2015 Cottage Grove Transportation System Plan: Volume II

December 2015

Cottage Grove
Transportation System Plan

Prepared for:

City of Cottage Grove

Oregon Department of Transportation

Prepared by:

DKS Associates

Volume 2 Contents

Volume 2 of the Cottage Grove Transportation System Plan includes all background memoranda, meeting summaries, and technical data that were the basis for developing the Cottage Grove Transportation System Plan.

Technical Memorandum #1

DATE: January 28, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, P.E., DKS Associates
Carl Springer, P.E., DKS Associates

SUBJECT: **Cottage Grove Transportation System Plan Update**
Public Involvement Plan

Project Purpose and Overview

The City of Cottage Grove is undertaking an update to its 2008 Transportation System Plan (TSP). The TSP provides guidance for the City, as well as partner agencies and other local stakeholders, about current and future transportation needs, conditions, and proposed improvements. This update will address an extended horizon year, include the urban growth boundary expansion areas in the south part of the City, and other new and/or amended federal, state, and local plans, policies, and regulations.

Key Issues

Key transportation planning objectives and issues identified to date include:

- Build upon and incorporate the ideas from new plans, such as the 2037 Vision and Action Plan (2008), Economic Opportunities Analysis (2009), and Main Street Refinement Plan (ongoing).
- Match roadway classifications and cross-section standards with community needs and define for consistency with the Development Code (2008).
- Establish a new 2014 TSP baseline and a new 2035 planning horizon.
- Develop a new travel demand forecast tool to better evaluate future traffic conditions and potential improvements in the City.
- Investigate transportation improvements citywide, with a focus on the area near the Cottage Grove Connector between OR 99 and the northern I-5 interchange. Also consider circulation and access improvements for the southern part of the City.

- Reevaluate the bike and pedestrian system to focus on safety, barriers to access, and connections to the regional trail system.
- Explore new goals (i.e., reclassification) or new solutions for mobility on OR 99 near the Historic Preservation Overlay District.
- Address compliance with new and amended federal, state, and local plans, policies, and regulations including the Oregon Transportation Plan (OTP), the state Transportation Planning Rule (TPR), the Oregon Highway Plan (OHP), and the Oregon Greenhouse Gas Reduction Initiative.
- Identify potential new funding sources for the transportation system.

The Role of Public Involvement

Engaging Cottage Grove's citizens and businesses on these and other key issues will be vitally important to the success of the TSP update process. The purpose of this Public Involvement Plan (PIP) is to ensure that the TSP update has broad community support by doing the following:

- Inform and educate stakeholders and the public so they can understand the TSP process and regulatory framework, and can provide constructive input throughout the process.
- Use a Project Management Team (PMT) to facilitate project progress. The PMT includes staff from ODOT, who is sponsoring the project, the City of Cottage Grove, Lane County, and the consultant team.
- Use a Community Advisory Committee (CAC) to directly engage a broad range of community and governmental stakeholders, including key technical, resident, and business interest and perspectives.
- Develop a key stakeholder roster representing key interest groups such as businesses, neighborhood groups, and the development community. Conduct a series of stakeholder interviews to identify specific transportation issues, needs, and possible solutions and to evaluate alternatives once they have been developed.
- Engage the broader community by holding up to three community events to provide information and gather input during the alternatives analysis and to review and comment on the draft TSP update.
- Develop and regularly update a project website to provide meeting and project information to the general public and local media.

Community Advisory Committee (CAC)

This group will assist the Project Management Team (PMT) and local decision makers in identifying and addressing community issues throughout the planning effort. At major milestones they will be asked to review the technical work and seek consensus-based recommendations that balance the various community interests and accomplish the objectives of the update process. CAC members will also act as liaisons to the community to help inform constituents about the process and encourage their participation in community outreach events and meetings. Agency technical staff representatives will provide oversight and assistance with interagency coordination, assuring consistency between overlapping plans. It is expected that the group will meet four times over the course of the project.

The CAC represents a range of interest groups including:

- City of Cottage Grove staff
- Cottage Grove City Council
- South Lane Fire & Rescue
- South Lane School District
- Lane Transit District
- South Lane Wheels
- Coalition for Bicycle Safety
- Local business leaders

The CAC roster may be expanded or modified as the project progresses.

Community Meetings

The following public involvement tasks are intended to bring a larger and more inclusive set of participants into the TSP update planning process.

Stakeholder Interviews

The consultant will hold interviews with up to ten (10) stakeholders or stakeholder groups as identified by the City. Stakeholders will include concerned citizens, business owners, and developers among others. Stakeholders or groups should also include any organized groups that represent low-income, minority, or other potentially disadvantaged populations, consistent with Oregon Title VI Outreach requirements. Other stakeholders could include historic preservation advocates or bicycle and pedestrian advocates. The list may be modified to include other potential stakeholders based on early input from City staff and consultant team.

The interviews will be conducted in two phases. The first phase (Task 5 - Develop and Evaluate Solutions) will identify transportation planning issues and discuss potential solutions. The second phase (Task 6 – Prepare Draft TSP Update) will review the results of the alternatives analysis and discuss recommended solutions for the draft TSP.

Community Events

Up to three community events will be conducted for this project. An open house format will be used for each, and City and Consultant staff will cooperatively plan and facilitate the events. Objectives for the three events are as follows:

Community Event #1

Present an overview of the project purpose and the findings from Technical Memoranda #1 through #8, including existing conditions, future conditions, and determination of needs. Provide written handouts, display boards, and/or other media. Seek input on the goals and objectives of the plan, as well as suggestions for transportation system alternatives to be considered in subsequent technical memoranda and the TSP.

Community Event #2

Present an overview of the alternatives evaluation and potential recommendations for system improvements using a combination of written materials, display boards, and/or other media. Seek input on alternatives evaluation and recommendations.

Community Event #3

Present an overview of the Draft TSP using a combination of written materials, display boards, and/or other media, and seek feedback for the recommended TSP.

Additional Community Outreach

City staff may facilitate additional outreach meetings at local gathering places and with local community groups throughout the process.

Public Information

Website

The consultant team will develop and maintain a project Website dedicated to the TSP update. It will include key project information, including a brief overview of the project, meeting dates and summaries, other public involvement opportunities, and project materials. The Website will also provide an opportunity for public comments and questions. The Website will be updated regularly to include new project materials as well as responses to frequently asked questions.

News Releases and Articles

News releases will be drafted by the consultant team and issued at key points in the process, particularly in advance of community meetings. City staff will provide these releases to the local media, and City staff and consultants will respond to questions and requests from local media representatives for comments or information as needed.

Tasks and Responsibilities

Task	Description	Task Lead
Public Involvement Plan	• Prepare a detailed plan outlining stakeholder outreach methods, advertisement of meetings, distribution of work products, workshop format, and roles and responsibilities. • Comment on and suggest refinements to Plan.	DKS City
Project Website	• Prepare Website content, graphics, layout and information. Initial content should include a planning process description, schedule, opportunities for involvement, and contact information. Regular updates will include answers to frequently-asked questions and current technical and process information, including meeting notices, summaries, maps, and memos. Provide link from project Website to City Website. • Review content before posting to Website.	DKS City and ODOT
CAC Meetings	• Develop CAC roster. Form CAC. Provide meeting logistics and notification. Distribute meeting materials. • Review CAC roster. Facilitate meetings. Lead presentations. Prepare information and display materials, agendas, summaries, and graphics.	City DKS
Stakeholder Interviews	• Identify up to 10 stakeholders or stakeholder groups to be interviewed during two sets of stakeholder interviews during the project (Task 5 and 6). • Coordinate interviews with stakeholders and/or stakeholder groups. Work with consultant to schedule meetings and provide any needed materials to interviewees in advance. • Review stakeholder interview roster. Conduct interviews. Prepare written summaries of individual interviews as well as an overall summary.	City City DKS
Community Events	• Coordinate meeting logistics and set-up. Provide staff. Distribute/mail meeting notification information and leave-behinds. Co-facilitate meeting discussions. • Prepare meeting notification materials for distribution. Develop agenda and meeting format strategy. Prepare handouts, PowerPoint presentation (as needed), and content for display materials. Prepare sign-in sheets and comment forms. Provide staff. Co-facilitate meeting discussions.	City DKS

Task	Description	Task Lead
Additional Community Outreach	• Coordinate and facilitate individual meetings at local gathering places and/or with community groups as needed to supplement scheduled community events. Distribute project materials. Respond to questions during meetings. Prepare brief summary of results.	City

Compliance with Title VI Outreach Requirements

Implementation of this Public Involvement Plan will meet requirements and guidance found in ODOT's Title VI (1964 Civil Rights Act) Plan. Specifically, Title VI identifies measures to reach and solicit comments from disadvantaged populations within a community. Although Cottage Grove has relatively limited concentrations of minorities and low-income residents, these populations are present throughout the city.

Based on 2010 census data, the racial makeup of the city was about 90% Caucasian with about 8% of the population classified as Hispanic or Latino. This is a higher percentage of Caucasian and lower percentages of nearly all other ethnic groups compared to Oregon as a whole.

Approximately 19.2% of individuals in the city were below the poverty line in 2008-2012, compared to 15.5% for the state as a whole.

Outreach to low-income and minority populations will be addressed through the following means:

- Use a variety of methods of communication as described in the sections above, most of which are accessible to minority and low-income residents.
- Notify agencies that work with low-income and minority populations about opportunities for public involvement.
- Hold meetings in places that are accessible by transit, walking, or bicycling.
- The City will offer ADA assistance (e.g. accessibility, hearing assistance) and translation services as needed at meetings, given prior notice.

Technical Memorandum #2

DATE: March 11, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, P.E., and Carl Springer, P.E., DKS Associates
Darci Rudzinski and Andrew Parish, Angelo Planning Group

SUBJECT: **Cottage Grove Transportation System Plan Update**
Background Document Review

Overview

This memorandum summarizes the planning documents, policies, and regulations that are applicable to the City of Cottage Grove Transportation System Plan (TSP) update (see Appendix A for a complete list of documents reviewed). The City's current TSP will serve as the foundation for the update process. New information obtained from system analysis and stakeholder input will be applied to address changing transportation needs through the year 2035, resulting in a new and updated TSP. Proposed new strategies for addressing transportation needs will need to be coordinated and consistent with the plans, policies, and regulations described in this memorandum. See Table 1 for highlights of the applicable plans and policies for this update.

Table 1: Key Plans and Policies to Consider for TSP Update

Perspective	Document/Policy Source	Key Elements Relevant to TSP
How is transportation system defined?	Highway classifications	I-5 is an interstate highway, a Truck Route and a Freight Route. OR 99 is a district highway. There is no special transportation area (STA) designation. Highway classifications define expected cross sections and access spacing.
How is the transportation system managed?	State highway mobility targets, as defined by Volume to Capacity Ratios (v/c)	Mobility targets range from a v/c ratio of 0.80 to 0.95 in the UGB, depending on facility characteristics.
	City and County mobility standards, as defined by Level of Service (LOS) or v/c	City of Cottage Grove standard is v/c 0.90 for signalized intersections and LOS E for other intersections. Lane County standard is LOS D for collectors and arterials and v/c ratio of 0.75 or 0.85 depending on posted speed.

Perspective	Document/Policy Source	Key Elements Relevant to TSP
	Access management on state highways	Table 2 summarizes ODOT spacing standards
	Access management on local roadways	Table 3 summarizes Cottage Grove spacing standards. Table 4 summarizes Lane County spacing standards.
	Major improvements	Oregon Highway Plan policies require improving efficiency and management before adding system capacity.
	Off-system improvements	Consider improvements to local facilities that support state roadway performance and safety.
	Traffic safety	Improve safety for users by considering crash history and improvements.
	Non-motor vehicle modes	Consider improvements to support pedestrian/bicycle/transit system modes.
	Improvements on state highways	Highway Design Manual includes standards for state highway design (applicable to planned improvements)
Projects to be considered	STIP	Improvements near OR 99 and Main Street are nearly complete.
	Cottage Grove Main Street Refinement Plan	Plan will define streetscape design for Main Street. Scheduled for completion in 2014.
Actions/Strategies to be considered	Oregon Freight Plan	I-5 is a vital freight corridor
	Oregon Bicycle and Pedestrian Plan	Consider improvements to pedestrian and bicycle system through modernization and preservation projects
	Oregon Public Transportation Plan	Include transit element in coordination with Lane Transit District and South Lane Wheels
	Cottage Grove Comprehensive Plan	Identifies goals that can be used to evaluate transportation needs and improvements
	Cottage Grove Development Code	Defines standards for development within the community, including cross-section specifications by roadway type.
	Cottage Grove Economic Opportunities Analysis	Describes economic development objectives and strategies. Land use and growth assumptions will be incorporated into the TSP update.

Transportation System Planning in Oregon

Transportation System Planning in Oregon is required by state law as one of the 19 statewide planning goals[1] (Goal 12 – Transportation). The Transportation Planning Rule (TPR), OAR 660-012[2], defines how to implement State Planning Goal 12. Specifically, the TPR directs the State to prepare a TSP, referred to as the Oregon Transportation Plan (OTP); Metropolitan Planning Organizations (MPOs) to prepare a Regional Transportation Plan (RTP) that is consistent with the OTP; and Counties and Cities to prepare local TSPs that are consistent with the OTP and RTP.

The TPR requires TSPs to integrate comprehensive land use planning with transportation planning and to promote systems that serve statewide, regional and local transportation needs. State transportation requirements aim to improve community livability by encouraging land use patterns and transportation systems that make it more convenient and efficient for people to walk, bicycle, use transit and drive less to meet their daily needs.

The OTP[3], as the guiding document for regional and local TSPs, establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing transportation in Oregon. The OTP prioritizes:

- Maintaining and maximizing assets already in place;
- Optimizing the performance of the existing system through technology;
- Integrating transportation, land use, economic development and the environment;
- Integrating the transportation system across jurisdictions, ownerships and modes;
- Creating sustainable funding; and
- Investing in strategic capacity enhancements.

OTP guidance is further implemented by adopted standards in the Oregon Highway Plan (OHP), the modal element of the OTP that defines policies and investment strategies for Oregon's state highway system.[4]

[1] Statewide Planning Goals: http://www.oregon.gov/LCD/goals.shtml

[2] Transportation Planning Rule: http://arcweb.sos.state.or.us/rules/OARS_600/OAR_660/660_012.html

[3] Oregon Transportation Plan: http://www.oregon.gov/ODOT/TD/TP/ortransplanupdate.shtml

[4] Oregon Highway Plan: http://www.oregon.gov/ODOT/TD/TP/orhwyplan.shtml

Why does Cottage Grove need a TSP Update?

Since the current TSP was adopted in 2008, several studies and plans have been completed including the Cottage Grove Development Code (2008), the 2037 Vision and Action Plan (2008), and the Economic Opportunities Analysis (2009). In 2011, the urban growth boundary (UGB) was expanded to the southwest to include 241 acres of primarily industrial and commercial lands on both sides of OR 99. These plans and identified growth areas will be incorporated into strategies and solutions to address the future needs of the transportation system through the 2035 plan horizon.

Statewide regulations have also changed, including significant amendments to the OTP and OHP. Notably for Cottage Grove, Policy 1F (Mobility Standards) of the OHP was amended in 2011 to clarify that the adoption of alternative mobility standards is permitted where it is "infeasible or impractical to meet the mobility targets."[5] Regulatory, land use, and transportation system changes since the TSP was adopted will be incorporated into this TSP update.

How is the Transportation System Defined?

The following sections summarize the state highway classifications and applicable state policies for state facilities through Cottage Grove. This information guides planning for these facilities and ultimately determines the adopted standards and regulations that apply to state highways in Cottage Grove.

