

**COTTAGE GROVE
TRANSPORTATION SYSTEM PLAN UPDATE**

- TECHNICAL APPENDIX

TABLE OF CONTENTS

Appendix A – Background Plan and Document Review Technical Memo

Appendix B - DHV Development Memo

Appendix C - PM Peak Hour Level of Service Calculation Sheets – Existing Conditions

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

Appendix E - PM Peak Hour Level of Service Calculation Sheets – Future Conditions – Future Streets

Appendix F - 2025 Traffic Volume Forecasting Methodology Memo

Appendix G - Access Locations – Main Street and OR 99

Appendix H - PM Peak Hour Intersection- Traffic Volumes and Intersection Geometry

Appendix I – Future Land Use Memo and Data by Lane County TAZ

Appendix J - Traffic Impact Study Requirements

Appendix K - Vehicle Collision Data

Appendix L - Study Intersection Operational Performance

Appendix M –Preliminary Traffic Signal Warrant Analysis Forms

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 an 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

Facility	Posted Speed (MPH)				
	>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 Talemna 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 be considered when planning new developments or transportation infrastructure.

APPENDIX B: DHV Development Memo

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.

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.

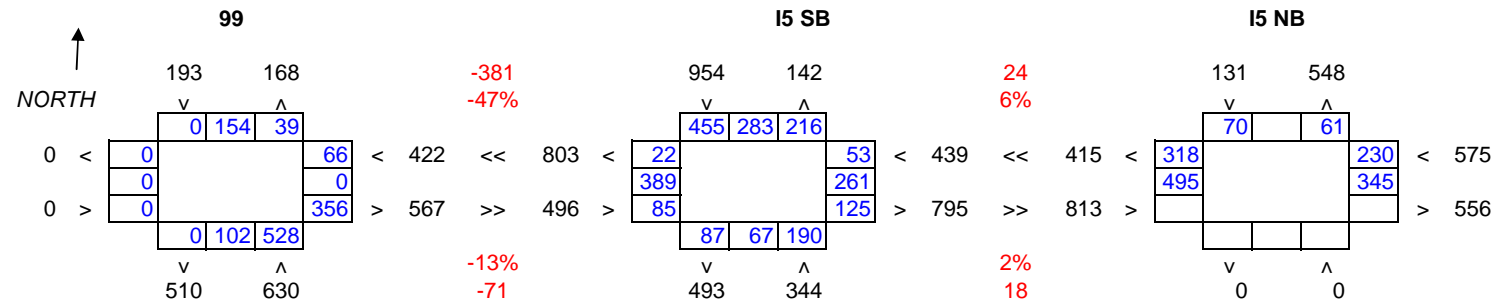
Annual Growth Factor

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

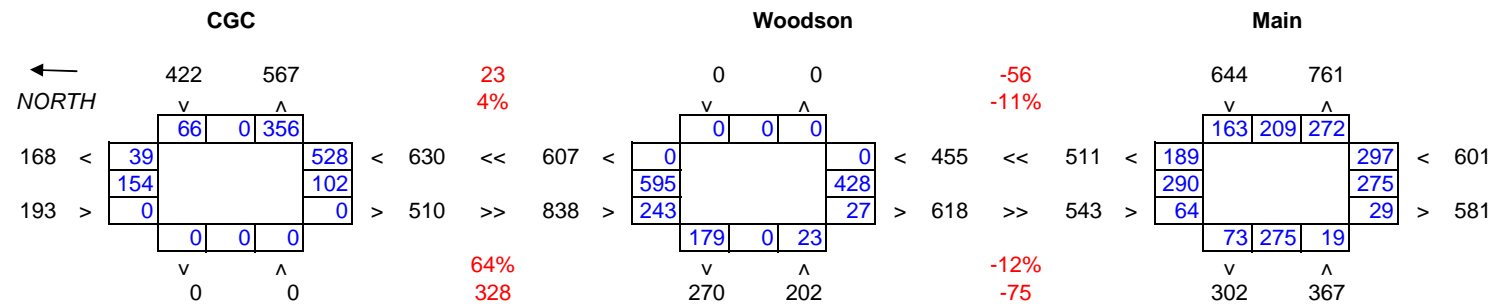
Intersection	Count Month	Seasonal Adjustment	Count Year	Annual Growth Rate	PHF Measured	PHF Applied	Peak Hour
<i>Signalized Intersections</i>							
I-5 SB Ramp/Cottage Grove Connector	October	1.28	2005	1.07%	-	0.92	4-5 PM
I-5 NB Ramp/Row River Road	October	1.28	2005	1.07%	-	0.92	4-5 PM
OR 99/Woodson 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 99/6 th Street	March	1.12	2004	1.07%	0.87	0.87	3-4 PM
OR 99/4 th 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/16 th 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
<i>Unsignalized Intersections</i>							
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/10 th Street	October	1.09	2005	1.07%	-	0.92	4-5 PM
Taylor Avenue/8 th Street*	October	1.09	2005	1.07%	-	0.92	4-5 PM
I-5/6 th 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 Connector (OR 99 northbound & southbound)	October	1.09	2005	1.07%	-	0.92	4-5 PM
OR 99/Cottage Grove Connector (CGC northbound right turn)	October	1.09	2005	1.07%	-	0.92	4-5 PM
OR 99/Cottage Grove Connector (OR 99 eastbound left turn)	October	1.09	2005	0.0107	-	0.92	4-5 PM

CGC

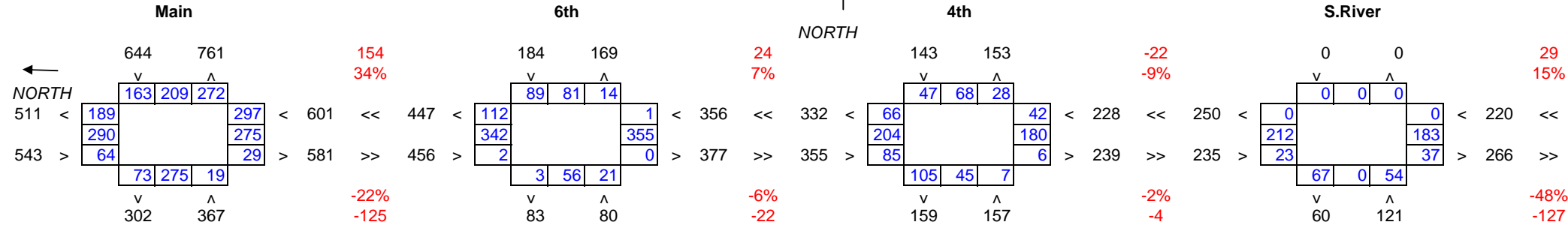


UNBALANCED VOLUMES

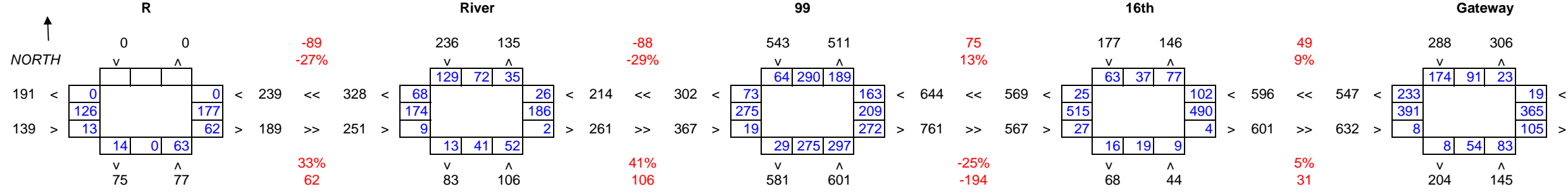
99 - North Section



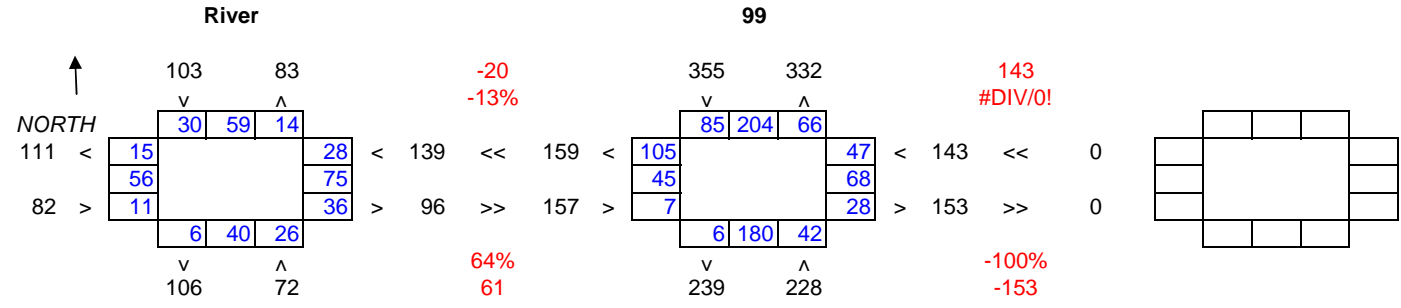
99 - South Section



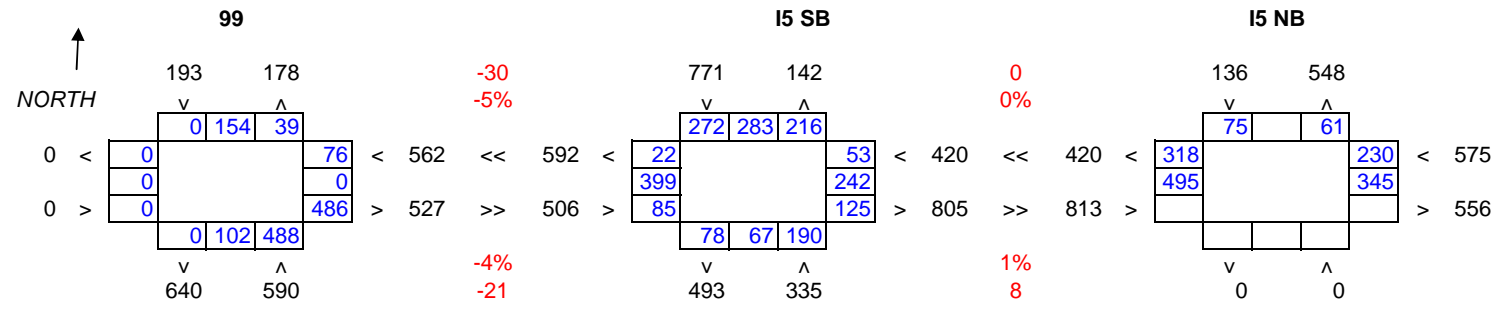
Main



Harrison

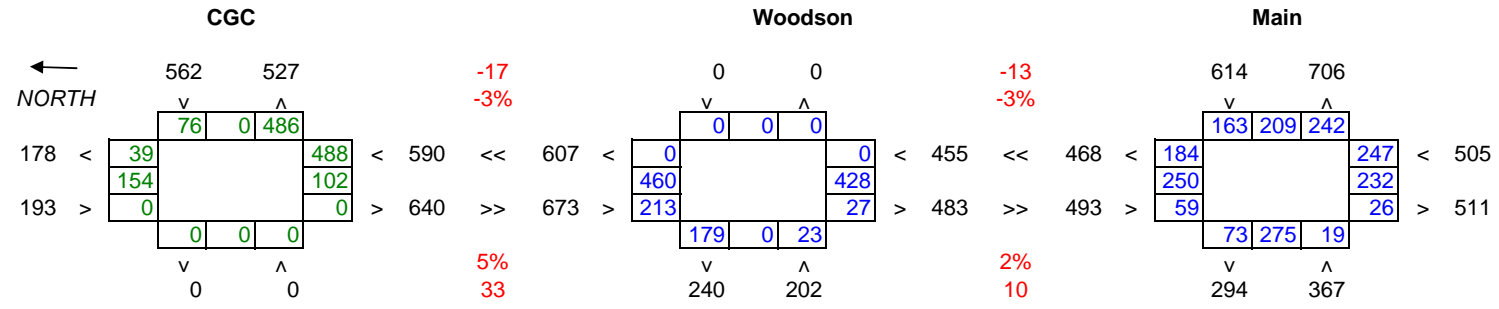


CGC

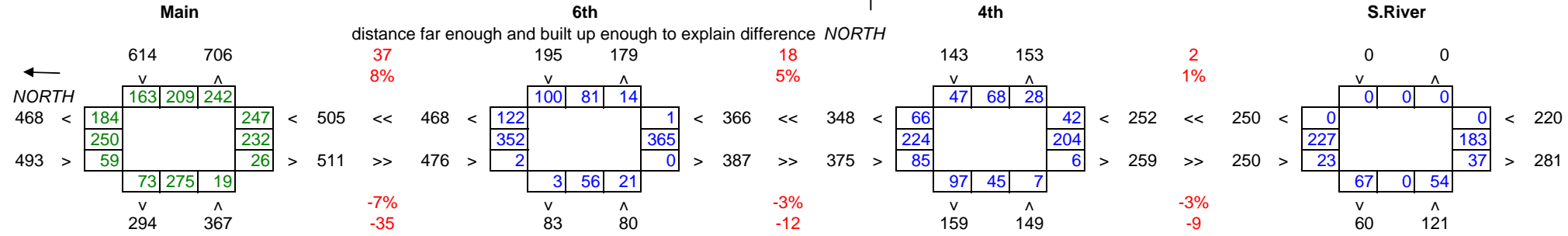


BALANCED VOLUMES

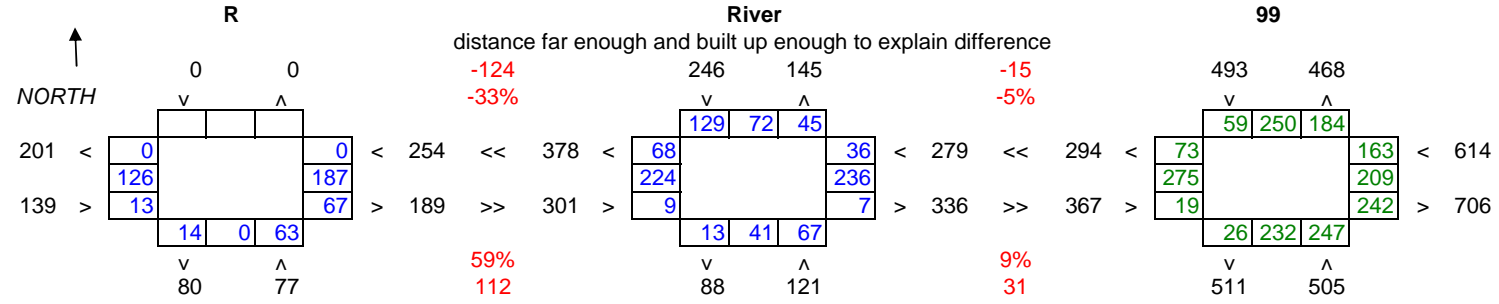
99 - North Section



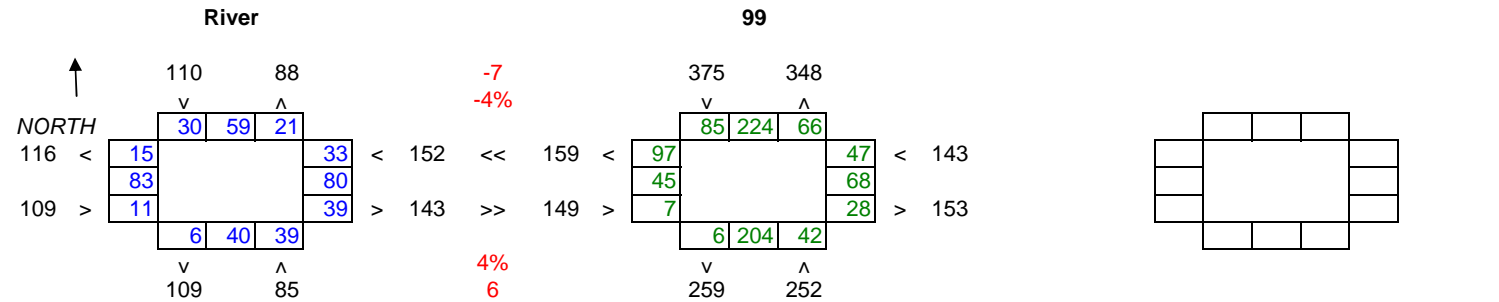
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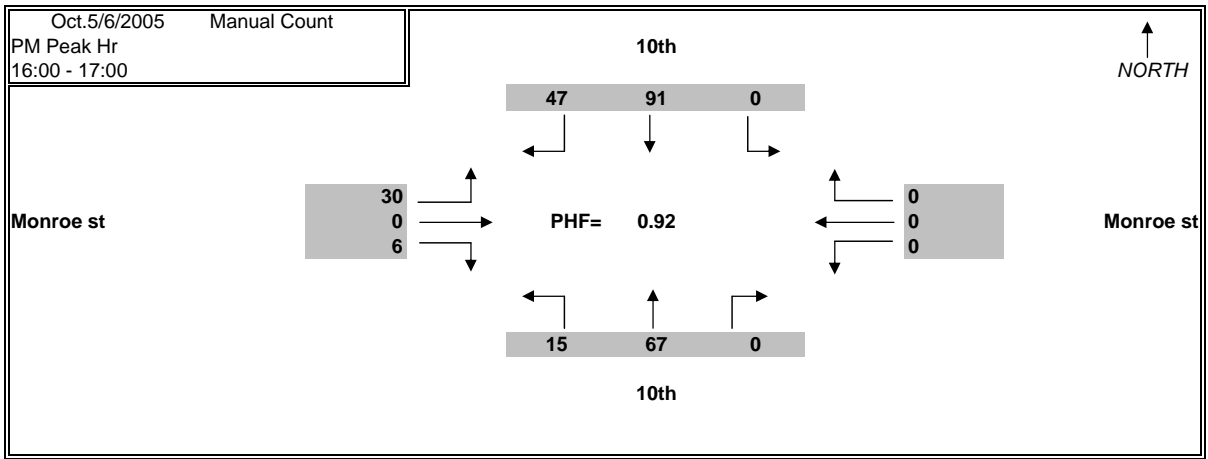


Main

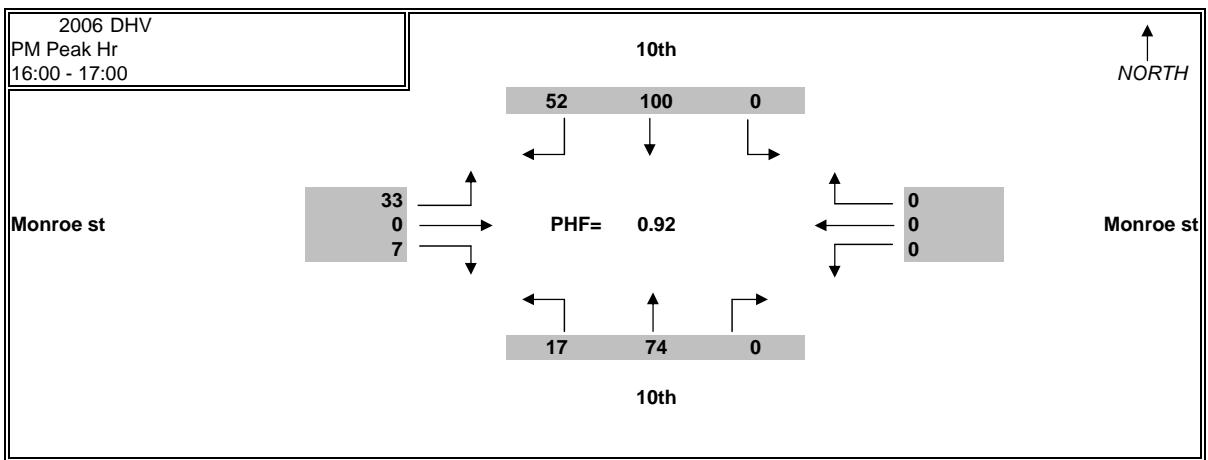
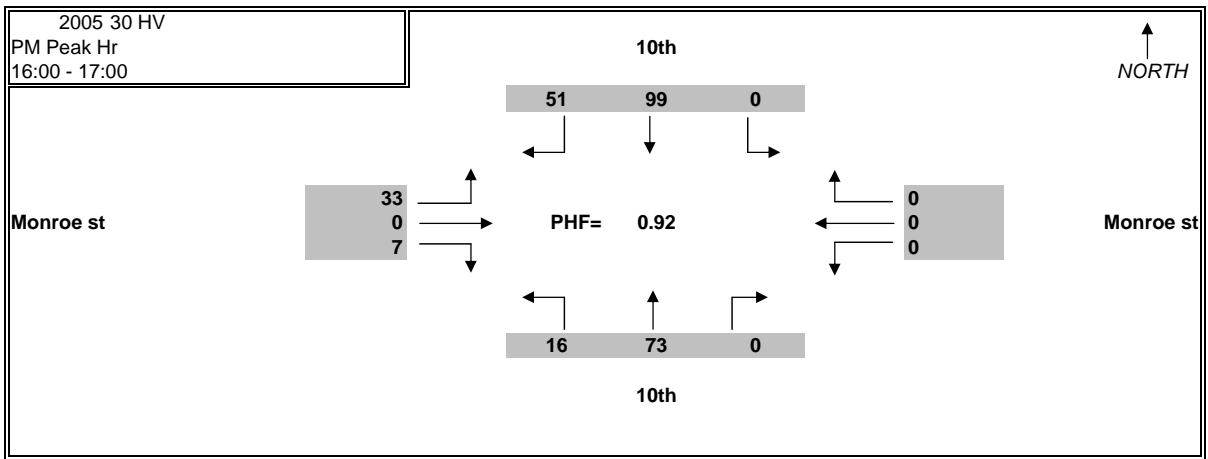


Harrison



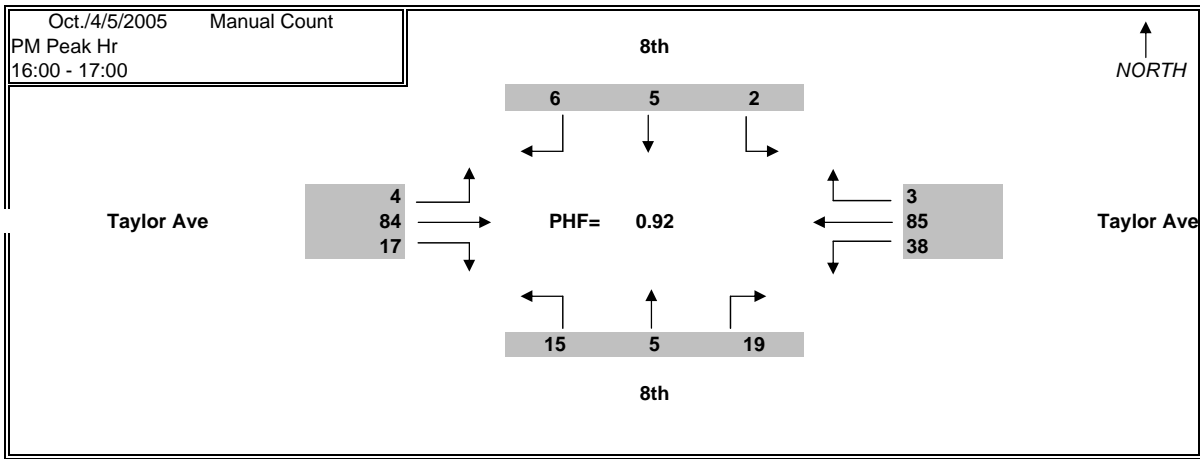


Seasonal Factor = 1.09

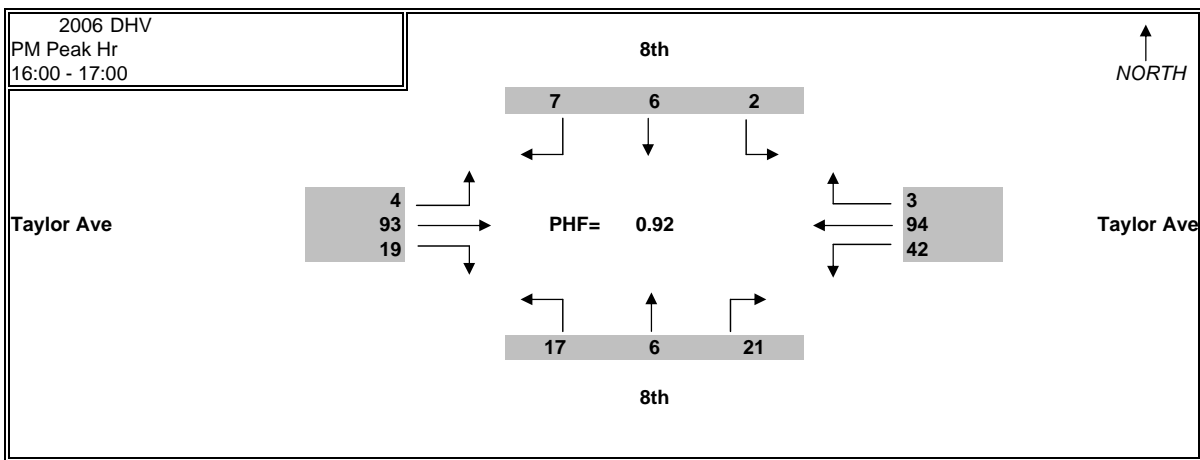
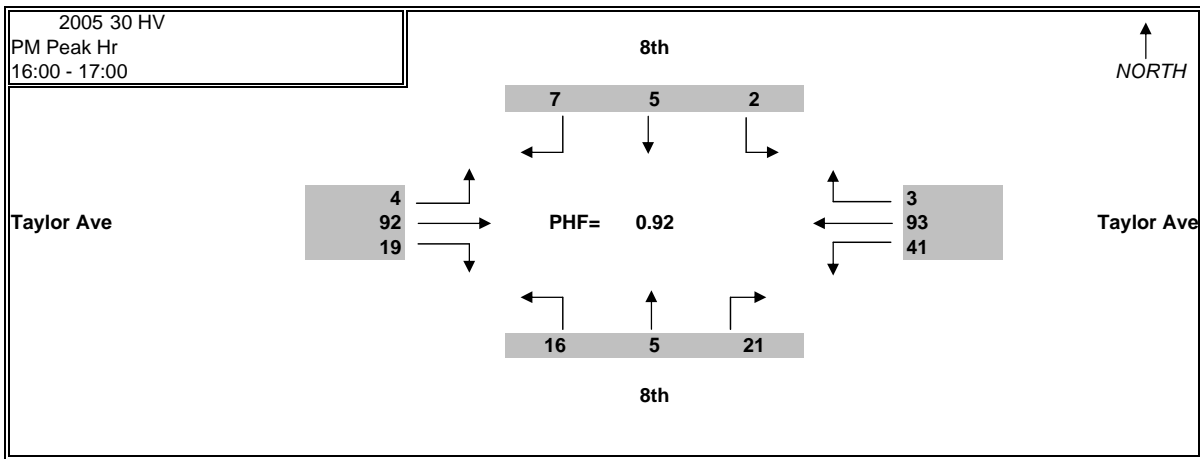


