           02
                                                                                                                                                                     OR<25
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        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P# TYPE  SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

00578   N N N       02/03/2003  16      ROW RIVER RD               ALLEY               N            N  CLR    ANGL-OTH   01  NONE    0  TURN-L                                                                  02
NONE                Mon          500    THORNTON LN                S           (NONE)  UNKNOWN      N  DRY    TURN           PRVTE      E   S                                                 018               00
                    6P                                             07                               N  DLIT   PDO           PSNGR CAR          01 DRVR  NONE   75 M OR-Y        028          000               02
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                 000               00
                                                                                                                            PSNGR CAR          01 DRVR  NONE   54 M OR-Y        000          000               00
                                                                                                                                                                     OR<25

01602   N N N       04/05/2003  16      ROW RIVER RD               ALLEY               N            N  RAIN   ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NONE                Sat          100    THORNTON LN                S           (NONE)  UNKNOWN      N  WET    TURN           PRVTE      S   N                                                 000               00
                    7P                                             08                               N  DLIT   INJ           PSNGR CAR          01 DRVR  NONE   28 M OR-Y        000          000               00
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      E   S                                                 018               00
                                                                                                                            PSNGR CAR          01 DRVR  INJC   64 M OR-Y        028          000               02
                                                                                                                                                                     OR<25

02596   N N N       05/28/2003  16      ROW RIVER RD               INTER       3-LEG   N            N  CLR    ANGL-OTH   01  NONE    0  TURN-L                                                                  02
NONE                Wed           0     THORNTON LN                CN                  UNKNOWN      N  DRY    TURN           PRVTE      E   S                                                 000               00
                    7P                                             01            99                 N  DAY    PDO           PSNGR CAR          01 DRVR  NONE   25 M OR-Y        028          000               02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      N   E                                                 000               00
                                                                                                                            PSNGR CAR          01 DRVR  NONE   22 F OR-Y        000          000               00
                                                                                                                                                                     OR<25

02893   N N N N N   06/04/2001  16      ROW RIVER RD               ALLEY               N            N  CLR    ANGL-OTH   01  NONE    0  STRGHT                                                                  02
NONE                Mon          999    THORNTON RD                N           (NONE)  UNKNOWN      N  DRY    TURN           PRVTE      N   S                                                 000
                    11A                                            06             0                 Y  DAY    PDO           PSNGR CAR          01 DRVR  NONE   28 M OR-Y        000
                                                                                (02)                                                                                 OR<25

                                                                                                                         02  NONE    0  TURN-L
                                                                                                                             PRVTE      W   N                                                 018
                                                                                                                            PSNGR CAR          01 DRVR  NONE   79 F OR-Y        028                            02
                                                                                                                                                                     OR<25

01426   N N N N N   03/20/2001  16      ROW RIVER RD               INTER       3-LEG   N            N  CLR    ANGL-OTH   01  NONE    0  TURN-L                                                                  02
NONE                Tue           0     THORNTON RD                CN                  UNKNOWN      N  DRY    TURN           PRVTE      E   S                                                 000
                    5P                                             01             0                 N  DAY    PDO           PSNGR CAR          01 DRVR  NONE   50 M OR-Y        028                            02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      N   S                                                 000
                                                                                                                            PSNGR CAR          01 DRVR  NONE   16 F OR-Y        000
                                                                                                                                                                     OR<25

01153   N N N N N   03/12/2002  16      ROW RIVER RD               INTER       CROSS   N            N  RAIN   ANGL-OTH   01  NONE    0  STRGHT                                                                  02
CITY                Tue           0     THORNTON RD                CN                  STOP SIGN    N  WET    ANGL           PRVTE      NE  SW                                                015
                    3P                                             01             0                 N  DAY    INJ           PSNGR CAR          01 DRVR  NONE   19 M OR-Y        028                            02
                                                                                                                                                                     OR<25
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CITY OF COTTAGE GROVE, LANE COUNTY