ODOT Classifications for State Highways in Cottage Grove

Highway Classifications: OHP Policy 1A categorizes state highways for planning and management decisions. Updates to the TSP will support the existing highway classifications and will enhance the ability of the highways in Cottage Grove to serve transportation needs consistent with their defined functions. The following classifications apply to state highway facilities in Cottage Grove:

- I-5 (Interstate 5) is classified as an Interstate Highway, part of the National Highway System (NHS). The primary objective is to provide mobility between urban areas. The operations of this facility should be safe and efficient high-speed continuous flow.

[5] Note that the mobility targets included in the Highway Mobility Policy must be used for the initial deficiency analysis of state highways. However, state policy allows that, where it can be shown that it is infeasible or impractical to meet the targets, local governments may work with ODOT and stakeholders to consider and evaluate alternatives to the mobility targets in OHP Tables 6. Any variance from the targets in Tables 6 requires Oregon Transportation Commission adoption.

- OR 99 (Goshen-Divide Highway) is classified as a District Highway and is part of the National Highway System (NHS). Between the Cottage Grove Connector and Main Street, OR 99 is also classified as a Scenic Byway. In urban areas, such as the City of Cottage Grove, district highways often function as a city arterial or collector. Therefore, mobility is to be balanced with local access. The highway should provide moderate to low-speed operation for traffic flow to allow for significant pedestrian and bicycle movements.

Special Designations: OHP Policy 1B permits special highway segment designations where specific types of land use patterns foster compact development and in areas where the need for appropriate local access outweighs the considerations of highway mobility. Highway segment designations include Special Transportation Areas (STAs), Urban Business Areas (UBAs), and Commercial Centers (CCs). Highway segment designations may change design standards, mobility standards and access management spacing standards on the roadway.

Currently, there are no special designations identified on OR 99 in Cottage Grove. Such designations may be considered during the TSP update or subsequent planning processes to acknowledge that the highway serves as one of Cottage Grove's most important roadways for local access and is adjacent to the Cottage Grove Downtown National Register Historic District. As such, the mobility and through traffic needs should be balanced with local needs.

State Highway Freight System: OHP Policy 1C addresses the need to balance the movement of goods and services with other uses. It states that the timeliness of freight movements should be considered when developing and implementing plans and projects on freight routes. Within Cottage Grove, I-5 is classified as a NHS Federal Truck Route and an Oregon Freight Route.

How is the Transportation System Managed?

***State Highway Mobility Targets*:** OHP Policy 1F sets mobility targets for ensuring a reliable and acceptable level of mobility on the highway system[6]. The OHP assesses mobility in terms of volume to capacity ratio (v/c). The following mobility targets are

[6] In particular, the mobility targets in Table 6 of OHP Policy 1F are applicable to state facilities in Cottage Grove and are considered standards for purposes of determining compliance with Transportation Planning Rule (OAR 660-012).

applicable to long-range planning for state highways in Cottage Grove during peak hour operation,[7] pursuant to Policy 1F, Table 6:

- 0.90 or 0.95 v/c for District Highways inside a UGB, outside of a MPO and STA (OR 99). The mobility target varies depending on the posted speed. If the posted speed is 35 mph or less, the mobility standard is 0.95. The mobility target is 0.90 wherever the posted speed is greater than 40 mph or more.
- 0.80 v/c for Interstate Highways outside of an MPO, where the posted speed is greater than 45 mph (I-5). A 0.85 v/c is applied to interchange ramp terminals.

The TSP update process is an opportunity to reassess an appropriate mobility standard for OR 99 near downtown. One option is to examine the applicability of an STA designation, which would allow for a mobility target of 1.0 v/c to portions of OR 99 in Cottage Grove. The planning process may also explore developing and applying alternative mobility standards. The Oregon Transportation Commission (OTC) must approve proposed alternative mobility targets on state highways.

City and County Mobility Standards: The City of Cottage Grove TSP[8] suggested a v/c of 0.90 (for intersections with traffic signals) or Level of Service (LOS) "E" (for stop controlled intersections) as the peak hour minimum performance standard for streets owned and operated by the City during the 20-year planning period. The mobility standards should be reviewed and adopted as formal policies in the updated TSP.

The 2004 Lane County TSP[9] requires county roads inside an urban growth boundary to operate at LOS D or better (for arterials and collectors) and below a maximum v/c ratio during the peak hour depending on the posted speed (0.85 v/c for 40 mph or less, 0.75 v/c for 45 mph or more). Roadways in Cottage Grove that are under County jurisdiction are shown in Figure 1. The County TSP is currently being updated.

[7] OHP Policy 1F uses the 30th highest annual hour as the peak hour. Alternatives to the 30th highest annual hour may be established as part of adopting an alternative mobility target.

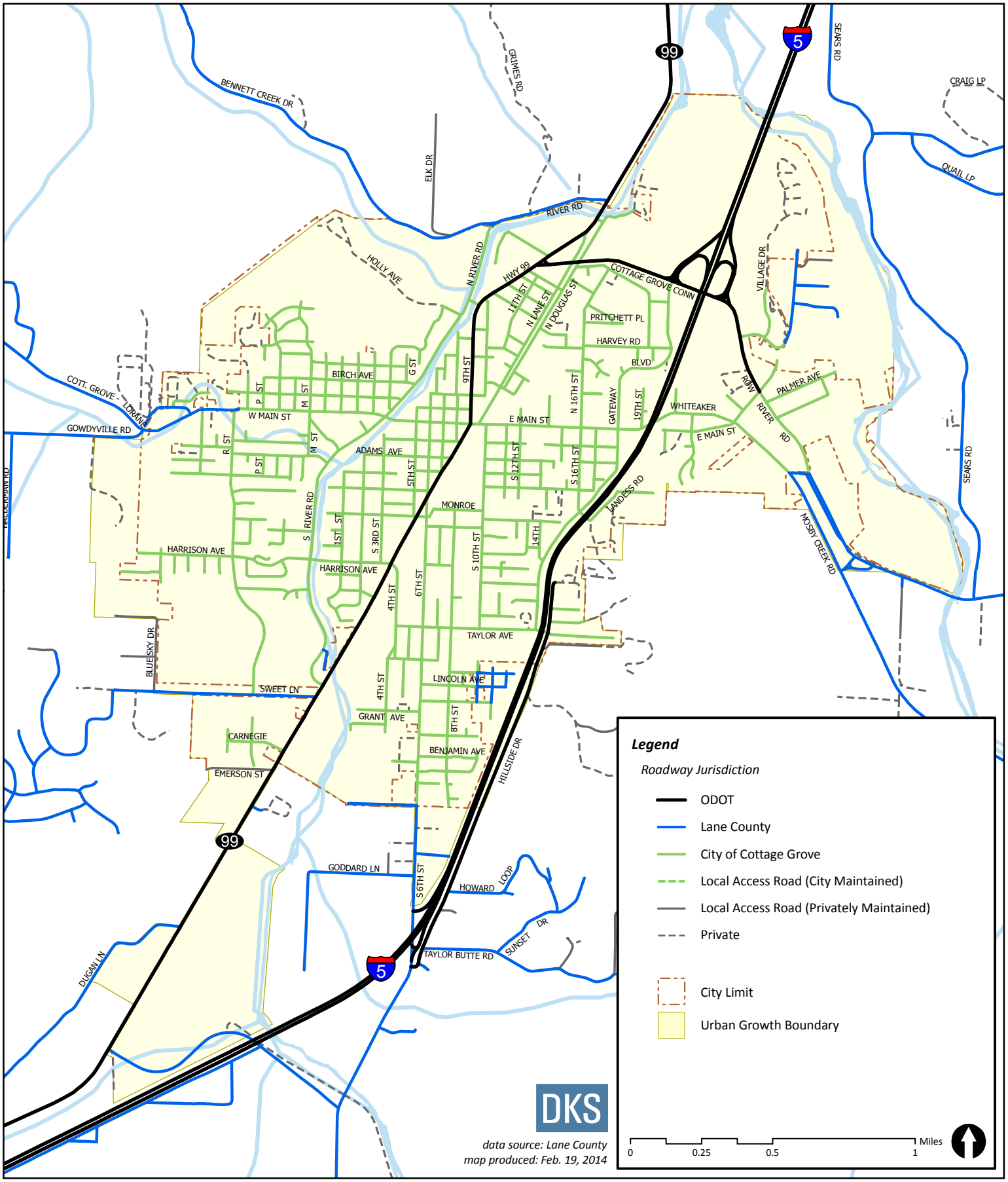
[8] Cottage Grove TSP (2008), p.3-24.

[9] Lane County TSP (2004), p.10, Policies 4-a and 4-b

Transportation System Plan

FIGURE 1

Roadway Jurisdiction



Legend

Roadway Jurisdiction

- ODOT
- Lane County
- City of Cottage Grove
- Local Access Road (City Maintained)
- Local Access Road (Privately Maintained)
- Private

- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

data source: Lane County
map produced: Feb. 19, 2014

Access Management on State Highways: The Oregon Access Management Rule[10] (OAR 734-051) strives to balance the safety and mobility needs of travelers along state highways with the access needs of property and business owners. ODOT's rule sets guidelines for managing access to the state's highway facilities in order to maintain highway function, operations, safety, and the preservation of public investment consistent with the policies of the 1999 OHP. Access management rules allow ODOT 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 identified. These rules enable the State to set policy and direct the 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.

OAR 734-051 was amended in 2011 to allow more consideration for economic development when developing and implementing access management rules. The new laws have resulted in substantial changes in rules about how ODOT manages highway approach road permitting. Changes include modifying how ODOT deals with approach road spacing, highway improvement requirements with development, and traffic impact analyses requirements for approach road permits. The law's provisions went into effect on January 1, 2012.

OHP Policy 3A and OAR 734-051 set access spacing standards for driveways and approaches to the state highway system.[11] The standards are based on state highway classification and differ depending on posted speed and average daily traffic volume. The higher (more than 5,000 vehicle) standards apply for most of OR 99 within Cottage Grove city limits.

[10] Access Management Rule: http://arcweb.sos.state.or.us/rules/OARS_700/OAR_734/734_051.html

[11] ODOT Access Management Standards – OHP Appendix C Revisions to Address Senate Bill 264 (2011): http://www.oregon.gov/ODOT/TD/TP/docs/ohp_am/apdxc.pdf

Table 2: Spacing Standards (feet) for Urban District Highways (OR 99)

Posted Speed (mph)	Annual Average Daily Traffic 5,000 Vehicles or less	Annual Average Daily Traffic More than 5,000 Vehicles
55 and higher	650	700
50	425	550
40-45	360	500
30-35	250	350
25 and lower	150	250

Access Management on Local Roadways: The existing Cottage Grove TSP and Lane County TSP provide access spacing standards and guidelines for public roadways under City and County jurisdiction. Access spacing guidelines from the Cottage Grove TSP are as shown in Table 3:

Table 3: Roadway or Driveway Spacing Standards (feet) for City Roadways

	Arterial	Collector	Local Street
Maximum	1,000	500	500
Minimum	600*	200**	-

*Arterials located where existing block spacing is approximately 400 feet (such as seen downtown) would be exempt from the 600 foot standard and instead be subject to a 400 foot minimum spacing.
**Or 1 per residential lot

Policy statements in the Lane County TSP guide access management on County-owned arterials and collectors in urban areas, as shown in Table 4[12].

[12] Lane County Development Code 15.138
http://www.lanecounty.org/departments/cc/lanecode/documents/codechapter15_jan12_05_rev.pdf

Table 4: Spacing Standards (feet) for Lane County Collector and Arterial Roadways

Posted Speed (mph)	Principal Arterial	Minor Arterial or Major Collector	Minor Collector
55 and higher	700	475	325
50	550	475	325
40-45	500	400	325
30-35	400	275	220
25 and lower	400	200	150

Major Improvements: OHP Policy 1G requires maintaining performance and improving safety by improving efficiency and management before adding capacity. The intent of policy 1G and Action 1G.2 is to ensure that major improvement projects to state highway facilities have been through a planning process that involves coordination between state, regional, and local stakeholders and the public, and that there is substantial support for the proposed improvement.

Off-System Improvements: OHP Policy 2B establishes ODOT's interest in improvements on local roads that maintain or improve safety and mobility performance on state roadways, and supports local jurisdictions in adopting land use and access management policies. The TSP will include sections describing existing and future land use patterns, access management, and implementation measures.

Traffic Safety: OHP Policy 2F identifies the need for projects in the state to improve safety for all users of the state highway system through engineering, education, enforcement, and emergency services. One component of the TSP update is to identify existing crash patterns and rates and to develop strategies to address safety issues. Proposed improvements will aim to reduce the vehicle crash potential and/or improve bicycle and pedestrian safety by providing upgraded facilities that meet current standards.

Alternative Passenger Modes: OHP Policy 4B, Action 4B.4 requires that highway projects encourage the use of alternative passenger modes to reduce local trips made in single-occupancy motor vehicles. The TSP will develop ways to support and increase the use of alternative passenger modes to reduce trips on highways and other facilities. This

will include improvements to bicycle and pedestrian facilities and consideration of existing and future transit movement along roadways.

Improvements on State Highways: The Highway Design Manual[13] (HDM) provides uniform standards and procedures for ODOT and is in general agreement with the 2001 American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*. Some key areas where guidance is provided are the location and design of new construction, major reconstruction, and resurfacing, restoration or rehabilitation (3R) projects. The HDM should be used for all projects on state highways in Cottage Grove to determine design requirements, including the maximum allowable volume to capacity ratios for use in the design of highway projects.

Other Background Information for the TSP Update

The following sections summarize additional background information or guidance documents that will be referenced in updating the Cottage Grove TSP.

Projects to Be Considered in Future Transportation Analysis

Several of the documents reviewed identified transportation improvement projects that will be considered in future transportation analysis in Cottage Grove. Relevant projects are found in the following documents.

Statewide Transportation Improvement Program (STIP)[14]

The current adopted (2012-2015) Statewide Transportation Improvement Program (STIP) serves as ODOT's short term capital improvement program and provides funding and scheduling information for transportation projects. The following Cottage Grove projects are included:

- OR 99 at 4th Street & Main Street (Key Number 14781): Funding for upgrading signals, widening sidewalks, and constructing streetscape improvements (under construction in 2013, near completion).[15]
- Gateway Boulevard Improvements (Key Number 14072): Construct a right turn lane on Gateway Boulevard.

[13] ODOT Highway Design Manual: http://www.oregon.gov/ODOT/HWY/ENGSERVICES/hwy_manuals.shtml

[14] ODOT STIP: http://www.oregon.gov/ODOT/TD/STIP/STIP/12-15Amended_STIP.pdf

[15] Related to 2012 land purchase project (Key Number 16807).

In early 2014, City Council decided not to fund the City portion of costs to construct the turn lane on Gateway Boulevard. Therefore, the project will not be assumed to be constructed for the analysis of future conditions in the TSP update.

No projects have been identified for Cottage Grove in the draft STIP for 2015-2018.

Lane County 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 County CIP is a 5-year plan which lists specific projects and includes a financial plan. Neither the current adopted 2014-2018 CIP nor the Draft 2015-2019 include any projects in Cottage Grove.

Lane County Transportation System Plan (2004)

The Lane County TSP is currently being updated to address transportation improvement needs through 2035. The project list identified in the 2004 TSP includes several in or near Cottage Grove. These projects will be reviewed and considered in the Cottage Grove TSP update:

- Widening and guardrail upgrade on Bennett Creek Road between North River road and the bridge at the UGB (total cost $270,000). [Project 71]
- Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [Project 70]
- Bicycle and pedestrian facilities on Latham Road between Highway 99 and London Road. (total cost $100,000). [Project 69]
- Upgrade on North River Road between Highway 99 and Bennett Creek Road (total cost $430,000). [Project 68]
- 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). [Project 67]
- Upgrade and realignment of South River Road from Highway 99 to city limit (total cost $660,000). [Project 66]
- Upgrade of Sweet Lane to urban standards from Highway 99 to Talemena Drive (total cost $570,000). [Project 65]
- Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [Project 64]
- Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [Project 94]

Cottage Grove Capital Improvement Plan (CIP)

The City does not have a current Capital Improvement Plan (CIP). Transportation projects developed as part of the TSP update can serve as a transportation CIP for the city.