Seasonal Factor = 1.09

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

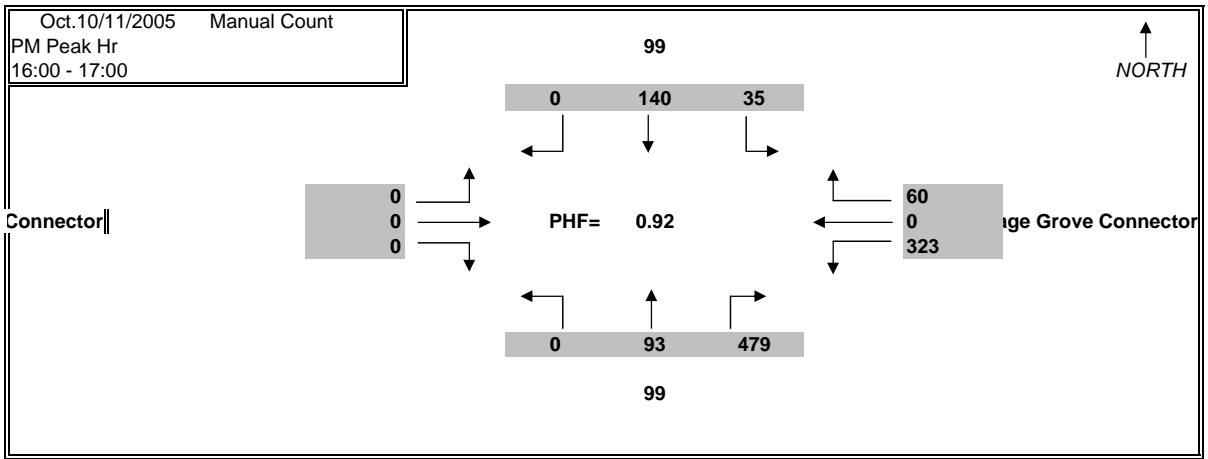


Seasonal Factor = 1.09

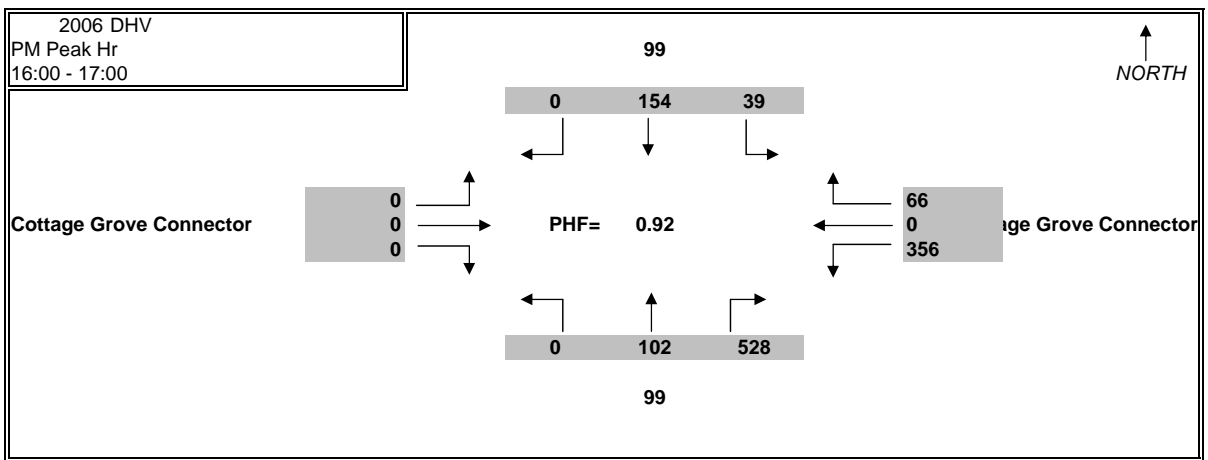
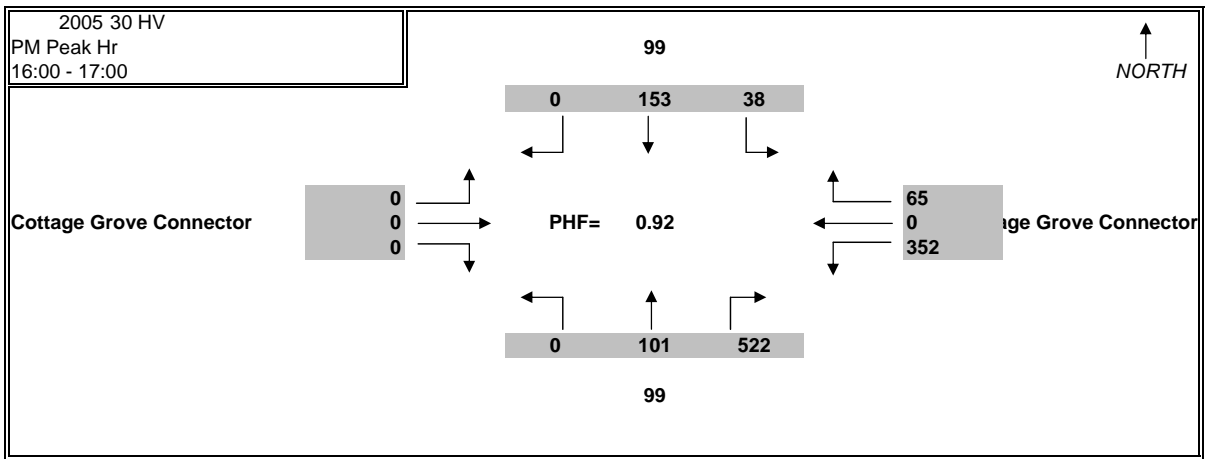


Seasonal Factor = 1.09

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

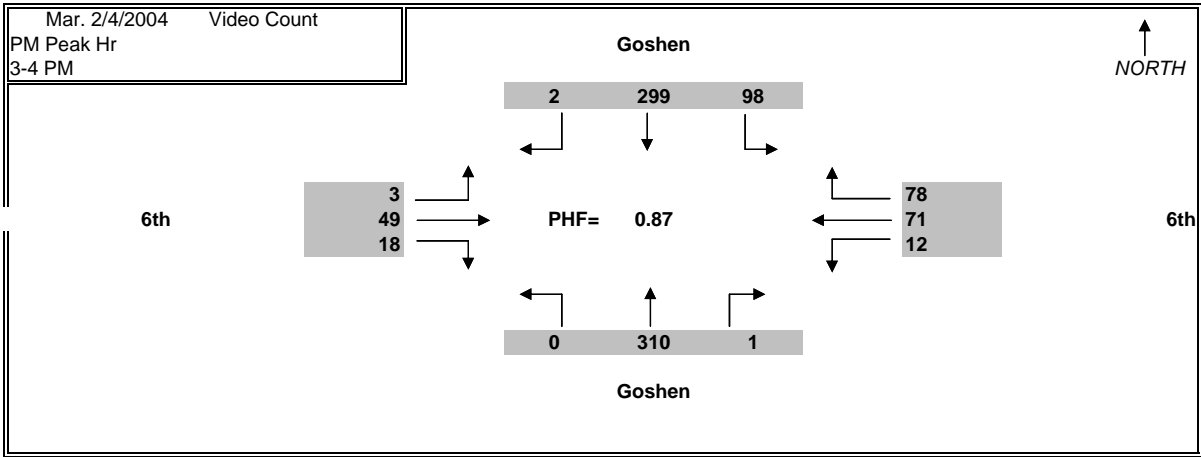


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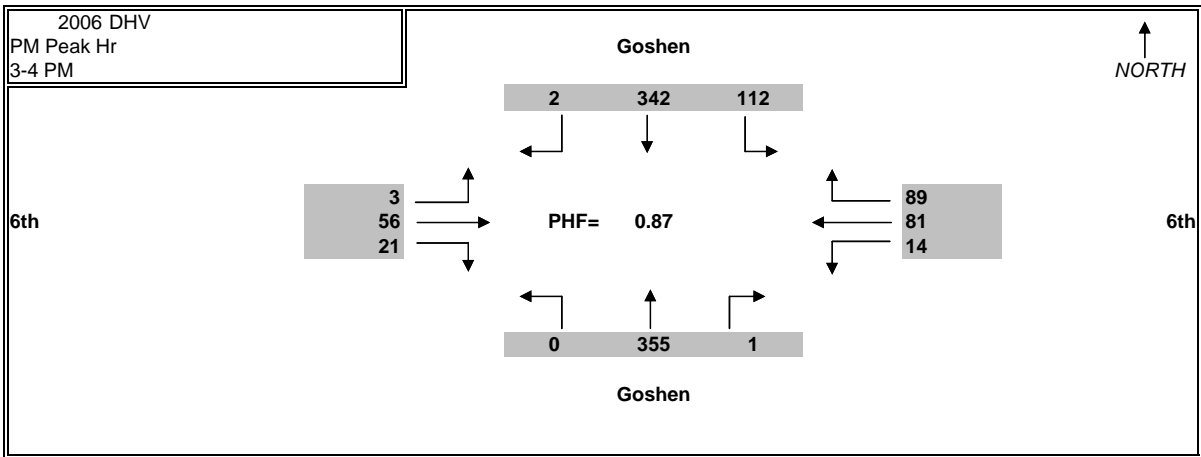
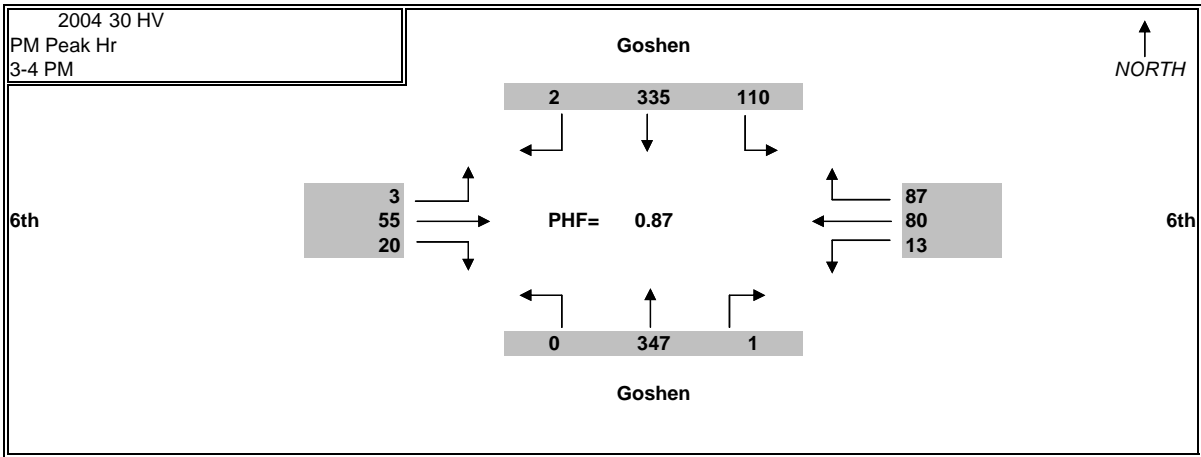


Seasonal Factor = 1.09

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

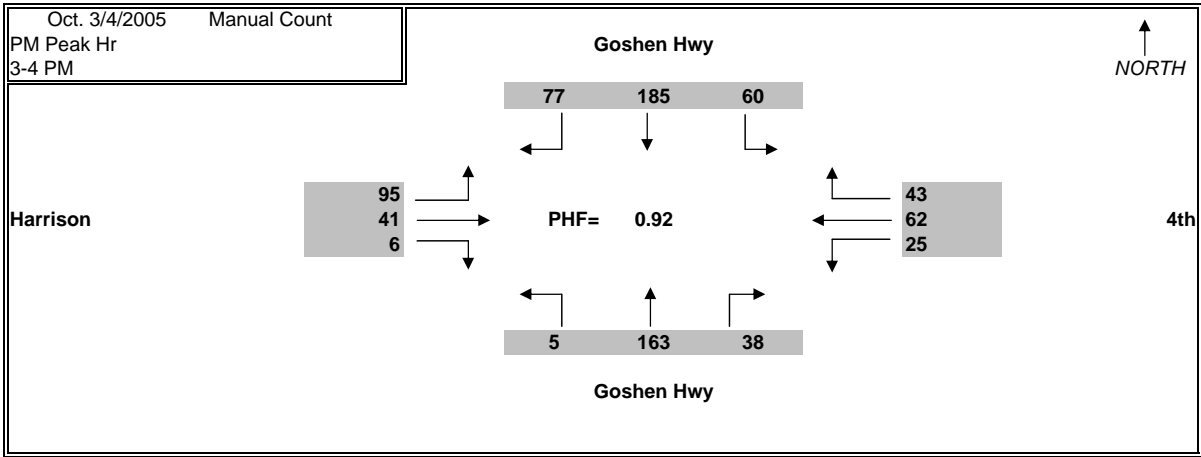


Seasonal Factor = 1.12

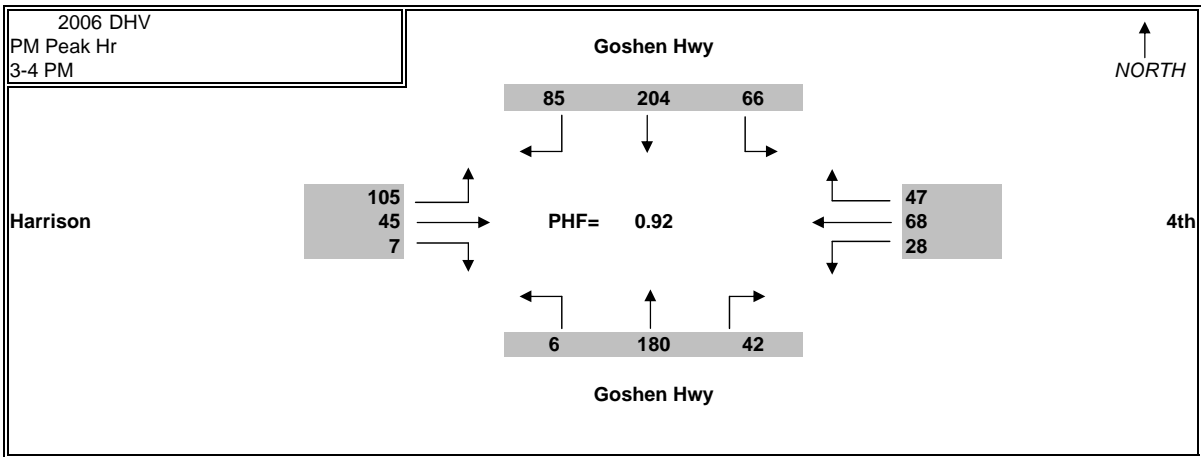
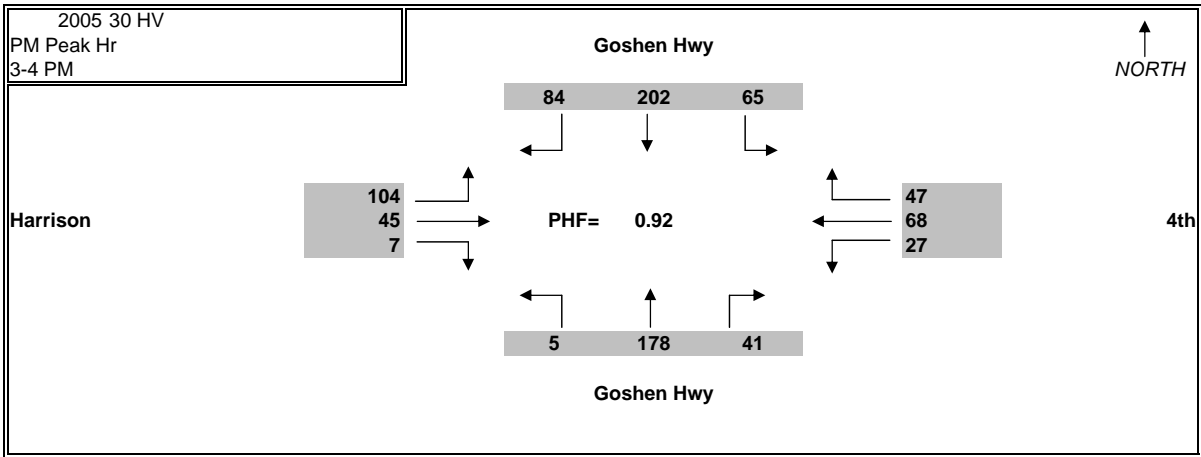


Seasonal Factor = 1.12

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

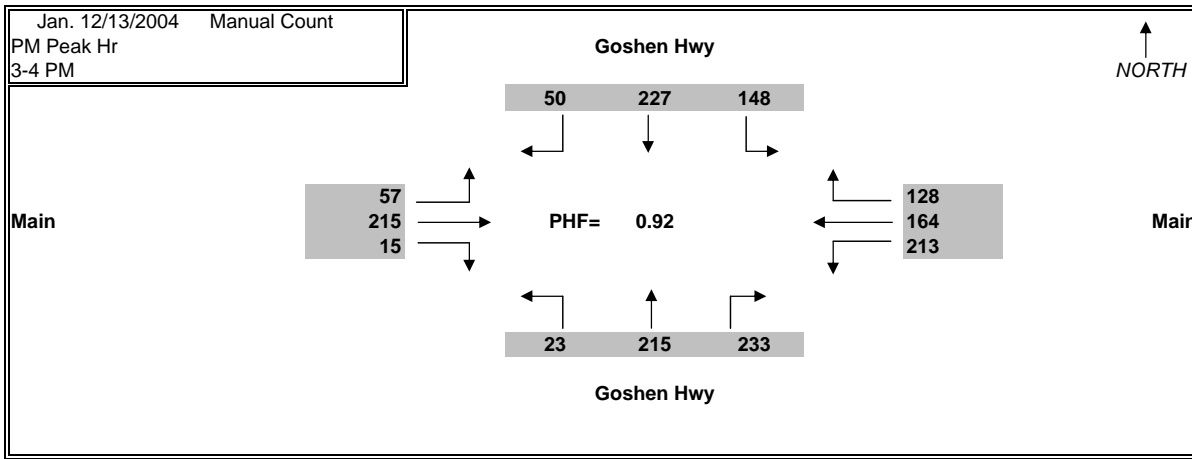


Seasonal Factor = 1.09

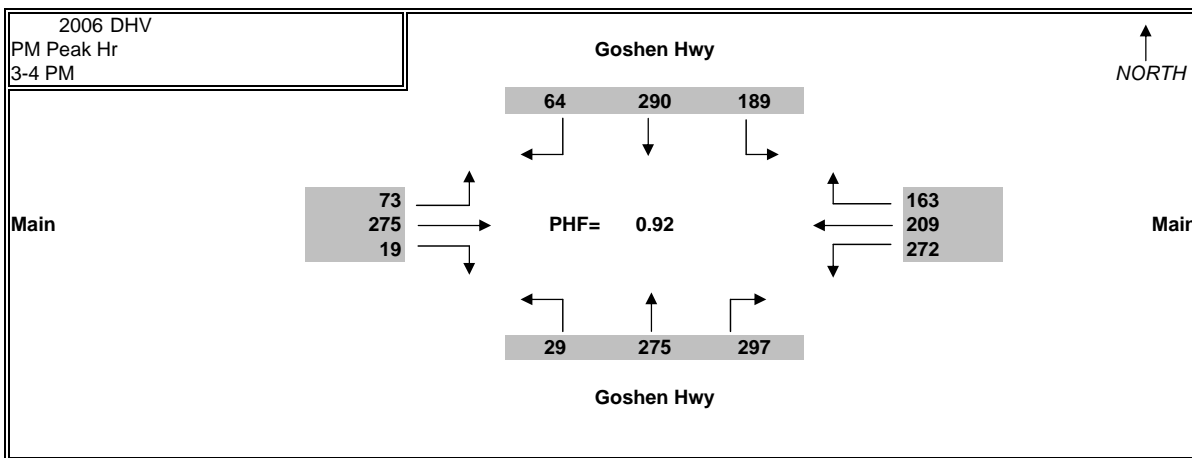
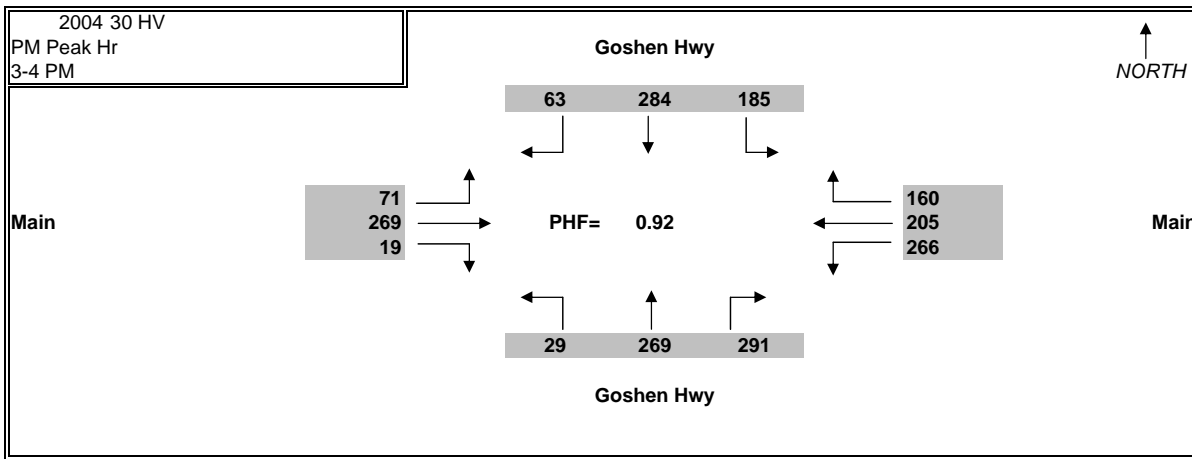


Seasonal Factor = 1.09

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

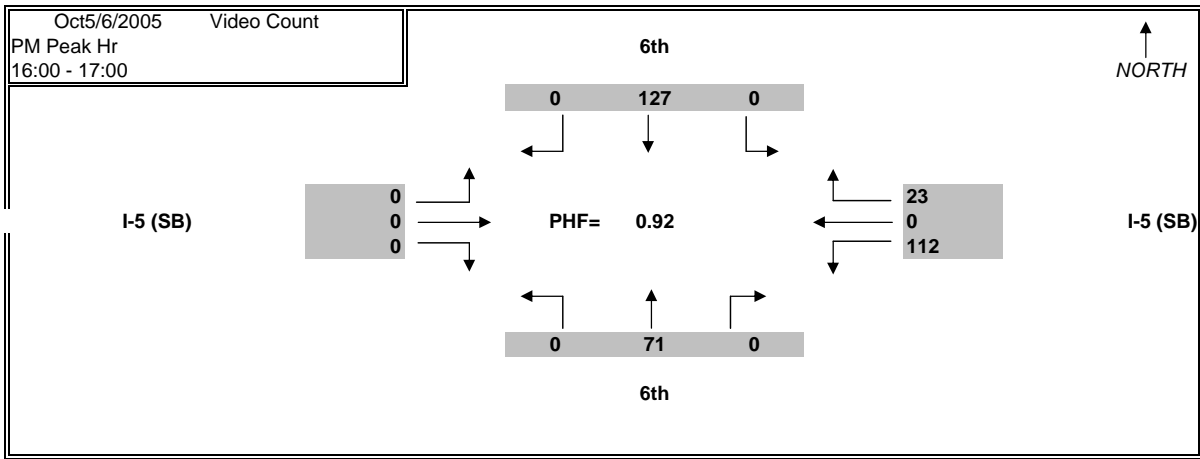


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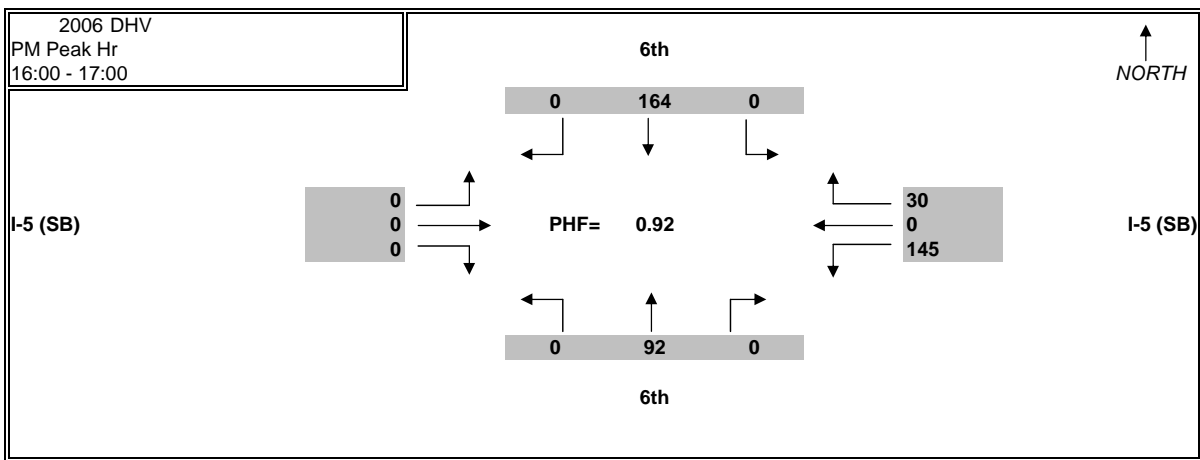
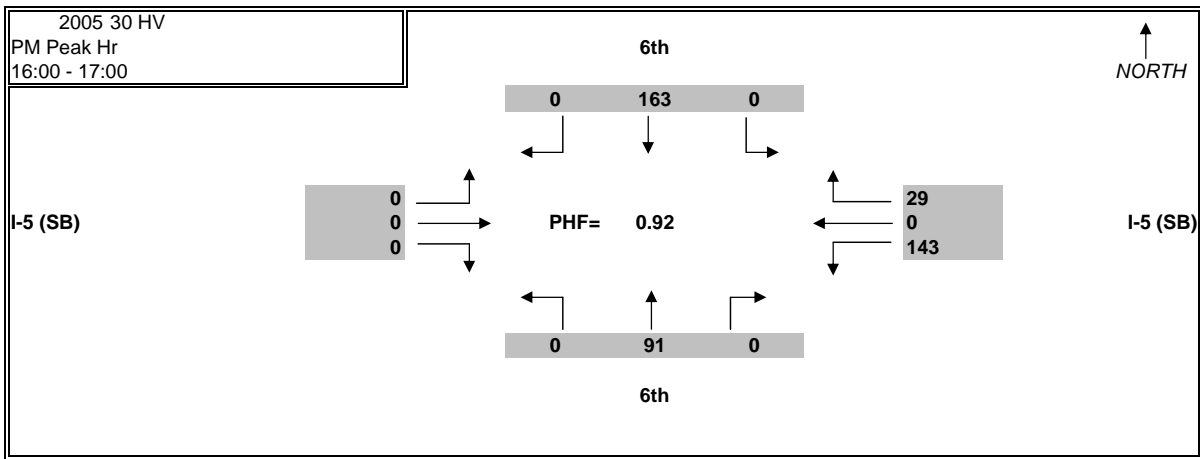


Seasonal Factor = 1.25

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

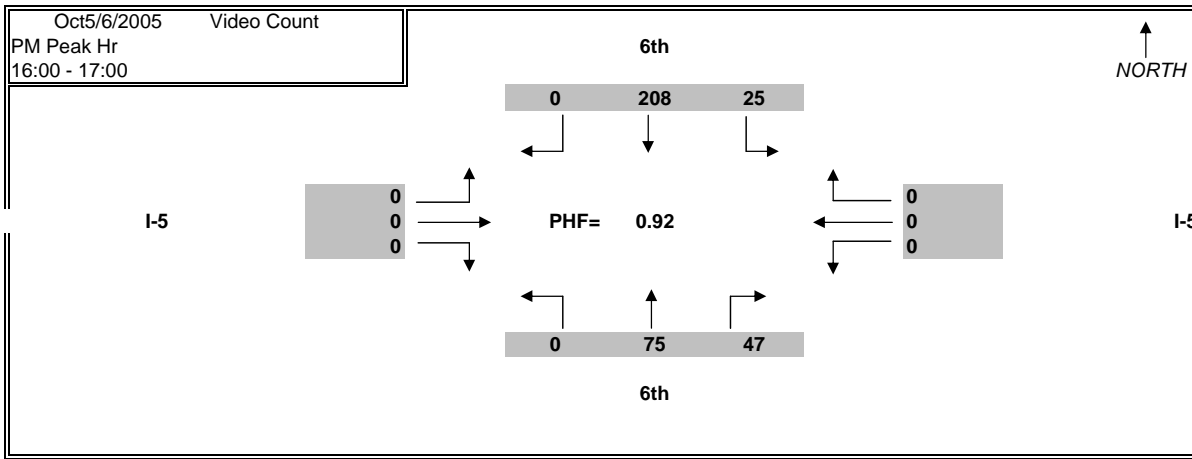


Seasonal Factor = 1.28

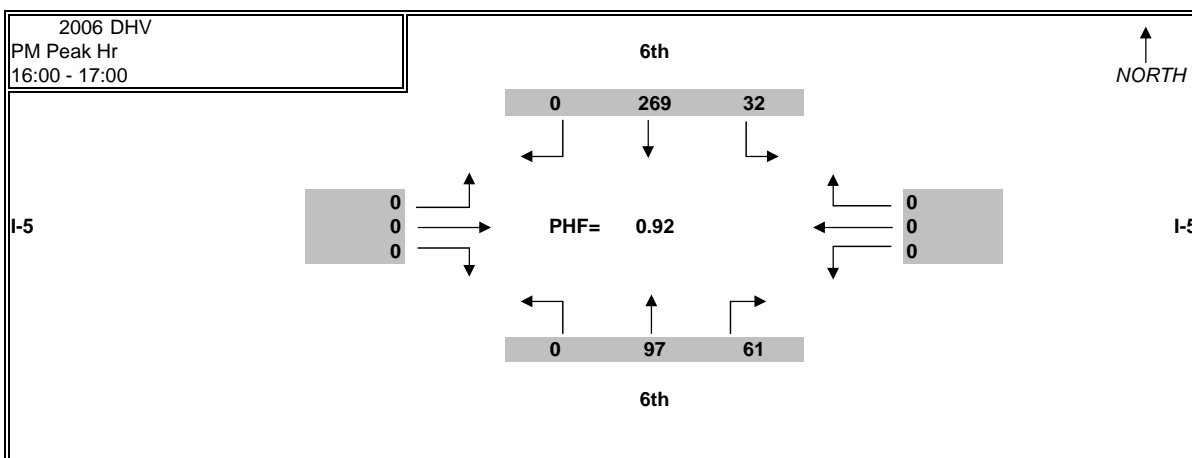
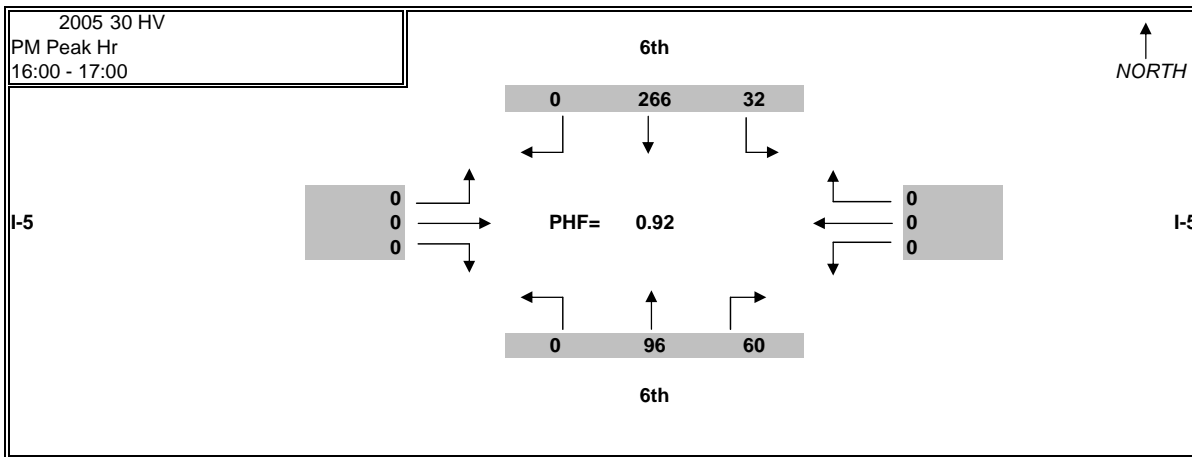