City of Cottage Grove

January 1, 2000 Through December 31, 2004

```
        S   D
        P   R S W                                                             INT-TYP                                       SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP       TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP        OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN  EVENT        CAUSE

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      SE  NW                                                000
                                                                                                                            PSNGR CAR          01  DRVR INJC   32 M OR-Y        000
                                                                                                                                                                     OR<25
                                                                                                                                               02  PSNG INJC   05 F

01250   N N N N N   03/15/2002  16      ROW RIVER RD               INTER       CROSS   N            N  RAIN  ANGL-OTH    01  NONE    0  STRGHT                                                                  03
NO RPT              Fri          0      THORNTON RD                CN                  STOP SIGN    N  WET   ANGL            PRVTE      SW  NE                                                000
                    5P                                             01             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   34 F OR-Y        021                         03
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      NW  SE                                                000
                                                                                                                            PSNGR CAR          01  DRVR NONE   45 M OR-Y        000
                                                                                                                                                                     OR<25

00129   N N N N N   01/07/2001  16      ROW RIVER RD               INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Sun          0      THORNTON RD                CN                  UNKNOWN      N  DRY   ANGL            PRVTE      NE  SW                                                000
                    5P                                             02             0                 N  DUSK  PDO            PSNGR CAR          01  DRVR NONE   17 F OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      SE  NW                                                000
                                                                                                                            PSNGR CAR          01  DRVR NONE   31 M OR-Y        028                         02
                                                                                                                                                                     OR<25

03135   N N N N N   06/17/2001  16      ROW RIVER RD               INTER       CROSS   N            N  CLR   ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NO RPT              Sun          0      THORNTON RD                CN                  UNKNOWN      N  DRY   ANGL            PRVTE      S   N                                                 000
                    11A                                            04             0                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   56 F OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      W   E                                                 000
                                                                                                                            PSNGR CAR          01  DRVR NONE   30 M OR-Y        028                         02
                                                                                                                                                                     OR<25

00386   N N N       02/06/2004  19      TAYLOR AVE                 INTER       CROSS   N            N  RAIN  ANGL-OTH    01  NONE    0  STRGHT                                                                  02
NONE                Fri          0         6TH ST                  CN                  UNKNOWN      N  WET   ANGL            PRVTE      N   S                                                 000               00
                    3P                                             03            99                 N  DAY   PDO            PSNGR CAR          01  DRVR NONE   78 F OR-Y        028          000               02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      W   E                                                 000               00
                                                                                                                            PSNGR CAR          01  DRVR NONE   57 F OR-Y        000          000               00
                                                                                                                                                                     OR<25

05105   N N N N N   10/03/2002  17      TAYLOR AVE                 INTER       3-LEG   N            N  RAIN  ANGL-STP    01  NONE    0  TURN-L                                                                  08
NO RPT              Thu          0      10TH ST                    E                   STOP SIGN    N  WET   TURN            PRVTE      N   E                                                 000
                    8P                                             06             0                 N  DARK  PDO            PSNGR CAR          01  DRVR NONE   00 U UNK         002                         08
                                                                                                                                                                     UNK

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      E   W                                                 011
                                                                                                                            PSNGR CAR          01  DRVR NONE   41 F OR-Y        000
                                                                                                                                                                     OR<25
```

```
        S   D
        P   R S W                                                               INT-TYP                                        SPCL USE
        E A U C O   DATE         CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                   A  S
SER#    E L G H R   DAY          DIST    FIRST STREET               DIRECT      LEGS    TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM       PRTC  INJ    G  E LICNS   PED
INVEST  D C S L K   TIME         FROM    SECOND STREET              LOCTN     (#LANES)  CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE  SVRTY  E  X RES     LOC  ERROR        ACTN EVENT         CAUSE

02296   N N N N N   05/05/2001   19      TAYLOR AVE                 STRGHT              N           Y  CLR    PRKD MV     01  NONE   0  STRGHT                                                                  12
NO RPT              Sat           500    10TH ST                    W           (NONE)  UNKNOWN     N  DRY    SS-O            PRVTE      E   W                                                  000
                    12P                                             08             0                N  DAY    PDO           PSNGR CAR           01 DRVR  NONE  42 M OR-Y         000
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE   0  PRKD-P
                                                                                                                              PRVTE      E   W                                                  008
                                                                                                                            PSNGR CAR

01989   N N N N N   04/14/2000   17      TAYLOR AVE                 INTER       3-LEG   N           N  CLD    PED         01  NONE   0  STRGHT                                                                  02
CITY                Fri           0      10TH ST                    CN                  STOP SIGN   N  WET    PED             PRVTE      E   W                                                  000
                    2P                                              02             0                N  DAY    INJ           PSNGR CAR           01 DRVR  NONE  16 M OR-Y         000
                                                                                                                                                                      OR<25
                                                                                                                                         STRGHT  01 PED   INJB  16 F        01  055          035           02
                                                                                                                                         S   N

00335   N N N N N   01/23/2002   19      TAYLOR AVE                 STRGHT              N           N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Wed           100    6TH ST                     E           (NONE)  UNKNOWN     N  DRY    REAR            PRVTE      E   W                                                  000           01
                    2P                                              08             0                N  DAY    PDO           PSNGR CAR           01 DRVR  NONE  17 M OR-Y         026                        01
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE      E   W                                                  011
                                                                                                                            PSNGR CAR           01 DRVR  NONE  18 M OR-Y         000
                                                                                                                                                                      OR<25

01412   N N N N N   03/13/2000   17      TAYLOR AVE                 ALLEY               N           N  RAIN   ANGL-OTH    01  NONE   0  STRGHT                                                                  10
CITY                Mon           250    G ST                       W           (NONE)  UNKNOWN     N  WET    BACK            PRVTE      W   E                                                  000
                    2P                                              08             0                Y  DAY    PDO           PSNGR CAR           01 DRVR  NONE  31 M OR-Y         000
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE   0  BACK
                                                                                                                              PRVTE      N   S                                                  018
                                                                                                                            PSNGR CAR           01 DRVR  NONE  64 M OR-Y         011                        10
                                                                                                                                                                      OR<25

03415   N N N       07/13/2003   19      THORNTON LN                STRGHT              N           N  CLR    S-1STOP     01  NONE   0  STRGHT                                                                  01