Cottage Grove Main Street Refinement Plan (In progress)

The Cottage Grove Main Street Refinement Plan will identify enhancements to multi-modal opportunities, accessibility and historic character in downtown. The project will focus on analyzing the roadway and sidewalk configuration in the available right-of-way on Main Street, and will identify streetscape design enhancements. The findings of the study (scheduled for completion in 2014) will be incorporated into the TSP update.

Actions or Strategies to be considered in Updating the TSP

Several of the documents reviewed identify transportation actions, strategies, or standards and guidelines that will be considered in updating the Cottage Grove TSP. Relevant actions or strategies include those found in the following documents.

Oregon Transportation Plan (2006)

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's policy and investment strategies guide the development of public transit, rail lines, bicycling and pedestrian facilities, airports and pipelines, while also emphasizing the maintenance and improvement of existing 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 will carry these goals and strategies forward in the update.

Oregon Freight Plan (2011)

The Oregon Freight Plan (OFP) is a modal plan of the OTP that implements the State's goals and policies related to freight. The objectives of the plan include creating a framework for prioritizing and facilitating investments in freight facilities (including rail, marine, air, and pipeline infrastructure) and adopting strategies to maintain and improve the freight transportation system.

The plan includes a set of 11 strategies and corresponding actions that address defining and preserving a strategic freight system, reviewing investment criteria, establishing

procedures to ensure system safety and efficiency, partnering with other organizations, coordinating freight planning with land use planning and other regulatory programs, and dealing with long-term funding needs.

Since I-5 is designated as a Freight Route, the requirements of ORS 366.215 apply. This State Statute states, with specific exceptions, that the Oregon Transportation Commission may not permanently reduce the vehicle-carrying capacity of an identified freight route.[16]

Oregon Rail Plan (2001)

The Oregon Rail 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 relevant recommendations of the Oregon Rail Plan (as they relate to the Siskiyou Line owned by Central Oregon & Pacific Railroad) in the rail modal plan and will consider the implications of recommendations to other modal projects in the City.

Oregon Bicycle and Pedestrian Plan (1995; 2011 update)

The goal of the Oregon Bicycle and Pedestrian Plan is to provide safe and accessible bicycling and walking facilities in order to encourage increased levels of bicycling and walking. The plan provides measures that will assist local jurisdictions in understanding the principles and policies that ODOT follows in providing bike and walkways along state highways. In order to the meet the plan's objectives, strategies for system design include providing bikeway and walkway systems that are integrated with other transportation systems; providing a safe and accessible biking and walking environment; and developing education programs that improve bicycle and pedestrian safety.

[16] This statue implements a no Reduction of Vehicle-carrying Capacity (RVC) policy and pertains to all planning, project development, development review and maintenance projects. . See ODOT's Guidelines for Implementation of ORS 366.215 http://www.oregon.gov/ODOT/TD/TP/ORS366.215.shtml .

The plan states that bikeway and walkway systems will be established on urban highways, as follows:

- As part of modernization projects (bike lanes and sidewalks will be included);
- As part of preservation projects, where minor upgrades can be made;
- By restriping roads with bike lanes;
- With minor improvement projects, such as completing short missing segments of sidewalks;
- As bikeway or walkway modernization projects;
- By developers as part of permit conditions, where warranted.

The 1995 document includes two sections, including the *Policy & Action Plan* and *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 assists ODOT, cities, and counties in designing, constructing and maintaining pedestrian and bicycle facilities. The document recommends design standards and provides safety information.

The second section of the Plan was updated in 2011 as the Oregon Bicycle and Pedestrian Design Guide, addressing on-road bikeways, restriping, bicycle parking, walkways, street crossings, intersections, and shared-use paths. [17] The updated Oregon Bicycle and Pedestrian Plan Design Guide will be referenced where bicycle or pedestrian facilities are planned as part of state funded projects or facilities.

Oregon Public Transportation Plan (1997)

The Oregon Public Transportation Plan serves as the transit modal plan of the OTP. It develops transit, rideshare and transportation demand management services and implements the public transportation system envisioned in the OTP. The plan describes the roles and responsibilities of key parties, 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 in conjunction with transit service providers in Cottage Grove (Lane Transit District and South Lane Wheels).

[17] Oregon Bicycle and Pedestrian Design Guide: http://www.oregon.gov/ODOT/HWY/BIKEPED/pages/planproc.aspx

Cottage Grove Comprehensive Plan (1981, Last Updated 2012)

The Cottage Grove Comprehensive Plan provides objectives, recommendations, and other policies applicable to land use, transportation and municipal services within the City Limits, Urban Service Boundary (land adjacent to the City Limits which may receive urban services for health reasons), and the city's "Area of Interest" (defined as those lands outside the Urban Service Boundary which may be considered for expansion in the future).

The following summarizes adopted policies, under headings that are consistent with those in the Comprehensive Plan, that relate to transportation planning and land use planning coordination. Note that the Plan has been periodically updated by additional long-range plans and studies, which are referred to but not always summarized or included within the plan document.

Housing

The housing element of the Comprehensive Plan encourages the development of a variety of residential development in areas where urban services are already committed. Recommendation 6 states that "appropriate use of cul-de-sacs" should be encouraged[18].

Economic Development

The four Economic Development Goals of the Comprehensive Plan are drawn from Strategies 12-15 of the *2037 Vision and Action Plan.* Their wording within the Comprehensive Plan has been refined but the goals are substantially the same. The goals applicable to the TSP update are:

- Goal 1: Establish Cottage Grove as the seat and gateway for a South Lane County recreation and tourism destination
- Goal 4: Maintain and upgrade critical infrastructure to accommodate demand.

The Plan's economic development policies are taken from the Chapter 8 of the *2008 Economic Opportunities Analysis,* which identified an unmet need for industrial and commercial land within the city. Relevant policies include:

- Policy 1: Provide an adequate supply of suitable and serviceable development sites to accommodate anticipated employment growth with the public and

[18] Cul-de-sacs are addressed in the Cottage Grove Development Code, where they are allowed only in limited circumstances. Consistency between transportation policy and development requirements will be explored as part of the TSP update; proposed modifications to this comprehensive plan policy may result from the review.

private services, sizes, zoning, and other characteristics needed by firms likely to locate in Cottage Grove.

- Policy 3: Provide adequate public services (i.e., roads, transportation, water, and sewer) and take action to assure adequate private utilities (i.e., electricity and communications) are provided to existing businesses and development sites.

Public Facilities and Services

This element notes that policies related to transportation are included in the adopted TSP[19], and not reproduced in the Comprehensive Plan.

Parks, Recreation, and Open Space

Objectives of this element include the consideration of a system of interconnecting trails to link residential areas to a system of river-oriented and hilltop parks, as well as to provide for recreational facilities in future parklands where development occurs. Plan recommendations include continuing to develop the "Greenway" program with a particular emphasis on bicycle paths and foot bridges. More details about this program are provided in the *2003 Water to Woods: Master Parks Plan.*

Energy Conservation

The Plan cites the development of bicycle paths, sidewalks, pedestrian curb cuts, and improvement of the street system to reduce congestion as existing energy conservation practices. The Plan calls for additional study, but makes no specific energy conservation recommendations concerning future land use or transportation system planning or development.

Hillside Development

The City's hillsides are recognized to be a sensitive area as well as an amenity, and the Plan promotes the preservation and enhancement of the resource through civic design, landscape architecture, and civil engineering. It states that roads should follow natural topography wherever possible to minimize cutting and grading. This section is implemented through development standards for Planned Unit Developments and requirements for design review for proposed subdivisions of land with slopes from 12% to 20%.

Urban Service Area

The Plan states that the City will provide urban services within the Urban Service Boundary. Urban services include streets with curb, gutter and pedestrian ways, as well

[19] The TSP was adopted by City Council via Resolution No.1655 on March 10, 2008 as a refinement plan to this section of the Comprehensive Plan.

as street lighting. It states that developments may proceed initially with streets below City standards regarding width, curb and gutter, sidewalks, storm sewer and pavement depth. Such streets shall, however, be constructed in a manner which permits easy conversion to City standards in the future.

The goals and policies in the 2008 TSP will be reviewed and modified as needed during this TSP update process. Transportation-related Comprehensive Plan policies should be reflected in the updated TSP, or should be recommended for modification to be consistent with the updated TSP.

Cottage Grove Development Code

The Development Code implements the Comprehensive Plan by providing descriptions of zone designations, allowable uses within those zones, and development regulations. Zone designations in the City of Cottage Grove include residential, commercial, industrial districts, as well as a parks and recreation district. The Development Code also establishes overlay districts, including the Airport Overlay District and Historic Preservation Overlay District. The Zoning Map shows the location of land use designations and consequently helps direct the type, location, and density of land uses in the city.

The code chapters below are relevant to the development of transportation facilities and transportation system development in Cottage Grove.

- Chapter 2 – Land Use Districts. This chapter establishes the City's land use districts and overlay zones, limiting uses allowed on parcels with a given designation. Transportation facilities (operation, maintenance, preservation and construction) are listed as a permitted use in all residential, industrial, and parks & recreation districts. Transportation facilities are not mentioned in Chapter 2.3 – Commercial Land Use Districts.
- Chapter 3.1 – Access and Circulation. This chapter is intended to ensure "safe, efficient, and attractive access and circulation for pedestrians and vehicles." The chapter applies to all public streets within the City and to all properties that abut these roadways. The standards apply when lots are created, consolidated, or modified through a land division, partition, lot line adjustment, lot consolidation, or street vacation, and when properties are subject to Land Use Review or Design Review.
    - 3.1.200 – Vehicular Access and Circulation requires permits for access to public streets and provides details about access spacing, interior site circulation, shared driveways, driveway design, vision clearance, and other topics relating to vehicular access.

  - 3.1.300 – Pedestrian Access and Circulation specifies Pedestrian Access and Circulation standards and requires all developments except single-family and two-family detached housing to provide a continuous pedestrian system. This system is required to provide continuous, safe, reasonably direct, and convenient connections between primary building entrances and all adjacent streets. This section also specifies details about walkway widths, ADA requirements, and vehicle/walkway separation.

- Chapter 3.3 – Parking and Loading. This chapter provides "basic and flexible" standards for development of vehicle and bicycle parking. Table 3.3.300.A provides minimum required automobile parking per land use; modifications to minimum requirements may be requested by providing a separate parking demand analysis, subject to a Type II review. Similarly, Table 3.3.400 identifies minimum long-term and short-term bicycle parking spaces per land use. Section 3.3.400[20] addresses loading area requirements.
- Chapter 3.4 – Public Facilities. Section 3.4.100 provides planning and design standards for transportation facilities and gives several design typologies of arterials, collectors, and local streets. This section also includes required right-of-way width, lanes, parking, sidewalks, and planting strip widths. Table 5 reproduces the city street standards from Table 3.4.100.F. Figures 3.4.100.F(1)-F(6) illustrate roadway sections. Section 3.4.100.G addresses subdivision access and circulation design standards. Standards guiding design features such as intersection angles, use of cul-de-sacs, traffic calming and signals, block size, alleys, and allowable grades are included in this section as well.
- Chapter 4.1 – Types of Review Procedures. Section 4.1.900 implements the Transportation Planning Rule that requires the City to adopt a process to apply conditions to development proposals in order to minimize transportation impacts and protect transportation facilities. It describes when a Traffic Impact Study is required, what it must contain, and who is qualified to prepare a Study.

[20] The Parking and Loading section number is identical to the Bicycle Parking section number in the development code.

Figure 1: City Street Standards

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

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

As part of the TSP update the street functional classifications and cross-section standards will be reviewed for consistency with the development code. The standards may be revised to ensure that they meet community needs and are consistent with the Development Code and other plans and policies.

The Cottage Grove Development Code contains a number of provisions related to development of transportation facilities in the city. Amendments to the Cottage Grove Development Code may be needed in order to implement the recommendations of the updated TSP and to better comply with the TPR. (Technical Memorandum#3, Regulatory Review will further address TPR compliance.)

Downtown Revitalization & Refinement Plan (2005)

The Cottage Grove Downtown Revitalization and Refinement Plan addressed 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 Plan focused on traffic and safety analysis in the area surrounding the Main Street intersections with OR 99 and 10th street. Key components include:

- Multimodal planning of the area surrounding the Main Street intersections
- Streetscape Improvements on Main Street
- Intersection design plans including safety, functionality, and access considerations
- Code recommendations for implementation of Plan goals
- Construction cost estimates and potential funding sources

With the pending completion of the ODOT enhancement project at OR 99 at Main Street, most of the recommendations of the Plan will have been accomplished. The

ongoing Cottage Grove Main Street Refinements Plan (previously described) will address the outstanding issues from the plan.

Downtown Historic District Design Guidelines (2007)

The City of Cottage Grove Downtown Historic District Design Guidelines provide advisory suggestions for ways to maintain the historic resources in downtown. The guidelines define principles and standards for design in the Historic District. The guidelines are primarily architectural but also define signage and streetscape considerations, including maintaining 5 feet of clear sidewalk space.

2037 Vision and Action Plan (2008)

The 2037 Vision and Action Plan provides a community-wide vision for development of Cottage Grove through 2037. One of the top 25 priority projects identified in the plan was to "explore and pursue a targeted funding mechanism for road and bridge repairs" (Strategy 15.2). Other transportation-related strategies include:

- Securing funding to implement the strategies of the Downtown Enhancement and Refinement Plan (Strategy 8.3)
- Determining the feasibility of a central parking garage in the downtown core(Strategy 8.5)
- Developing a strategic plan and design concepts to expand river access (Strategy 9.3)
- Prioritizing the installation of sidewalks and improve overall walkability (Strategy 10.1)
- Establishing way-finding signage at key activity generators and attractions (Strategy 10.3)
- Beautifying commercial strips along OR 99 (Strategy 10.4)
- Seeking funding opportunities that would allow the proactive installation of conduits for future infrastructure (Strategy 20.5)

The strategies in the Vision and Action Plan related to the transportation system should be revisited and validated as part of the TSP update process and reflected in the updated TSP's policies and recommendations, as appropriate.

Economic Opportunities Analysis (2009)

The 2009 Economic Opportunities Analysis (EOA) identifies employment opportunities and economic objectives and strategies in Cottage Grove, including site (land) requirements for targeted employment types. The analysis established employment growth projections that will be critical for developing future land use projections for the TSP update. The EOA recognizes transportation access as an economic advantage for

Cottage Grove and describes the high percentage of workers who live in Cottage Grove but commute to Eugene-Springfield for work.

The EOA identifies a 1.4% annual job growth in Cottage Grove (from 4,423 employees in 2006 to 6,075 in 2029). The estimated job growth is expected to come primarily from the retail and service sectors. The targeted industries tend to favor sites with direct access to OR 99 and I-5. The analysis concluded that approximately 170 net acres of suitable land supply were needed to accommodate the identified job growth through 2029. Most of the identified needs have been addressed through the 2011 UGB expansion.

Employment Land Needs Memorandum (2010)

The 2010 Employment Land Needs Memorandum explained and clarified the 2009 EOA. The plan states that employment growth for targeted industries is likely to be "clustered near existing employment centers, so that truck and automobile traffic will not be directed through established residential neighborhoods." The analysis revised the land use needs projections to reflect City preference to rely on redevelopment and intensification of land use within the existing UGB, thus reducing the need to expand the UGB. The memorandum identified a need for 102 gross suitable acres unmet within the 2009 UGB. Most of the identified needs have been addressed through the 2011 UGB expansion.

Recently Constructed Transportation Projects

The following transportation improvements and additions have been made (or will soon be completed) in the city since adoption of the TSP in 2008.