Seasonal Factor = 1.28

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

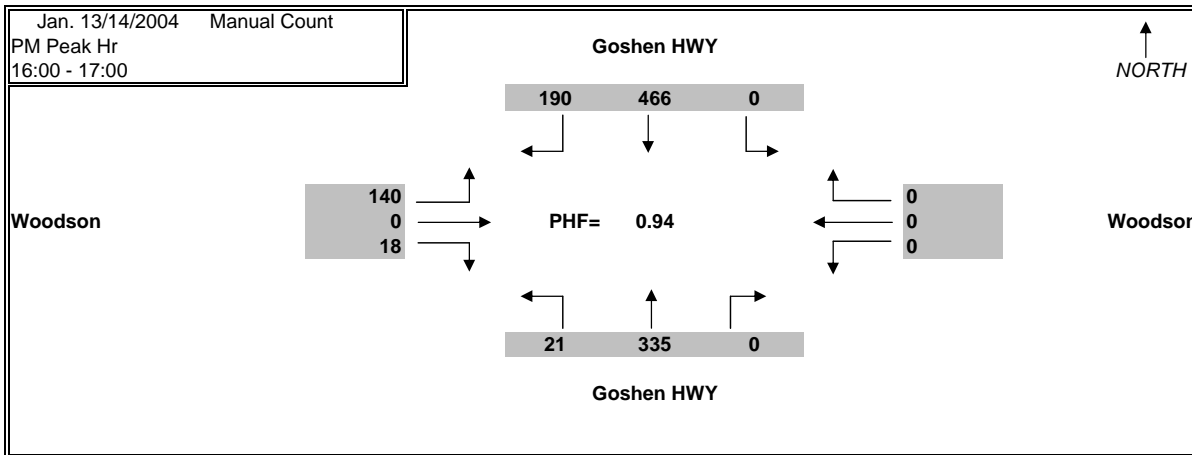


Seasonal Factor = 1.28

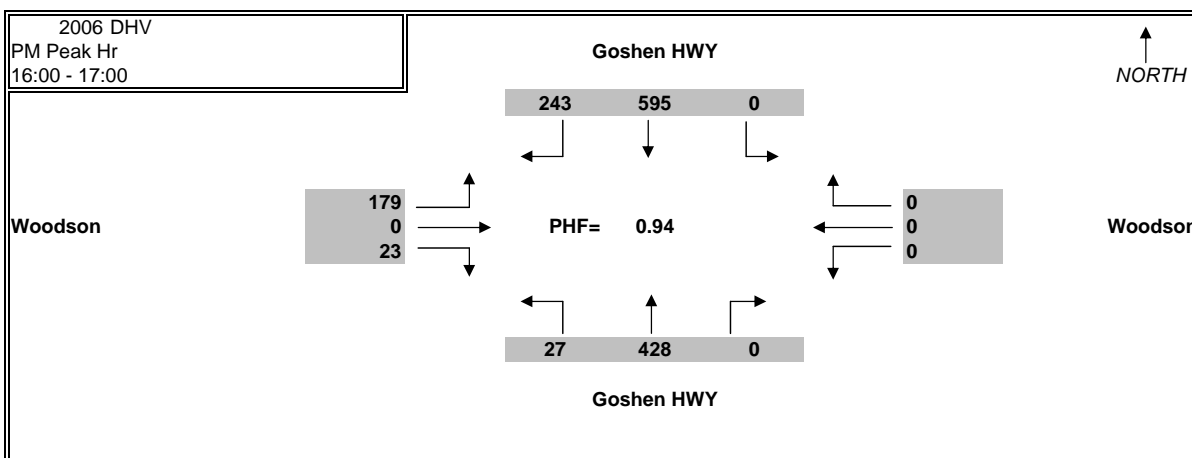
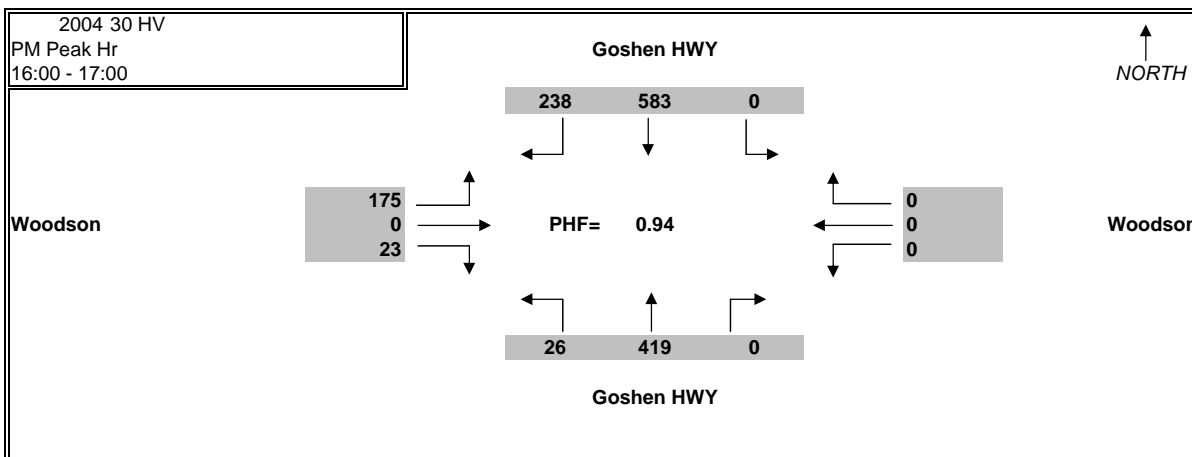


Seasonal Factor = 1.28

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

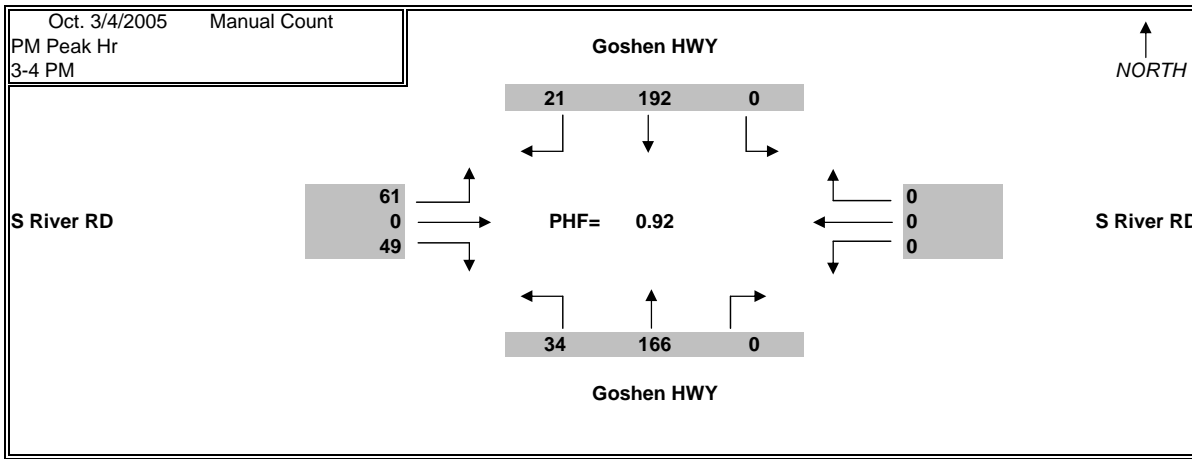


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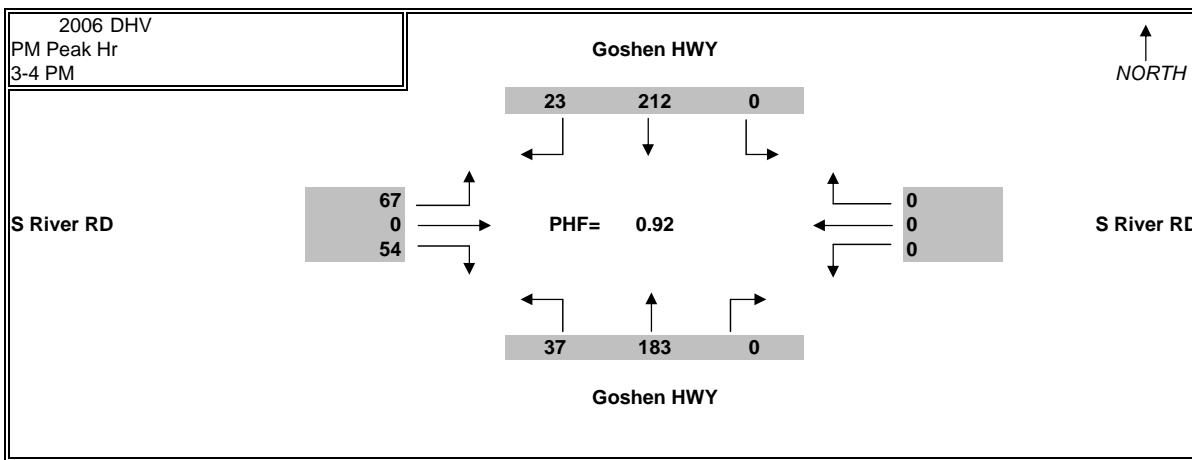
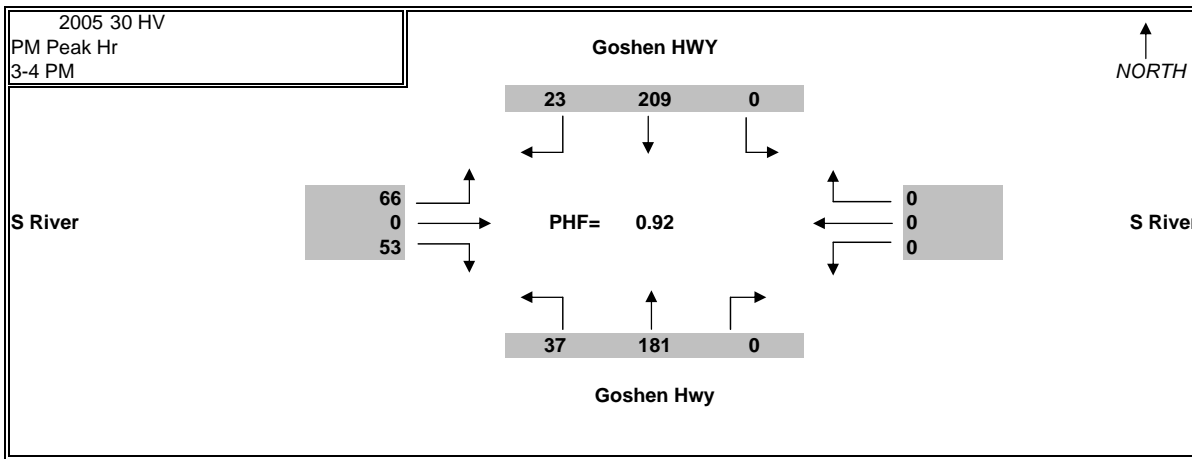


Seasonal Factor = 1.25

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

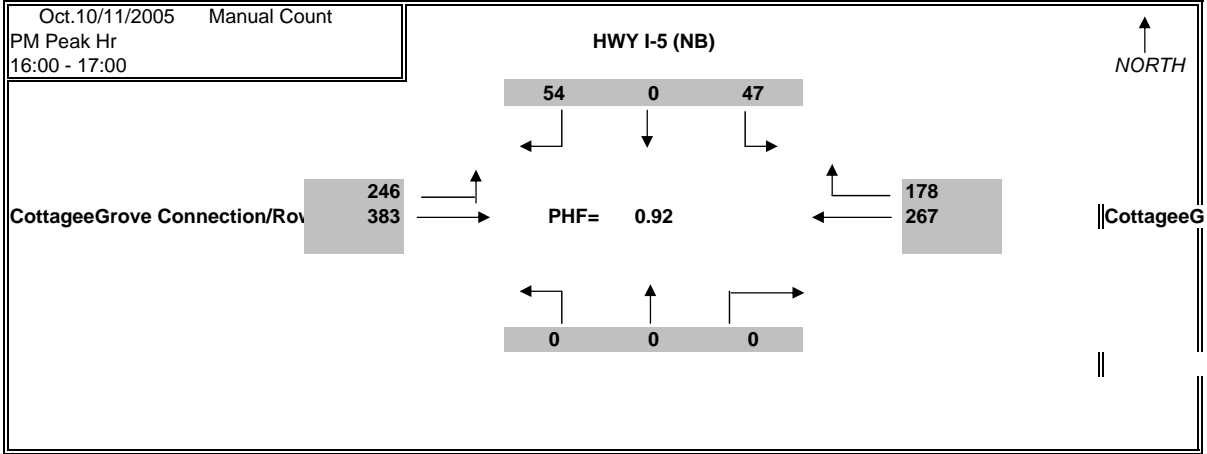


Seasonal Factor = 1.09

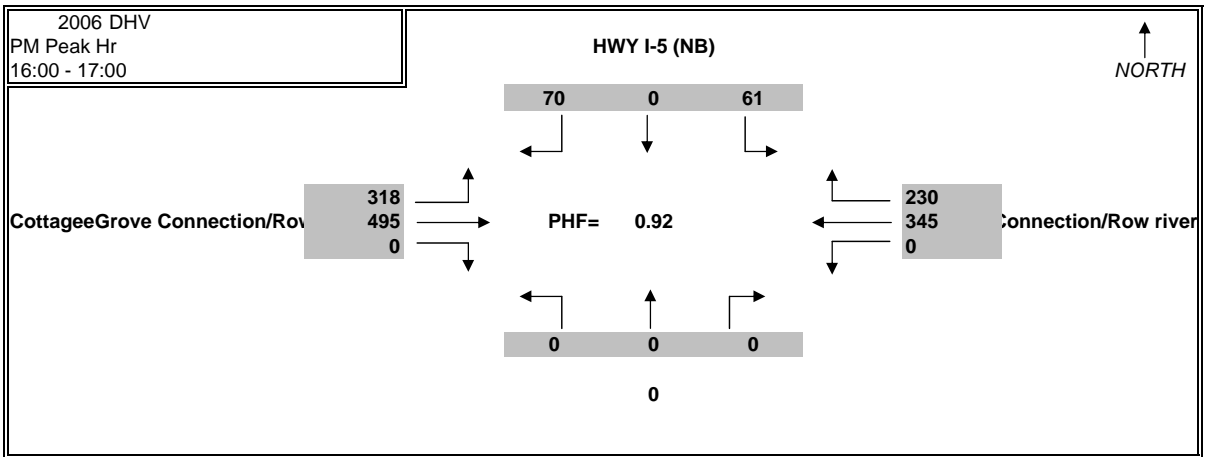
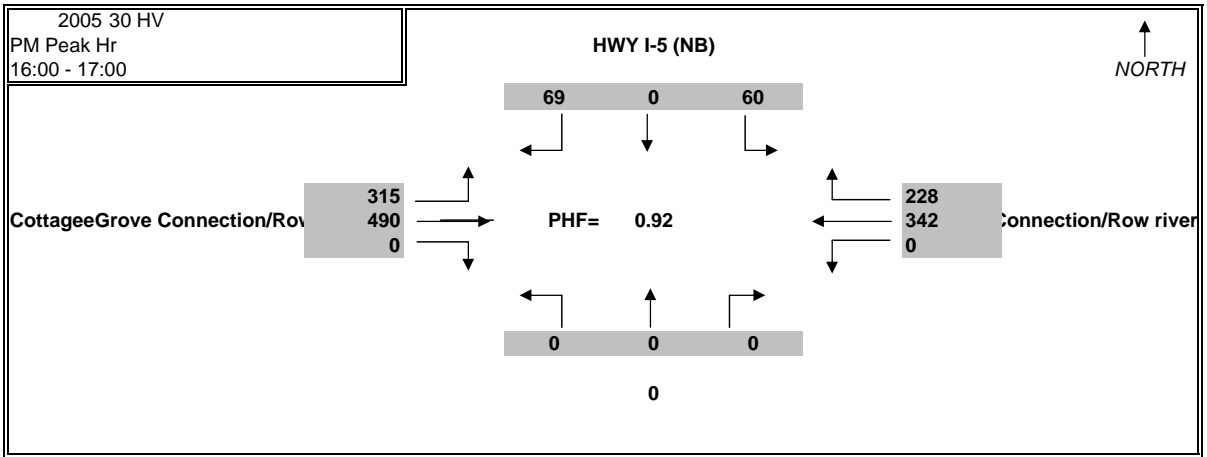


Seasonal Factor = 1.09

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

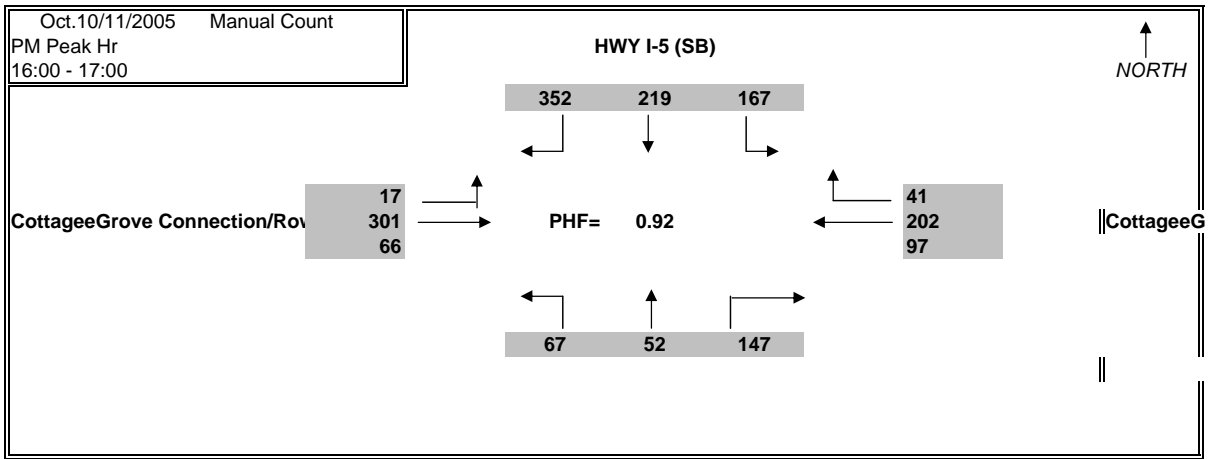


Seasonal Factor = 1.28

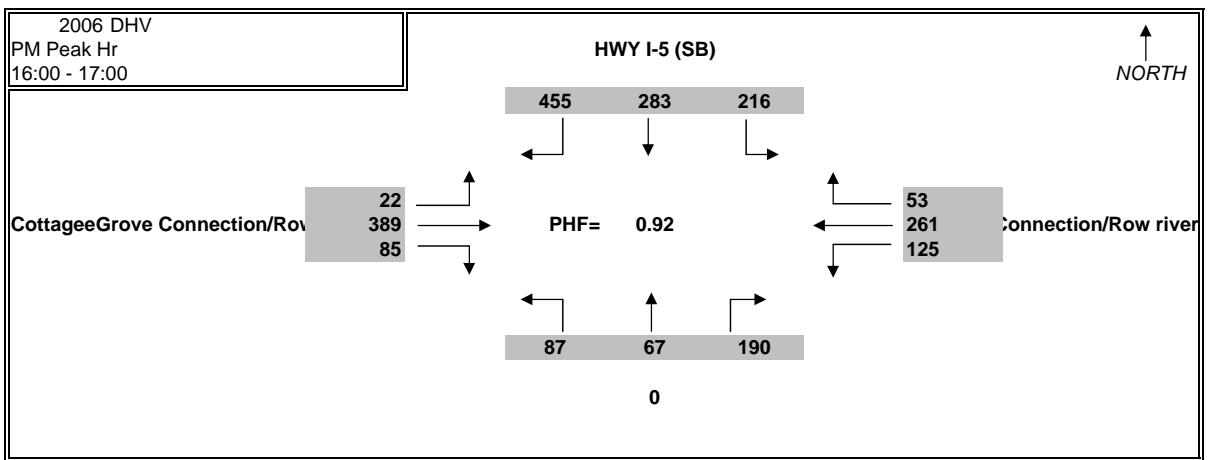
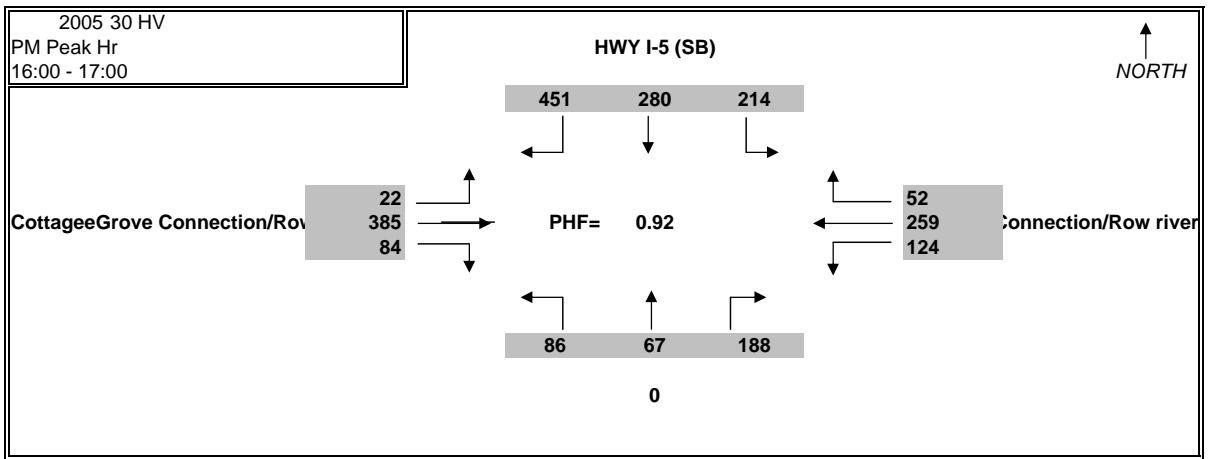


Seasonal Factor = 1.28

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

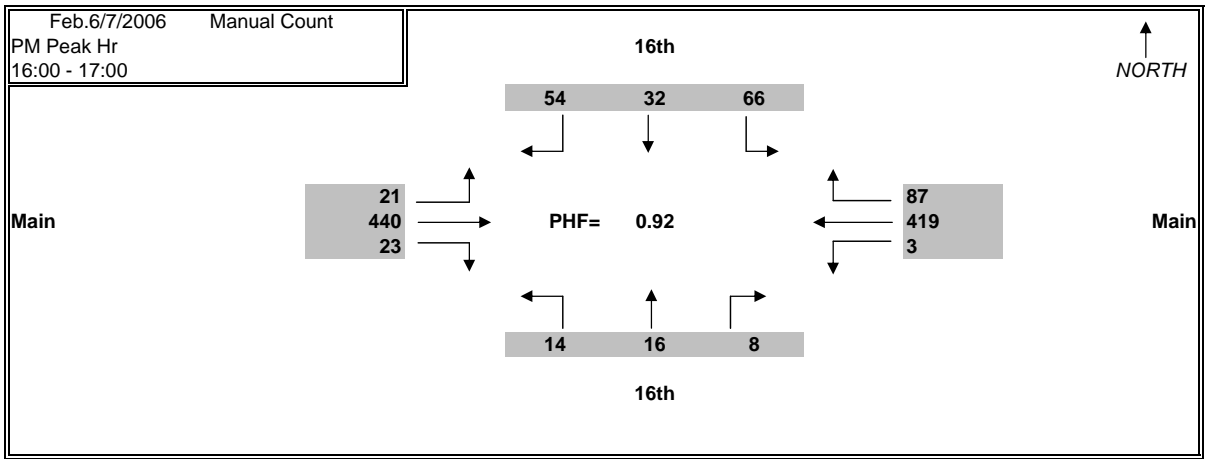


Seasonal Factor = 1.28

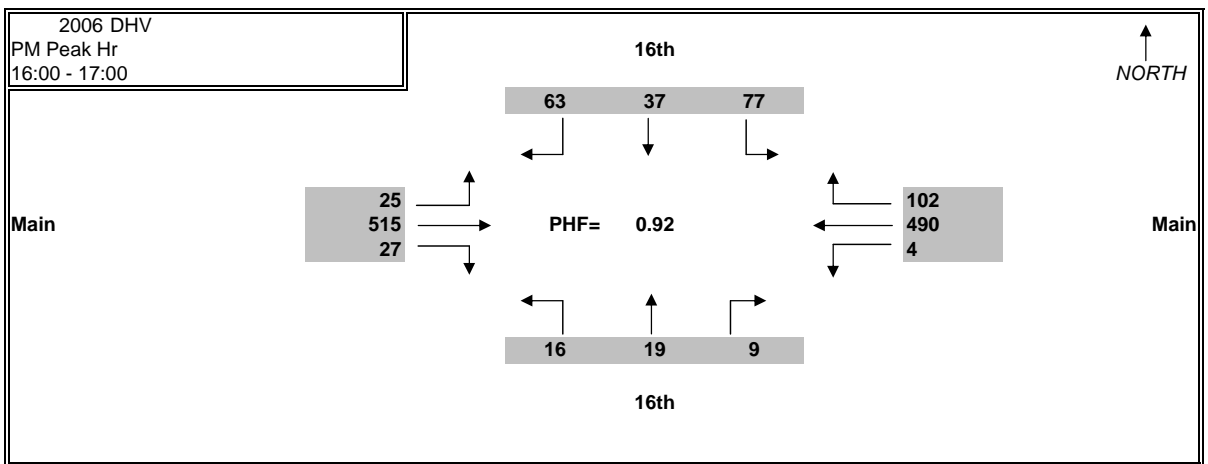
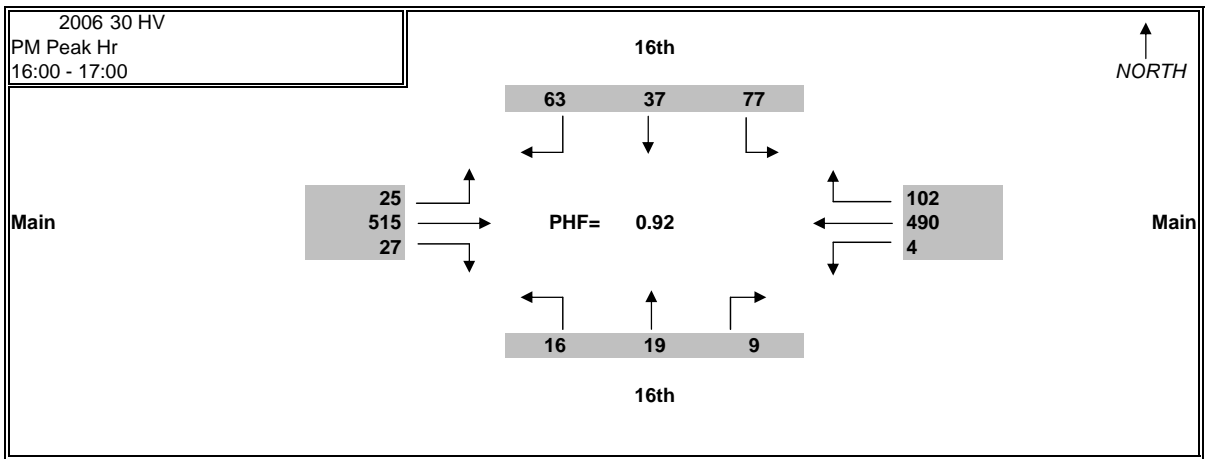