NONE                Sun           100    ROW RIVER RD               W           (NONE)  UNKNOWN     N  DRY    REAR            PRVTE      S   N                                                  000           00
                    12P                                             08                              N  DAY    PDO           PSNGR CAR           01 DRVR  NONE  56 M OR-Y         026        000           01
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE      S   N                                                  011           00
                                                                                                                            PSNGR CAR           01 DRVR  NONE  42 M OR-Y         000        000           00
                                                                                                                                                                      OR<25

01399   N N N N N   03/17/2001   16      THORNTON RD                STRGHT              N           N  CLR    O-1STOP     01  NONE   0  BACK                                                                    10
NONE                Sat           30     ROW RIVER RD               NE          (NONE)  UNKNOWN     N  DRY    BACK            PRVTE      NE  SW                                                 000
                    1A                                              05             0                N  DLIT   PDO           PSNGR CAR           01 DRVR  NONE  36 M OR-Y         011                        10
                                                                                 (02)                                                                                 OR<25

                                                                                                                          02  NONE   0  STOP
                                                                                                                              PRVTE      SW  NE                                                 011
                                                                                                                            PSNGR CAR           01 DRVR  NONE  50 F OR-Y         000
                                                                                                                                                                      OR<25
```

```
        S   D
        P   R S W                                                              INT-TYP                                       SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR   CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF   COLL TYP       OWNER      FROM        PRTC INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT  SVRTY      V#  VEH TYPE   TO      P#  TYPE SVRTY  E  X RES    LOC  ERROR       ACTN EVENT         CAUSE

04545   N N N       09/14/2003  16      THORNTON RD                ALLEY               N            N  CLR    ANGL-OTH   01  NONE    0  BACK                                                                    10
NONE                Sun          100    WHITEAKER AVE              SW          (NONE)  UNKNOWN      N  DRY    BACK           PRVTE      W   E                                                 018               00
                    2P                                             07                               N  DAY    PDO           PSNGR CAR           01  DRVR NONE  30  M OR-Y        011          000               10
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      NE  SW                                                000               00
                                                                                                                            PSNGR CAR           01  DRVR NONE  16  F OR-Y        000          000               00
                                                                                                                                                                     OR<25
00092   N N N N N   01/05/2000  17      TYLER AVE                  INTER       3-LEG   N            N  CLD    PED        01  NONE    0  TURN-L                                                                  02
CITY                Wed          0      10TH ST                    E                   UNKNOWN      N  WET    PED            PRVTE      E   S                                                 000
                    8A                                             06            0                  N  DAY    INJ           PSNGR CAR           01  DRVR NONE  64  M OR-Y        029                            02
                                                                                                                                                                     OR<25
                                                                                                                                        STRGHT  01  PED  INJC  15  F        04   000          037
                                                                                                                                        N   S
05106   Y N N N N   09/19/2000  19      WASHINGTON AVE             INTER       CROSS   N            Y  CLR    PRKD MV    01  NONE    0  TURN-L                                                                  01
NO RPT              Tue          0      11TH ST                    S                   UNKNOWN      N  DRY    TURN           PRVTE      E   S                                                                   01
                    3P                                             05            0                  N  DAY    PDO           PSNGR CAR           01  DRVR NONE  17  F OR-Y        047          017               01
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  PRKD-P
                                                                                                                             PRVTE      S   N                                                 008
                                                                                                                            PSNGR CAR
06860   N N N N N   12/15/2000  16      WHITEAKER AVE              INTER       CROSS   N            N  CLD    ANGL-OTH   01  NONE    0  STRGHT                                                    013           02
NO RPT              Fri          0      6TH ST                     CN                  UNKNOWN      N  WET    ANGL           PRVTE      N   S                                                 000
                    11A                                            01            0                  N  DAY    INJ           PSNGR CAR           01  DRVR NONE  61  F OR-Y        028                            02
                                                                                                                                                                     OR<25

                                                                                                                         02  NONE    0  STRGHT
                                                                                                                             PRVTE      E   W                                                 000 013
                                                                                                                            PSNGR CAR           01  DRVR INJC  53  F OR-Y        000
                                                                                                                                                                     OR<25

                                                                                                                         03  NONE    0  PRKD-P
                                                                                                                             PRVTE      W   E                                                 008
                                                                                                                            PSNGR CAR
02745   N N N       06/06/2003  19      WHITEAKER AVE              STRGHT              N            N  CLR    S-1STOP    01  NONE    0  STRGHT                                                                  01
NONE                Fri          100    MAIN ST                    E           (NONE)  UNKNOWN      N  DRY    REAR           PRVTE      W   E                                                 000               00
                    3P                                             07                               N  DAY    PDO           PSNGR CAR           01  DRVR NONE  60  M OR-Y        026          000               01
                                                                                (02)                                                                                     OR<25

                                                                                                                         02  NONE    0  STOP
                                                                                                                             PRVTE      W   E                                                 011               00
                                                                                                                            PSNGR CAR           01  DRVR NONE  45  F OR-Y        000          000               00
                                                                                                                                                                     OR<25
00310   N N N N N   01/19/2000  16      WHITEAKER AVE              STRGHT              N            N  CLD    S-STRGHT   01  NONE    0  STRGHT                                                                  06
CITY                Wed          999    MAIN ST                    E           (NONE)  UNKNOWN      N  DRY    SS-O           PRVTE      W   E                                                 000
                    4P                                             07            0                  N  DUSK   INJ           PSNGR CAR           01  DRVR INJC  37  M OR-Y        045                            06
                                                                                (03)                                                                                     OR<25
```

```
        S   D
        P   R S W                                                             INT-TYP                                        SPCL USE
        E A U C O   DATE        CLASS   CITY STREET                RD CHAR    (MEDIAN) INT-REL OFF-RD  WTHR  CRASH TYP      TRLR QTY   MOVE                    A  S
SER#    E L G H R   DAY         DIST    FIRST STREET               DIRECT       LEGS   TRAF-   RNDBT   SURF  COLL TYP       OWNER      FROM       PRTC  INJ    G  E LICNS  PED
INVEST  D C S L K   TIME        FROM    SECOND STREET              LOCTN      (#LANES) CONTL   DRVWY   LIGHT SVRTY       V# VEH TYPE   TO      P# TYPE  SVRTY  E  X RES    LOC  ERROR      ACTN EVENT       CAUSE

                                                                                                                         02 NONE    0  STRGHT
                                                                                                                            PRVTE      W   E                                                   000
                                                                                                                           PSNGR CAR          01 DRVR  NONE  39  F OR-Y        000
                                                                                                                                                                    OR<25
```