- ODOT OR 99 at 4th Street & Main Street Improvements (in progress -2014)
- Dedicated northbound right turn lane on Gateway Boulevard at the intersection with I-5 Southbound Ramps/Cottage Grove Connector (scheduled – 2014)
- Crosswalk on Row River Road near Jim Wright Way (scheduled – 2014)
- Traffic signals at two nearby intersections on Row River Road at Thornton Road and Whiteaker Avenue/Mosby Creek Road at Thornton Road/Main Street (2013)
- Crosswalk on OR 99 near Geer Avenue (2008)
- Widening on South 8th Street, south of Taylor Avenue (2008)
- Riverwalk subdivision (2009)
- Lion Estates subdivision (2010)

These projects will be considered in the transportation analysis as part of the existing conditions and will be reflected as part of the existing local street system in the updated TSP.

Traffic Studies

Traffic studies in Cottage Grove have been driven primarily by development. Traffic studies conducted since 2008 include the following:

- Zone change analysis for parcels converting to medium density residential located east of OR 99 in south Cottage Grove (between Rachel Road and Sweet Lane)
- Zone change analysis for a parcel converting to medium density residential located at the intersection of 16th Street and Chamberlain Avenue.
- Zone change analysis for parcels converting to community commercial uses located adjacent to Row River Road and Whiteaker Avenue near the intersection of Thornton Road/Main Street/Whiteaker Avenue/Moseby Creek Road
- Traffic Impact Analysis for Jack-In-The-Box on Gateway Boulevard, near the Cottage Grove Connector and I-5 Southbound ramps.
- Transportation Impact Study for Wal-Mart expansion on Row River Road, near Thornton Road.

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:

- Local Wetland Inventory – A map of Cottage Grove wetlands depicts the location of locally significant wetlands, rivers, streams, 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.
- Natural Hazards Maps – These maps identify floodplain, earthquake/seismic, fire, and slope hazards. Consideration for these natural hazards will be included in the development of the transportation system plan.
- 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.

Existing Transportation Funding Mechanisms & Expenditures

The City has adopted a local, 3 cents per gallon gas tax for funding transportation projects, including capital improvements and maintenance. The City also receives funds from the state gas tax apportionment and vehicle license fees. The major source of

funding for new streets and street improvements related to growth will be developer contributions through system development charges or exactions. The TSP update will explore a variety of mechanisms for funding recommended transportation system improvements and will indicate recommended methods specific to the needed improvement. (Technical Memorandum #4, Potential Transportation Funding Review will further address funding mechanisms and strategies.)

Appendix A: Applicable Plans and Policies

The following documents, plans and policies were reviewed for the Cottage Grove TSP update:

- City of Cottage Grove Transportation System Plan (2008)
- Economic Opportunities Analysis Report (2009)
- Employment Land Needs Memorandum (2010)
- Cottage Grove 2037 Vision and Action Plan (2008)
- Cottage Grove Downtown Revitalization and Refinement Plan (2005)
- City of Cottage Grove Comprehensive Plan
- City of Cottage Grove Development Code
- City of Cottage Grove Downtown Historic District Design Guidelines
- City of Cottage Grove Local Wetland Inventory Map Index
- City of Cottage Grove Hazard Maps
- City of Cottage Grove Greenway Map
- Recent City traffic studies
- Inventory of transportation improvement projects constructed since 2008
- List of current transportation funding sources and expenditures
- Oregon Highway Plan (and subsequent amendments) (1999)
- Oregon Bike and Pedestrian Plan (1995)
- Oregon Public Transportation Plan (1997)
- Oregon Rail Plan (2001)
- Oregon Freight Plan (2011)
- Oregon Transportation Plan (2006)
- Transportation Planning Rule (OAR 660.012)
- State Transportation Improvement Program (STIP)
- Oregon Transportation System Planning Guidelines (2008)
- Access Management Rules (OAR 734.051)
- Lane County Transportation System Plan (2004)
- Lane County Capital Improvement Plan

Technical Memorandum #3

DATE: March 26, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Darci Rudzinski and Andrew Parish, Angelo Planning Group
Carl Springer, P.E., and Mat Dolata, P.E., DKS Associates

SUBJECT: **Cottage Grove Transportation System Plan Update**
Regulatory Review

Overview

Transportation system planning in Oregon is required by state law as one of the 19 statewide planning goals (Goal 12 - Transportation). The Transportation Planning Rule (TPR), Oregon Administrative Rule Division 12 (Chapter 660), defines the necessary elements of a local Transportation System Plan (TSP) and how to implement Goal 12. The TPR requires counties and cities to prepare local TSPs that are consistent with the Oregon Transportation Plan (OTP) and, for jurisdictions within a metropolitan planning organization, with the regional transportation plan. The overall purpose of the TPR is to provide and encourage a safe, convenient, and economic transportation system. The rule also implements provisions of other statewide planning goals related to transportation planning in order to plan and develop transportation facilities and services in close coordination with urban and rural development. The TPR directs TSPs to integrate comprehensive land use planning with transportation needs and to promote multi-modal systems that make it more convenient for people to walk, bicycle, use transit and drive less. Cottage Grove's TSP must be consistent with the current TPR, which was amended most recently in December 2011.

Technical Memorandum #2 (Background Document Review) addresses the OTP and other background documents that will be referenced in updating the Cottage Grove TSP. This memorandum will focus on the extent to which the City of Cottage Grove meets the requirements of TPR. Table 1 describes how the Cottage Grove development code meets particular TPR sections and identifies recommended improvements where local requirements could be strengthened or modified to be more consistent with the TPR. To the extent necessary, suggested draft code language will be prepared at the

implementation phase of the TSP update project that supports the policies and recommendations of the draft TSP and is consistent with the TPR.

Table 1: TPR Evaluation of the Cottage Grove Development Code

TPR Requirement	Local Development Code Reference
OAR 660-012-0045 – Implementation of the Transportation System Plan	
(1) Each local government shall amend its land use regulations to implement the TSP.	
(*a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use:* *(A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;* *(B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards;* *(C) Uses permitted outright under ORS 215.213(1)(m) through (p) 1 and 215.283(1)(k) through (n)2, consistent with the provisions of 660-012-0065 3 ; and* *(D) Changes in the frequency of transit, rail and airport services.* *(b) To the extent, if any, that a transportation facility, service, or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.*	These TPR provisions are addressed as follows: The Cottage Grove development code lists "Transportation Facilities (operation, maintenance preservation and construction)" as a permitted use in residential districts (Table 2.2.110), industrial districts (Table 2.4.110), and Parks & Recreation Districts (Table 2.5.110). This language is not included in Section 2.3 - Commercial Land Use Districts. **Recommendation:** Update Section 2.3 – Commercial Land Use Districts to include "Transportation Facilities (operation, maintenance preservation and construction)" as a permitted use.
(c) Where a transportation facility, service or improvement is determined to have a significant impact on land use or requires interpretation or the exercise of factual, policy, or legal judgment regarding the application of a comprehensive plan or land use regulation, the local government shall provide a review and approval process that is consistent with 660-012-0050 (Transportation Project Development). Local governments shall amend regulations to provide for consolidated review of land use decisions required to permit a transportation project.	TPR Section -0050 addresses project development and implementation - how a transportation facility or improvement authorized in a TSP is designed and constructed. Project development may or may not require land use decision-making. The TPR directs that during project development, projects authorized in an acknowledged TSP will not be subject to further justification with regard to their need, mode, function, or general location. The city allows for consolidated review of multiple land use or development permits under Development Code Chapter 4.1.600, Consolidation of Proceedings. In terms of coordination with other transportation agencies,

TPR Requirement	Local Development Code Reference
	Section 4.1 – Types of Applications and Review Procedures includes public notice and hearing requirements that include notice to affected transportation facility and service providers, as well as ODOT. **Recommendation:** This TPR requirement is met.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities corridors and sites for their identified functions. Such regulations shall include:	
a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;	Development code chapter 3.1.200 - Vehicle Access and Circulation addresses driveway and street spacing, stating that it implements the access management policies of the TSP. Spacing standards for each functional classification reside within the TSP and are not duplicated in the development code. **Recommendation:** This TPR requirement is met.
(b) Standards to protect the future operations of roads, transitways and major transit corridors	Chapter 4.1.900 outlines the requirements of Traffic Impact Studies (TIS) as a tool to help protect future operations of transportation facilities. This section of the development code includes applicability thresholds and submittal requirements for a TIS. One component of a TIS is the identification of traffic impacts attributable to the development and appropriate mitigation measures, which may be required as conditions of approval to be implemented prior to issuance of a building permit. The authority to condition approval to require needed transportation improvements is in 3.1.200 (F). Chapter 3.4 includes the transportation development standards that apply to all new uses and developments. Section 3.4.010 (D) states, "No development may occur unless required public facilities are in plan or guaranteed, in conformance with the provisions of this Code. Improvements required as a condition of development approval, when not voluntarily accepted by the applicant, shall be roughly proportional to the impact of the development on public facilities. Findings in the development approval shall indicate how the required improvements are directly related and roughly proportional to the impact." **Recommendation:** This TPR requirement is met. *Note that the city has requested a review of what level of development would trigger transportation*

TPR Requirement	Local Development Code Reference
	improvements, such as sidewalk and street frontage improvements. The city's Site Design Review is required for development proposals that exceed the thresholds for Land Use Review. A single duplex, townhome, or house would not be subject to Design Review, but land divisions and expansions to non-residential buildings (1,000 square feet or greater or more than 50% of existing structure) must go through this Type III review. Design Review approval criteria include compliance with the design standards in Chapter 3, including those for public facilities (4.2.600.4).
(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;	Chapter 2.6.200 establishes an Airport Overlay district, which addresses the noise corridor, imaginary surfaces, and physical hazards to air navigation. **Recommendation:** This TPR requirement is met.
d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;	Development Code Chapter 4.1.600 addresses general provisions, including Consolidation of Proceedings when applications cover more than one type of land use or development permit (e.g. Type II and III). **Recommendation:** This TPR requirement is met.
(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;	Section 4.1 – Types of Applications and Review Procedures describes Type I, II, III, and IV procedures and specifies whether conditions of approval may be applied - they may be applied on all but Type I (ministerial) applications. The authority to condition approval of an access permit to require needed transportation improvements is in 3.1.200 (F). Section 4.1.900 – Traffic Impact Studies address this requirement by requiring the identification of traffic impacts attributable to the development and appropriate mitigation measures, which may be required as conditions of approval to be implemented prior to issuance of a building permit. Section 3.4.100 (D) addresses rough proportionality between the conditions of approval and a development proposal's impact. **Recommendation**: This TPR requirement is met.
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: *(A) Land use applications that require public*	4.1.300 (D) - Notice of Application for Type II Administrative Decision states that notice will be given to the road authority and rail authority when proposed development abutting or affecting a transportation facility. The same

TPR Requirement	Local Development Code Reference
hearings; *(B) Subdivision and partition applications;* *(C) Other applications which affect private access to roads; and* *(D) Other applications within airport noise corridor and imaginary surfaces which affect airport operations.*	applies for Type III decisions pursuant to 4.1.400 (E). Development code section 4.1.900 (C) (6) Coordinated Development Review states that the City will provide written notice and opportunity to comment on all Traffic Impact Studies to the applicable road authorities. Preliminary plat and property line adjustments applications must show evidence of contact with the Road Authority for any development requiring access to its facilities (4.3.130, 4.3.210) 2.6.230 (Airport overlay district) states that the Department of Aviation shall be notified of land use applications affecting the airport. **Recommendation**: This TPR requirement is met.
g) Regulations assuring amendments to land use designations, densities, and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP.	Consistency with the standards of facilities identified in the TSP is a criterion for legislative & quasi-judicial decisions (4.7.500). It is also addressed in the Traffic Impact Study section (4.7.800.B): "Amendments...which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity, and level of service of the facility identified in the TSP." **Recommendation**: This TPR requirement is met.
(**3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below.**	
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots.	Section 3.3.400 addresses bicycle parking requirements. Table 3.3.400 lists minimum required bicycle parking spaces by land use. Bicycle parking is required for new multi-family, retail, office and institutional developments, as well as bus transit centers, consistent with the TPR requirements. **Recommendation**: This TPR requirement is met.

TPR Requirement	Local Development Code Reference
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways. *(A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers;* *(B) Bikeways shall be required along arterials and major collectors. sidewalks shall be required along arterials, collectors and most local streets in urban areas except that sidewalks are not required along controlled access roadways, such as freeways;* *(C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section;* *(D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel;* *(E) Streets and accessways need not be required where one or more of the following conditions exist:* *(i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided;* *(ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or* *(iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.*	**On-site circulation and connections:** 3.1.300 addresses pedestrian circulation, which is required by all developments save Single Family and Two-Family Detached Housing on individual lots. **Parking lots:** 3.1.300 (A) requires large parking lots to be broken with landscaping and walkways. **Bikeways and Sidewalks:** Street standards in the development code (Table 3.4.100) require bicycle lanes along arterials and commercial collectors. **Street and accessway layout:** (3.4.100.G.4) establishes minimum/maximum block lengths residential and commercial subdivisions and site developments of greater than 2 acres. These are: - Residential: 100' min/ 400' max; maximum 1,400 feet block perimeter - Commercial: 100' min/ 400' max; maximum 1,200 feet block perimeter - Not applicable for industrial districts Accessways are required where street connection in conformance with maximum block length is impracticable. (3.4.100.G.5) **Cul de sacs:** Shall only be used when environmental or topographical constraints, existing development patterns, or compliance with other standards in the code preclude street extension and through circulation. Additionally, the cul-de-sac shall provide, or not preclude the opportunity to later install, a pedestrian and bicycle accessway connection between it an adjacent streets access ways, parks, or other right-of-way. (3.4.100 (N)). **Recommendation:** Expand the bicycle and pedestrian circulation requirements to all subdivisions, including Single Family/Two Family housing. The other aspects of this TPR requirement are met. *Note that Recommendation 6 in the Housing Element of the Comprehensive Plan, which states that "(a)ppropriate use of cul-de-sacs should be encouraged," is in conflict with the more restrictive provisions in 3.4.100 (N) and should be revised to be consistent with the Development Code.*
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle and pedestrian travel, including bicycle ways on arterials and major collectors	4.4.400 (c) - Conditional Use Permits notes that a condition may require "the dedication of sufficient land to the public, and/or construction of pedestrian/bicycle pathways in accordance with the adopted plans… conform[ing] to the provisions of

TPR Requirement	Local Development Code Reference
	chapter 3.1. and section 3.1.300 in particular." **Recommendation:** This TPR requirement is met.
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.	3.1.300 - Pedestrian Access & Circulation applies to all developments save single-family and two-family detached housing, and requires the provision of a "continuous pedestrian system" through creation of direct, safe, and convenient walkways. This section requires that parking lots of three acres or more be broken up. 2.3 - Commercial Land Use Districts has building orientation standards that require buildings to be oriented toward streets to promote pedestrian activity. 2.3.170 (B) contains specific criteria to that end. 2.4.140 (B) addresses the pedestrian orientation of large-scale commercial developments in the M-1 district, requiring them to meet the commercial block and architectural standards of Section 2.3 **Recommendation:** This TPR requirement is met.
(4) To support transit in urban areas containing a population greater than 25,000, where the area is already served by a public transit system or where determination has been made that a public transit system is feasible, local governments shall adopt land use and subdivisions as provided in (a)-(g) below.	
(a) Transit routes and transit facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometrics, on-road parking restrictions and similar facilities, as appropriate	The updated TSP will identify transit routes and determine appropriate standards for these transportation facilities, consistent with this section of the TPR. Pursuant to the Development Code, where a range of street right-of-way width is permitted, the city has decision-making authority to require a wider right-of way dedication to accommodate street furnishings, including bus shelters (Section 3.4.100 (F)). **Recommendation:** Identify design requirements of transit routes and transit facilities through the TSP update process; update development code requirements as necessary.
(b) New retail, office and institutional buildings at or near major transit stops shall provide for convenient pedestrian access to transit through the measures listed in (A) and (B) below. *(A) Walkways shall be provided connecting building entrances and streets adjoining the site;*	Section 3.1.300 of the Development Code requires all developments (except single-family and two-family detached housing) provide a continuous pedestrian system that connects primary building entrances and all adjacent streets. Section 3.3.300 (G) allows a reduction in the total