Seasonal Factor = 1.28

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

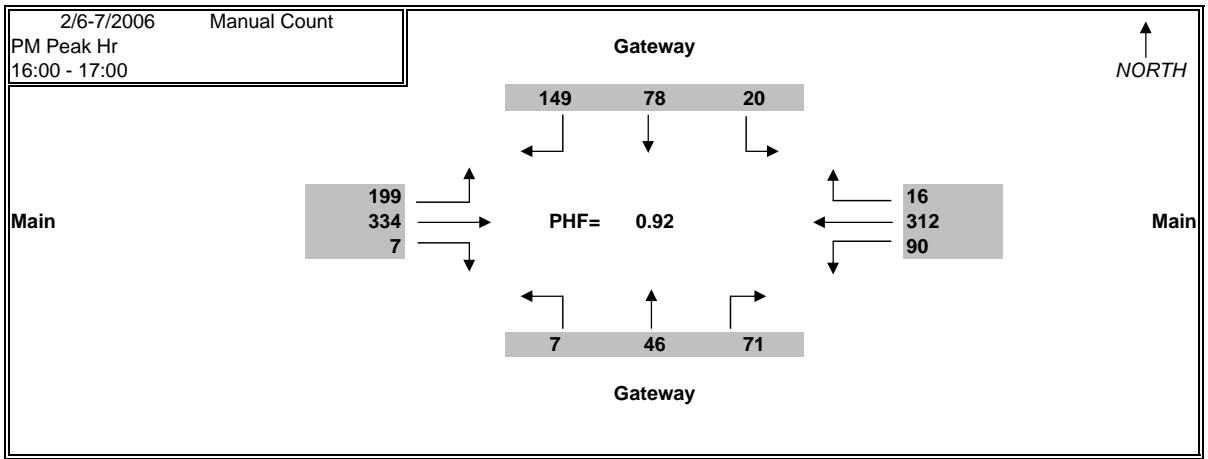


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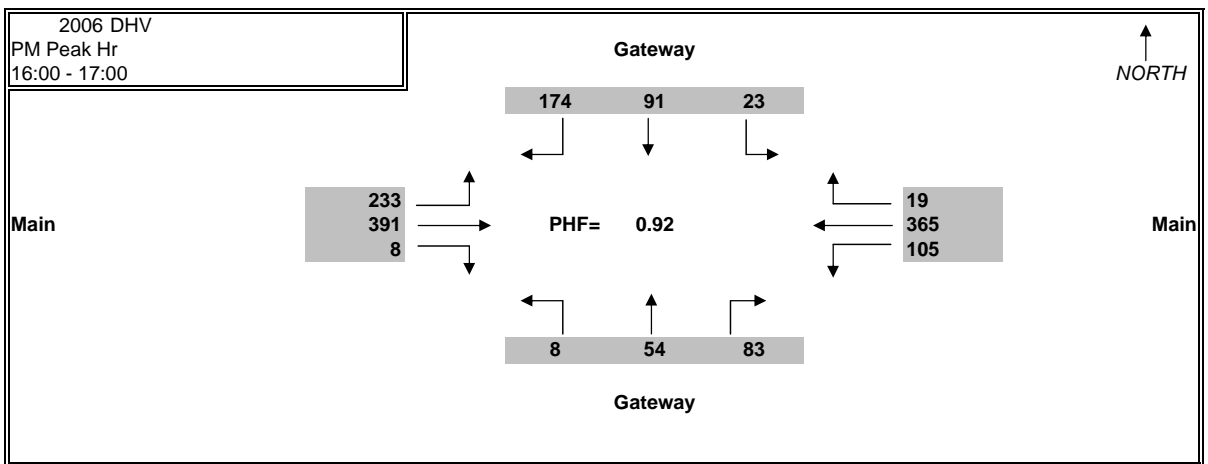
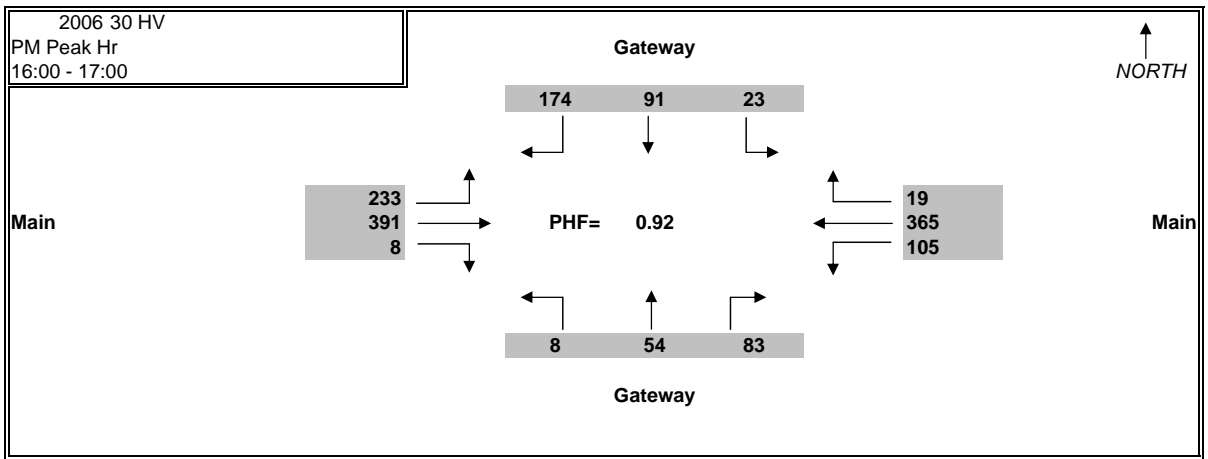


Seasonal Factor = 1.17

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

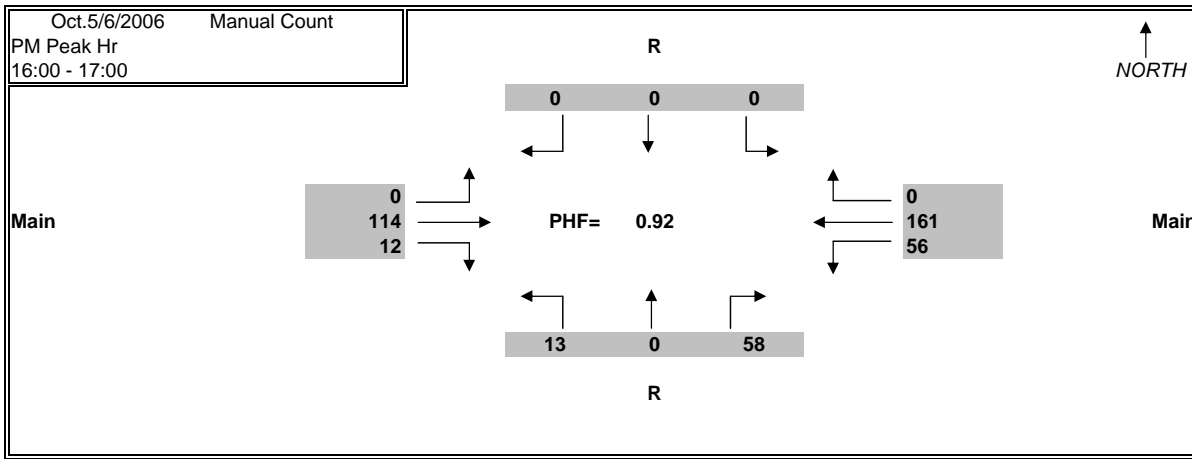


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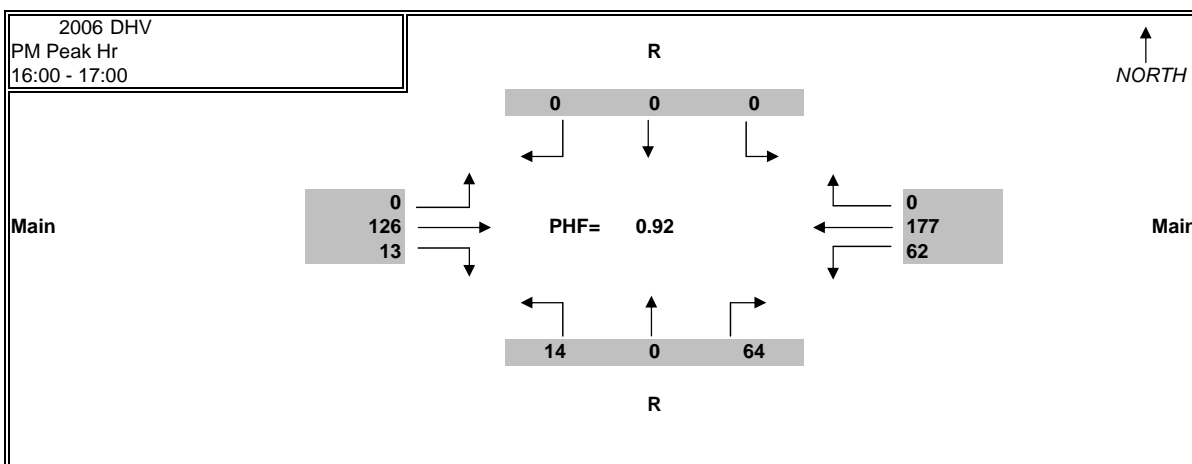
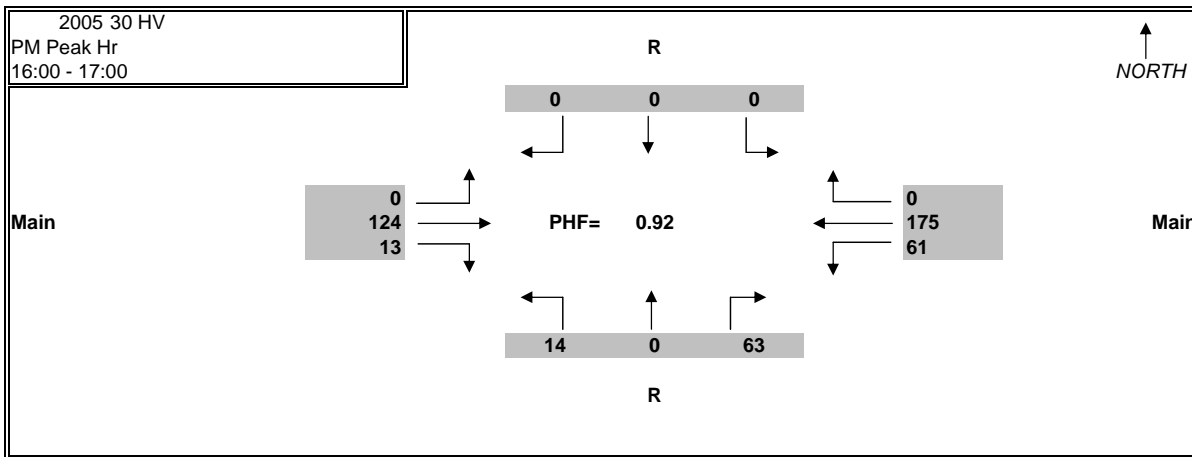


Seasonal Factor = 1.17

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

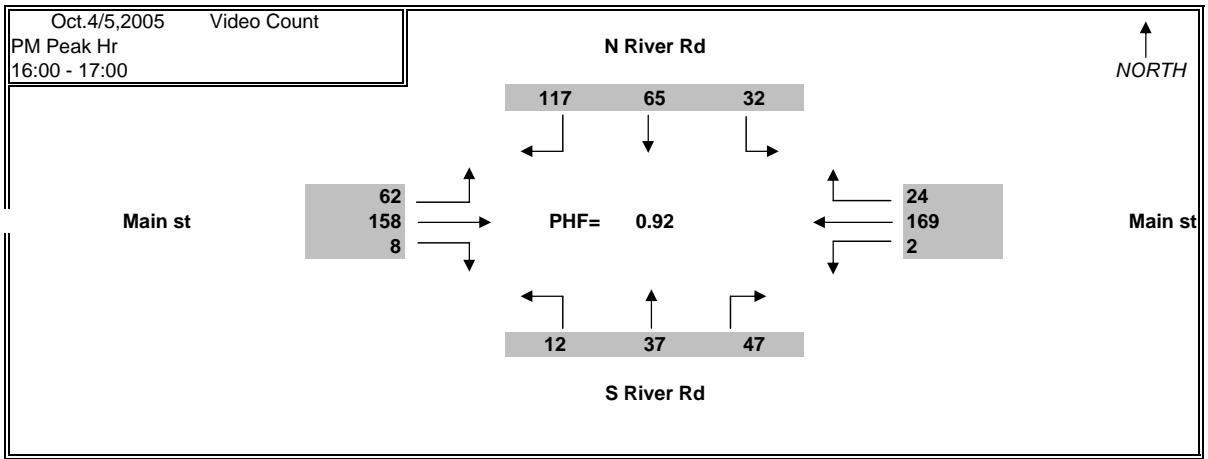


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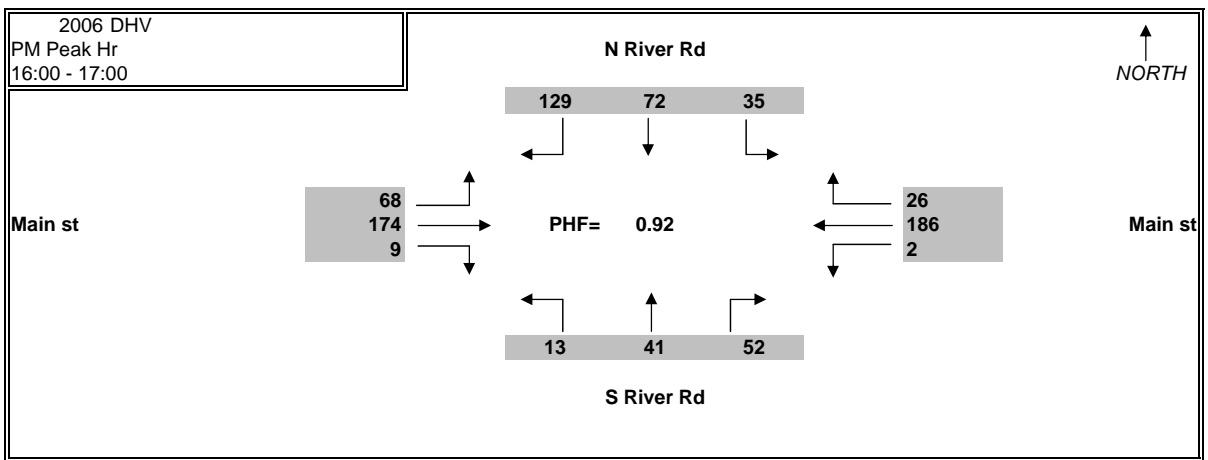
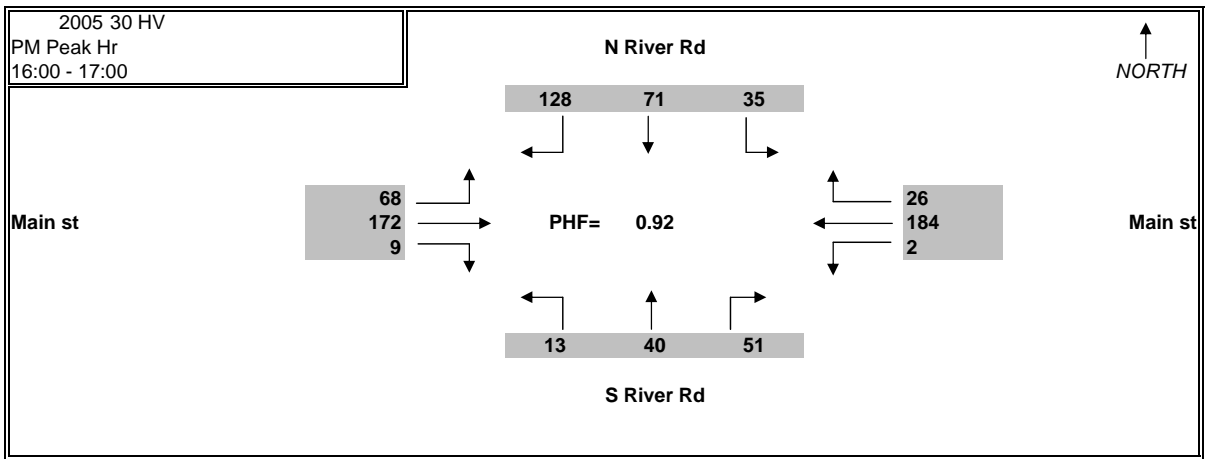


Seasonal Factor = 1.09

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

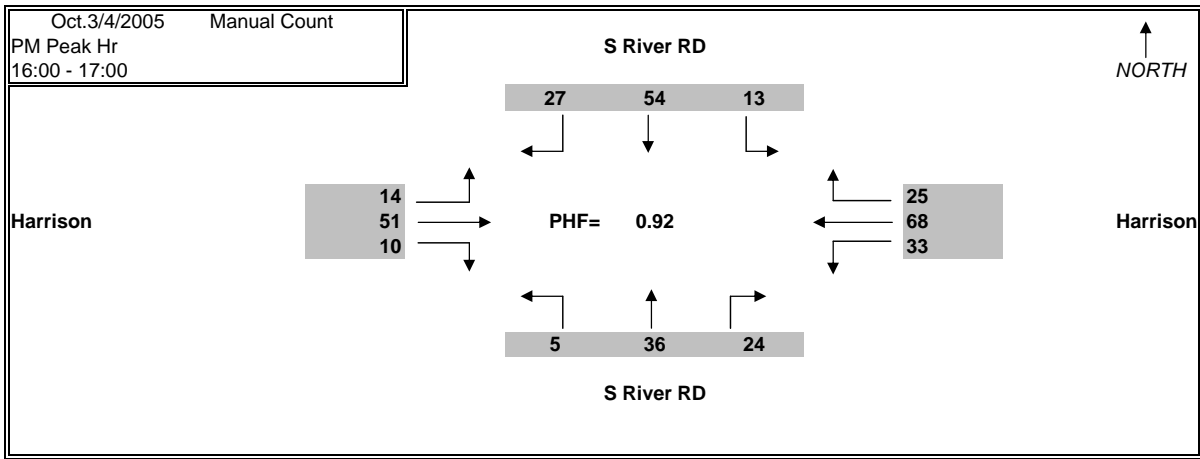


Seasonal Factor = 1.09

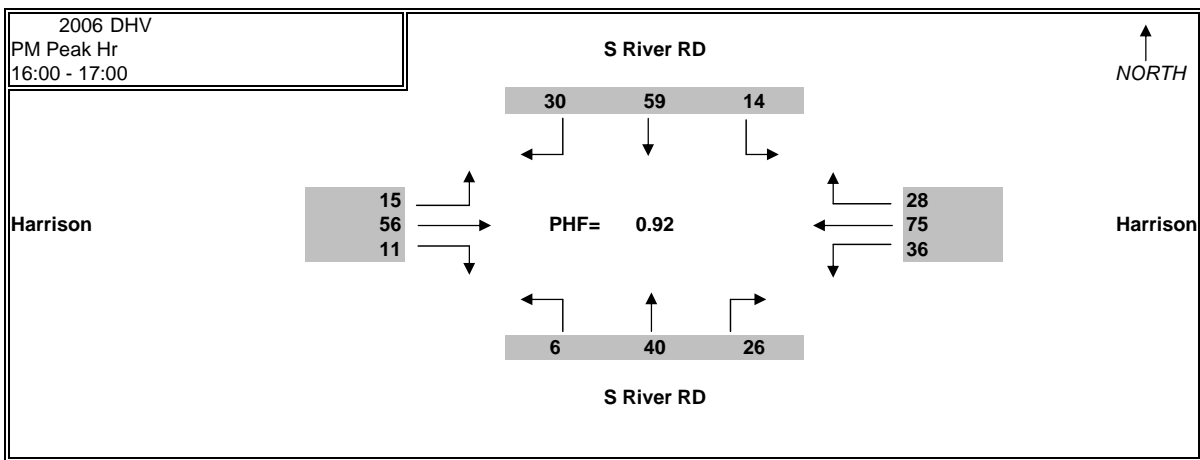
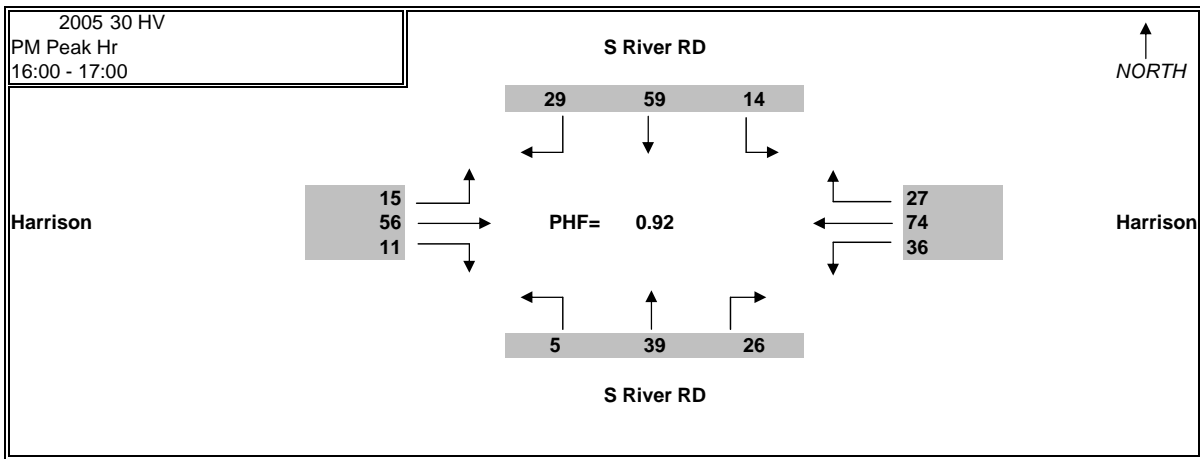


Seasonal Factor = 1.09

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 in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ 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:	Main			
	R			
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 xxx 6.2 xxx xxx xxx xxx xxx xxx 4.1 xxx xxx
FollowUpTim: 3.5 xxx 3.3 xxx xxx xxx xxx xxx xxx 2.2 xxx xxx

Capacity Module:
Cnflct Vol: 494 xxx 145 xxx xxx xxx xxx xxx xxx 152 xxx xxx
Potent Cap.: 538 xxx 908 xxx xxx xxx xxx xxx xxx 1429 xxx xxx
Move Cap.: 516 xxx 907 xxx xxx xxx xxx xxx xxx 1427 xxx xxx
Volume/Cap: 0.03 xxx 0.08 xxx xxx xxx xxx xxx xxx 0.05 xxx xxx

Level Of Service Module:
2Way95thQ: xxx xxx xxx xxx xxx xxx xxx xxx xxx 0.2 xxx xxx
Control Del: xxx xxx xxx xxx xxx xxx xxx xxx xxx 7.7 xxx xxx
LOS by Move: * * * * * * * * * * A * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxx 797 xxx xxx xxx xxx xxx xxx xxx xxx xxx
SharedQueue: xxx 0.4 xxx xxx xxx xxx xxx xxx xxx xxx xxx
Shrd ConDel: xxx 10.0 xxx xxx xxx xxx xxx xxx xxx xxx xxx
Shared LOS: * B * * * * * * * * * A * * *
ApproachDel: 10.0 xxx xxx xxx xxx xxx xxx
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

Street Name:	River				Main			
	North Bound		South Bound		East Bound		West Bound	
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Protected	Protected	Protected	Permitted	Permitted	Permitted	Permitted	
Rights:	Include	Include	Include	Include	Include	Include	Include	
Min. Green:	0 0 0	0 0 0	0 0 0	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	1 0 0 1 0	1 0 0 1 0	1 0 0 1 0	

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

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
IncrcmntDel: 1.9 0.1 0.2 0.3 0.5 0.5 0.3 0.3 0.3 0.0 0.4 0.4
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 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

Table with columns for Street Name (River, Harrison), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign), Rights (Include), Min. Green, and Lanes.

Table with columns for Volume Module: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol.

Table with columns for Saturation Flow Module: Adjustment, Lanes, Final Sat.

Table with columns for Capacity Analysis Module: Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, AllWayAvgQ.

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

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

Table with columns for Street Name (99, Woodson), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit, Protected), Rights (Include), Min. Green, and Lanes.

Table with columns for Volume Module: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol.

Table with columns for Saturation Flow Module: Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns for Capacity Analysis Module: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

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

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

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

IncrcmntDel: 7.6 1.8 6.3 8.3 0.7 0.7 8.3 5.3 5.3 6.4 1.7 1.7

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 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 D E D E D E D E D

HCM2kAvgQ: 2 10 12 10 11 11 4 14 14 12 14 14

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

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 1 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

IncrcmntDel: 0.0 0.0 0.0 0.1 0.1 0.1 0.3 0.3 0.3 0.4 0.4 0.6

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 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.

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

Table with columns for Street Name (99, 4th) and Movement (North Bound, South Bound, East Bound, West Bound). Rows include Control, Rights, Lanes, and Volume Module.

Table with columns for Volume Module. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Vol.

Table with columns for Saturation Flow Module. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Table with columns for Capacity Analysis Module. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

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

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

Table with columns for Street Name (99, S.River) and Movement (North Bound, South Bound, East Bound, West Bound). Rows include Approach, Movement, Control, Rights, and Lanes.

Table with columns for Volume Module. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table with columns for Critical Gap Module. Rows include Critical Gp and FollowUpTim.

Table with columns for Capacity Module. Rows include Conflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with columns for Level Of Service Module. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

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

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 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 xxxxx xxxxx 6.4 xxxx 6.2 xxxxx xxxxx xxxxx
FollowUpTim: 2.2 xxxx xxxxx xxxxx xxxxx xxxxx 3.5 xxxx 3.3 xxxxx xxxxx xxxxx
Capacity Module:
Cnflct Vol: 171 xxxx xxxxx xxxxx xxxxx xxxxx 261 xxxx 144 xxxxx xxxxx xxxxx
Potent Cap.: 1418 xxxx xxxxx xxxxx xxxxx xxxxx 730 xxxx 906 xxxxx xxxxx xxxxx
Move Cap.: 1411 xxxx xxxxx xxxxx xxxxx xxxxx 718 xxxx 901 xxxxx xxxxx xxxxx
Volume/Cap: 0.01 xxxx xxxxx xxxxx xxxxx xxxxx 0.05 xxxx 0.01 xxxxx xxxxx xxxxx
Level Of Service Module:
2Way95thQ: 0.0 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Control Del: 7.6 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: A *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 745 xxxxx xxxxx xxxxx xxxxx
SharedQueue: 0.0 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.2 xxxxx xxxxx xxxxx xxxxx
Shrd ConDel: 7.6 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 10.1 xxxxx xxxxx xxxxx xxxxx
Shared LOS: A *
ApproachDel: xxxxxx xxxxxx 10.1 xxxxxx
ApproachLOS: *

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 #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 1 0 0 0 0 0 1 1 0 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 7.6 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.

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 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:xxxx xxx xxx xxx xxx xxx xxx xxx xxx 6.5 xxx 6.3
FollowUpTim:xxxx xxx xxx xxx xxx xxx xxx xxx xxx 3.6 xxx 3.4
Capacity Module:
Cnflct Vol: xxx xxx xxx xxx xxx xxx xxx xxx xxx 279 xxx 101
Potent Cap.: xxx xxx xxx xxx xxx xxx xxx xxx xxx 698 xxx 938
Move Cap.: xxx xxx xxx xxx xxx xxx xxx xxx xxx 697 xxx 937
Volume/Cap: xxx xxx xxx xxx xxx xxx xxx xxx xxx 0.23 xxx 0.03
Level Of Service Module:
2Way95thQ: xxx xxx xxx xxx xxx xxx xxx xxx xxx 0.9 xxx 0.1
Control Del:xxxx xxx xxx xxx xxx xxx xxx xxx xxx 11.7 xxx 9.0
LOS by Move: * * * * * * * * * * B * A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx
Shrd ConDel:xxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx
Shared LOS: * * * * * * * * * * * * * *
ApproachDel: xxx xxx xxx xxx 11.2
ApproachLOS: * * * * B

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

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
Lanes: 0 0 1 0 0 0 0 1 0 0 0 0
Volume Module:
Base Vol: 0 97 61 32 269 0 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 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 0
Reduct Vol: 0 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 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 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:
Cnflct Vol: 0 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 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 0

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

Table with columns: Street Name, Approach, Movement, Control, Rights, Min. Green, Lanes. Rows for North, South, East, West bounds.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol. Rows for North, South, East, West bounds.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat. Rows for North, South, East, West bounds.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ. Rows for North, South, East, West bounds.