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP ANOTHER VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF-ROAD
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SP
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS--RAG	DISREGARDED R-A-G TRAFFIC SIGNAL.
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST CLOTHING NOT VISIBLE
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (CITATION ISSUED)
33	RECKLESS	RECKLESS DRIVING (CITATION ISSUED)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1TURN	FROM OPPOSITE DIRECTION - ONE TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	NO DIM	FAILED TO DIM LIGHTS (UNTIL 4/1/97) / INATTENTION (AFTER 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING, EXITING PARKED POSITION WITH INSUFFICIENT CLEARANCE OR OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY (VEHICLE IS DELIBERATELY TRAVELING ON WRONG SIDE)
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION – NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION – TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAYON RD	STANDING OR LYING IN ROADWAY
073	DIS POL	DISREGARDING POLICE (ELUDING)
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER CORRECTING
084	INATTENT	INATTENTION (4/1/1997)
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	PED INV	PEDESTRIAN INVOLVED (NON-PEDESTRIAN ACCIDENT)
005	SUB-PED	“SUB-PED”: PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	BIKE INV	TRICYCLE-BICYCLE INVOLVED
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE (OCCUPANTS ONLY)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BARS OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING (ON BRIDGE AND APPROACH)
047	BR ABUT	BRIDGE ABUTMENT (APPROACH ENDS)
048	BR COLMN	BRIDGE PILLAR OR COLUMN (EVEN THOUGH STRUCK PROTECTIVE GUARD RAIL FIRST)
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE – TYPE UNKNOWN
053	POLE UTL	POLE – POWER OR TELEPHONE
054	ST LIGHT	POLE – STREET LIGHT ONLY
055	TRF SGNL	POLE – TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE – SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, ROCKS OFF OR ON ROAD, FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	SPEED BUMP, OTHER BUMP, POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	HOLE	CHUCKHOLE IN ROAD, LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ F MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY OTHER MOVING OR FLYING OBJECT
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTH ACDT	ACCIDENT RELATED TO ANOTHER SEPARATE ACCIDENT
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE (ON PAR OR REPORT)
093	CELL-POL	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL-WTN	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	UNKNOWN TYPE OF FIXED OBJECT
101	OTHER OBJ	OTHER OR UNKNOWN OBJECT, NOT FIXED
104	OUTSIDE V	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR/TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE
125	SHLDR	SHOULDER GAVE WAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONV
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING A
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
01	PSNGR CAR	PASSENGER CAR, PICKUP, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, MOTOR SCOOTER, OR MOTOR BICYCLE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