TPR Requirement	Local Development Code Reference
(B) Pedestrian connections to adjoining properties shall be provided except where such a connection is impracticable. Pedestrian connections shall connect the on site circulation system to existing or proposed streets, walkways, and driveways about the property. Where adjacent properties are undeveloped or have potential for redevelopment, streets, accessways and walkways on site shall be laid out or stubbed to allow for extension to the adjoining property; *(C) In addition to (A) and (B) above, on sites at major transit stops provide the following:* *(i) Either locate buildings within 20 feet of the transit stop, a transit street or an intersecting street or provide a pedestrian plaza at the transit stop or street intersection;* *(ii) A reasonably direct pedestrian connection between the transit stop and building entrances on the site* *(iii) A transit passenger landing pad accessible to disabled persons* *(iv) An easement or dedication for a passenger shelter if requested by the transit provide; and* *(v) Lighting at the transit stop.*	number of motor vehicle parking spaces for an industrial, commercial, or office use if a transit facility with related amenities (e.g. a public plaza, pedestrian sitting areas, shelter, additional landscaping) is provided. This section also requires motor vehicle parking areas for commercial developments to be located and designed to facilitate safe and convenient pedestrian and bicycle movement to and from sidewalks, streets or transit stops. Ways to achieve this standard may include, but are not limited to: • Orienting front facades of all buildings to minimize pedestrian travel through parking areas • For shopping centers abutting one or more transit routes, one or more transit stops are located and designed with the approval when applicable of the local transit provider **Recommendation:** Minor modifications to Section 3.1.300 could be considered to strengthen required connectivity to transit. Consider making the provisions of 3.1.300 (G) a standard for developments along streets with existing or planned fixed-route transit service, rather than an option for reducing parking requirements. Alternatively, broaden the applicability of the Special Standard for Commercial Development in 3.3.300(G)(2) to all new retail, office, or institutional buildings near streets with fixed-route transit service, rather than only commercial developments.
(c) Local governments may implement 4(b)A) and (B) above through the designation of pedestrian districts and adoption of appropriate implementing measures regulating development within pedestrian districts. Pedestrian districts must comply with the requirement of (4)(b)(C) above.	The City of Cottage Grove does not have pedestrian district designations. **Recommendation:** Consider adopting a pedestrian district along streets with fixed-route transit service that complies with 4(a)(C) as a means to implement 4(b)(A) –(B).
(d) Designated employee parking areas in new developments shall provide preferential parking for carpools and vanpools	A reduction in required parking can be achieved by designating at least 10% of the employee motor vehicle parking spaces as carpool/vanpool parking and placing such spaces closer to the building than other employee parking. (3.1.300 (G)). **Recommendation:** The City should consider requiring new developments with more than a specified number of employees to dedicate preferential

TPR Requirement	Local Development Code Reference
	parking space(s) for employee carpools and vanpools, separate from the current parking reduction allowance in Section 3.1.300(G).
(e) *Existing development shall be allowed to redevelop a portion of existing parking areas for transit-oriented uses, including bus stops and pullouts, bus shelters, park and ride stations, transit-oriented developments, and similar facilities, where appropriate*	3.3.300 (G)(2) – Special standards for Commercial Customer Parking lists locating structures on the site "to facilitate future infill and redevelopment of parking and landscape areas" as a possible measure to facilitate safe and convenient pedestrian and bicycle movement to and from public sidewalks, streets, or transit stops. **Recommendation:** Apply this provision more broadly to all development along streets with existing or planned fixed-route transit service. Section 3.3.300 should be revised to explicitly allow redevelopment of existing parking spaces for transit oriented uses. The City could also consider amending the development code to allow for a reduction in the number of minimum required parking spaces if the development proposes transit-related amenities such as transit stops, pull-outs, shelters, and park and ride lots, or when the development is abutting a street with fixed-route transit service.
(f) *Road systems for new development shall be provided that can be adequately served by transit, including provision of pedestrian access to existing and identified future transit routes. This shall include, where appropriate, separate accessways to minimize travel distances.*	The TSP update will review existing and planned transit routes; the location and design of any planned new roadways will consider existing and planned transit service. **Recommendation:** The Vehicle Access and Circulation section of the code should be amended to require that new development provide pedestrian access to existing and planned future transit routes
(g) *Along existing or planned transit routes, designation of types and densities of land uses adequate to support transit.*	Transit routes are currently identified in the existing TSP. **Recommendation:** When updating the transit element of the TSP, review existing land uses and consider future land use changes that would support the viability of transit on existing or planned routes.
(6) In developing a bicycle and pedestrian circulation plan as required by 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or	See response to 3(b) above.

TPR Requirement	Local Development Code Reference
pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.	
(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total ROW consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Notwithstanding section (1) or (3) of this rule, local street standards adopted to meet this requirement need not be adopted as land use regulations.	The current TSP contains standards for roadway design, including cross-sections for city arterials, collectors, and local streets. The TSP states that the street widths in TSP Table 8-5 are consistent with this portion of TPR. Street standards in Table 3.4.100.F and Figures 3.4.100.F(1)-F(6) illustrating roadway sections are consistent with the TSP. The design standards call for a minimum right-of-way width of 57 feet for local roads, with a minimum of 32 feet curb-to-curb paving. The code provides for a narrower street width when on-street parking is restricted to one side or is prohibited (50-foot right-of-way, 22-foot paved). **Recommendation:** . If street standards are modified through the update process, Table 3.4.100.F should be amended to be consistent with the updated TSP. The functional classification of roadways and street types should be made consistent between the TSP and the development code.
OAR 660-12-0060	
Amendments to functional plans, acknowledged comprehensive plans, and land use regulations that significantly affect an existing or planned transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.	Existing code is consistent with this TPR requirement. Section 4.7.800 addresses TPR compliance and requires applications to be reviewed for significant effect upon a transportation facility and that those with significant effect assure that land uses are consistent with the function, capacity, and level of service of the facility identified in the TSP. There is an exception for cases in which a facility is already performing below the minimum standards, in which case the application must at a minimum mitigate the impacts of development to avoid further degradation of the facility. **Recommendation:** This TPR requirement is met.

Technical Memorandum #4

DATE: May 28, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, P.E., DKS Associates
Carl Springer, P.E., DKS Associates

SUBJECT: **Cottage Grove Transportation System Plan Update**
Funding Review and Forecast

This memorandum details the historical transportation funding for Cottage Grove and estimates the funding expected through 2035. The funding estimate will help when selecting and prioritizing transportation improvements over the next 20 years.

Current Revenue Sources

The City uses three primary revenue sources to fund transportation expenses;

- State Highway Fund distributions,
- the local fuel tax, and
- Transportation System Development Charges (SDCs).

State Highway Fund

The State Highway Fund generates revenues primarily through the state motor vehicle fuel tax, vehicle registration fees, and truck weight-mile fees. It also relies on distributions from the federal Highway Trust Fund, which is largely funded from the federal gas tax. The state funding sources are generally dedicated to debt service, highway maintenance and agency (ODOT) operations. Federal funds flow to states through the Surface Transportation Program (STP). ODOT relies on these distributions to fund many of the safety, highway, and bridge improvement projects identified in the Statewide Transportation Improvement Program (STIP).

A portion of these State Highway Trust Fund monies are allocated on a per capita basis to local cities including Cottage Grove. By statute, the money may be used for any road-related purpose, including walking, biking, bridge, street, signal, and safety improvements. State law requires that a minimum of one percent of the State gas tax

and vehicle registration funds received be set aside for construction and maintenance of walking and bicycling facilities.

The federal and state gas tax funds have previously failed to keep up with cost increases and inflation. With improved vehicle fuel efficiency, changes in travel behavior, and policies aimed at reducing vehicle miles traveled, the real revenue collected has gradually eroded over time. The federal Highway Trust Fund has recently relied on general fund transfers to make up the gap between revenues and expenses.

In an effort to offset the relative decline in contribution of state funds, the Oregon Jobs and Transportation Act (Oregon House Bill 2001) was passed in 2009, increasing transportation-related fees including the state gas tax and vehicle registration fees. Oregon vehicle registration fees are collected as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in Oregon recently increased from $27 to $43 per vehicle per year for passenger cars, with similar increases for other vehicle types. The gas tax in Oregon increased on January 1, 2011 by six cents, to 30 cents per gallon. This was the first increase in the state gas tax since 1993.

Local Gas Tax

Cottage Grove has a local city gas tax of three cents per gallon. The tax provides a significant portion of transportation revenues in the City and is funded in part by non-residents, such as those who stop for gas while traveling along I-5.

Transportation SDC

System development charges (SDCs) are fees collected from new development and used as a funding source for all capacity adding projects for the transportation system. The funds collected can be used to construct or improve portions of roadways impacted by applicable development. The SDC is collected from new development and is a one-time fee. The transportation SDC rate is indexed to construction costs and was increased in 2014 to approximately $1,700 per peak hour trip.

Table 1: Cottage Grove Transportation Revenues Summary (2014 dollars)

Revenue Source	Annual Average
State Gas Tax - Streets	$443,000
State Gas Tax - Bicycle & Pedestrian (1%)	$4,000
Local Gas Tax	$327,000
Street SDC	$40,000
Miscellaneous Revenues / Interest / Aid	$35,000
Total Revenues	**$849,000**

Note: Annual Average Based on 5-year history from fiscal year 2008/09 to fiscal year 2012/13

Current Expenditures

The expenditures incurred for the City to operate, maintain, and improve the transportation system include;

- street maintenance,
- street sweeping,
- capital improvements and purchases,
- SDC-related buildings and improvements,
- departmental and contractual services, and
- administrative costs.

Capital improvement expenditures may include projects that expand the existing transportation system (e.g., new transportation facilities or intersection improvements) or maintain it (e.g., repaving or purchasing maintenance equipment).

Table 2: Cottage Grove Transportation Expenditures Summary (2014 dollars)

Revenue Source	Annual Average
Street Maintenance	$402,000
Street Sweeping	$80,000
Capital Improvements/Purchases - Street	$98,000
Buildings and Improvements - Bicycle/Pedestrian	$44,000
Buildings and Improvements - SDC	$33,000
Administration and Services	$180,000
Total Expenditures	**$837,000**

Note: Annual Average Based on 5-year history from fiscal year 2008/09 to fiscal year 2012/13

Project-Specific Funding

In addition to the recurring sources of revenues described previously, Cottage Grove may expect to receive project-specific funding through federal or state programs. This type of external funding is not received annually, but is often relied upon to complete critical transportation improvements.

The most significant funding opportunity for transportation improvement projects in Oregon is the Statewide Transportation Improvement Program (STIP). ODOT modified the process for selecting projects that receive STIP funding in 2012. The new process follows a jurisdictionally blind approach, meaning local agencies can receive funding for projects off the state system. Focus projects are expected to be those that enhance system connectivity and improve multi-modal travel options. In the short-term, funding for local roads will be allocated to primarily focus on a few systemic low cost fixes that can be implemented in the shorter timeframe. With the updated TSP, the City will be prepared to apply for STIP funding.

Another potential funding source is the ODOT Highway Safety Improvement Program (HSIP). Oregon's funding under the HSIP increased significantly and with direction from the Federal Highway Administration to address safety challenges on all public roads, ODOT will likely increase the amount of funding available for safety projects on local roads. Safety funding will be distributed to each ODOT region, which will collaborate with local governments to select projects that can reduce fatalities and serious injuries, regardless of whether they lie on a local road or a state highway[1].

The current 2012-2015 STIP and previous 2008-2011 STIP identified three projects in Cottage Grove, including the reconstruction of the OR 99 and Main Street intersection and traffic signal improvements on OR 99. The total STIP contributions for these projects were estimated to be approximately $2 million dollars.

While a specific funding source has not been determined, it is reasonably likely that some grant or aid programs will make funding available through the TSP horizon year of 2035. Recognizing that the OR 99 and Main Street reconstruction was an unusually large investment for Cottage Grove, a conservative estimate for the next 20 years is $3 million in project-specific funding from external sources.

[1] ODOT Jurisdictionally Blind Safety Program, http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/Blind-Safety.aspx

City of Cottage Grove Funding Projection

Over the last five years, transportation-related revenues (approximately $849 thousand per year) have slightly exceeded transportation-related expenditures (approximately $837 thousand per year) in Cottage Grove. The historical funding and expenditures are used together with assumptions about growth to estimate the available funding for transportation projects through 2035.

Projected Revenues

Current revenue sources are expected to provide about $26 million through 2035 (see Table 3). Although there is no index for cost inflation, the revenue sources based on gas taxes should increase in proportion to the City's population growth. As a conservative estimate,[2] the same levels of annual funding are assumed through 2035. It should be noted that technological advances may further improve vehicle fuel efficiency, potentially resulting in lower revenues unless funding methodologies are modified.

Preliminary estimates of system development charges through 2035 indicate $5.6 million for SDC-eligible transportation improvements may be available (based on forecasted population and employment growth through 2035)[3].

Table 3: Revenue Projection through 2035 (in 2014 dollars)

Revenue Source	Total (in Millions of Dollars)
State Gas Tax - Streets[4]	$9.3
State Gas Tax - Bicycle & Pedestrian (1%)	$0.1
Federal or State Project Funding/Grants	$3.0
Street SDC	$5.6

[2] The population growth rate in Cottage Grove was assumed to be roughly the same as the cost inflation rate, therefore, existing revenues were maintained through 2035.

[3] Oregon Revised Statutes sections 223.205 through 223.295 (Bancroft Bonding Act) provide property owners with a deferred financing option for SDC's. Since residents can defer SDC payments up to a period of 10 years in accordance with the state law, the City may not realize the full SDC revenue estimated until several years beyond 2035. However, the City will continue to receive deferred payments from residents who chose this payment method from previous years, therefore the SDC revenue estimate was maintained through 2035.

[4] Restrictions exist for spending of STP funds, depending on federal street classification. Funds need to be "defederalized" at a rate of $0.94 per $1.00 if used for projects on streets that are not classified as Federal Aid Urban (FAU) streets, or for projects where other federal funding sources has been identified. STP funds used for projects on Federal Aid Urban streets and that do not have other federal funding sources identified would not need to be defederalized. Most streets that have a City functional class of collector or arterial are included in the list of FAU Streets.

Revenue Source	Total (in Millions of Dollars)
Local Gas Tax	$6.9
Current Fund Balances	$1.1
Total Revenues	**$26.0**

Projected Expenditures

City expenditures for maintenance, operations and management of the transportation system are expected to top $15 million through 2035 (based on expenditures over the past five years). The funding expenditures estimate includes maintenance, sweeping, and capital projects that preserve the existing transportation system. Also included are departmental, administrative, contractual and service costs associated with managing, operating and maintaining the transportation system. Transportation projects that improve the current transportation system are not included.

Table 4: Operations and Maintenance Expenditure Projection through 2035 (in 2014 dollars)

Expenditures	Total (in Millions of Dollars)
Street Maintenance	$8.4
Street Sweeping	$1.7
Street Preservation Projects	$1.5
Bicycle/Pedestrian Preservation Projects	$0.1
Administration and Services	$3.8
Total Expenditures	**$15.5**

It is important to note that the current spending on maintenance and preservation activities has not kept up with the desired quality for infrastructure. To address deferred maintenance and future needs, maintenance costs may be higher than the historical spending indicates.

Funding Balance

Overall, Cottage Grove is expected to have about $10.5 million available to fund transportation solution projects and strategies through 2035. The City may wish to consider expanding its funding options in order to provide a funding strategy that will enable desired improvements to be constructed in a timely manner.