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

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

Table with columns: Street Name, Approach, Movement, Control, Rights, Min. Green, Lanes. Rows for North, South, East, West bounds.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol. Rows for North, South, East, West bounds.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat. Rows for North, South, East, West bounds.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ. Rows for North, South, East, West bounds.

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

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

Table with columns for Street Name, Approach, Movement, Control, Rights, Lanes, and Volume Module. Rows include I5 SB Ramps / Gateway and CGC.

Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol. Rows include I5 SB Ramps / Gateway and CGC.

Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat. Rows include I5 SB Ramps / Gateway and CGC.

Table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ. Rows include I5 SB Ramps / Gateway and CGC.

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]

Table with columns for Street Name, Approach, Movement, Control, Rights, Lanes. Rows include I5 NB OFF ramp and Row River Rd.

Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol. Rows include I5 NB OFF ramp and Row River Rd.

Table with columns for Critical Gap Module, Critical Gp, FollowUpTim. Rows include I5 NB OFF ramp and Row River Rd.

Table with columns for Capacity Module, Conflict Vol, Potent Cap., Move Cap., Volume/Cap. Rows include I5 NB OFF ramp and Row River Rd.

Table with columns for Level Of Service Module, 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS. Rows include I5 NB OFF ramp and Row River Rd.

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

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
Lanes: 0 0 0 0 0 0 1 0 1 0 0 0 0 0 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
IncrcmntDel: 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 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.

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 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 xxx 6.2 xxxxx xxx xxxxx xxxxx xxx xxxxx
FollowUpTim:xxxxx 4.0 xxxxx xxxxx xxx 3.3 xxxxx xxx xxxxx xxxxx xxx xxxxx
Capacity Module:
Cnflct Vol: xxx 529 xxxxx xxx xxx 529 xxx xxx xxxxx xxx xxx xxxxx
Potent Cap.: xxx 455 xxxxx xxx xxx 547 xxx xxx xxxxx xxx xxx xxxxx
Move Cap.: xxx 455 xxxxx xxx xxx 547 xxx xxx xxxxx xxx xxx xxxxx
Volume/Cap: xxx 0.24 xxx xxx xxx 0.31 xxx xxx xxx xxx xxx xxx
Level Of Service Module:
2Way95thQ: xxx 0.9 xxxxx xxx xxx 1.3 xxx xxx xxxxx xxx xxx xxxxx
Control Del:xxxxx 15.5 xxxxx xxxxx xxx 14.5 xxxxx xxx xxxxx xxxxx xxx xxxxx
LOS by Move: * C * * * B * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxx xxx xxxxx xxx xxx xxxxx xxx xxx xxxxx xxx xxx xxxxx
SharedQueue:xxxxx xxx xxxxx xxxxx xxx xxxxx xxxxx xxx xxxxx xxxxx xxx xxxxx
Shrd ConDel:xxxxx xxx xxxxx xxxxx xxx xxxxx xxxxx xxx xxxxx xxxxx xxx xxxxx
Shared LOS: * * * * * * * * * * *
ApproachDel: 15.5 14.5 xxxxxx xxxxxx
ApproachLOS: C B * *
Note: Queue reported is the number of cars per lane.

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Stop Sign, Uncontrolled), Rights (Include), and Lanes (0-1).

Volume Module table showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, and Reduct Vol for each approach and movement.

Critical Gap Module table showing Critical Gp and FollowUpTim for each approach and movement.

Capacity Module table showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap for each approach and movement.

Level Of Service Module table showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), and Lanes (0-1).

Volume Module table showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, and Reduct Vol for each approach and movement.

Critical Gap Module table showing Critical Gp and FollowUpTim for each approach and movement.

Capacity Module table showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap for each approach and movement.

Level Of Service Module table showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

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 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

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 xxxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx 4.1 xxxx xxxxxx
FollowUpTim:  3.5 xxxx  3.3 xxxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx 2.2 xxxx xxxxxx
-----|-----|-----|-----|
Capacity Module:
Cnflct Vol:   850 xxxxx  237 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 258 xxxxx xxxxxx
Potent Cap.:  333 xxxxx  807 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 1307 xxxxx xxxxxx
Move Cap.:    308 xxxxx  806 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 1306 xxxxx xxxxxx
Volume/Cap:  0.11 xxxxx  0.22 xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 0.09 xxxxx xxxxx
-----|-----|-----|-----|
Level Of Service Module:
2Way95thQ:   xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 0.3 xxxxx xxxxxx
Control Del: xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx 8.0 xxxxx xxxxxx
LOS by Move: *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
Movement:    LT - LTR - RT  LT - LTR - RT  LT - LTR - RT  LT - LTR - RT
Shared Cap.: xxxxx 639 xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx
SharedQueue: xxxxxx 1.5 xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx 0.3 xxxxx xxxxxx
Shrd ConDel: xxxxxx 13.5 xxxxxx xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx 8.0 xxxxx xxxxxx
Shared LOS:  *   B   *   *   *   *   *   *   *   *   *   *   A   *   *   *
ApproachDel: 13.5          xxxxxxxx          xxxxxxxx          xxxxxxxx
ApproachLOS:  B           *           *           *
*****
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):      0.833
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
IncrementDel: 26.0 0.5 0.5 1.5 14.8 14.8 17.4 1.1 1.1 0.5 6.9 6.9
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 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
*****

```

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): 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	1	0	0	1	0	0	1

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.

 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 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
 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 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

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

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
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
PHF Adj:         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
MLF Adj:         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
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
IncrmntDel:     143.9 35.7 10.6 58.5 110 110.0 131.8 117 116.9 120.7 90.4 90.4
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 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.

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

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*****
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
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
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
IncrementDel:    0.1 0.1 0.1 6.3 6.3 6.3 0.3 0.3 0.3 0.9 0.9 14.9
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 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
*****

```

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

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

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*****
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             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
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
PHF Adj:          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
MLF Adj:          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
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
IncrementDel:     0.0 3.7 3.7 1.3 2.4 0.9 9.8 7.4 7.4 3.9 6.7 0.2
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 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
*****

```

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

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L-T-R). Rows include Control, Rights, and Lanes.

Volume Module:

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol. Rows include various traffic volume metrics.

Critical Gap Module:

Table with columns for Critical Gp and FollowUpTim. Rows include critical gap and follow-up time values.

Capacity Module:

Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. Rows include conflict volume, potential capacity, move capacity, and volume per capacity.

Level Of Service Module:

Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS. Rows include level of service and delay metrics.

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

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L-T-R). Rows include Control, Rights, and Lanes.

Volume Module:

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol. Rows include various traffic volume metrics.

Critical Gap Module:

Table with columns for Critical Gp and FollowUpTim. Rows include critical gap and follow-up time values.

Capacity Module:

Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. Rows include conflict volume, potential capacity, move capacity, and volume per capacity.

Level Of Service Module:

Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS. Rows include level of service and delay metrics.

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 #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	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
Lanes:	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.

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	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

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:

Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	374	xxxx	105
Potent Cap.:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	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:	xxxxxxx			xxxxxxx			xxxxxxx			11.2		
ApproachLOS:	A			A			A			B		

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

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
Volume Module:															
Base Vol:	0	97	61	32	269	0	0	0	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	0.00	0.00	0.00
Initial Bse:	0	0	0	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	0	0	0
PasserByVol:	0	0	0	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	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	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	0.00	0.00	0.00
PHF Volume:	0	0	0	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	0	0	0
Reduced Vol:	0	0	0	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	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	0.00	0.00	0.00
Final Vol.:	0	0	0	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	0.0	0.0	0.0
Capacity Module:															
Cnflct Vol:	0	0	0	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	0	0	0
Level Of Service Module:															
LOS by Move:															
Movement:	LT	LTR	RT	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	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Main@16th

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			
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						
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
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			
IncrementDel:	0.5	0.5	0.5	27.9	27.9	27.9	63.0	2.3	2.3	137.1	7.5	7.5			
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:	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			

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

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	0	1	0	1	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
IncrcmntDel:	218.2	0.2	110.4	255.0	27.1	27.1	121.1	15.8	15.8	51.3	98.7	98.7
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	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

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

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

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
IncrementDel:	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

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

```

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 xxxxx xxxxx xxxxx xxxxx 6.3 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim:xxxxxx xxxxx xxxxx xxxxx xxxxx 3.4 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
-----|-----|-----|-----|
Capacity Module:
Cnflict Vol: xxxxx xxxxx xxxxx xxxxx xxxxx 841 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx 354 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.:   xxxxx xxxxx xxxxx xxxxx xxxxx 354 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap:  xxxxx xxxxx xxxxx xxxxx xxxxx 0.35 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
-----|-----|-----|-----|
Level Of Service Module:
2Way95thQ:   xxxxx xxxxx xxxxx xxxxx xxxxx 1.5 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Control Del:xxxxxx xxxxx xxxxx xxxxx xxxxx 20.5 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * * C * * * * *
Movement:    LT - LTR - RT      LT - LTR - RT      LT - LTR - RT      LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue:xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd ConDel:xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS:  * * * * * * * * * * * * * * * * * * * * * *
ApproachDel: xxxxxxxx      20.5      xxxxxxxx      xxxxxxxx
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 #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
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 0 0 0 0 0 0 0 0 0 0
Lanes:           0 0 0 0 0 0 0 0 1 0 0 0 1 0 1 0 0 1 0 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
IncrementDel:   0.0 0.0 0.0 78.8 0.0 0.0 8.1 1.4 0.0 0.0 19.0 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:      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 D A
HCM2kAvgQ:      0 0 0 5 0 0 10 14 0 0 31 0
*****

```

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

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

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 4 rows: Movement, Control, Rights, Lanes.

Volume Module: Table with 12 columns for volume and growth factors across different approaches and movements.

Critical Gap Module: Table with 12 columns for gap and follow-up times.

Capacity Module: Table with 12 columns for conflict volume, potent capacity, and move capacity.

Level Of Service Module: Table with 12 columns for LOS by movement, shared capacity, and approach delay.

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

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 4 rows: Movement, Control, Rights, Lanes.

Volume Module: Table with 12 columns for volume and growth factors across different approaches and movements.

Critical Gap Module: Table with 12 columns for gap and follow-up times.

Capacity Module: Table with 12 columns for conflict volume, potent capacity, and move capacity.

Level Of Service Module: Table with 12 columns for LOS by movement, shared capacity, and approach delay.

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 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 xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx 6.2

FollowUpTim:xxxxx xxxx xxxxxx 2.2 xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx 3.3

-----|-----|-----|-----|

Capacity Module:

Cnflct Vol: xxxx xxxx xxxxxx 371 xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx 372

Potent Cap.: xxxx xxxx xxxxxx 1182 xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx 672

Move Cap.: xxxx xxxx xxxxxx 1182 xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx 672

Volume/Cap: xxxx xxxx xxxxxx 0.17 xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx 0.38

-----|-----|-----|-----|

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxxx 0.6 xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx 1.8

Control Del:xxxxx xxxx xxxxxx 8.7 xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx 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 xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx xxxx xxxx xxxxxx

SharedQueue:xxxxx xxxx xxxxxx 0.6 xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx

Shrd ConDel:xxxxx xxxx xxxxxx 8.7 xxxx xxxxxx xxxxxx xxxx xxxxxx xxxxxx xxxx xxxxxx

Shared LOS: * * * A * * * * * * * * * *

ApproachDel: xxxxxxx xxxxxxx xxxxxxx xxxxxxx 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**

 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 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 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 xxxxx 6.2 xxxxx xxxxx xxxxx xxxxx xxxxx 4.1 xxxxx xxxxx
FollowUpTim: 3.5 xxxxx 3.3 xxxxx xxxxx xxxxx xxxxx xxxxx 2.2 xxxxx xxxxx

Capacity Module:
Cnflct Vol: 817 xxxxx 233 xxxxx xxxxx xxxxx xxxxx xxxxx 254 xxxxx xxxxx
Potent Cap.: 349 xxxxx 811 xxxxx xxxxx xxxxx xxxxx xxxxx 1311 xxxxx xxxxx
Move Cap.: 320 xxxxx 810 xxxxx xxxxx xxxxx xxxxx xxxxx 1310 xxxxx xxxxx
Volume/Cap: 0.15 xxxxx 0.35 xxxxx xxxxx xxxxx xxxxx xxxxx 0.10 xxxxx xxxxx

Level Of Service Module:
2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.3 xxxxx xxxxx
Control Del: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 8.1 xxxxx xxxxx
LOS by Move: *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx 666 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQueue: xxxxx 2.8 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd ConDel: xxxxx 15.6 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * C *
ApproachDel: 15.6 xxxxxxxx xxxxxxxx xxxxxxxx
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 0 0 0
Lanes: 0 1 0 0 1 1 0 0 1 0 1 0 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
IncrementDel: 15.6 0.3 0.5 1.2 5.8 5.8 1.9 1.1 1.1 0.5 3.0 3.0
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 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 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	1	0	0	1	0	0	1

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.

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
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
PHF Adj:         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
MLF Adj:        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
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
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 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
*****

```

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

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
IncrementDel:   146.5 50.5 5.7 72.9 57.9 57.9 96.4 65.3 65.3 69.9 53.6 53.6
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 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
*****

```

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

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
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
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
IncrementDel:    0.1 0.1 0.1 1.1 1.1 1.1 0.5 0.5 0.5 0.6 0.6 4.6
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 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
*****