APPENDIX L: Study Intersection Operational Performance

Existing Weekday PM Peak Hour Intersection Level of Service

Intersection	Jurisdiction	Performance Standard (v/c)	Volume / Capacity	Level of Service	Average Delay (Sec)	Standard Met?	PHF Measured	PHF Applied
Signalized Intersections								
I-5 SB Ramp/Cottage Grove Connector	ODOT	0.85	**0.88**	D	44	**No**	-	0.92
I-5 NB Ramp/Row River Road	ODOT	0.85	0.53	B	14	Yes	-	0.92
OR 99/Woodson Place	ODOT	0.90	0.58	A	10	Yes	0.94	0.94
OR 99/Main Street	ODOT	0.90	0.71	D	50	Yes	0.92	0.92
OR 99/6th Street	ODOT	0.90	0.33	B	11	Yes	0.87	0.87
OR 99/4th Street	ODOT	0.90	0.33	B	19	Yes	-	0.92
Main Street/River Road	City	0.90	0.41	B	17	Yes	-	0.92
Main Street/16th Street	City	0.90	0.59	B	17	Yes	-	0.92
Main Street/Gateway Boulevard	City	0.90	0.78	C	28	Yes	-	0.92
Unsignalized Intersections								
OR 99/River Road	ODOT/Lane	0.80 / 0.85	0.03 / 0.23	A / B	3	Yes	-	0.92
Harrison Avenue/River Road*	City	E	0.22	A	9	Yes	-	0.92
Main Street/R Street	City	E	0.05 / 0.10	A / B	3	Yes	-	0.92
Monroe Avenue/10th Street	City	E	0.01 / 0.06	A / B	2	Yes	-	0.92
Taylor Avenue/8th Street*	City	E	0.18	A	8	Yes	-	0.92
I-5/6th Street (southbound off ramp)	ODOT/Lane	0.80 / 0.85	0.23	A / B	5	Yes	-	0.92
I-5 NB OFF Ramp Right Turn /Row River Road	ODOT	0.85	0.12	A / B	1	Yes	-	0.92
OR 99/Cottage Grove Connecter (OR 99 northbound & southbound)	ODOT	0.90	0.31	A / C	5	Yes	-	0.92
OR 99/Cottage Grove Connecter (CGC northbound right turn)	ODOT	0.90	0.03 / 0.09	A / A	3	Yes	-	0.92
OR 99/Cottage Grove Connecter (OR 99 easbound left turn)	ODOT	0.90	0.17	A / C	1	Yes	-	0.92

Future Weekday PM Peak Hour Intersection Level of Service - Previously Identified Projects Scenario (with Future Streets)

Intersection	Jurisdiction	Performance Standard (v/c)	Volume / Capacity	Level of Service	Average Delay (Sec)	Standard Met?	PHF Measured	PHF Applied
Signalized Intersections								
I-5 SB Ramp/Cottage Grove Connector	ODOT	0.80	**>1**	F	136	**No**	-	0.95
I-5 NB Ramp/Row River Road	ODOT	0.80	**0.89**	C	24	**No**	-	0.95
OR 99/Woodson Place	ODOT	0.80	**0.87**	C	23	**No**	0.94	0.95
OR 99/Main Street	ODOT	0.80	**>1**	F	108	**No**	0.92	0.95
OR 99/6th Street	ODOT	0.80	0.66	B	13	Yes	0.87	0.92
OR 99/4th Street	ODOT	0.80	0.54	C	21	Yes	-	0.92
Main Street/River Road	City	0.90	0.72	B	20	Yes	-	0.92
Main Street/16th Street	City	0.90	0.87	C	24	Yes	-	0.95
Main Street/Gateway Boulevard	City	0.90	**>1**	F	86	**No**	-	0.95
Unsignalized Intersections								
OR 99/River Road	ODOT/Lane	0.75 / 0.85	0.05 / 0.49	A / C	5	Yes	-	0.95
Harrison Avenue/River Road*	City	E	0.68	B	15	Yes	-	0.95
Main Street/R Street	City	E	0.10 / 0.50	A / C	6	Yes	-	0.92
Monroe Avenue/10th Street	City	E	0.02 / 0.08	A / B	2	Yes	-	0.92
Taylor Avenue/8th Street*	City	E	0.28	A	9	Yes	-	0.92
I-5/6th Street (southbound off ramp)	ODOT/Lane	0.75/ 0.85	0.26	A / B	5	Yes	-	0.92
I-5 NB OFF Ramp Right Turn /Row River Road	ODOT	0.80	0.29	A / C	1	Yes	-	0.92
OR 99/Cottage Grove Connecter (OR 99 northbound & southbound)	ODOT	0.80	**>1**	A / F	77	**No**	-	0.95
OR 99/Cottage Grove Connecter (CGC northbound right turn)	ODOT	0.80	0.17 / 0.38	A / C	4	Yes	-	0.95
OR 99/Cottage Grove Connecter (OR 99 easbound left turn)	ODOT	0.80	**>1**	A / F	60	**No**	-	0.95

Future Weekday PM Peak Hour Intersection Level of Service - Base (No-Build)