Potential Additional Funding Sources

New transportation funding options include local taxes, assessments and charges, and state and federal appropriations, grants, and loans. All of these resources can be constrained based on a variety of factors, including the willingness of local leadership and the electorate to burden citizens and businesses; the availability of local funds to be dedicated or diverted to transportation issues from other competing City programs; and the availability of state and federal funds. Nonetheless, it is important for the City to consider available opportunities for enhancing funding for the transportation improvements that will be identified in the TSP.

The following sources have been used by other cities to fund the capital and maintenance aspects of their transportation programs. There may be means to begin to or further utilize these sources, as described below, to address needs identified in the TSP.

Transportation Utility Fee

A transportation utility fee is a recurring monthly charge that is paid by all residences and businesses within the City. The fee can be based on the number of trips a particular land use generates or as a flat fee per unit. It can be collected through the City's regular utility billing. Existing law places no express restrictions on the use of transportation utility fee funds, other than the restrictions that normally apply to the use of government funds.[5] Some cities utilize the revenue for any transportation related project, including construction, improvements and repairs. However, many cities choose to place self-imposed restrictions or parameters on the use of the funds.

Assuming a flat fee of $5.00 per month per water meter for residences in the City, the City could collect an additional $9 million for transportation related expenses through 2035.

Local Fuel Tax

Besides Cottage Grove, thirteen other cities and two counties in Oregon have adopted local gas taxes ranging from one to five cents per gallon. The taxes are paid to the city monthly by distributors of fuel. Cottage Grove may consider implementing a seasonally adjusting fuel tax rate. Newport, for example, increases its local gas tax during the summer months to place more of a burden on visitors. This means some of the costs for the transportation improvements in the City would be shared by non-residents.

[5] Implementing Transportation Utility Fees, League of Oregon Cities

While Cottage Grove's motor vehicle traffic trends do not spike as dramatically as some coastal communities, traffic is nonetheless higher in the summer months. If increased from three cents through five cents during the summer months, a conservative estimate of one million dollars could be generated through 2035. The process for presenting such a tax to voters would need to be consistent with Oregon State law as well as the laws of the City.

Local Hotel/Lodging Tax

Many Oregon jurisdictions impose a local hotel tax which charges a transient room tax. Some portion of the tax may be dedicated to transportation projects. This tax places more of the cost burden for the transportation improvements in the City on non-residents.

General Fund Revenues

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

Local Improvement Districts

Local Improvement Districts (LIDs) can be formed to fund capital transportation projects. LIDs provide a means for funding specific improvements that benefit a specific group of property owners. LIDs require owner/voter approval and a specific project definition. Assessments are placed against benefiting properties to pay for improvements. LIDs can be matched against other funds where a project has system wide benefit beyond benefiting the adjacent properties. Fees are paid through property tax bills. LIDs are often used for sidewalks and pedestrian amenities that provide local benefit to residents along the subject street.

Debt Financing

While not a direct funding source, debt financing can be used to mitigate the immediate impacts of significant capital improvement projects and spread costs over the useful life of a project. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but is also viewed as an

equitable funding strategy, spreading the burden of repayment over existing and future customers who will benefit from the projects. The obvious caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

The Oregon Transportation Infrastructure Bank (OTIB) is a potential source for cities to borrow funds for transportation improvement projects. The OTIB is a statewide revolving loan fund. Projects eligible to receive funding include roadway improvements, bicycle and pedestrian access, and transit capital projects. Potential projects are rated by OTIB staff along with a regional advisory committee and require approval from the Oregon Transportation Commission[6].

[6] Oregon Transportation Infrastructure Bank, http://www.oregon.gov/ODOT/cs/fs/Pages/otib.aspx

Technical Memorandum #5

DATE: July 23, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP, Kevin Chewuk, PTP

SUBJECT: **Cottage Grove Transportation System Plan Update**
Existing Conditions Evaluation

This memorandum presents the evaluation of the existing transportation system in Cottage Grove. Questions addressed in this document include:

- What makes Cottage Grove unique?
- Where do people want to go?
- How do people get there?
- What transportation infrastructure is available?
- How well does the system perform?
- What conditions do transportation system users face?

What makes Cottage Grove unique?

The City of Cottage Grove is located along Interstate 5 (I-5) in central western Oregon. Cottage Grove offers small town charm with convenient access to the Eugene-Springfield Metropolitan Area, approximately 20 miles to the north. Located in southern Lane County, the City has affordable housing, a strong school system, a supportive government, and numerous public parks, trails, and attractions. The attractiveness of the community is evident by the population growing approximately 15 percent from 8,445 in 2000 to 9,686 in 2010, according to the U.S. Census.

Cottage Grove has twice been honored as an "All American City" and is known as the "Covered Bridge Capital of Oregon". Downtown has many shops and restaurants and is designated as a National Historic District. The Cottage Theatre, the Speedway, the Rodeo and two community golf courses offer activities for residents and visitors alike.

Chambers Railroad Bridge

The location of Cottage Grove provides many opportunities for recreational activities. The City lies at the confluence of the Row River and the Coast Fork Willamette River, with Dorena Lake and Cottage Grove Lake nearby. The renowned Row River Trail and Covered Bridges Scenic Bikeway connect these natural areas with the attractions of the City.

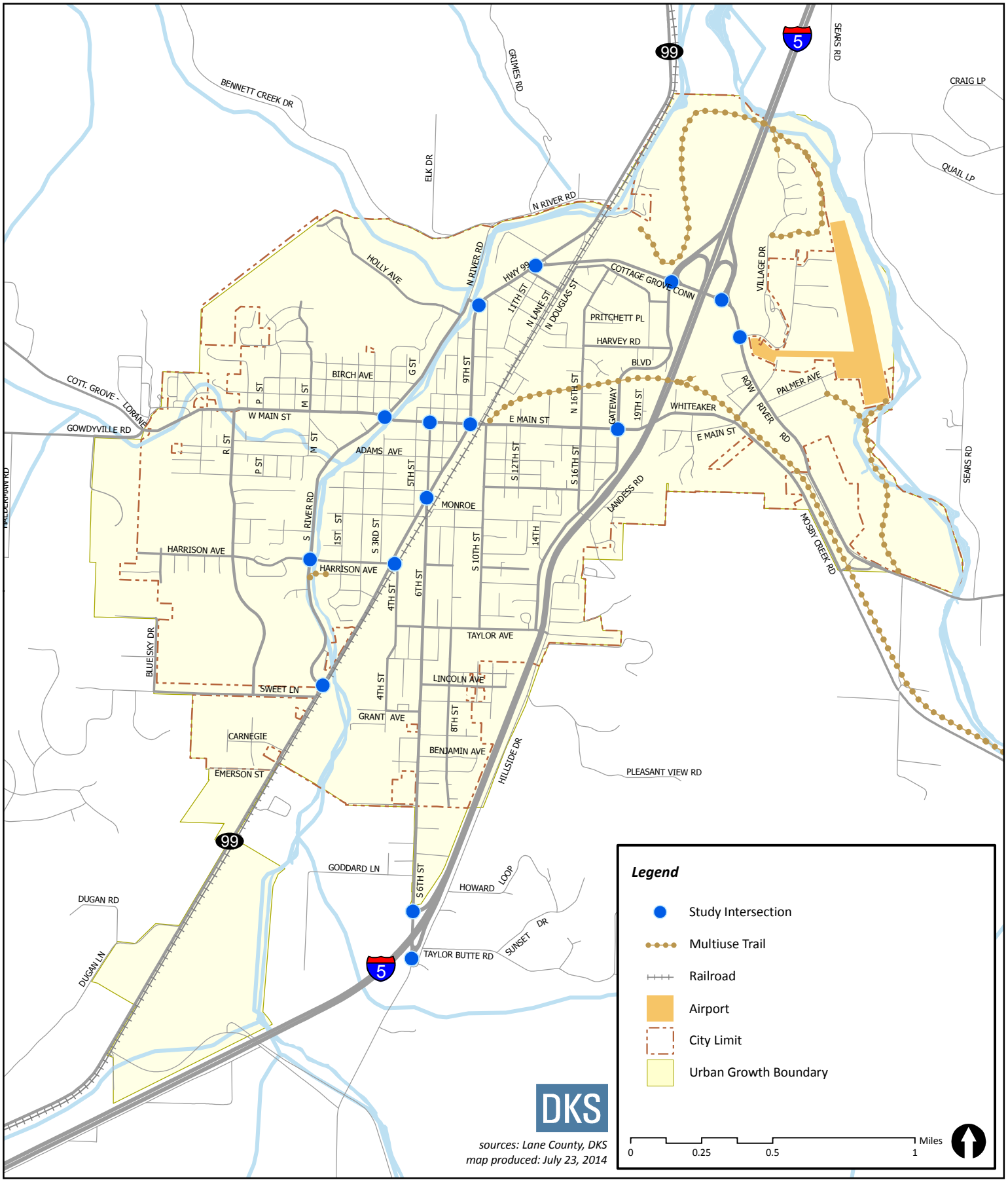
The City is oriented around the downtown historic district. A grid network of streets is crossed by the Goshen Divide Highway (OR 99), the principal north-south arterial through the center of town, and I-5, the primary connection to areas outside of the City. Main Street serves as the major east-west route and the Cottage Grove Connector provides access between I-5 and OR 99 in northern Cottage Grove. Figure 1 shows the roadway network of the City, along with the fifteen TSP study intersections.

Signs to Tourist Attractions

Transportation System Plan

FIGURE 1

Study Area



Legend

- Study Intersection
- Multiuse Trail
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: July 23, 2014

Where do people want to go?

Planning for a transportation system that meets the City's needs requires an understanding of key travel destinations inside and outside of the City. Demand for travel is created by locations where people go to work, to school, or to take care of other daily needs. These key destinations can be thought of as activity generators, or trip attractors. Activity generators represent important starting and ending points for travel in Cottage Grove, and they provide a basis for assessing important travel routes.

Within the City

Activity generators may be destinations that residents use for their daily needs, or they may be attractions that draw travelers from around the region. Activity generators in Cottage Grove may be categorized as:

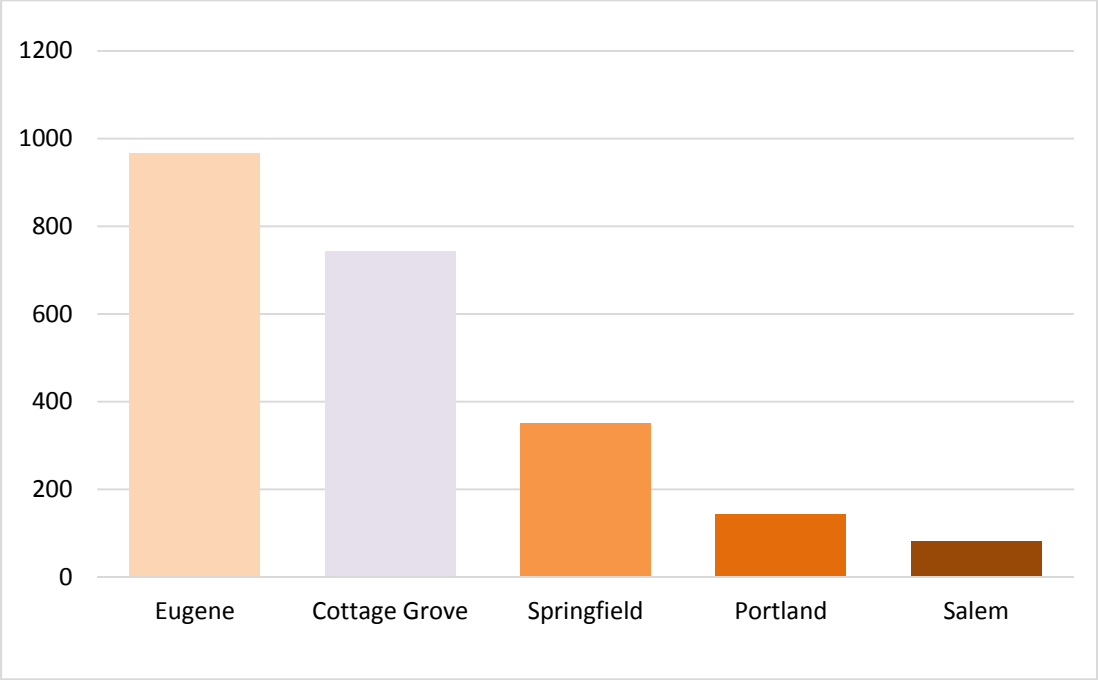
- Places of employment (e.g., business and industrial locations)
- Shopping (e.g., grocery stores, restaurants)
- Schools
- Recreational (e.g., parks, trails)
- Tourist Locations (e.g., Downtown Historic District, Chambers Railroad Bridge)
- Bus stops

Outside of the City

Safe and efficient access to areas outside of the City is critical for maintaining the economic vitality of Cottage Grove. Many employers in the area depend on convenient roadway access, especially via I-5, to connect to customers outside of the City. Other employers need mobility to be maintained to efficiently meet business needs. Many residents of Cottage Grove also rely on convenient travel to reach employment opportunities outside of the City. Census data shown in Figure 2 indicate that more Cottage Grove residents work in Eugene than within Cottage Grove itself.

Sign to I-5 on OR 99

Figure 2: Top 5 Commute Destinations for Cottage Grove Residents



Source: US Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2011 Primary Jobs.

How do people get there?

Planning for an effective transportation system also means understanding how residents, workers, and students choose to travel to and from destinations, whether by foot, bicycle, bus, car, or other mode. Understanding mode choice includes assessing existing travel patterns and activity levels, and looking at the underlying factors particular to Cottage Grove that inform decisions.

Mode Choice Factors

The choice of how to travel to a destination involves a variety of factors, including which modes are available and what one's habits are. When considering whether a trip will be taken by motor vehicle, walking, bicycle, or transit, the underlying factors affecting choice are typically ease and convenience of travel, travel cost, and travel time. These factors in turn depend on the particular destination, barriers to travel, and demographic characteristics such as age and income.

Age and Income

Demographic characteristics like age and income can significantly influence decisions about mode of travel. Vehicle ownership has a strong impact on mode choice, and lower income residents are less likely to own one or more vehicles. Therefore, lower income residents often account for more trips via walking, biking, and public transportation. Table 1 shows that Cottage Grove has a higher proportion of households with income under $25,000 and lower median household income than Oregon as a whole.

Table 1: Household Income Comparison

Age	Cottage Grove	Oregon
Under $25,000	37%	24%
$25,000-$49,999	26%	26%
$50,000-$74,999	35%	43%
$75,000-$149,999	15%	14%
$150,000 and over	2%	7%
Median Household Income	**$35,000**	**$50,000**

Source: Table DP03, American Community Survey 5-Year Estimates, 2008-2012

Age is another key factor in determining mode choice decisions, as the youngest residents cannot drive, and the oldest residents are less likely to drive. Table 2 shows that Cottage Grove has higher proportion of school age children than the state of Oregon, with 17% of the population being between 5 and 14 years old. Cottage Grove also has a slightly higher percentage of people who are at retirement age or older. The percentage of the people who are at the age most likely to drive (between 15-64 years of age) is approximately 6% lower in Cottage Grove than for Oregon as a whole.

Table 2: Age Comparison

Age	Cottage Grove	Oregon
Under 5 years old	7%	6%
5-14 years old	17%	13%
15-64 years old	61%	67%
65 years old and over	15%	14%
Median age	**36**	**38**

Source: Table DP05, American Community Survey 5-Year Estimates, 2008-2012

Destinations

Cottage Grove residents use the transportation system to make many types of trips, including work, school, shopping, and recreation. The type of trip strongly influences the mode of transportation chosen. If the trip is destined to a park or an elementary school, then there is a higher likelihood that one will walk or bike because these destinations often exist in one's neighborhood. Conversely, if the trip destination is work or shopping, a motor vehicle may be more convenient for longer distance trips.