```

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

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

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*****
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      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
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
PHF Adj:        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
MLF Adj:        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
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
IncrementDel:   0.0 0.8 0.8 0.4 0.7 0.4 1.6 1.0 1.0 0.8 2.1 0.4
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 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 C C C C C C
HCM2kAvgQ:     0 9 8 1 8 5 5 3 3 4 5 1
*****

```

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

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), and Lanes (0 1 0 0 0).

Volume Module:

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol. across four approaches.

Critical Gap Module:

Table with columns for Critical Gp and FollowUpTim across four approaches.

Capacity Module:

Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. across four approaches.

Level Of Service Module:

Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

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

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

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), and Lanes (0 1 0 0 0).

Volume Module:

Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol. across four approaches.

Critical Gap Module:

Table with columns for Critical Gp and FollowUpTim across four approaches.

Capacity Module:

Table with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. across four approaches.

Level Of Service Module:

Table with columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

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 #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	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0	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	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.

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	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include	Include	Include	Include	Include
Lanes:	0 0 1 0 0	0 0 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 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:

Cnflct 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	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	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:	xxxxxxx			xxxxxxx			xxxxxxx			11.3		
ApproachLOS:	*			*			*			B		

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

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
Volume Module:															
Base Vol:	0	97	61	32	269	0	0	0	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	0.00	0.00	0.00
Initial Bse:	0	0	0	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	0	0	0
PasserByVol:	0	0	0	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	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	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	0.00	0.00	0.00
PHF Volume:	0	0	0	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	0	0	0
Reduced Vol:	0	0	0	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	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	0.00	0.00	0.00
Final Vol.:	0	0	0	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	0.0	0.0	0.0
Capacity Module:															
Cnflct Vol:	0	0	0	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	0	0	0
Level Of Service Module:															
LOS by Move:															
Movement:	LT	LTR	RT	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	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #14 Main@16th

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			
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						
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
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			
IncrementDel:	0.4	0.4	0.4	25.6	25.6	25.6	68.0	1.5	1.5	101.5	7.0	7.0			
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	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			

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

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		
	North Bound	South Bound	East Bound	West Bound		
Approach:	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	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	1 0 0 1 0	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	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	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
IncrcmntDel:	61.0 0.2 73.5	218.8 4.1 4.1	89.8 13.3 13.3	28.8 65.7 65.7
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 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

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

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

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
IncrementDel:	1.7	171	170.6	170.7	0.5	0.0	47.9	157	156.6	194.1	3.6	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:	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

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

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	1	0	0	1	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:	xxxxxxx					17.6	xxxxxxx			xxxxxxx		
ApproachLOS:	*					C	*			*		

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

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

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*****
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
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 0 0 0 0 0 0 0 0 0 0 0 0
Lanes:            0 0 0 0 0 0 0 0 1 0 0 0 1 0 1 0 0 1 0 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
IncrementDel:    0.0 0.0 0.0 58.5 0.0 0.0 4.2 1.3 0.0 0.0 11.6 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:       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 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.

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

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Stop Sign, Uncontrolled), Rights (Ignore, Include), Lanes (0-2)

Volume Module: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Critical Gap Module: Critical Gp, FollowUpTim

Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.

Level Of Service Module: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS

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

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Stop Sign, Uncontrolled), Rights (Include), Lanes (0-1)

Volume Module: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Critical Gap Module: Critical Gp, FollowUpTim

Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.

Level Of Service Module: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS

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 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 352 0 196 369 0 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 0 240

Added Vol: 0 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 0

Initial Fut: 0 352 0 196 369 0 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 0 253

Reduct Vol: 0 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 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:

Cnflct 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 xxxxx 0.17 xxxx xxxxx xxxx xxxx xxxxx 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: xxxxxxx xxxxxxx xxxxxxx 13.6

ApproachLOS: * * * B

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

**APPENDIX F: 2025 Traffic Volume
Forecasting Methodology Memo**

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 memorandum¹. 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.

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 percent².

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

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: ITE³ 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)

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 were 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 Table⁴). 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

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 an 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. $92.4 \text{ trips} / 3820 \text{ trips} = 2\%$ 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.

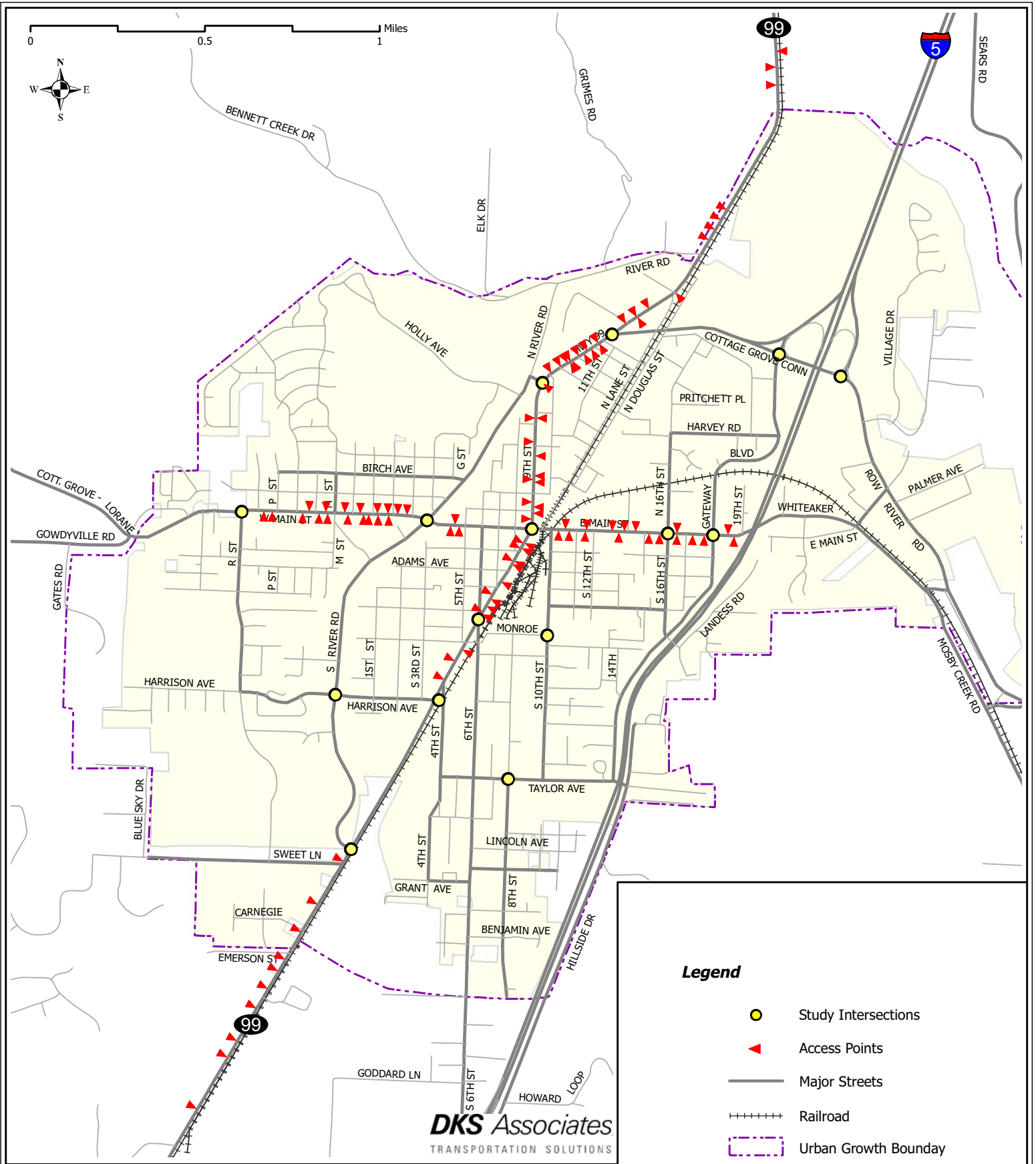
Final Trip Table

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**



Transportation System Plan

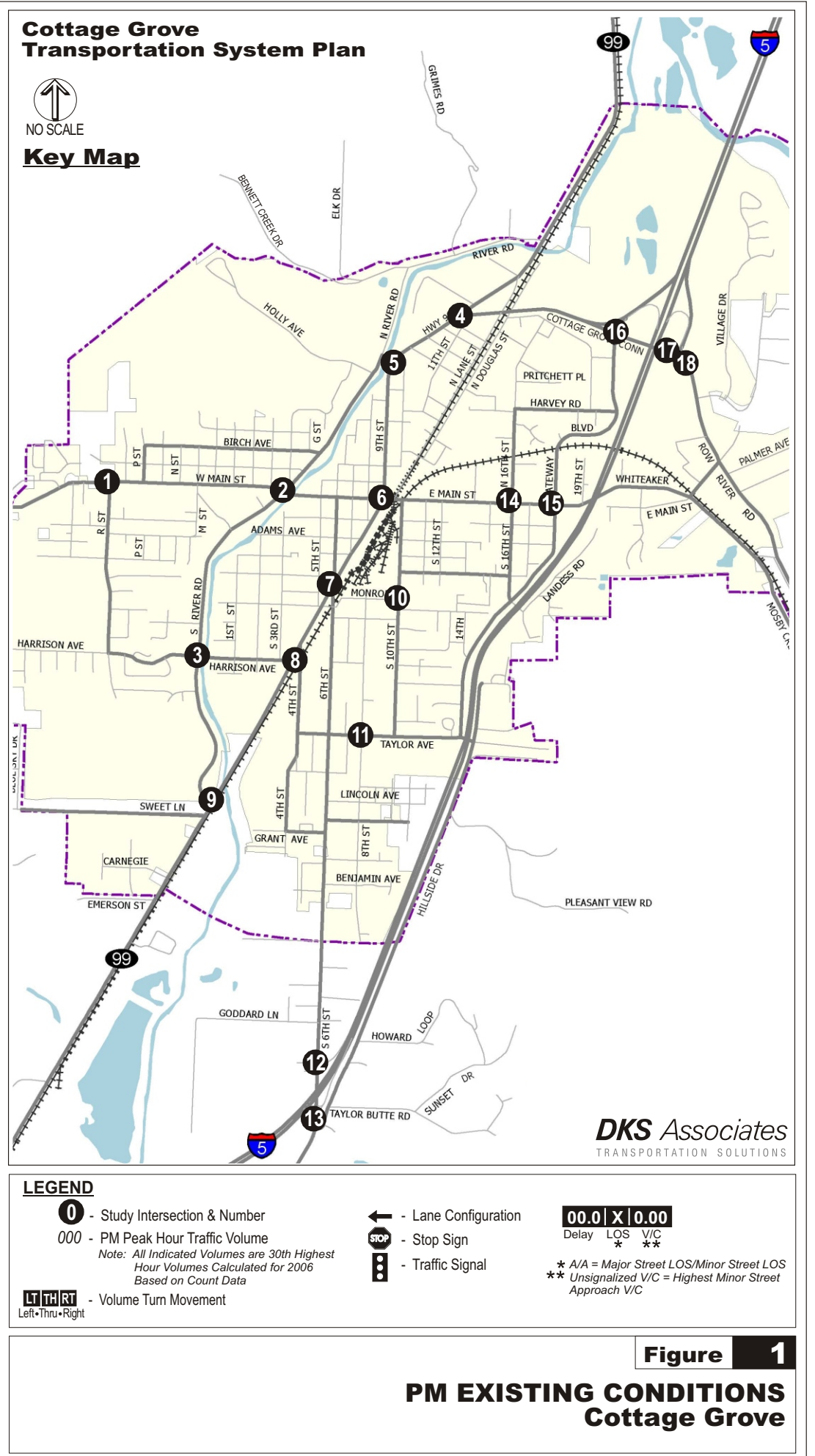
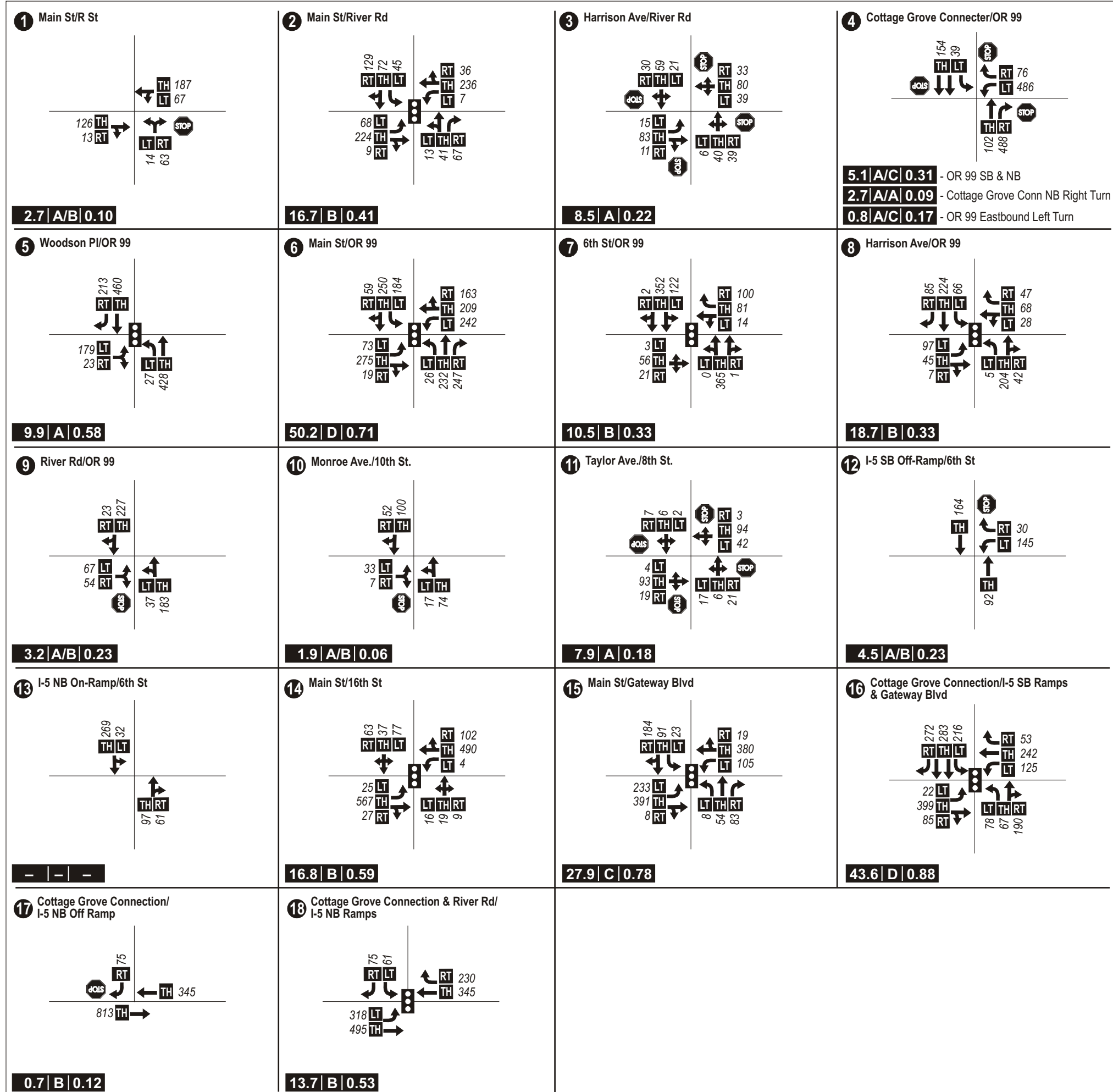
FIGURE 2

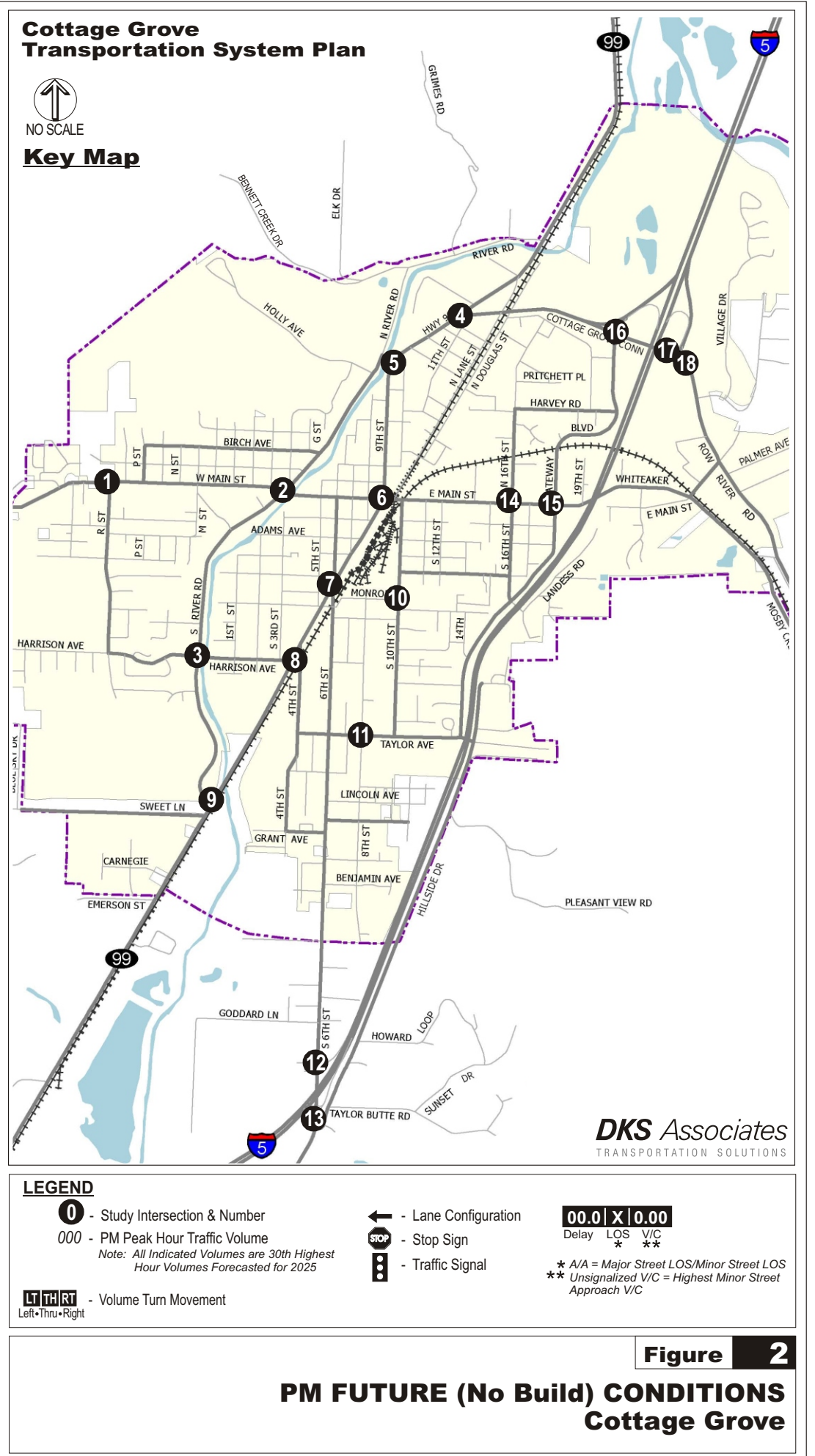
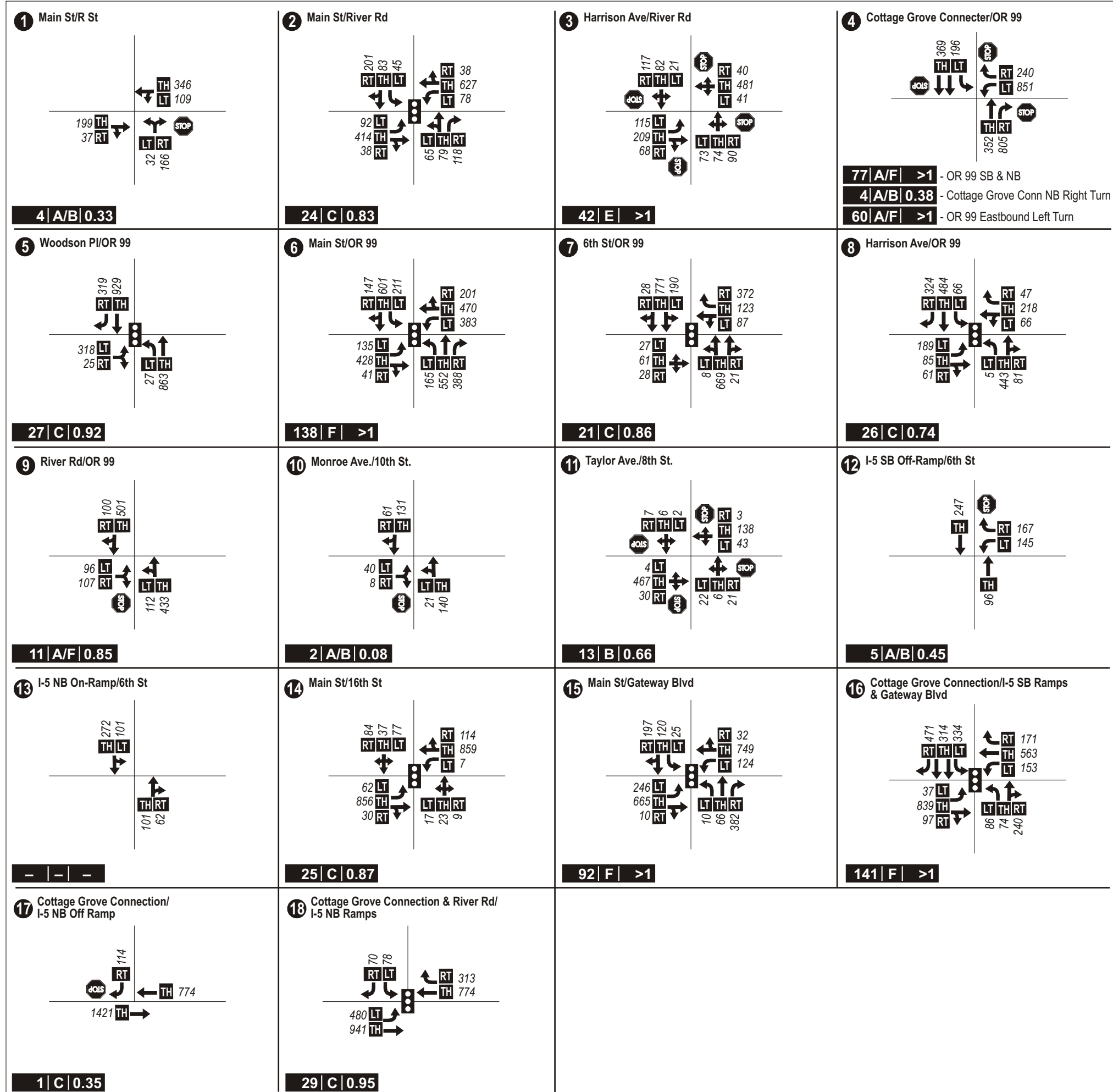
Access



DKS Associates
TRANSPORTATION SOLUTIONS

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





**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
Re: **Cottage Grove TSP**
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.

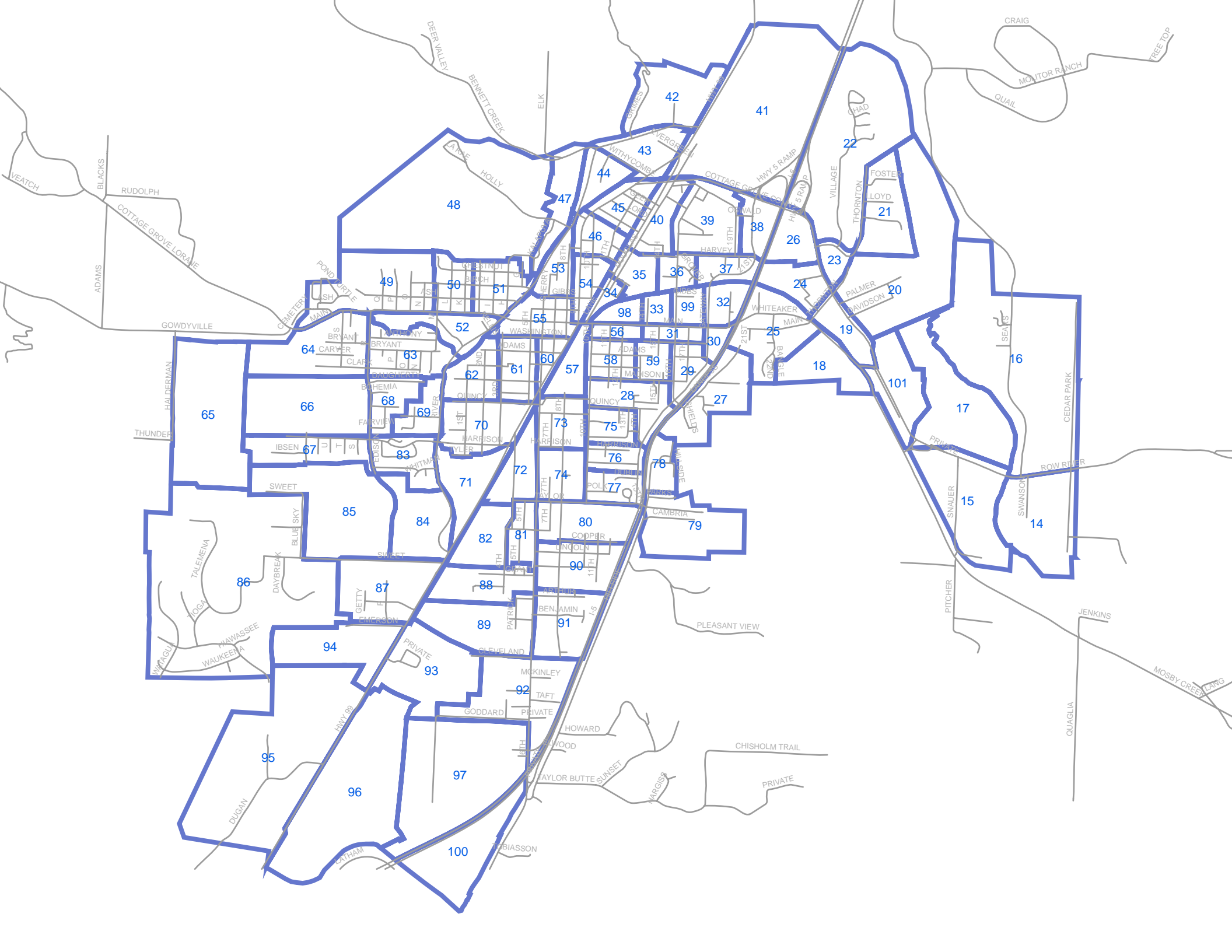
Sector	Base Year	%	Future Year 2025	Growth Increment
AGRI	71	2.3%	71	-
INDY	277	9.0%	517	300
RETL	733	23.7%	1,367	634
SERV	1,676	54.2%	3,127	1,451
EDUC	111	3.6%	207	96
GOVT	111	3.6%	207	96
OTHR	114	3.7%	213	99

TOTAL	3,093	5,770	2,676
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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.



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

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: 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.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

001 PACIFIC

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

Table with columns: SER#, INVEST, E L G H R DAY, COUNTY, CLASS, COMPNT, CONN #, RD CHAR, INT-TYP, INT-REL, OFFRD WTHR, CRASH TYP, SPCL USE, MOVE, PRTC, INJ, A S, LICNS, PED, ACTN, EVENT, CAUSE. Contains multiple rows of crash data for Cottage Grove.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
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

Table with columns: S, D, P, R, S, W, E, A, U, C, O, DATE, COUNTY, CLASS, COMPNT, CONN #, RD CHAR, INT-TYP, INT-REL, OFFRD, WTHR, CRASH TYP, SPCL USE, TRLR QTY, MOVE, A, S, 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.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 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

SER#	E A U C O DATE	COUNTY	CLASS	CONN #	RD CHAR	INT-TYP	INT-REL	OFFRD WTHR	CRASH TYP	SPCL USE	MOVE	A S	PED	CAUSE
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
										02 NONE 0 STOP				
										PRVTE S N				011
										PSNGR CAR		01 DRVR NONE	17 F OR-Y	000
													OR<25	
06356	NNNNN 11/09/2000	LANE	17		STRGHT	N		N RAIN	S-STRGHT	01 NONE 0 STRGHT				
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
						(04)							OR<25	06
										02 NONE 0 STRGHT				
										PRVTE NE SW				000
										PSNGR CAR		01 DRVR NONE	52 F OR-Y	000
													OR<25	
03796	NNNNN 07/27/2002	LANE	14		ALLEY	N		N CLR	ANGL-OTH	01 NONE 0 TURN-R				
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
						(04)							OR<25	02
										02 NONE 0 STRGHT				
										PRVTE NE SW				000
										PSNGR CAR		01 DRVR NONE	48 F OR-Y	000
													OR<25	
05112	NNNNN 09/20/2000	LANE	14		STRGHT	N		Y CLR	PRKD MV	01 NONE 0 STRGHT				
NO RPT	Wed	COTTAGE GROVE	0 0	00905	SW	(RSDMD) UNKNOWN		N DRY	SS-O	PRVTE NE SW				000
	8P	COTGE GR UA	15.06	08006	02	0		N DLIT	PDO	PSNGR CAR		01 DRVR NONE	44 M OR-Y	026
						(04)							OR<25	01
										02 NONE 0 PRKD-P				
										PRVTE NE SW				008
										PSNGR CAR				
00897	NNNNN 02/10/2000	LANE	16		INTER	5-LEG	N	N RAIN	O-1TURN	01 NONE 0 STRGHT				
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
													OR<25	02
01024	NNNNN 02/27/2001	LANE	14		INTER	5-LEG	N	N CLD	O-1TURN	01 NONE 0 STRGHT				
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
													OR<25	02

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 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

SER#	INVEST	S D P R S W	E A U C O DATE	COUNTY	CLASS	CONN #	RD CHAR	INT-TYP	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	LICNS	PED	ACTN	EVENT	CAUSE
ELGHR DAY	CITY	MLG TYP	FIRST STREET	DIRECT	(MEDIAN) INT-REL	RNDDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	PRTC	INJ	G E	RES	LOC	ERROR			
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					
01954	N N N		06/09/2004	LANE	14		STRGHT	N		N	CLR	S-1STOP	01 NONE	0	STRGHT					
NONE			Wed	COTTAGE GROVE	0 0	00905	SW	(RSDMD)	UNKNOWN	N	DRY	REAR	PRVTE	NE SW				000	00	01
			5P	COTGE GR UA	15.08	08006	03			N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	28	F	OR-Y
																		026	000	OR<25
								(04)												
													02 NONE	0	STOP					
													PRVTE	NE SW				011	00	00
													PSNGR CAR		01	DRVR	INJB	38	M	OR-Y
																		000	000	OR<25
01370	N N N		04/24/2004	LANE	14		INTER	6-LEG	N	N	CLR	ANGL-OTH	01 NONE	0	STRGHT					
NONE			Sat	COTTAGE GROVE	0 0	GOSHEN-DIVIDE HY	CN		UNKNOWN	N	DRY	ANGL	PRVTE	E W				000	00	02
			5P	COTGE GR UA	15.15	QUINCY AVE	01	99		N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	44	M	OR-Y
																		028	000	OR<25
													02 NONE	0	STRGHT					
													PRVTE	NE SW				000	000	00
													PSNGR CAR		01	DRVR	NONE	00	M	OR-Y
																		000	000	OR<25
00211	N N N N N		01/11/2002	LANE	16		STRGHT	N		N	CLR	S-1STOP	01 NONE	0	STRGHT					
CITY			Fri	COTTAGE GROVE	0 0	00905	N	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	S N				000	01	01
			4P	COTGE GR UA	15.29	08004	06	0		N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	22	M	OR-Y
																		026	000	OR<25
								(04)												
													02 NONE	0	STOP					
													PRVTE	S N				011		00
													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					
NO RPT			Mon	COTTAGE GROVE	0 0	GOSHEN-DIVIDE HY	CN		STOP SIGN	N	DRY	TURN	PRVTE	W NE				015		02
			11A	COTGE GR UA	15.32	HARRISON AVE	03	0		N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	37	M	OR-Y
																		028		OR<25
													02 NONE	0	STRGHT					
													PRVTE	NE SW				000		00
													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					
NONE			Thu	COTTAGE GROVE	0 0	00905	SW	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	SW NE				000	01	01
			5P	COTGE GR UA	15.35	01002	04	0		N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	18	M	OR-Y
																		026		OR<25
								(02)												
													02 NONE	0	STOP					
													PRVTE	SW NE				011		00
													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					
NO RPT			Thu	COTTAGE GROVE	0 0	GOSHEN-DIVIDE HY	CN		STOP SIGN	N	WET	TURN	PRVTE	NE SW				000	000	02
			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

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (MEDIAN) L E G S (#LANES)	INT-REL I N T - R E L C O N T L	OFF-RD O F F - R D D R I V E W Y	WTHR W E T D R Y D A Y L I G H T	CRASH TYP C O L L I S I O N T Y P S V R T Y	SPCL USE T R L R Q T Y O W N E R V E H T Y P E	MOVE F R O M T O	PRTC P #	INJ I N J U R Y S V R T Y	A S G E L I C N S R E S	P E D L O C E R R O R	ACTN	EVENT	CAUSE		
																					TRLR QTY	OWNER
05456	NONE	N N N	11/02/2003 Sun 2P	16 100	6TH ST ADAMS AVE	ALLEY S 08	(NONE)	N UNKNOWN	N N N	RAIN WET DAY	ANGL-OTH TURN PDO	01 PRVTE PSNGR CAR	0 S N	STRGHT	01	DRVR	NONE	18 F	OR-Y OR<25	000 000	000 000	02 00 00
												02 PRVTE PSNGR CAR	0 E S	TURN-L	01	DRVR	NONE	23 M	OR-Y OR<25	018 000	000 000	00 02
03773		N N N	10/21/2004 Thu 8P	16 100	6TH ST GIBBS AVE	STRGHT S 07	(NONE)	N UNKNOWN	Y N N	CLR DRY DLIT	PRKD MV SS-O PDO	01 PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	19 M	OR-Y OR<25	000 000	000 000	01 00 01
												02 PRVTE PSNGR CAR	0 N S	PRKD-P						008		00
00123	NONE	N N N	01/13/2004 Tue 7A	16 20	6TH ST LINCOLN AVE	STRGHT N 06	(NONE)	N UNKNOWN	N N N	RAIN WET DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	64 F	OR-Y OR<25	000 000	000 000	01 00 01
												02 PRVTE PSNGR CAR	0 N S	STOP	01	DRVR	NONE	38 F	OR-Y OR<25	000	000	00 00
00977	STATE	N Y N	02/22/2003 Sat 1A	17 200	6TH ST TAYLOR AVE	STRGHT S 07	(NONE)	N UNKNOWN	Y N N	RAIN WET DLIT	FIX OBJ FIX PDO	01 PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	74 M	OR-Y OR<25	000 017	040,088 040,088	01 00 01
												02 PRVTE PSNGR CAR	0 N S	PRKD-P						008		00
03660		N N N	10/15/2004 Fri 3P	19 300	7TH ST WASHINGTON AVE	STRGHT N 08	(NONE)	N UNKNOWN	Y N N	CLR DRY DAY	PRKD MV SS-O PDO	01 PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	54 F	OR-Y OR<25	000 000	000 000	01 00 01
												02 PRVTE PSNGR CAR	0 N S	PRKD-P						008		00
03937	CITY	Y Y N N N	10/09/2004 Sat 12A	19 250	8TH ST TAYLOR AVE	STRGHT S 08	(NONE)	N NONE	Y N N	RAIN WET DARK	PRKD MV SS-O FAT	01 PRVTE PSNGR CAR	0 S N	STRGHT	01	DRVR	KILL	18 M	NONE OR<25	000 017	053,062,080 053,062	01 00 01
												02 PRVTE PSNGR CAR	0 S N	PRKD-P	02	PSNG	INJA	17 M		000	000	00 00
															03	PSNG	INJC	18 M		000	000	00
												02 PRVTE PSNGR CAR	0 S N	PRKD-P						008		00

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O DATE G H R DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL INT-REL TRAF- CONTL	OFF-RD OFF-RD RNDBT DRVWY	WTHR WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E E X RES	S LICNS	PED LOC	ERROR	ACTN EVENT	CAUSE
03342	NONE	Y N N N N	06/21/2000 Wed 3A	19 300	11TH ST LORD AVE	STRGHT NE 08	(NONE) 0 (02)	N UNKNOWN	Y N N	CLR DRY DARK	PRKD MV SS-M PDO	01 NONE 0 PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	16	M	OR-Y		047	017	01
												02 NONE 0 PRVTE PSNGR CAR	0 SW NE									008	
05473	NO RPT	N N N N N	10/15/2001 Mon 1P	19 15	16TH ST MAIN ST	STRGHT S 05	(NONE) 0 (02)	N UNKNOWN	N N N	CLR DRY DAY	O-STRGHT SS-M PDO	01 NONE 0 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	20	F	OR-Y		039	000	05
												02 NONE 0 PRVTE PSNGR CAR	0 N S	01	DRVR	NONE	68	F	OR-Y		000	000	
00779	NO RPT	N N N N N	02/13/2001 Tue 4A	19 400	19TH ST HARVEY RD	STRGHT N 07	(NONE) 0 (02)	N UNKNOWN	Y N N	CLR DRY DLIT	PRKD MV SS-M PDO	01 NONE 0 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	26	M	OR-Y		026	017	01
												02 NONE 0 PRVTE PSNGR CAR	0 N S									008	
04051	NONE	N N N N N	07/31/2000 Mon 1P	17 999	4TH ST 00000	STRGHT UN 00	(NONE) 0 (02)	N UNKNOWN	Y N N	CLR DRY DAY	PRKD MV SS-O PDO	01 NONE 0 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	38	M	OR-Y		026	000	01
												02 NONE 1 PRVTE PSNGR CAR	0 S N									008	
03453	NO RPT	N N N N N	07/05/2001 Thu 4P	19 999	4TH ST GOSHEN-DIVIDE HY	STRGHT S 06	(NONE) 0 (02)	N UNKNOWN	Y N N	CLD WET DAWN	PRKD MV REAR PDO	01 NONE 0 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	50	F	OR-Y		026	000	01
												02 NONE 0 PRVTE PSNGR CAR	0 S N									008	
05909	NONE	N N N N N	11/03/2001 Sat 12P	19 100	4TH ST GOSHEN-DIVIDE HY	STRGHT S 08	(NONE) 0 (02)	N UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE 0 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	75	M	OR-Y		026	000	01
												02 NONE 0 STOP PSNGR CAR	0 S N	01	DRVR	NONE	63	F	OR-Y		000	011	

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (MEDIAN) L E G S (#LANES)	INT-REL I N T - R E L C O N T L	OFF-RD R N D B T D R V W Y	WTHR S U R F L I G H T	CRASH TYP C O L L T Y P S V R T Y	SPCL USE		MOVE F R O M T O	PRTC P #	INJ S V R T Y	A G E	S E X	L I C E N S E S	P E D L O C	E R R O R	A C T N	E V E N T	C A U S E
												TRLR QTY O W N E R	VEH TYPE V #											
03504	CITY	N Y N	07/18/2003 Fri 1P	19 500	6TH ST HARRISON AVE	ALLEY S 08	(NONE)	N U N K N O W N	N D R Y D A Y	CLR D R Y D A Y	ANGL-OTH T U R N P D O	01 P S N G R C A R	NONE 0 P R V T E	0 S N	STRGHT S N	01	DRVR	NONE	52	M	OR-Y	000	000	02 00 00
							(02)					02	NONE P R V T E P S N G R C A R	0 E S	TURN-L E S	01	DRVR	NONE	70	M	OR-Y	028	000	018 00 02
07082	NONE	N N N N N	12/26/2000 Tue 5P	19 25	6TH ST MAIN ST	STRGHT S 05	(NONE) 0 (02)	N U N K N O W N	Y N D L I T	CLR D R Y D L I T	S-STRGHT P A R K P D O	01 P S N G R C A R	NONE 0 P R V T E	0 N S	PARKNG N S	01	DRVR	NONE	20	F	OR-Y	018	008	10 10
							(02)					02	NONE P R V T E P S N G R C A R	0 N S	PRKD-P N S							008		
06450	NONE	N N N N N	11/29/2001 Thu 8A	19 20	6TH ST TAYLOR AVE	STRGHT N 05	(NONE) 0 (02)	N U N K N O W N	Y N D A Y	CLR D R Y D A Y	PRKD MV S S - O P D O	01 P S N G R C A R	NONE 0 P R V T E	0 S N	STRGHT S N	01	DRVR	NONE	51	M	OR-Y	026	000	01 01 01
							(02)					02	NONE P R V T E P S N G R C A R	0 S N	PRKD-P S N							008		
03754	NONE	N N N N N	07/31/2002 Wed 4P	19 20	7TH ST MAIN ST	STRGHT N 05	(NONE) 0 (02)	N U N K N O W N	Y N D A Y	CLR D R Y D A Y	PRKD MV S S - O P D O	01 P S N G R C A R	NONE 0 P U B L C	0 S N	STRGHT S N	01	DRVR	NONE	49	F	OR-Y	026	000	01 01 01
							(02)					02	NONE P R V T E P S N G R C A R	0 S N	PRKD-P S N							008		
06294	NONE	N N N N N	12/02/2002 Mon 11A	19	8TH ST CHADWICK AVE	ALLEY S 07	(NONE) 0 (02)	N U N K N O W N	Y D A Y	CLR D R Y D A Y	ANGL-OTH B A C K P D O	01 P S N G R C A R	NONE 0 P R V T E	0 E W	BACK E W	01	DRVR	NONE	43	M	OR-Y	011	018	10 10
							(02)					02	NONE P R V T E P S N G R C A R	0 N S	STRGHT N S	01	DRVR	NONE	46	M	OR-Y	000	000	