Intersection	Jurisdiction	Performance Standard (v/c)	Volume / Capacity	Level of Service	Average Delay (Sec)	Standard Met?	PHF Measured	PHF Applied
Signalized Intersections								
I-5 SB Ramp/Cottage Grove Connector	ODOT	0.80	**>1**	F	141	**No**	-	0.95
I-5 NB Ramp/Row River Road	ODOT	0.80	**0.95**	C	29	**No**	-	0.95
OR 99/Woodson Place	ODOT	0.80	**0.92**	C	27	**No**	0.94	0.95
OR 99/Main Street	ODOT	0.80	**>1**	F	138	**No**	0.92	0.95
OR 99/6th Street	ODOT	0.80	0.86	C	21	Yes	0.87	0.92
OR 99/4th Street	ODOT	0.80	0.74	C	26	Yes	-	0.92
Main Street/River Road	City	0.90	0.83	C	24	Yes	-	0.92
Main Street/16th Street	City	0.90	0.87	C	25	Yes	-	0.95
Main Street/Gateway Boulevard	City	0.90	**>1**	F	92	**No**	-	0.95
Unsignalized Intersections								
OR 99/River Road	ODOT/Lane	0.75 / 0.85	**0.13 / 0.85**	A / F	11	**No**	-	0.95
Harrison Avenue/River Road*	City	E	**>1**	**E**	42	**No**	-	0.95
Main Street/R Street	City	E	0.09 / 0.33	A / B	4	Yes	-	0.92
Monroe Avenue/10th Street	City	E	0.02 / 0.08	A / B	2	Yes	-	0.92
Taylor Avenue/8th Street*	City	E	0.66	B	13	Yes	-	0.92
I-5/6th Street (southbound off ramp)	ODOT/Lane	0.75/ 0.85	0.45	A / B	5	Yes	-	0.92
I-5 NB OFF Ramp Right Turn /Row River Road	ODOT	0.80	0.35	A / C	1	Yes	-	0.92
OR 99/Cottage Grove Connecter (OR 99 northbound & southbound)	ODOT	0.80	**>1**	A / F	77	**No**	-	0.95
OR 99/Cottage Grove Connecter (CGC northbound right turn)	ODOT	0.80	0.17 / 0.38	A / B	4	Yes	-	0.95
OR 99/Cottage Grove Connecter (OR 99 easbound left turn)	ODOT	0.80	>1	A / F	60	**No**	-	0.95

APPENDIX M: Preliminary Traffic Signal Warrant Analysis Forms

Appendix I
Preliminary Traffic Signal Warrant Analysis Form

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Highway: OR 99
Hwy. Number:
City: Cottage Grove
Minor Street: River Road
Mile point:
Day/date of count: 2025
County: Lane
Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street **from both directions** *percent of standard warrant*		ADT on minor street **highest approaching volume** *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1 – Condition A: Minimum Vehicular Traffic					
1	1	8,850	[✓ 6,200]	2,650	[✓ 1,850]
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1 – Condition B: Interruption of Continuous Traffic					
1	1	13,300	[✓ 9,300]	1,350	[✓ 950]
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

~~Based on 8th highest hourly volume being equal to 5.65% of ADT~~

☐ 100 percent of standard warrants used.

☐ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year:
Alternative:

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1-A	Major	1	6200	>11,000	X	
	Minor	1	1850	~1,400		
Warrant #1-B	Major	1	9300	>12,000	X	X
	Minor	1	950	~1,000	X	X

Analyst & Date:
Reviewer & Date:

Note
Speeds > 40 mph

Calculations (OR 99 @ River)

Right turns < 85% of turns

Major

501 thru SB
\+ 100 right SB
601 peak hr

433 thru
112 left
545 peak hr

1146 peak hour total

⇓

daily major volume

7,11000

Minor

96 left
107 right
203 total

shared lane capacity
~~total existing~~
↓
discount
250 * .85

= 212

107 − 212

< 0

96 peak hour totall

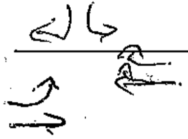
⇓

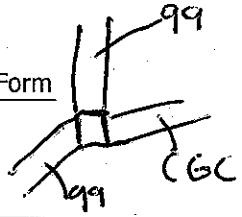
1,066 daily minor volume

* even w/ ADT factor of 10 conclusions are same

Pk HR to ADT factor

$$\frac{523}{5772} = 9\%$$





Reconfigured

Appendix I
Preliminary Traffic Signal Warrant Analysis Form

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Highway: OR 99 (Goshen Divide) / CGC		Hwy. Number:
City: Cottage Grove	Minor Street: OR 99	Mile point:
Day/date of count: 2025	County: LANE	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street **from both directions** *percent of standard warrant*		ADT on minor street **highest approaching volume** *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1 – Condition A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	~~10,600~~	7,400	~~2,650~~	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1 – Condition B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	~~15,900~~	11,100	~~1,350~~	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

☐ 100 percent of standard warrants used.