Commute time data shown in Table 3 indicate that 45% of Cottage Grove residents who commute travel between 25 and 45 minutes to reach work. In comparison, 41% of commuters travel less than 15 minutes, sufficient for most trips within Cottage Grove. These statistics reflect that a significant portion of Cottage Grove residents travel to the Eugene-Springfield area for work.

Table 3: Commute Time to Work Comparison

Age	Cottage Grove	Oregon
Less than 15 minutes	41%	34%
15-24 minutes	7%	31%
25-34 minutes	38%	18%
35-44 minutes	7%	5%
45 minutes or more	7%	11%
Median commute time	**24 minutes**	**22 minutes**

Source: Table S0802, American Community Survey 5-Year Estimates, 2008-2012

Barriers to Travel

Since Cottage Grove is a relatively small city, many destinations are within reasonable walking or biking range. However, people may become discouraged from walking or biking when convenient connections to desired destinations are restricted by barriers to travel. Examples of barriers in Cottage Grove that limit direct and comfortable connections include:

- Natural features (e.g., rivers, wetlands, hills)
- Limited crossing opportunities (e.g., I-5, OR 99, Railroads)
- Uncomfortable travel conditions (e.g., along high speed roadways)
- Infrastructure gaps (e.g., lack of sidewalks, inconsistent bike lanes)

Commuter Mode Choice

Travel occurs for many reasons, including school, shopping, and recreation. The trip type that people most commonly associate with traffic problems is their work trip, which often occurs during peak traffic conditions. The majority of Cottage Grove residents commute to work by driving (75% alone and 8% with others). Walking (7%) and working from home (8%) make up a significant share of Cottage Grove commutes, while public transportation (<1 %) and bicycling (2 %) are not common. Table 4 compares the mode choices of Cottage Grove residents to the statewide values for Oregon. Overall motor vehicle use is similar, while walking and working from home are utilized more frequently.

Table 4: Commuter Mode Choices

Age	Cottage Grove	Oregon
Motor Vehicle (Single Occupant)	75%	72%
Motor Vehicle (Shared Ride)	8%	11%
Walk	7%	4%
Bike/Other	2%	3%
Public Transportation	<1%	4%
Worked from Home	8%	6%

Source: Table DP03, American Community Survey 5-Year Estimates, 2008-2012

While data on commute-to-work mode choice is important in understanding major travel patterns, it is important not to confuse this with overall levels of activity for different travel modes. Work trips for many Cottage Grove residents cover long distances. Walking or biking trips are more likely for shorter non-work trips to and from other activity generators like schools, trails, and shopping locations.

Existing Activity Levels

Pedestrian, bicycle, and motor vehicle activity was measured at key intersections throughout Cottage Grove during the afternoon peak period (4:00 p.m. to 6:00 p.m.) on a typical weekday.[1] Activity levels generally increase during summer months due to

[1] Counts were collected on Tuesday, March 4th and Wednesday, March 5th, 2014. PM peak period counts were taken from 4 p.m. to 6 p.m. at each study intersection. An additional hour of turn movement counts was collected from 3 p.m. to 4 p.m. at four intersections on OR 99 (at Main Street, 6th Street, 4th Street, and S.River Road). In addition, two 24-hour traffic volume, speed, and vehicle classification counts were collected at OR 99 near Geer Avenue and Main Street between 6th Street and 7th Street.

generally pleasant weather and longer days enticing residents and visitors to get out and travel to various activity generators throughout the city. Weekend pedestrian and bicycle activity levels in the summer are generally higher than the activity levels of a typical weekday. The pedestrian and bicycle activity levels at the study intersections during the afternoon peak period are displayed in Figure 3.

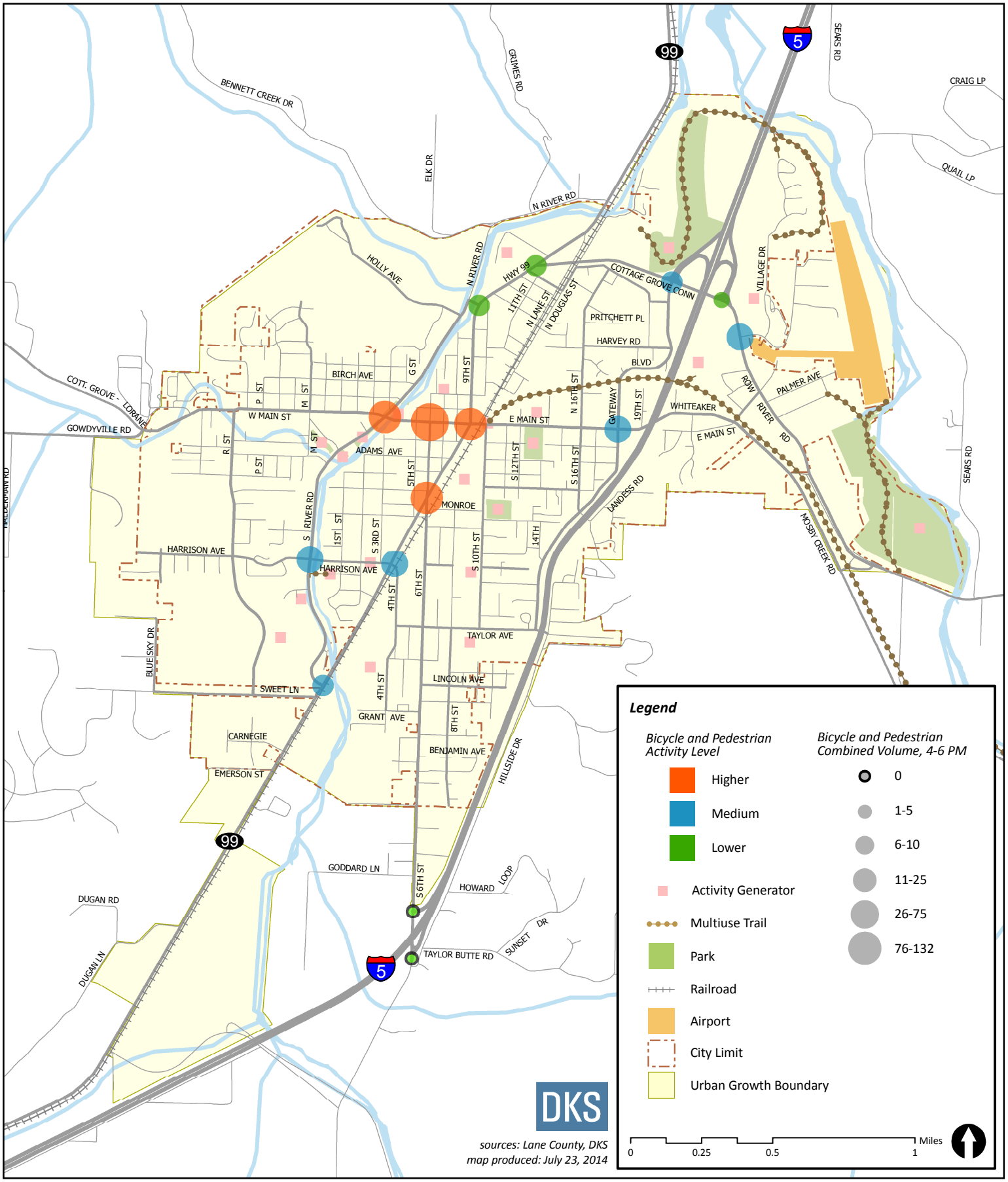
- Pedestrian volumes are generally highest near downtown Cottage Grove, including along Main Street, 6th Street, and OR 99. The highest hourly pedestrian activity during the afternoon peak occurred at the Main Street intersection with 6th Street, with 121 pedestrian crossings in the two-hour period between 4:00 p.m. and 6:00 p.m. Pedestrian activity is high due to the adjacent retail and commercial opportunities.
- Bicycle volumes are generally low during the afternoon peak period, with 12 of the 15 study intersections having fewer than two observed bicyclists during the reviewed hours. The Main Street/River Road intersection and Main Street/6th Street intersections had the highest observed bicycle volumes, with 17 and 11 bicyclists, respectively, counted during the two hour period.
- Motor vehicle volumes on the roadways in Cottage Grove peak during weekday afternoons around 4:00 p.m., but generally vary depending on the time of year. During the summer months, traffic volumes increase due to an increase of recreational and leisure travelers taking advantage of the nice weather. For this reason, the traffic count data was adjusted upward to represent peak seasonal traffic conditions.[2] The peak seasonal traffic volumes developed for the study intersections are summarized in Table 5 and detailed in the Technical Appendix.

[2] Peak seasonal traffic volumes are developed in accordance with methodologies outlined in the ODOT Analysis Procedure Manual (Chapter 5, Version 2, Last Updated 02/2014). Traffic counts are converted to "design hour" volumes that represent the 30th highest hour of traffic volume for the transportation system during the year. The design hour volumes are estimated by applying seasonal factors and other adjustments, as detailed in the Technical Appendix.

Transportation System Plan

FIGURE 0

Pedestrian and Bicycle Activity



Legend

Bicycle and Pedestrian Activity Level

- Higher
- Medium
- Lower
- Activity Generator
- Multiuse Trail
- Park
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

Bicycle and Pedestrian Combined Volume, 4-6 PM

- 0
- 1-5
- 6-10
- 11-25
- 26-75
- 76-132

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: July 23, 2014

Peak seasonal motor vehicle volumes are highest along OR 99, the Cottage Grove Connector, Row River Road, Gateway Boulevard, and Main Street. Motor vehicle volumes on these roadways generally range between 400 and 700 vehicles per direction during the afternoon peak hour. The intersection with the largest afternoon peak traffic volumes is the I-5 Southbound Ramp/Gateway Boulevard intersection at the Cottage Grove Connector/Row River Road. Afternoon peak hour traffic volumes are also high at the Main Street intersections at OR 99 and Gateway Boulevard, with over 1,600 and 1,400 vehicles passing through the intersections during the peak hour, respectively.

Table 5: Peak Hour Traffic Volumes

Intersection	Entering Traffic Volume		
	Major Street Approaches	Minor Street Approaches	Intersection Total
I-5 SB Ramps/Cottage Grove Connector/Gateway Boulevard/Row River Road	1,305	655	1,960
OR 99/Main Street	840	810	1,650
Main Street/Gateway Boulevard	905	525	1,430
I-5 NB Ramps/Row River Road	1,095	120	1,215
OR 99/Cottage Grove Connector	600	525	1,125
OR 99/Woodson Place	935	125	1,060
Jim Wright Way/Row River Road	815	135	950
OR 99/6th Street	685	235	920
Main Street/River Road	525	325	850
OR 99/4th Street	500	180	680
Main Street/6th Street	490	130	620
OR 99/S. River Road	380	40	420
I-5 NB On Ramp/6th Street	350	0	350
Harrison Avenue/River Road	175	175	350
I-5 SB Off Ramp/6th Street	220	125	345

Motor Vehicle Speeds

Traffic speed data were collected on OR 99 (south of the Geer Avenue) and Main Street (east of 6th Street) during a typical weekday in March 2014. The average recorded speed on OR 99 was 27 mph, exceeding the posted speed limit of 25 mph. Faster travelers went 33 mph,[3] while the top five percent of vehicles traveled 36 mph or faster. The average speed recorded on Main Street was 16 mph, with faster travelers going 22 mph.[4] These speeds are generally below the posted speed limit of 20mph, likely due to the frequency of traffic signals along this segment.

What transportation infrastructure is available?

Existing transportation infrastructure that residents use on a daily basis includes sidewalks, bike lanes, shared-use paths, roadways, and transit.

Pedestrian Facilities

Walking plays a key role in Cottage Grove's transportation network. Planning for pedestrians not only helps the city provide a complete, multi-modal transportation system, it supports healthy lifestyles and addresses a social equity issue, ensuring that the young, the elderly, and those not financially able to afford motorized transport have access to goods, services, employment, and education. Approximately seven percent of commuters in the city walk to work, with another one percent utilizing public transportation to get to work, which generally includes a walking trip at the beginning or end. In addition to the work commute trips, walking trips are made to and from recreational or shopping areas, schools, or other activity generators. Continuous sidewalk connections between all activity generators and arterial/collector roadways are desirable to allow for safe and attractive non-motorized travel options. Cottage Grove's walking network, shown in Figure 4, is composed of sidewalks, shared-use paths, and roadway shoulders.

Sidewalks are located along roadways, are often separated from the roadway with a curb and/or planting strip, and have a hard, smooth surface, such as concrete. The Oregon Department of Transportation (ODOT) standard for sidewalk width is six feet, with a minimum width of five feet acceptable on local streets. Lane County identifies a preferred design of six feet minimum for curbside sidewalks and five foot minimum for

[3] The 85th percentile speed represents the lowest speed recorded for the fastest 15% of vehicles.
[4] The 85th percentile speed represents the lowest speed recorded for the fastest 15% of vehicles.

setback sidewalks, with a minimum six foot wide planting strip. Cottage Grove requires sidewalks to be between five and twelve feet wide, depending on the street classification.

Most of the roadways in downtown Cottage Grove have sidewalks on both sides, and continuous sidewalks along Main Street link downtown with the Row River Trail to the east and Riverside and Veterans Parks to the west. Several north/south streets offer continuous sidewalk connections to Main Street, including R Street, 6th Street, OR 99, and Gateway Boulevard. Row River Road provides continuous sidewalks from the I-5 Interchange to the east City Limit. Beyond these areas, sidewalks are generally discontinuous or absent along streets throughout the City.

Shared-use paths serve a variety of non-motorized travelers, including pedestrians, bicyclists, skateboarders, and runners. Shared-use paths are typically paved (asphalt or concrete), but may also consist of an unpaved smooth surface as long as it meets Americans with Disabilities Act (ADA) standards. Shared-use paths are usually wider (e.g., 10 to 14 feet) than an average five-foot sidewalk. Shared-use paths currently exist along Main Street and Mosby Creek Road (Row River Trail), through Row River Nature Park connecting Davidson Avenue to Row River Road, and through North Regional Park and the Middlefield Golf Course.

Roadway shoulders serve as pedestrian routes in many rural Oregon communities. On roadways with low traffic volumes (i.e., less than 3,000 vehicles per day), shoulders may be adequate for pedestrian travel. These shoulders must be wide enough so that both pedestrians and bicyclists can use them, usually six feet or wider.

Crosswalks & ADA Ramps have been installed at many intersections in areas with high pedestrian use. However, there remain several areas outside of the downtown core where the curb ramp network is incomplete. This includes portions of roadways such as OR 99, River Road, 16th Street and the Cottage Grove Connector.