06708	NONE	N N N N N	12/24/2002 Tue 3P	19 25	8TH ST MAIN ST	STRGHT S 06	(NONE) 0 (02)	N U N K N O W N	Y N D A Y	CLR D R Y D A Y	PRKD MV S S - O P D O	01 P S N G R C A R	NONE 0 P R V T E	0 S N	STRGHT S N	01	DRVR	NONE	51	M	OR-Y	000	000	10
							(02)					02	NONE P R V T E P S N G R C A R	0 S N	PRKD-P S N							008		

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

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

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

Table with columns: SER#, INVEST, S, D, P, R, S, W, E, A, U, C, O, DATE, CLASS, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A, S, G, E, LICNS, PED, ERROR, ACTN, EVENT, CAUSE. Rows include crash data for 01264, 06426, 04090, 03164, 04324, and 04970.

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

SER#	INVEST	S P E D	D R S W	E L G H R	A U C O	D A T E	CLASS DIST	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RDNBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	MOVE FROM TO	PRTC P#	INJ SVRTRY	A G E	S E LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE		
00408	CITY	Y	N	N	N	N	16	GATEWAY BLVD 00000	STRGHT UN		N		Y	CLD ICE DLIT	FIX OBJ FIX PDO	01 NONE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	48	M	OR-Y	047	017	040,088 040,088 01 01
						Fri 6A	999				(NONE) 0 (02)		N	CLD ICE DLIT	FIX OBJ FIX PDO	01 NONE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	48	M	OR-Y	047	017	040,088 040,088 01 01
00914	NONE	N	N	N	N	N	16	GATEWAY BLVD 00000	ALLEY UN		N		N	CLR DRY DAY	S-1TURN TURN PDO	01 NONE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	51	M	OR-Y	000		08
						Fri 5P	999				(NONE) 0 (04)		N	CLR DRY DAY	S-1TURN TURN PDO	01 NONE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	51	M	OR-Y	000		08
02107	NONE	N	N	N	N	N	16	GATEWAY BLVD 16TH ST	INTER SW	CROSS	N		N	CLR DRY DAY	O-1STOP BACK PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	BACK NE SW	01	DRVR	NONE	51	M	OR-Y	011	000	10 10
						Mon 4P	0						N	CLR DRY DAY	O-1STOP BACK PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	BACK NE SW	01	DRVR	NONE	51	M	OR-Y	011	000	10 10
82710	NO RPT	N	N	N	N	N	16	GATEWAY BLVD 16TH ST	INTER CN	CROSS	N		N	CLR DRY DAY	O-1TURN TURN PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	TURN-L S W	01	DRVR	NONE	67	F	OR-Y	004	000	02 02
						Fri 2P	0						N	CLR DRY DAY	O-1TURN TURN PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	TURN-L S W	01	DRVR	NONE	67	F	OR-Y	004	000	02 02
01069	NONE	N	N	N	N	N	16	GATEWAY BLVD 16TH ST	INTER CN	CROSS	N		N	RAIN WET DAY	ANGL-OTH TURN PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	TURN-L SW N	01	DRVR	NONE	21	F	OR-Y	028	000	02 02
						Wed 4P	0						N	RAIN WET DAY	ANGL-OTH TURN PDO	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	TURN-L SW N	01	DRVR	NONE	21	F	OR-Y	028	000	02 02
02169	NONE	N	N	N			16	GATEWAY BLVD 16TH ST	INTER CN	CROSS	N		N	CLR DRY DAY	ANGL-OTH ANGL INJ	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	STRGHT SW NE	01	DRVR	NONE	25	M	OR-Y	028	000 000	02 00 02
						Mon 12P	0						N	CLR DRY DAY	ANGL-OTH ANGL INJ	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	STRGHT SW NE	01	DRVR	NONE	25	M	OR-Y	028	000 000	02 00 02
													N	CLR DRY DAY	ANGL-OTH ANGL INJ	01 NONE PSNGR CAR	0 PRVTE PSNGR CAR	STRGHT S N	01	DRVR	INJC	27	F	OR-Y	000	000 000	00 00 00

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (M E D I A N) L E G S (#L A N E S)	INT-REL T R A F - C O N T L	OFF-RD R N D B T D R V W Y	WTHR S U R F L I G H T	CRASH TYP C O L L T Y P S V R T Y	SPCL USE T R L R Q T Y O W N E R V #	MOVE F R O M T O	P#	P R T C T Y P E	I N J S V R T Y	A G E E X R E S	S L I C E N S E S	P E D L O C A T I O N	E R R O R	ACTN	E V E N T	C A U S E	
00572	NONE	NNN	02/03/2003 Mon 6P	16 10	GATEWAY BLVD 18TH ST	STRGHT E 06	(NONE) (02)	N UNKNOWN	N N N	CLR DRY DLIT	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 E W 0	STRGHT E W 0	01	DRVR	NONE	71	M	OR-Y	026	000 000		01 00 01
01031	NO RPT	YNNNN	03/04/2002 Mon 4P	16	GATEWAY BLVD ADAMS AVE	STRGHT S 08	(NONE) 0 (02)	N UNKNOWN	Y N N	RAIN WET DAY	FIX OBJ FIX PDO	01 PRVTE PSNGR CAR	0 S N 0	STRGHT S N 0	01	DRVR	NONE	18	F	OR-Y	047	000 017	040,088 040,088	01 01 01
01168	NONE	NNNNN	03/09/2001 Fri 5A	16 10	GATEWAY BLVD COTTAGE GROVE CONN	STRGHT S 06	(NONE) 0 (02)	N UNKNOWN	N N N	RAIN WET DLIT	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	0 S N 0	STRGHT S N 0	01	DRVR	NONE	28	M	OR-Y	026	000		01 01 01
02613	NONE	NNNNN	06/01/2002 Sat 1P	16 100	GATEWAY BLVD E GIBBS AVE	ALLEY S 07	(NONE) 0 (02)	N UNKNOWN	Y N Y	CLR DRY DAY	PRKD MV BACK PDO	01 PRVTE PSNGR CAR	0 E W 0	BACK E W 0	01	DRVR	NONE	54	F	OR-Y	011	018		10 10
05098	NO RPT	NNNNN	10/03/2002 Thu 4P	16 20	GATEWAY BLVD HARVEY RD	ALLEY N 05	(NONE) 0 (02)	N UNKNOWN	N N Y	RAIN WET DAY	O-1TURN TURN PDO	01 PRVTE PSNGR CAR	0 S N 0	STRGHT S N 0	01	DRVR	NONE	17	F	OR-Y	000	000		02 02
03175	CITY	YYNNN	08/23/2000 Wed 8P	16 300	GATEWAY BLVD HARVEY RD	ALLEY N 07	(NONE) 0 (04)	N UNKNOWN	N N Y	CLR DRY DUSK	O-1TURN TURN FAT	01 PRVTE PSNGR CAR	0 S N 0	STRGHT S N 0	01	DRVR	KILL	44	M	OR-Y	047	000		02 02
												02 PRVTE SEMI TOW	0 N E 1	TURN-L N E 0	01	DRVR	NONE	56	M	OTH-Y N-RES	000	019		019

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

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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

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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

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		E L G H T	O D A Y	DAY	DIST	FIRST STREET	DIRECT	(MEDIAN)	TRAFF-	RDNBT	SURF	COLL TYP	TRLR QTY	FROM	G	E	LOC														
		D C S L K	T I M E	TIME	FROM	SECOND STREET	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	X	RES	ERROR														
													03	NONE PRVTE PSNGR CAR	0	STOP W E				011											
04390	NONE	N N N N N	08/30/2002	Fri 2P	17 999	HARRISON AVE 1ST ST	STRGHT E 08	(NONE) 0 (02)	UNKNOWN	N	CLR DRY DAY	S-1STOP REAR PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT E W			01	DRVR NONE	INJC NONE	38 76	M F	OR-Y OR-Y	000 026			011 000 01			
													02	NONE PRVTE PSNGR CAR	0	STOP E W			01	DRVR	NONE	19	F	OR-Y	000			011			
03277	NONE	N N N	07/06/2003	Sun 5P	19 100	HARRISON AVE R ST	STRGHT E 05	(NONE) (02)	UNKNOWN	N	CLR DRY DAY	S-1TURN TURN PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT W E			01	DRVR	NONE	75	F	OR-Y	000	000	000	008			
													02	NONE PRVTE PSNGR CAR	0	U-TURN W W			01	DRVR	NONE	35	F	OR-Y	008	000	000	008			
01207	NO RPT	N N N	04/14/2004	Wed 2P	17 100	HARRISON AVE RIVER RD	STRGHT W 07	(NONE) (02)	UNKNOWN	N	RAIN WET DAY	S-1TURN TURN INJ	01	NONE PRVTE PSNGR CAR	0	STRGHT E W			01	DRVR	INJC	17	F	OR-Y	000	000	000	008			
													02	NONE PRVTE PSNGR CAR	0	U-TURN E E			01	DRVR	NONE	22	F	OR-Y	008	000	000	008			
06335	NONE	N N N N N	12/04/2002	Wed 12P	16 0	HARRISON AVE RIVER RD	INTER CN 01	CROSS (NONE) 0	N STOP SIGN	N	CLR WET DAY	ANGL-OTH TURN INJ	01	NONE PRVTE PSNGR CAR	0	STRGHT E W			01	DRVR	INJC	36	M	OR-Y	000	000	000	002			
													02	NONE PRVTE PSNGR CAR	0	TURN-L N E			01	DRVR	NONE	26	M	OR-Y	028	015	000	028			
03546	NONE	N N N N N	07/14/2002	Sun 9P	19 0	HARRISON AVE RIVER RD	INTER CN 03	CROSS (NONE) 0	N UNKNOWN	N	CLR DRY DUSK	ANGL-OTH ANGL INJ	01	NONE PRVTE PSNGR CAR	0	STRGHT W E			01	DRVR	NONE	00	M	UNK UNK	000	000	000	002			
													02	NONE PRVTE PSNGR CAR	0	STRGHT N S			01	DRVR	INJC	16	M	OR-Y	028	000	000	028			

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

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													TRLR QTY OWNER V#	VEH TYPE					G E X RES	LICNS RES					
01999	NONE	N N N N N		04/15/2000	16	HARRISON AVE RIVER RD	INTER CN 04	CROSS 0	N STOP SIGN	N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0	STRGHT W E	01	DRVR	NONE	79	F	OR-Y OR<25	028	015	02	
													02	NONE	0	STRGHT S N	01	DRVR	NONE	22	F	OR-Y OR<25	000	000	
02928	NO RPT	N N N N N		06/02/2000	16	HARRISON AVE RIVER RD	INTER CN 04	CROSS 0	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0	STRGHT S N	01	DRVR	NONE	40	M	OR-Y OR<25	000	000	02	
													02	NONE	0	STRGHT W E	01	DRVR	NONE	52	F	OR-Y OR<25	028	000	02
00289	NONE	N N N		01/28/2004	19	HARVEY RD 16TH ST	INTER CN 01	CROSS 99	N UNKNOWN	N N	RAIN WET DLIT	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	53	M	OR-Y OR<25	028	000	00	
													02	NONE	0	STRGHT N S	01	DRVR	NONE	17	M	OR-Y OR<25	000	000	00
03491		N N N		10/02/2004	19	HARVEY RD 19TH ST	INTER CN 01	3-LEG 99	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH TURN PDO	01 PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	80	M	OR-Y OR<25	000	000	00	
													02	NONE	0	TURN-L N E	01	DRVR	NONE	80	F	OR-Y OR<25	028	000	00
04774	NO RPT	N N N N N		09/09/2001	19	HARVEY RD 16TH ST	INTER CN 01	CROSS 0	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	82	M	OR-Y OR<25	028	000	02	
													02	NONE	0	STRGHT N S	01	DRVR	NONE	85	M	OR-Y OR<25	000	000	
02540	NONE	N N N		05/26/2003	19	I ST CHESTNUT AVE	ALLEY S 06	(NONE) (02)	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH BACK PDO	01 PRVTE PSNGR CAR	0	BACK E W	01	DRVR	NONE	45	M	OR-Y OR<25	011	000	10	

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

SER#	INVEST	S P E D A U C O E L G H R D C S L K	D R S W O H R K L K	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RDNBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE		MOVE FROM TO	PRTC P#	INJ SVRTY	A G E E X RES	S LICNS RES	PED LOC ERROR	ACTN EVENT	CAUSE					
													TRLR QTY OWNER V#	VEH TYPE VEH TYPE													
00465	NONE	N	N	N	N	01/28/2001	19	JOHNSON AVE 9TH ST	ALLEY W 07		N	N	CLR DRY DAY	ANGL-OTH BACK PDO	01	NONE PRVTE PSNGR CAR	0	BACK S N	01	DRVR	NONE	49	F	OR-Y OR<25	011	018	10
														02	NONE PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	23	M	OR-Y OR<25	000	000		
05768	CITY	N	N	N	N	10/10/2000	16	LANE ST MAIN ST	INTER CN 01		3-LEG N	N	CLR DRY DAY	ANGL-OTH TURN INJ	01	NONE PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	INJB	27	F	OR-Y OR<25	000	000	02
														02	NONE PRVTE PSNGR CAR	0	TURN-L N E	01	DRVR	NONE	17	F	OR-Y OR<25	028	015	02	
01539	NONE	N	N	N		03/31/2003	16	LANE ST MAIN ST	INTER CN 01		3-LEG N	N	CLR DRY DAY	ANGL-OTH TURN PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	59	F	OR-Y OR<25	000	000	00
														02	NONE PRVTE PSNGR CAR	0	TURN-L NE E	01	DRVR	NONE	16	M	OR-Y OR<25	028	000	00	
05834	NONE	N	N	N		11/25/2003	19	M ST BIRCH AVE	STRGHT N 05		N	N	RAIN WET DAY	PRKD MV SS-O PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT S N	01	DRVR	NONE	19	M	OR-Y OR<25	026	000	01
														02	NONE PRVTE PSNGR CAR	0	PRKD-P S N							008	00		
06170	NO RPT	N	N	N	N	11/29/2002	16	M ST MAIN ST	INTER CN 01		CROSS N	N	CLR DRY DAY	ANGL-OTH ANGL PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	40	M	OR-Y OR<25	000	000	02
														02	NONE PRVTE PSNGR CAR	0	STRGHT N S	01	DRVR	NONE	45	M	OR-Y OR>25	028	015	02	
01048	NONE	N	N	N		04/05/2004	19	MADISON AVE 12TH ST	INTER CN 01		CROSS N	N	CLR DRY DAY	ANGL-OTH TURN PDO	01	NONE PRVTE PSNGR CAR	0	STRGHT E W	01	DRVR	NONE	24	F	OR-Y OR<25	000	000	00

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (M E D I A N) L E G S (#L A N E S)	INT-REL I N T - R E L C O N T L	OFF-RD O F F - R D D R I V E W Y	WTHR W E A T H E R L I G H T	CRASH TYP C O L L I S I O N T Y P S V R T Y	SPCL USE		MOVE F R O M T O	PRTC P # T Y P E	INJ I N J U R Y S V R T Y	A S G E L I C N S E X R E S	PED L O C E R R O R	ACTN E V E N T	CAUSE				
												TRLR QTY O W N E R	VEH TYPE V E H I C L E T Y P E											
01340	NONE	N N N	04/25/2004 Sun 5P	16 300	MAIN ST 5TH ST	ALLEY E 07	(NONE)	N U N K N O W N	Y N N	CLR D R Y D A Y	PRKD MV B A C K P D O	01 P S N G R C A R	NONE 0 P R V T E	0 N S	BACK N S	01	DRVR N O N E	17 M	OR-Y O R < 2 5	011	000	10 00 10		
							(02)					02	NONE 0 P R V T E	0 W E	PRKD-P W E						008	00		
00267	NONE	N N N	01/27/2004 Tue 6P	16 50	MAIN ST 6TH ST	STRGHT W 06	(NONE)	N U N K N O W N	N N N	RAIN W E T D L I T	S-STRGHT P A R K P D O	01 P S N G R C A R	NONE 0 P R V T E	0 W E	STRGHT W E	01	DRVR N O N E	00 U	UNK U N K	018	000	10 00 10		
							(02)					02	NONE 0 P R V T E	0 W E	STRGHT W E							000	00	
												01	NONE 0 P S N G R C A R	0 W E	STRGHT W E	01	DRVR N O N E	52 M	OR-Y O R < 2 5	000	000	000	00	
05122	NONE	N N N	10/16/2003 Thu 4P	16 0	MAIN ST 7TH ST	INTER C N 03	CROSS 99	N U N K N O W N	N N N	CLR D R Y D A Y	O-1TURN T U R N P D O	01 P S N G R C A R	NONE 0 P R V T E	0 W E	STRGHT W E	01	DRVR N O N E	25 F	OR-Y O R < 2 5	000	000	000	00 00 00	
												02	NONE 0 P R V T E	0 E S	TURN-L E S							000	00	
												01	NONE 0 P S N G R C A R	0 W E	TURN-L E S	01	DRVR N O N E	35 M	OR-Y O R < 2 5	004	000	000	02	
02134	NONE	N N N	06/25/2004 Fri 12P	16 100	MAIN ST 8TH ST	ALLEY E 08	(NONE)	N U N K N O W N	N N N	CLR D R Y D A Y	ANGL-OTH T U R N P D O	01 P S N G R C A R	NONE 0 P R V T E	0 E W	STRGHT E W	01	DRVR N O N E	18 F	OR-Y O R < 2 5	000	000	000	00 00 00	
							(02)					02	NONE 0 P R V T E	0 N E	TURN-L N E							018	00	
												01	NONE 0 P S N G R C A R	0 W E	TURN-L N E	01	DRVR N O N E	77 F	OR-Y O R < 2 5	028	000	000	02	
01251	NONE	N N N	04/18/2004 Sun 4P	16 50	MAIN ST 10TH ST	STRGHT E 05	(NONE)	N U N K N O W N	N N N	RAIN W E T D A Y	S-1STOP R E A R I N J	01 P S N G R C A R	NONE 0 P R V T E	0 W E	STRGHT W E	01	DRVR N O N E	41 M	OR-Y O R < 2 5	026	000	000	01 00 01	
							(02)					02	NONE 0 P R V T E	0 W E	STOP W E							011	00	
												01	NONE 0 P S N G R C A R	0 W E	STOP W E	01	DRVR N O N E	22 F	OR-Y O R < 2 5	000	000	000	00	
04908	CITY	N N N	10/03/2003 Fri 5A	16 40	MAIN ST 10TH ST	STRGHT W 06	(NONE)	N U N K N O W N	N N N	CLR D R Y D L I T	PED P E D I N J	01 P S N G R C A R	NONE 0 P R V T E	0 W E	STRGHT W E	01	DRVR N O N E	75 M	OR-Y O R < 2 5	000	000	000	00 00 00	
							(02)																04	057
																							037	02

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

SER#	S P E INVEST	D R A L C S	U C O H R L K	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RDNBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E E X	S LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE			
03747	NONE	N	N	N	16 10	MAIN ST 14TH ST	STRGHT E 06	(NONE)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE	0 E W	01	DRVR NONE	NONE	16 F	OR-Y OR<25		026	000 000	01 00 01				
								(02)					02 PRVTE PSNGR CAR	NONE	0 E W	01	DRVR NONE	NONE	47 M	OR-Y OR<25		000	011 000	00 00				
04313	CITY	N	N	N	16 12	MAIN ST 14TH ST	STRGHT E 06	(NONE)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	NONE	0 E W	01	DRVR NONE	NONE	19 M	OR-Y OR<25		026	000 000	01 00 01				
								(02)					02 PRVTE PSNGR CAR	NONE	0 E W	01	DRVR INJC	57 F	OR-Y OR<25		000	011 000	00 00					
05414	NONE	N	N	N	16 50	MAIN ST 14TH ST	STRGHT E 06	(NONE)	N UNKNOWN	N N	RAIN WET DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR NONE	NONE	46 M	OR-Y OR<25		026	000 000	01 00 01				
								(02)					02 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR NONE	NONE	40 M	OR-Y OR<25		000	011 000	00 00				
03908	NONE	N	N	N	16 10	MAIN ST 14TH ST	STRGHT W 06	(NONE)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR NONE	NONE	35 F	OR-Y OR<25		026	000 000	01 00 01				
								(02)					02 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR NONE	NONE	55 M	OR-Y OR<25		000	011 000	00 00				
01367	NONE	N	N	N	16 100	MAIN ST 16TH ST	ALLEY E 08	(NONE)	N UNKNOWN	N N	CLR DRY DAY	BIKE TURN INJ	01 PRVTE PSNGR CAR	NONE	0 N E	01	DRVR NONE	NONE	80 M	OR-Y OR<25		027	000 000	02 00 02				
								(02)								01	BIKE	INJC	54 M		000	000	00					
00692	CITY	N	N	N	N	N	16 999	00000	MAIN ST	STRGHT UN 00	(NONE)	N UNKNOWN	N N	CLD DRY DAY	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR NONE	NONE	30 F	OR-Y OR<25		026	000 000	01 01 01	
								(02)					02 PRVTE PSNGR CAR	NONE	0 W E	01	DRVR INJC	53 M	OR-Y OR<25		000	011	000	00				

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

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	CLASS	CITY STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	PED	ACTN	EVENT	CAUSE	
			TIME	DIST	FIRST STREET	DIRECT	(MEDIAN) LEGS	TRAF- CONTL	RNDBT DRVWY	SURF LIGHT	COLL TYP SVRTY	TRLR QTY OWNER	FROM	G E X RES	LOC				
				FROM	SECOND STREET	LOCTN	(#LANES)					V# VEH TYPE	TO	P#	TYPE SVRTY	ERROR			
												02 NONE PRVTE PSNGR CAR	0 STOP W E	01	DRVR NONE	52 F OR-Y OR<25	000	011	
03746	N N N N N		07/18/2000	16	MAIN ST	INTER	3-LEG	N		N CLR	S-1STOP	01 NONE PRVTE PSNGR CAR	0 STRGHT E W	01	DRVR NONE	58 F OR-Y OR<25	026	000	01
	CITY		Tue 12P	0	14TH ST	E 06	0	UNKNOWN		N DRY DAY	REAR PDO							01 01 01	
												02 NONE PRVTE PSNGR CAR	0 STOP E W	01	DRVR NONE	33 F OR-Y OR<25	000	011	
												03 NONE PRVTE PSNGR CAR	0 STRGHT E W	01	DRVR NONE	36 M OR-Y OR<25	000	022	
04665	N N N N N		09/11/2002	16	MAIN ST	INTER	3-LEG	N		N CLR	S-1STOP	01 NONE PRVTE PSNGR CAR	0 STRGHT E W	01	DRVR NONE	27 M OR-Y OR<25	026	000	013 01 01
	NO RPT		Wed 8P	0	14TH ST	E 06	0	UNKNOWN		N DRY DAY	REAR INJ								
												02 NONE PRVTE PSNGR CAR	0 STOP E W	01	DRVR INJC	46 F OR-Y OR<25	000	011 013	
												03 NONE PRVTE PSNGR CAR	0 STOP E W	01	DRVR INJC	52 M OR-Y OR<25	000	011	
04502	N N N N N		08/29/2001	16	MAIN ST	STRGHT		N		N CLR	S-1STOP	01 NONE PRVTE PSNGR CAR	0 STRGHT E W	01	DRVR NONE	54 F OR-Y OR<25	026	000	01 01 01
	CITY		Wed 4P	50	14TH ST	E 06	0	(NONE) UNKNOWN		N DRY DAY	REAR INJ								
												02 NONE PRVTE PSNGR CAR	0 STOP E W	01	DRVR INJC	24 M OR-Y OR<25	000	011	
03144	N N N N N		06/16/2001	16	MAIN ST	STRGHT		N		N CLR	S-1STOP	01 NONE PRVTE PSNGR CAR	0 STRGHT E W	01	DRVR NONE	16 M OR-Y OR<25	026	000	013 01 01
	CITY		Sat 6P	100	14TH ST	E 08	0	(NONE) UNKNOWN		N DRY DAY	REAR INJ								
												02 NONE PRVTE PSNGR CAR	0 STOP E W	01	DRVR INJC	17 F OR-Y OR<25	000	011 013	

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

SER#	INVEST	S P E E	D R L L	A U G C	C H R K	O D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (M E D I A N) L E G S (# L A N E S)	INT-REL I N T - R E L C O N T L	OFF-RD R N D B T D R V W Y	WTHR S U R F L I G H T	CRASH TYP C O L L I S I O N T Y P S V R T Y	SPCL USE T R L R Q T Y O W N E R V H #	MOVE F R O M T O	PRTC P H T Y P E	INJ I N J U R Y S V R T Y	A G E R E S	S E X R E S	LICNS L I C E N S E D	PED L O C A T I O N	ERROR L O C A T I O N	ACTN A C T I O N	EVENT E V E N T	CAUSE C A U S E			
																											TRLR QTY	OWNER	FROM
04898	NO RPT	N	N	N	N	N	16	MAIN ST 17TH ST	STRGHT W		N		CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	18	F	OR-Y OR<25	026	000			01 01 01	
															02	NONE PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	30	F	OR-Y OR<25	000	011			
06659	NO RPT	Y	N	N	N	N	19	MAIN ST 5TH ST	STRGHT E		N		RAIN WET DAY	FIX OBJ FIX PDO	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	50	M	OR-Y OR<25	047	000	053,013 053,013	017	01 01 01	
															02	NONE PRVTE PSNGR CAR	0 W E							008					
05518	NO RPT	N	N	N	N	N	16	MAIN ST 5TH ST	INTER CN		CROSS	N		CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	74	M	OR-Y OR<25	000	000			02
															02	NONE PRVTE PSNGR CAR	0 N S		01	DRVR	NONE	00	U	UNK UNK	028	000			02
03581	NO RPT	N	N	N	N	N	16	MAIN ST 6TH ST	INTER CN		CROSS	N		CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0 E W		01	DRVR	NONE	30	M	OR-Y OR<25	028	000			02
															02	NONE PRVTE PSNGR CAR	0 N S		01	DRVR	NONE	56	M	OR-Y OR<25	000			02	
01265	NONE	N	N	N	N	N	19	MAIN ST 6TH ST	INTER CN		CROSS	N		CLR DRY DAY	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	0 E W		01	DRVR	NONE	58	F	OR-Y OR<25	026	000			01 01 01
															02	NONE PRVTE PSNGR CAR	0 E W		01	DRVR	INJC	48	F	OR-Y OR<25	000	012			
01976	NONE	N	N	N	N	N	16	MAIN ST 6TH ST	INTER CN		CROSS	N		CLR DRY DAY	ANGL-OTH ANGL INJ	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	26	F	OR-Y OR<25	020	038			04 04

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

SER#	INVEST	S P E D E L C D S L K	D R S W A U C O G H R D A Y T I M E	DATE	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAFF- CONTRL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	MOVE FROM TO	PRTC P#	INJ SVRITY	A G E E X	S E L I C N S R E S	PED 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	01 NONE 0	PRVTE	W E						000		01
		2P			08			0		N	DAY	PDO	01 PSNGR CAR			01	DRVR	NONE	31 M	OR-Y	026		01
								(02)					02 NONE 0	STOP									
													02 PRVTE	W E		01	DRVR	NONE	46 F	OR-Y	000		011
													02 PSNGR CAR			01	DRVR	NONE	46 F	OR-Y	000		
																							011
02890	N N N	06/14/2003	16	MAIN ST	STRGHT			N		Y	CLR	FIX OBJ	01 NONE 0	STRGHT									040,053
	NONE	Sat	50	GATEWAY BLVD	E			(NONE)	UNKNOWN	N	DRY	FIX	01 NONE 0	PRVTE	W E						000	040,053	
		1A			05			(02)		N	DLIT	INJ	01 PSNGR CAR			01	DRVR	INJB	28 M	OR-Y	047,081	017	01
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	01 NONE 0	PRVTE	E W						000	00	
		3P			06			(02)		N	DAY	PDO	01 PSNGR CAR			01	DRVR	NONE	23 F	OR-Y	026	000	01
													02 NONE 0	STOP									
													02 PRVTE	E W		01	DRVR	NONE	23 F	OR-Y	000	000	00
													02 PSNGR CAR			01	DRVR	NONE	23 F	OR-Y	000	000	00
																							011
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	01 NONE 0	PRVTE	W E						000		00
		5P			06			0		N	DLIT	PDO	01 PSNGR CAR			01	DRVR	NONE	16 F	OR-Y	011		10
								(02)					02 NONE 0	STOP									
													02 PRVTE	E W		01	DRVR	NONE	20 M	OR-Y	000		011
													02 PSNGR CAR			01	DRVR	NONE	20 M	OR-Y	000		
																							011
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	01 NONE 0	PRVTE	E W						000		01