☐ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year:

Alternative:

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1-A	Major	1	8,850	720,000	X	
	Minor	1	2,650	2,180		
Warrant #1-B	Major	1	13,300	>20,000	X	X
	Minor	1	1,350	2,180	X	X

Analyst & Date:

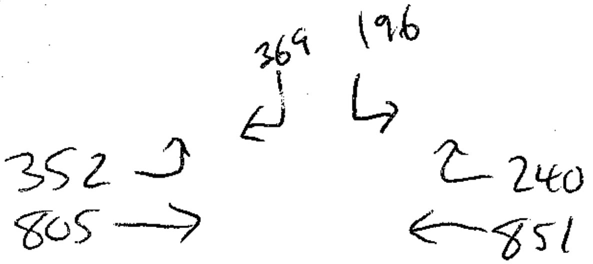
Reviewer & Date:

Note
Speeds < 40mph
Population forecasted to exceed 10,000.

(No Build Scenario)

Calculations

[Reconfigured CGC
@ OR 99]



Major Volume

EBT 805
EBL 352
WBR 240
WBT 851

2248 PM Peak Volume

⇓

> 20,000 ADT

Minor Volume

SBLT = 196 peak hour

/.09 factor peak → ADT

⇓

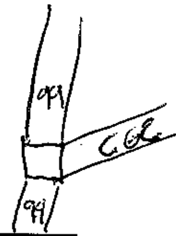
2,180 ADT

* same conclusion reached if factor is 10

↓↳

↑↱

Standard - T



Appendix I
Preliminary Traffic Signal Warrant Analysis Form

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Highway: OR 99 (Goshen Divide)		Hwy. Number:
City: Cottage Grove	Minor Street: Cottage Grove Conn.	Mile point:
Day/date of count: 2025	County: LANE	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street **from both directions** *percent of standard warrant*		ADT on minor street **highest approaching volume** *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1 – Condition A: Minimum Vehicular Traffic					
1	1	[✓ 8,850]	6,200	[✓ 2,650]	1,850
2 or more	1	~~10,600~~	~~7,400~~	~~2,650~~	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1 – Condition B: Interruption of Continuous Traffic					
1	1	[✓ 13,300]	9,300	[✓ 1,350]	950
2 or more	1	~~15,900~~	11,100	~~1,350~~	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

☐ 100 percent of standard warrants used.

☐ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year:	Alternative:

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1-A	Major	1	8,850	>17,000	X	X
	Minor	1	2,650	>8,000	X	X
Warrant #1-B	Major	1		>17,000	X	X
	Minor	1		>8,000	X	X

Analyst & Date:	**Reviewer & Date:**

Note
Speeds < 40 mph
Population forecasted to exceed 10,000

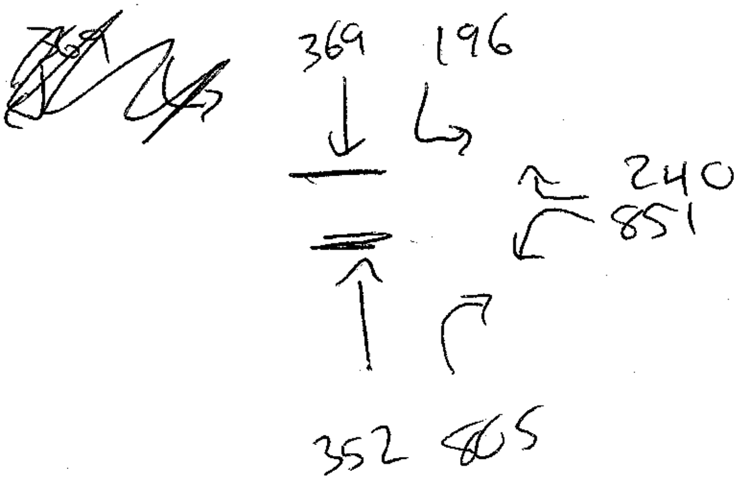
(No-Build Scenario)

AM peak → ADT conversion

$$\frac{1130}{12,758} = 8.8\%$$

Calculations

[CGC @ OR99]



Major Volume

NBT	352
NBR	805
SBT	369
SBL	196

1722 PM Peak Volume

⇓

>17,000 ADT

Minor Volume

EBL 851 PM Peak

⇓

>8000 ADT

Local Intersection (4-Way Stop)

TRAFFIC SIGNAL WARRANT ANALYSIS

PROJECT LOCATION/CHARACTERISTICS

Major Street: River Road

Minor Street: Harrison Ave

Number of lanes on each approach of major street: 2

Number of lanes on each approach of minor street: 1

85th percentile speed of major-street traffic ≥ 40 mph ☐

-or-

In built-up area of an isolated community of < 10,000 pop. ☐, then use Rural Requirements

Analysis Scenario (Year): 2025

Date of Analysis: 7/2007

SUMMARY OF RESULTS

WARRANT 1:	Eight-Hour Vehicular Volume	☐ YES	☐ NO	NA
WARRANT 2:	Four-Hour Vehicular Volume	☐ YES	☐ NO	NA
WARRANT 3:	Peak Hour	☐ YES	☒ NO	
WARRANT 4:	Pedestrian Volume	☐ YES	☐ NO	NA
WARRANT 5:	School Crossing	☐ YES	☐ NO	NA
WARRANT 6:	Coordinated Signal System	☐ YES	☐ NO	NA
WARRANT 7:	Crash Experience	☐ YES	☐ NO	NA
WARRANT 8:	Roadway Network	☐ YES	☐ NO	NA

TRAFFIC SIGNAL INSTALLATION RECOMMENDED ☐ YES ☒ NO

Other Outstanding Issues

Calculations

Harrison
@ River

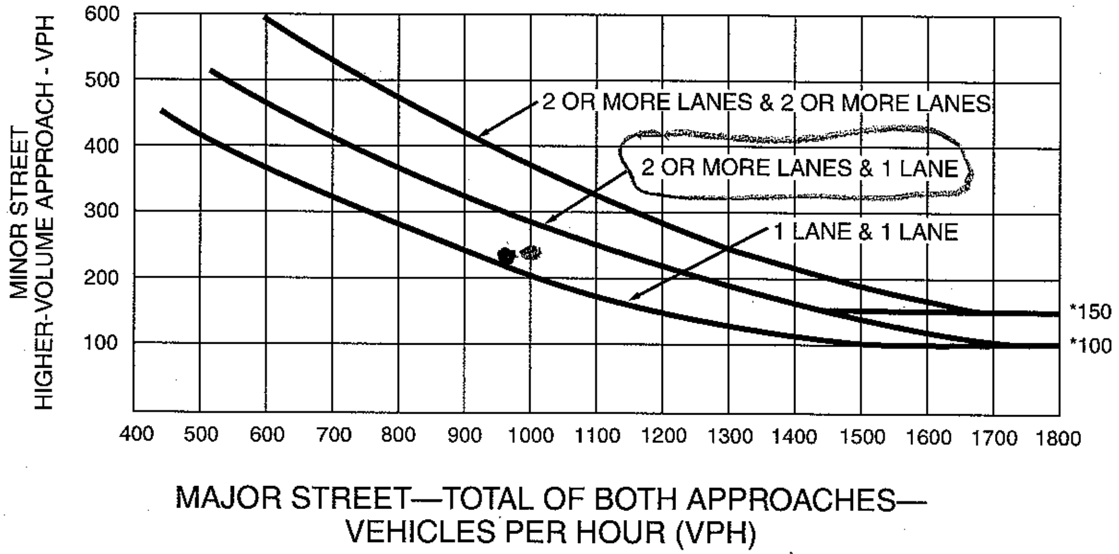
EBR	115
EBT	209
EBL	68
WBR	40
WBT	481
WBL	41

=956

NBL	73
NBT	74
NBR	90

=237

Figure 4C-3. Warrant 3, Peak Hour



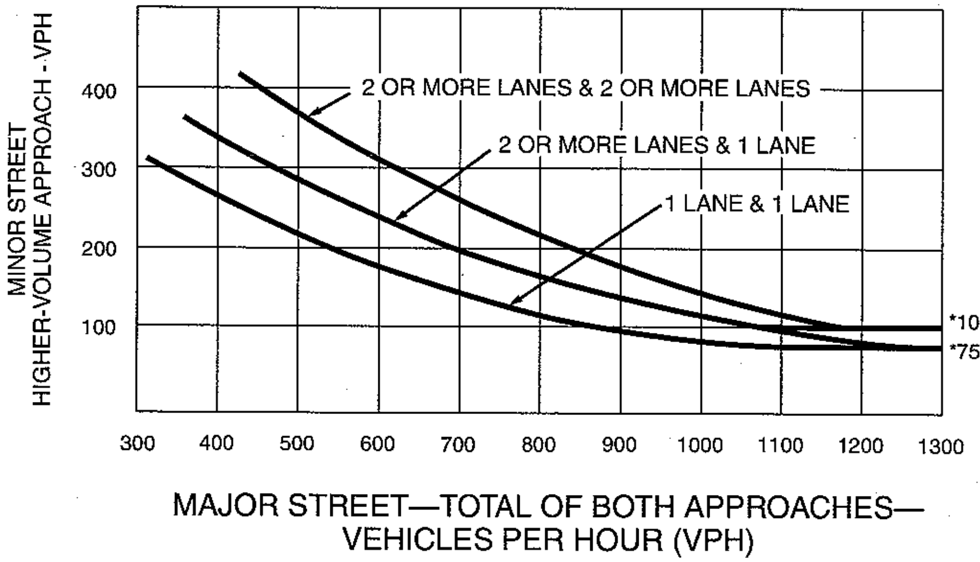
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

MAJOR VOLUME ≅ 1000 (Harrison – 2 Lanes)

MINOR VOLUME ≅ 240 (River – 1 Lane)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.