		1P			06			0		N	DAY	INJ	01 PSNGR CAR			01	DRVR	NONE	21 F	OR-Y	026		01
								(02)					02 NONE 0	STOP									
													02 PRVTE	E W		01	DRVR	NONE	38 M	OR-Y	000		011
													02 PSNGR CAR			01	DRVR	NONE	38 M	OR-Y	000		
																							011
																							00
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	01 NONE 0	PRVTE	W E						000		00
		6P			07			(02)		N	DAY	INJ	01 PSNGR CAR			01	DRVR	INJC	17 F	OR-Y	026	000	01
													02 NONE 0	STOP									
													02 PRVTE	W E		01	DRVR	NONE	18 F	OR-Y	000	000	00
													02 PSNGR CAR			01	DRVR	NONE	18 F	OR-Y	000	000	00

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A Y T I M E	DATE	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RDNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	MOVE FROM TO	PRTC P#	INJ SVRITY	A G E	S E L I C N S	PED LOC	ERROR	ACTN	EVENT	CAUSE	
																								EX RES
04508	NONE	N N N		09/11/2003	16	MAIN ST RIVER RD	INTER CN	CROSS	N	N	CLR DRY DAY	ANGL-OTH ANGL PDO	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	38	F	OR-Y OR<25	000 000	000 000	02 00 00
													02	NONE	0	STRGHT PRVTE PSNGR CAR	NE SW					000 000	00 02	
01751		N N N		03/28/2004	16	MAIN ST RIVER RD	INTER CN	CROSS	N	N	CLR DRY DAY	ANGL-OTH TURN PDO	01 PRVTE PSNGR CAR	0 NE SW		01	DRVR	NONE	00	M	OR-Y OR<25	015 000	00 02	
													02	NONE	0	TURN-L PRVTE PSNGR CAR	W NE					000 000	00 00	
05218	CITY	N N N		10/21/2003	16	MAIN ST RIVER RD	INTER CN	CROSS	N	N	CLR DRY DLIT	O-1TURN TURN PDO	01 PRVTE PSNGR CAR	0 SW NE		01	DRVR	NONE	43	M	OR-Y OR<25	000 000	000 000	02 00 00
													02	NONE	0	TURN-L PRVTE PSNGR CAR	NE E					000 000	00 02	
03410		N N N		09/23/2004	16	MAIN ST S ST	STRGHT E		N	Y	CLR DRY DLIT	FIX OBJ FIX PDO	01 PRVTE PSNGR CAR	0 E W		01	DRVR	NONE	21	M	OR-Y OR<25	047,081 017	040 017	01 00 01
01864	CITY	N N N		06/03/2004	16	MAIN ST S ST	STRGHT W		N	Y	CLR DRY DLIT	PRKD MV SS-O INJ	01 PRVTE PSNGR CAR	0 E W		01	DRVR	INJB	18	M	OR-Y OR<25	000 017	000 017	01 01
													02	NONE	0	PRKD-P PRVTE PSNGR CAR	E W					008	00	
01979	NONE	N N N N N		04/17/2001	16	MAIN ST WHITEAKER AVE	ALLEY W		N	N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 W E		01	DRVR	NONE	37	F	OR-Y OR<25	000 026	000 017	01 01 01
													02	NONE	0	STOP PRVTE PSNGR CAR	W E					012	000	

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (M E D I A N) L E G S (# L A N E S)	INT-REL I N T - R E L C O N T L	OFF-RD O F F - R D D R I V E W Y	WTHR W T H R L I G H T	CRASH TYP C R A S H T Y P C O L L I S I O N T Y P S V R T Y	SPCL USE		MOVE F R O M T O	PRTC P #	INJ I N J U R Y S V R T Y	A G E R E S	S E X R E S	LICNS L I C E N S E D	PED L O C A T I O N	ERROR E R R O R	ACTN A C T I O N	EVENT E V E N T	CAUSE C A U S E
												TRLR QTY O W N E R	VEH TYPE V E H I C L E T Y P E											
01018	NONE	N N N N N	03/01/2002 Fri 1P	19	MAIN ST WHITEAKER AVE	STRGHT W 07	(NONE) 0 (02)	N UNKNOWN	N N	CLR DRY DAY	S-STRGHT PARK PDO	01 PRVTE PSNGR CAR	0 E W	01	DRVR	NONE	41	M	OR-Y OR<25	000	000	008	10	
01164	NONE	N N N N N	03/02/2001 Fri 5P	16	MAIN ST WHITEAKER AVE	INTER CN 04	0 UNKNOWN	N UNKNOWN	N N	RAIN WET DUSK	O-1TURN TURN PDO	01 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	43	F	OR-Y OR<25	000	000	004	02	
00791	NONE	N N N	02/14/2003 Fri 11P	19	OSTRANDER LN 16TH ST	CURVE NW 07	(NONE) 0 (02)	N UNKNOWN	Y N	RAIN WET DLIT	PRKD MV SS-M PDO	01 PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	17	M	OR-Y OR<25	000	017	008	01	
03840	NONE	N N N N N	07/25/2001 Wed 6P	19	OSTRANDER LN 00000	ALLEY UN 00	(NONE) 0 (02)	N UNKNOWN	Y N	CLR DRY DAY	PRKD MV BACK PDO	01 PRVTE PSNGR CAR	0 E W	01	DRVR	NONE	76	F	OR-Y OR<25	011	018	008	10	
01567	NONE	N N N N N	04/05/2002 Fri 2P	19	OSTRANDER LN 16TH ST	ALLEY SE 07	(NONE) 0 (02)	N UNKNOWN	Y N	CLR DRY DAY	PRKD MV BACK PDO	01 PRVTE PSNGR CAR	0 E W	01	DRVR	NONE	75	M	OR-Y OR<25	011	018	008	10	
06182	NONE	N N N N N	11/29/2002 Fri 9P	19	PARKS RD HILLSIDE DR	ALLEY E 07	(NONE) 0 (02)	N UNKNOWN	N N	FOG DRY DARK	PRKD MV BACK PDO	01 PRVTE PSNGR CAR	0 N S	01	DRVR	NONE	46	M	OR-Y OR<25	011	018	008	10	

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

SER#	INVEST	S P E D E L D C S L K	D R S W A U C O D A T E D A Y T I M E	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (MEDIAN) L E G S (#LANES)	INT-REL I N T - R E L C O N T L	OFF-RD O F F - R D D R I V E W Y	WTHR W E T L I G H T	CRASH TYP C O L L I S I O N T Y P S V R T Y	SPCL USE		MOVE F R O M T O	PRTC P #	INJ I N J U R Y S V R T Y	A S G E L I C N S R E S	P E D L O C E R R O R	ACTN E V E N T	CAUSE	
												TRLR QTY O W N E R V #	VEH TYPE V E H I C L E T Y P E								
01247	NONE	N N N N N	03/15/2002 Fri 6P	19 300	PENNOYER AVE DOUGLAS ST	ALLEY NW 08	(NONE) 0 (02)	N UNKNOWN	Y N Y	RAIN WET DUSK	PRKD MV BACK PDO	01 NONE PSNGR CAR	0 PRVTE CAR	BACK E W	01	DRVR NONE	44 F	OR-Y OR<25	011	018	10 10
												02 NONE PSNGR CAR	0 PRVTE CAR	PRKD-P NW SE						008	
03109		N N N	09/02/2004 Thu 9A	19 0	QUINCY AVE 6TH ST	INTER CN 02	CROSS N 99	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01 NONE PSNGR CAR	0 PRVTE CAR	STRGHT S N	01	DRVR NONE	71 F	OR-Y OR<25	028	000 000	02 00 02
												02 NONE PSNGR CAR	0 PRVTE CAR	STRGHT E W	01	DRVR NONE	70 F	OR-Y OR<25	000	000 000	00 00 00
01118	NONE	N N N	04/02/2004 Fri 6P	19 0	QUINCY AVE 12TH ST	INTER CN 01	3-LEG N 99	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH TURN PDO	01 NONE PSNGR CAR	0 PRVTE CAR	TURN-L S W	01	DRVR NONE	00 F	OR-Y OR<25	028	000 000	02 00 02
												02 NONE PSNGR CAR	0 PRVTE CAR	STRGHT E W	01	DRVR NONE	16 F	OR-Y OR<25	000	000 000	00 00 00
05663	CITY	N N N N N	11/05/2002 Tue 7P	19 0	QUINCY AVE 6TH ST	INTER CN 01	CROSS N 0	N STOP SIGN	N N	CLR DRY DLIT	ANGL-OTH ANGL INJ	01 NONE PSNGR CAR	0 PRVTE CAR	STRGHT E W	01	DRVR INJC	18 F	OR-Y OR<25	028	015	02
												02 NONE PSNGR CAR	0 PRVTE CAR	STRGHT N S	01	DRVR NONE	17 F	OR-Y OR<25	000	000	00
03878	CITY	N N N	08/10/2003 Sun 7P	19 100	R ST BRYANT AVE	STRGHT S 08	N (NONE) (02)	N UNKNOWN	Y N N	CLR DRY DAY	PRKD MV SS-O PDO	01 NONE PSNGR CAR	0 PRVTE CAR	STRGHT S N	01	DRVR NONE	22 F	OTH-Y N-RES	026	000 000	01 00 01
												02 NONE PSNGR CAR	0 PRVTE CAR	PRKD-P S N						008	00
00811	NONE	N N N	03/12/2004 Fri 2P	19 40	R ST HARRISON AVE	STRGHT N 06	N (NONE) (02)	N UNKNOWN	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	01 NONE PSNGR CAR	0 PRVTE CAR	STRGHT N S	01	DRVR NONE	17 M	OR-Y OR<25	047,081	017	040,053 040,053 01

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

SER#	S P E INVEST	D R A L C S	U C O H R L K	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RDNBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRITY	A G E E X RES	S LICNS RES	PED LOC ERROR	ACTN	EVENT	CAUSE
01682	NONE	N	N	05/25/2004 Tue 4P	19 150	RIVER RD H ST	ALLEY SW 08	(NONE) (02)	N UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 SW NE	01	DRVR	NONE	59	F	OR-Y OR<25	026	000 000	01 00 01
												02 PRVTE PSNGR CAR	0 SW NE	01	DRVR	NONE	41	F	OR-Y OR<25	000	000	00 00	
01890	NONE	N	N	04/20/2003 Sun 11A	19 500	RIVER RD MAIN ST	STRGHT NE 08	(NONE) (02)	N UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	18	M	OR-Y OR<25	026	000 000	01 00 01
												02 PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	45	M	OR-Y OR<25	000	000	00 00	
02288	NONE	N	N	07/09/2004 Fri 5P	19 100	RIVER RD WHITAKER AVE	ALLEY SW 07	(NONE) (02)	N UNKNOWN	N N N	CLR DRY DAY	S-1TURN TURN PDO	01 PRVTE PSNGR CAR	0 SW NE	01	DRVR	NONE	00	M	OR-Y OR<25	032	000 000	06 00 06
												02 PRVTE PSNGR CAR	0 SW W	01	DRVR	NONE	18	F	OR-Y OR<25	000	000	00 00	
02139	NO RPT	N	N	04/24/2000 Mon 6A	16 999	RIVER RD WOODSON PL	STRGHT SW 07	(NONE) 0 (02)	N UNKNOWN	N N N	CLR DRY DAY	O-STRGHT HEAD PDO	01 PRVTE PSNGR CAR	0 SW NE	01	DRVR	NONE	47	M	OR-Y OR<25	039	038	01 01 01
												02 PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	25	F	OR-Y OR<25	000	000	00	
05506	CITY	N	N	11/05/2003 Wed 2P	16 0	RIVER RD WOODSON PL	INTER CN 03	3-LEG 99	N UNKNOWN	N N N	RAIN WET DAY	ANGL-OTH TURN PDO	01 PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	32	F	OR-Y OR<25	000	000 000	02 00 00
												02 PRVTE PSNGR CAR	0 NW NE	01	DRVR	NONE	80	M	OR-Y OR<25	028	000 000	00 02	
00076	NONE	N	N	01/04/2000 Tue 4P	16 999	ROW RIVER RD 00000	STRGHT UN 00	(NONE) 0 (02)	N UNKNOWN	N N N	RAIN WET DAY	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	57	M	OR-Y OR<25	026	000	01 01 01

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

SER#	INVEST	E D	A C	U S	C L	O K	DATE TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	MOVE FROM TO	PRTC P#	INJ SVRVTY	A G E E	S X RES	LICNS	PED LOC	ERROR	ACTN	EVENT	CAUSE	
																												02
04933	NONE	N	N	N			10/10/2003 Fri 2P	16 100	ROW RIVER RD COTTAGE GROVE CON	ALLEY S 08	(NONE) (02)	N UNKNOWN	N N	CLR DRY DAY	O-1TURN TURN PDO	01 PRVTE PSNGR CAR	0 S N	01	DRVR	INJC	38	M	OR-Y	000	011			02 00 00
																02 PRVTE PSNGR CAR	0 N E	01	DRVR	NONE	48	M	OR-Y	004	019 000		00 02	
03457	NONE	N	N	N			07/16/2003 Wed 12P	16 10	ROW RIVER RD COTTAGE GROVE CONN	STRGHT S 06	(NONE) (02)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	73	F	OR-Y	026	000		01 00 01	
																02 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	48	F	OR-Y	000	011 000		00 00	
04276	CITY	N	N	N	N	N	08/24/2002 Sat 5P	16 50	ROW RIVER RD COTTAGE GROVE CONN	STRGHT S 06	(NONE) 0 (02)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	27	F	OR-Y	026	000		01 01 01	
																02 PRVTE PSNGR CAR	0 S N	01	DRVR	INJB	34	F	OR-Y	000	011			
																		02	PSNG	INJB	38	F						
00839	NONE	N	N	N	N	N	02/16/2002 Sat 3P	16	ROW RIVER RD COTTAGE GROVE CONN	STRGHT S 07	(NONE) 0 (02)	N UNKNOWN	N N	CLR DRY DAY	S-STRGHT PARK PDO	01 PRVTE PSNGR CAR	0 N S	01	DRVR	NONE	54	M	OR-Y	000	000		10	
																02 PRVTE PSNGR CAR	0 N S	01	DRVR	NONE	32	M	OR-Y	018	008		10	
00850	NONE	N	N	N	N	N	02/21/2002 Thu 6P	19 300	ROW RIVER RD COTTAGE GROVE CONN	ALLEY S 08	(NONE) 0 (02)	N UNKNOWN	N Y	CLR DRY DLIT	ANGL-OTH TURN PDO	01 PRVTE PSNGR CAR	0 S N	01	DRVR	NONE	46	M	OR-Y	000	000		02	
																02 PRVTE PSNGR CAR	0 E S	01	DRVR	NONE	32	M	OR-Y	028	018		02	

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

SER#	INVEST	S P E D E L C S L K	D R S W A U C O D A Y T I M E	DATE	CLASS D I S T F R O M	CITY STREET F I R S T S T R E E T S E C O N D S T R E E T	RD CHAR D I R E C T L O C T N	INT-TYP (M E D I A N) L E G S (# L A N E S)	INT-REL I N T - R E L C O N T L	OFF-RD O F F - R D D R I V E W Y	WTHR W E A T H E R L I G H T	CRASH TYP C R A S H T Y P C O L L I S I O N T Y P E	SPCL USE T R L R Q T Y O W N E R V #	MOVE F R O M T O	PRTC P #	INJ I N J U R Y S E R V I C E	A S G E L I C N S E X R E S	PED L O C A T I O N	ERROR	ACTN	EVENT	CAUSE			
																							TRLR QTY	OWNER	VEH TYPE
02004	NONE	N N N		06/12/2004	16	ROW RIVER RD DAVIDSON AVE	STRGHT N 08	(NONE)	N UNKNOWN	N N	CLR DRY DLIT	S-STRGHT SS-O PDO	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	23	M	OR-Y	045	000 000	06 00 06	
								(04)					02	NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	21	M	OR-Y	000	000 000	00 00
03818	NONE	N N N		08/01/2003	17	ROW RIVER RD DAVIDSON AVE	STRGHT S 05	(NONE)	N UNKNOWN	N N	CLR DRY DAY	S-STRGHT SS-O PDO	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	25	M	OR-Y	045	000 000	06 00 06	
								(04)					02	NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	46	F	OR-Y	000	000 000	00 00
03467	COUNTY	N N N		09/29/2004	19	ROW RIVER RD DAVIDSON AVE	CURVE S 08	(NONE)	N UNKNOWN	Y N	RAIN WET DAY	FIX OBJ FIX INJ	01 NONE PRVTE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	INJB	18	M	OR-Y	047,081	000 017	079,010 079,010	01 00 01
								(02)					02	PSNG	INJC	18	M					000	000 000	00 00	
01343	NONE	N N N		04/23/2004	16	ROW RIVER RD THORNTON LN	STRGHT N 07	(NONE)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	78	M	OR-Y	042	000 000	01 00 01	
								(02)					02	NONE PRVTE PSNGR CAR	0 S N	STRGHT S N	01	DRVR	NONE	47	M	OR-Y	000	000 000	00 00
01716	NONE	N N N		05/21/2004	19	ROW RIVER RD THORNTON LN	ALLEY N 08	(NONE)	N UNKNOWN	N N	CLR DRY DAY	O-1TURN TURN PDO	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	00	F	UNK UNK	000	000 000	02 00 00	
								(02)					02	NONE PRVTE PSNGR CAR	0 S W	TURN-L S W	01	DRVR	NONE	54	F	OR-Y	004	019 000	00 02
01321	CITY	N N N N N		03/01/2000	19	ROW RIVER RD THORNTON LN	ALLEY S 07	(NONE)	N NO-PASS-ZN	N N	CLR DRY DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01	DRVR	NONE	42	F	OR-Y	000	000	02	
								(02)					02	NONE PRVTE PSNGR CAR	0 W N	TURN-L W N	01	DRVR	INJB	55	F	OR-Y	028	018	02

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

Table with columns: SER#, INVEST, S, D, P, R, S, W, E, A, U, C, O, DATE, CLASS, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCLE USE, MOVE, PRTC, INJ, A, S, G, E, LICNS, PED, ACTN, EVENT, CAUSE. Contains multiple rows of crash data including dates like 03/15/2002, 01/07/2001, 06/17/2001, 02/06/2004, and 10/03/2002.

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	TURNE 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	PURSUIING 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 PUSH	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	IRRG L 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

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

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

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	OVHRD 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

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

095 BUS STPSGN BUS STOP SIGN AND RED LIGHTS
099 UNKNOWN UNKNOWN OR NOT DEFINITE

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

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
<i>Signalized Intersections</i>								
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 99/6 th Street	ODOT	0.90	0.33	B	11	Yes	0.87	0.87
OR 99/4 th 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/16 th 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
<i>Unsignalized Intersections</i>								
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/10 th Street	City	E	0.01 / 0.06	A / B	2	Yes	-	0.92
Taylor Avenue/8 th Street*	City	E	0.18	A	8	Yes	-	0.92
I-5/6 th 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 Connector (OR 99 northbound & southbound)	ODOT	0.90	0.31	A / C	5	Yes	-	0.92
OR 99/Cottage Grove Connector (CGC northbound right turn)	ODOT	0.90	0.03 / 0.09	A / A	3	Yes	-	0.92
OR 99/Cottage Grove Connector (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
<i>Signalized Intersections</i>								
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 99/6 th Street	ODOT	0.80	0.66	B	13	Yes	0.87	0.92
OR 99/4 th 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/16 th Street	City	0.90	0.87	C	24	Yes	-	0.95
Main Street/Gateway Boulevard	City	0.90	>1	F	86	No	-	0.95
<i>Unsignalized Intersections</i>								
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/10 th Street	City	E	0.02 / 0.08	A / B	2	Yes	-	0.92
Taylor Avenue/8 th Street*	City	E	0.28	A	9	Yes	-	0.92
I-5/6 th 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 Connector (OR 99 northbound & southbound)	ODOT	0.80	>1	A / F	77	No	-	0.95
OR 99/Cottage Grove Connector (CGC northbound right turn)	ODOT	0.80	0.17 / 0.38	A / C	4	Yes	-	0.95
OR 99/Cottage Grove Connector (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
<i>Signalized Intersections</i>								
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 99/6 th Street	ODOT	0.80	0.86	C	21	Yes	0.87	0.92
OR 99/4 th 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/16 th Street	City	0.90	0.87	C	25	Yes	-	0.95
Main Street/Gateway Boulevard	City	0.90	>1	F	92	No	-	0.95
<i>Unsignalized Intersections</i>								
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/10 th Street	City	E	0.02 / 0.08	A / B	2	Yes	-	0.92
Taylor Avenue/8 th Street*	City	E	0.66	B	13	Yes	-	0.92
I-5/6 th 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 Connector (OR 99 northbound & southbound)	ODOT	0.80	>1	A / F	77	No	-	0.95
OR 99/Cottage Grove Connector (CGC northbound right turn)	ODOT	0.80	0.17 / 0.38	A / B	4	Yes	-	0.95
OR 99/Cottage Grove Connector (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: <u>OR 99</u>	Hwy. Number:
City: <u>Cottage Grove</u>	Minor Street: <u>River Road</u>
Day/date of count: <u>2025</u>	County: <u>Lane</u>
	Mile point:
	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Major Street	Minor Street	ADT on major street from both directions percent of standard warrant		ADT on minor street highest approaching volume percent of standard warrant	
		100	70	100	70

WARRANT 1 – Condition A: Minimum Vehicular Traffic

1	1	8,850	<u>6,200</u>	2,650	<u>1,850</u>
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	<u>9,300</u>	1,350	<u>950</u>
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	12,000	X	
	Minor	1	1850	~1,000		
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 ~~left~~ SB
 601 peak hr

433 thru
 112 left
 545 peak hr

1146 peak hour total



daily ~~volume~~ major volume

711000

Minor

96 left
 107 right

203 total

discount

~~total existing~~
 250 * .85

= 212

~~107~~

107 - 212

< 0

96 peak hour total



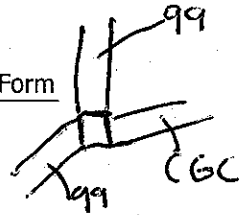
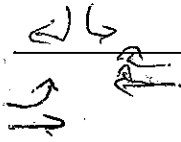
1,066

daily minor volume

* even w/
 ADT factor
 of 10
~~volume~~
 conclusions
 are same

Pk HR to ADT factor

$$\frac{523}{5772} = 9\%$$



Appendix I *Reconfigured*
Preliminary Traffic Signal Warrant Analysis Form

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Highway: <u>OR 99 (Goshen Divide) / CGC</u>		Hwy. Number:
City: <u>Cottage Grove</u>	Minor Street: <u>OR 99</u>	Mile point:
Day/date of count: <u>(2025)</u>	County: <u>LANE</u>	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Major Street	Minor Street	ADT on major street from both directions <i>percent of standard warrant</i>		ADT on minor street highest approaching volume <i>percent of standard warrant</i>	
		100	70	100	70

WARRANT 1 – Condition A: Minimum Vehicular Traffic

1	1	<u>8,850</u>	6,200	<u>2,650</u>	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	<u>13,300</u>	9,300	<u>1,350</u>	950
2 or more	1	<u>15,900</u>	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	720,000	X	X
	Minor	1	1,350	2,180	X	X

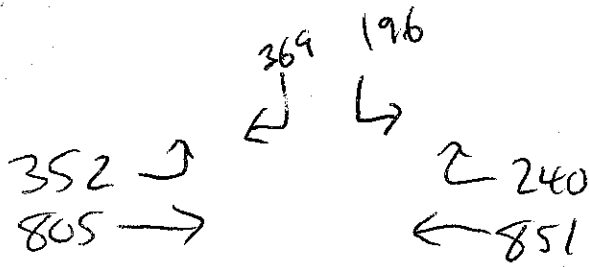
Analyst & Date:	Reviewer & Date:
-----------------	------------------



Note
 Speeds < 40 mph
 Population forecasted to exceed 10,000.

Calculations

[Reconfigured CGC]
@ OR 99]



Major Volume

Minor Volume

EBT 805
EBL 352
WBR 240
WBT 851

SBLT = 196 peak hour

2248 AM Peak Volume

$\frac{1}{.09}$ factor peak \rightarrow ADT



22,000 ADT

2,180 ADT

* Same conclusion reached if factor is 10

↓ L

↑ P

Standard - T

99
CCL
99

**Appendix I
Preliminary Traffic Signal Warrant Analysis Form**

**OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING & OPERATIONS SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS**

Highway: <u>OR 99 (Goshen Divide)</u>	Hwy. Number:
City: <u>Cottage Grove</u>	Minor Street: <u>Cottage Grove Com.</u>
Day/date of count: <u>(2025)</u>	County: <u>LANE</u>
	Mile point:
	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Major Street	Minor Street	ADT on major street from both directions percent of standard warrant		ADT on minor street highest approaching volume percent of standard warrant	
		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 85 th 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:
-------	--------------

Warrant	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1-A	Major	1	8,850	717,000	X	X
	Minor	1	2,650	78,000	X	X
Warrant #1-B	Major	1		717,000	X	X
	Minor	1		78,000	X	X

Analyst & Date:	Reviewer & Date:
-----------------	------------------



Note 73
~~Standard - T~~ Speeds < 40 mph
 Population forecasted to exceed 10,000

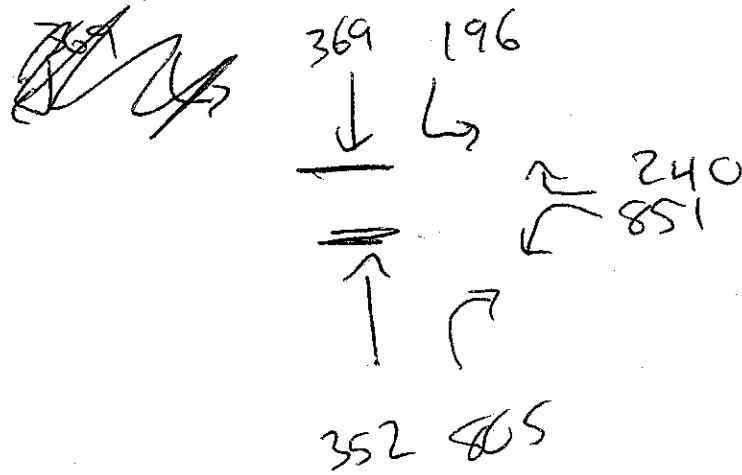
Traffic Signal Policy and Guidelines-2006
 (No-Build Scenario)

$$\frac{1130}{12,758} = 8.8\%$$

AM peak \rightarrow ADT
conversion

Calculations

[CGC @ 0.299]



Major Volume

- NBT 352
- NBR 805
- SBT 369
- SBL 196

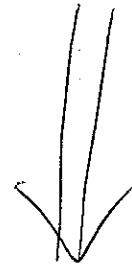
1722 PM Peak Volume



717,000 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 \geq 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	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 2:	Four-Hour Vehicular Volume	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 3:	Peak Hour	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO	NA
WARRANT 4:	Pedestrian Volume	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 5:	School Crossing	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 6:	Coordinated Signal System	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 7:	Crash Experience	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA
WARRANT 8:	Roadway Network	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	NA

TRAFFIC SIGNAL INSTALLATION RECOMMENDED YES NO

Other Outstanding Issues

Calculations

[Harrison
@ River]

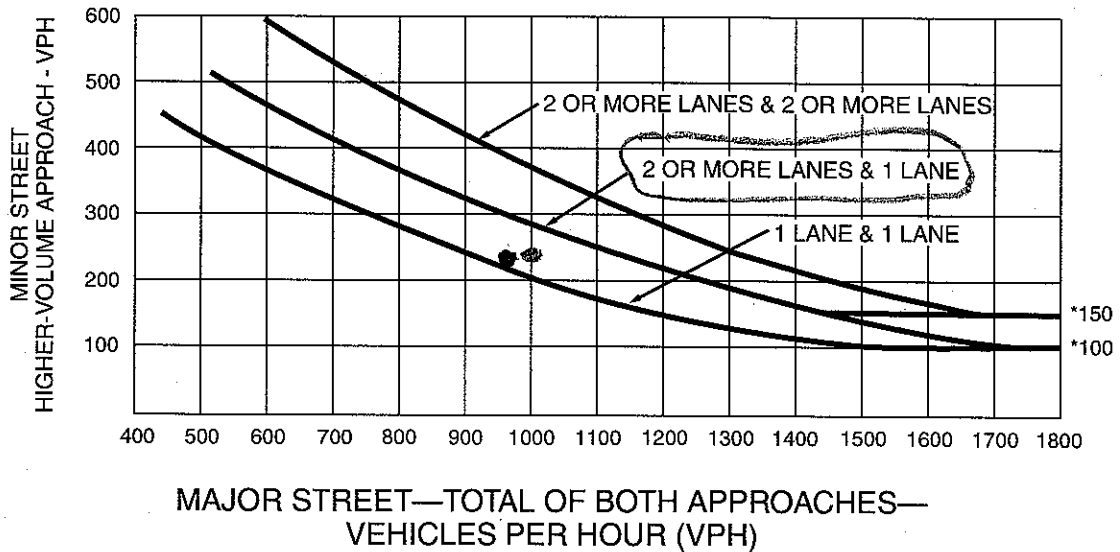
EBR	115
EBT	209
EBL	68
WBR	40
WBT	481
WBL	41

= 956

NBL	73
NBT	74
NBR	90

= 237

Figure 4C-3. Warrant 3, Peak Hour

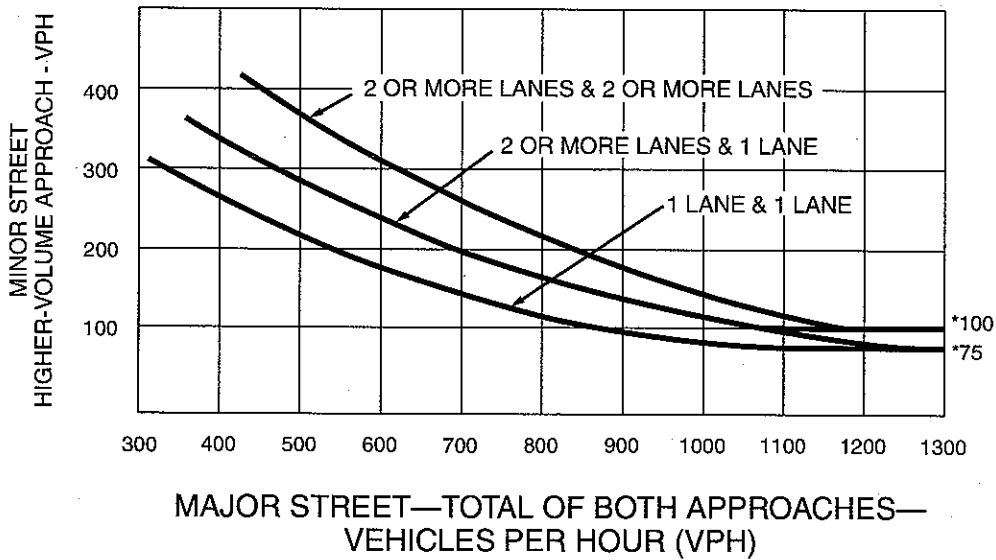


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

MAJOR VOLUME \leq 1000 (Harrison - 2 Lanes)
MINOR VOLUME \leq 200 (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.