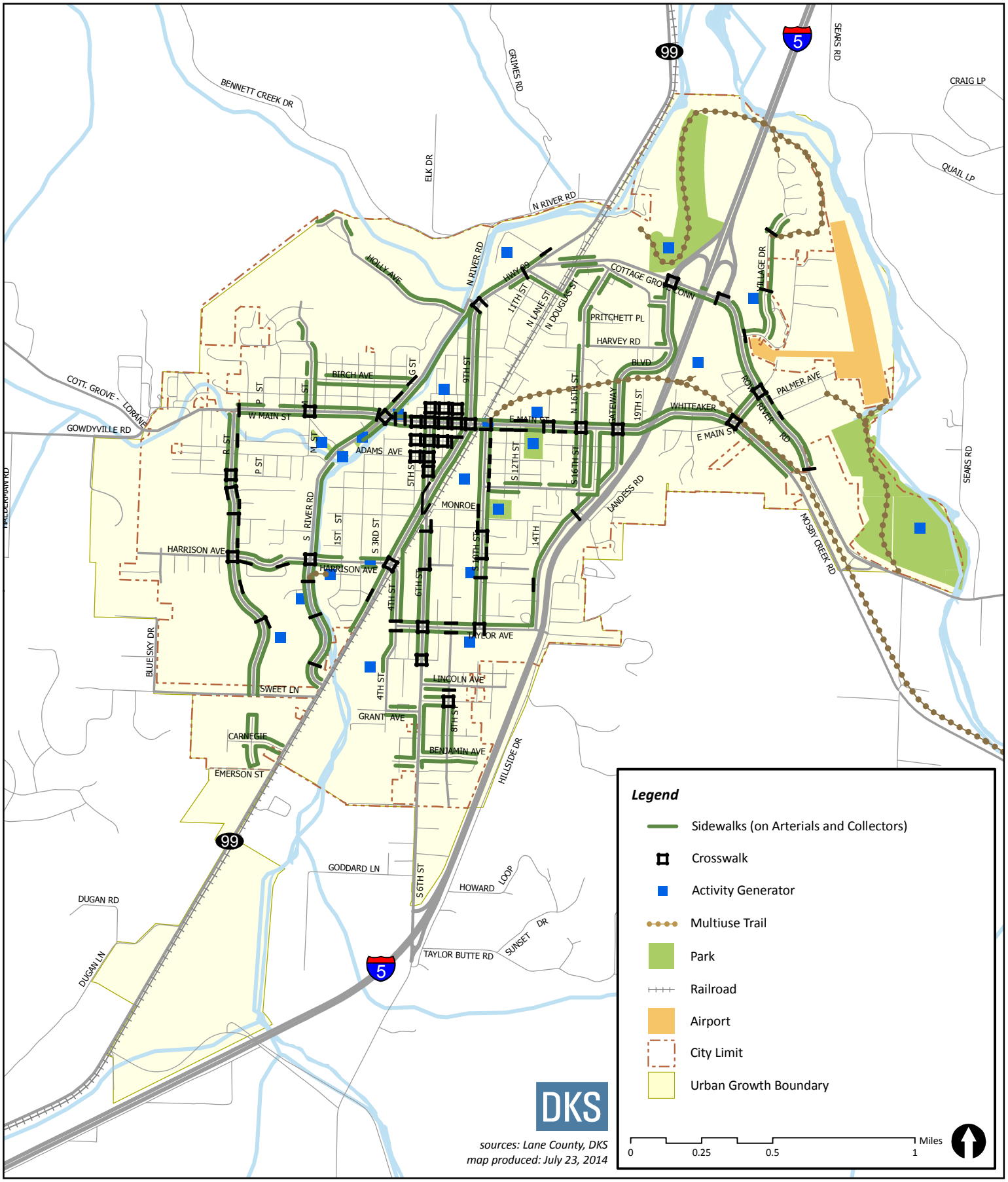
Bicycle Facilities

Cottage Grove's bicycling network, shown in Figure 5, consists of shared roadways, shoulder bikeways, bike lanes, and shared-use paths.

Transportation System Plan

FIGURE 4

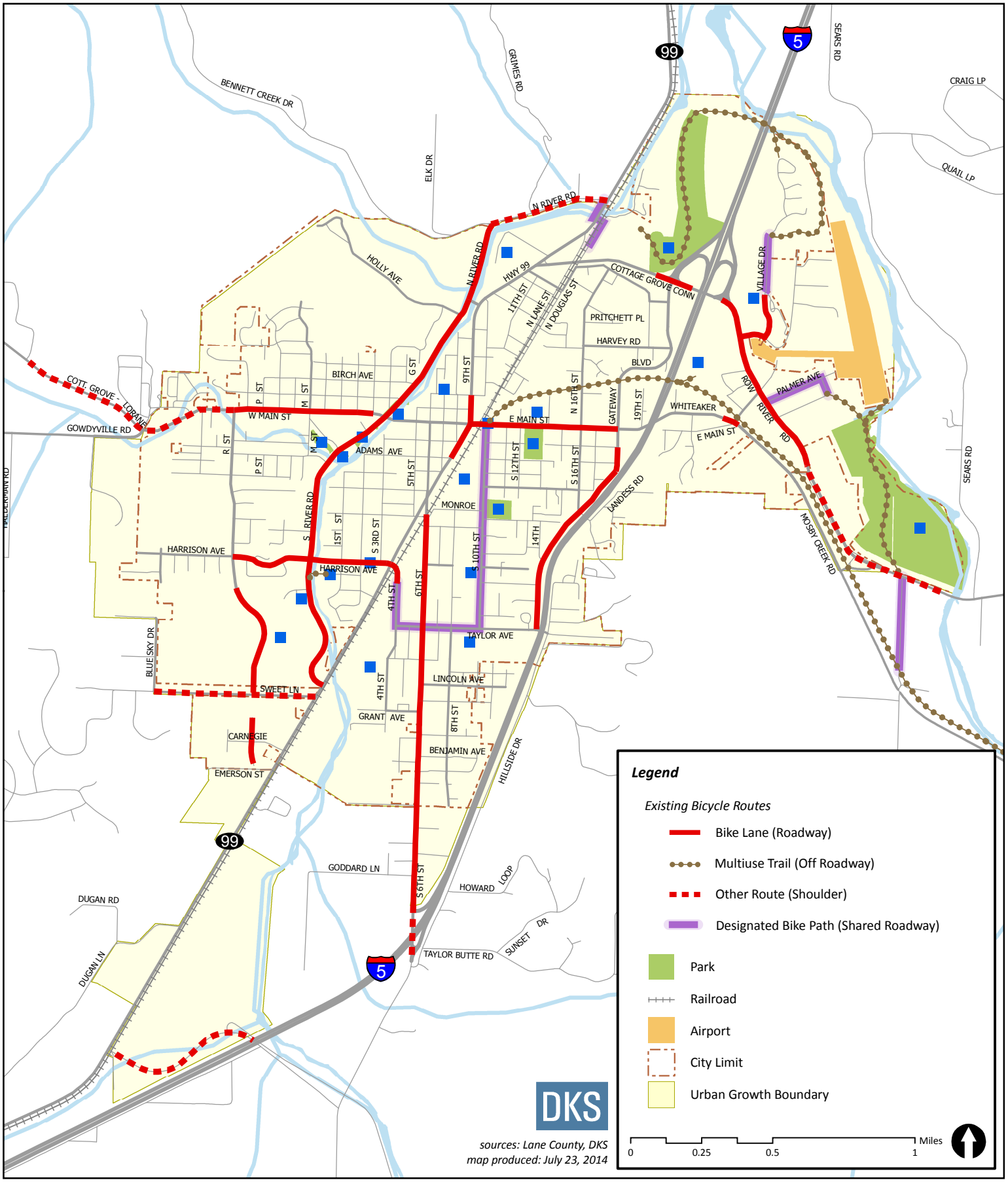
Pedestrian Facilities



Transportation System Plan

FIGURE 5

Bicycle Facilities



Shared roadways include roadways on which bicyclists and motorists share the same travel lane. The most suitable roadways for shared bicycle use are those with low speeds (25 mph or less) and low traffic volumes (3,000 vehicles of fewer per day). Shared roadways, often signed as bicycle routes, serve to provide continuity to other bicycle facilities (e.g., bicycle lanes) or can be designated as a preferred route through the community. Common practice is to sign a route with standard Manual on Uniform Traffic Control Devices (MUTCD) green bicycle route signs with directional arrows and/or pavement markings. Shared roadways can have signs that highlight a special route or provide directional information in bicycling minutes or distance.

Most local roadways in the city are considered shared roadways, but do not have signs or pavement markings. However, a loop bike route is designated that provides connections between several area attractions including the Row River Trail, North Regional Park, the Covered Bridge Scenic Bikeway, downtown, and Trailhead Park. The loop route utilizes multi-use trails, bike lanes, and shoulder bikeways and key connections of the loop are made via designated bike paths on shared roadways. These shared roadways are illustrated in Figure 5 and include portions of OR 99, 4th Street, Taylor Avenue, 10th Street, Palmer Avenue, and Village Drive.

Shoulder bikeways are paved roadways that have striped shoulders wide enough for bicycle travel. ODOT recommends a six-foot paved shoulder to adequately provide for bicyclists, and a four-foot minimum width in constrained areas. Roadways with shoulders less than four feet are considered shared roadways. Some shoulder bikeways are signed to alert motorists to expect bicycle travel along the roadway. Shoulder lanes adequate for bicycle travel are available along the segment of Lorane Highway, west of R Street, Row River Road east of the Currin Connector, and 6th Street south of the I-5 southbound ramp.

Bike lanes are portions of the roadway designated specifically for bicycle travel via a striped lane and pavement stencils. ODOT standard width for a bicycle lane is six feet. The minimum width of a bicycle lane against a curb or adjacent to a parking lane is five feet. A bicycle lane may be as narrow as four feet, but only in very constrained situations. Cottage Grove requires bike lanes to be five to six feet wide. Bike lanes are most appropriate on arterials and collectors, where high traffic volumes and speeds warrant greater separation of the travel modes. Existing bike lanes along Main Street are limited to the segments between R Street and I Street, and OR 99 to Gateway Boulevard. Off of Main Street, continuous bike lanes exist on both sides of River Road

between OR 99 and Bennett Creek Drive, and 6th Street south of OR 99. Other streets with bike lanes for short segments include R Street, Harrison Avenue, OR 99, Gateway Boulevard, Row River Road, and Jim Wright Way.

OR 99 Crosswalk with Bike Lane Markings

Shared-use paths provide off-street travel for bicyclists. Shared-use paths are typically paved (asphalt or concrete), but may also consist of an unpaved smooth surface as long as it meets Americans with Disabilities Act (ADA) standards. Shared-use paths, such as the Row River Trail along Main Street and Mosby Creek Road, are usually wider than an average sidewalk (e.g., 10 – 14 feet).

Bicycle Parking: End-of-trip bicycle facilities are a fundamental component of a bicycle network. Lack of safe and secure facilities for either short-term or long-term parking can be an obstacle to promoting bicycle riding.

Short-term parking accommodates visitors, customers, messengers, and others expecting to depart within two hours. It requires a standard rack, appropriate location and placement, preferably with some manner of weather protection.

Long-term parking accommodates employees, students, residents, commuters, and others who park for more than two hours. This parking requires secure and weather-protected facilities.

Downtown Parking

With a grid pattern of roadways, on-street parking is conveniently accessible and walk-able throughout the downtown core of Cottage Grove. Parking is available on all sides of most blocks between 5th Street and OR 99. In addition, the City has several public surface parking lots. One is located at the southwest corner of Main Street and 5th Street and others are off of Washington Avenue and Whiteaker Avenue near 7th Street and 8th Street. Most on-street parking on Main Street is restricted to two hours between 9 a.m. and 7 p.m.

Sign for Off-street Parking

Transit Service

Transit service is provided in Cottage Grove by the Lane Transit District (LTD) and South Lane Wheels (SLW). LTD provides fixed route bus service between Cottage Grove and Eugene. South Lane Wheels provides both a deviated schedule route service and demand responsive service to transportation disadvantaged residents and the general public. Transit routes and stop locations are shown in Figure 6.

Transit Access and Amenities: There are 22 LTD bus stops and five scheduled SLW stops in Cottage Grove. Only some of the bus stops offer benches and shelter, and some lack sidewalk connections to the surrounding neighborhoods and businesses. Most transit users in the city are less than a half mile from a bus stop. Park and ride facilities are provided for transit users at the Walmart parking lot, off Row River Road.

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

campus), and the LTD Park & Ride lot near Wal-Mart. LTD Route 98 operates nine times a day on weekdays, three times on Saturday, and twice on Sundays.

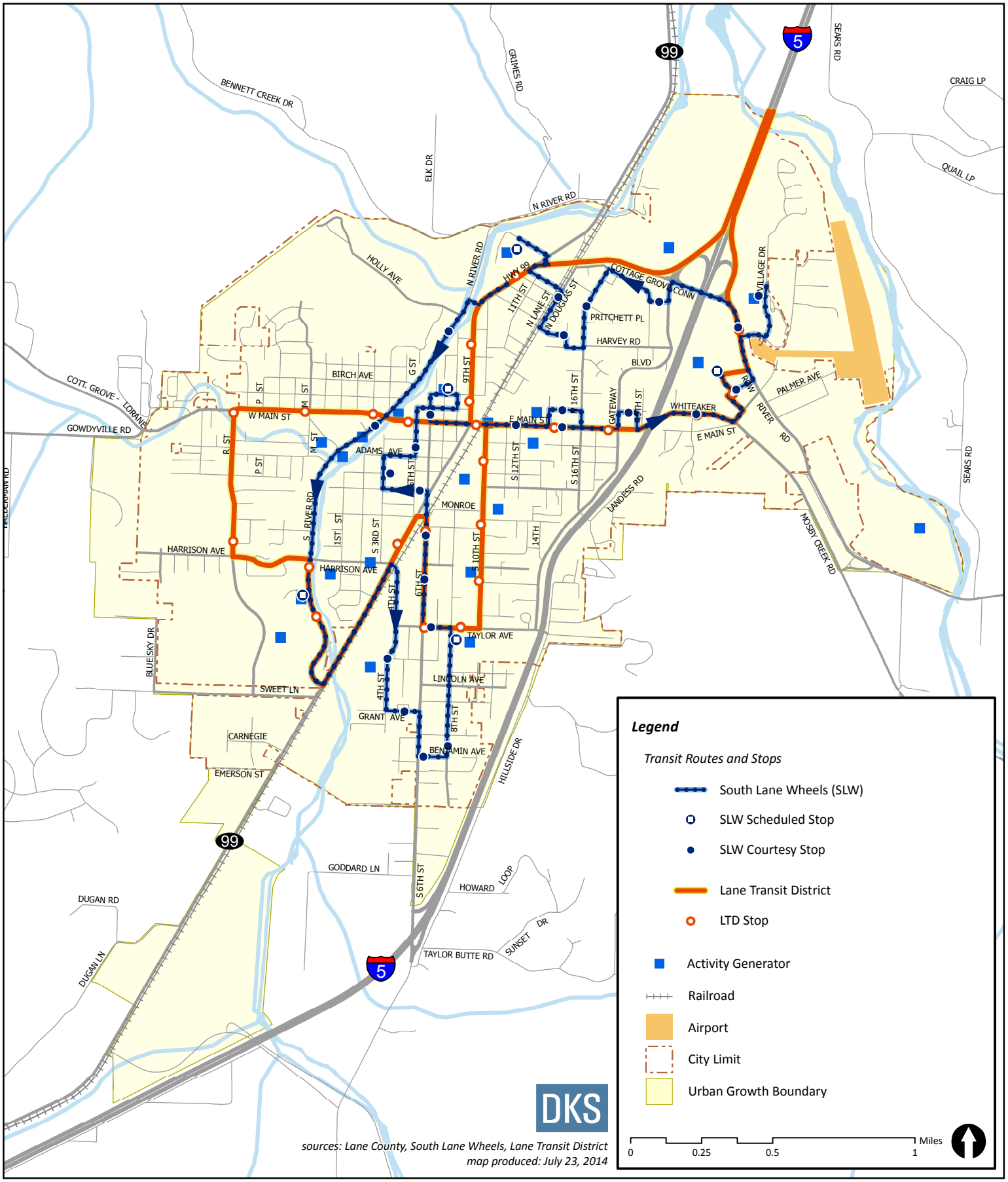
SLW provides service to Cottage Grove through its "Route Around Town". The route includes five schedules stops: at the Village Shopping Center, Downtown, Cottage Grove High School and the Lane Community College (Cottage Grove campus), Warren H Daugherty Aquatic Center and the LTD Park & Ride lot near Wal-Mart. The route also includes many other courtesy stops locations, as shown in Figure 6. Special detour service is available within 0.75 miles of the regular route. SLW operates the route four times per day. Standard fares, as of June, 2014, are $1.00 for a single ride and $2.00 for an all-day pass for youths, seniors, and low income residents. Rates for the general public are $2.00 for a single ride and $4.00 for an all-day pass. Children aged five or under ride free.

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

Transportation System Plan

FIGURE 6

Transit Routes



sources: Lane County, South Lane Wheels, Lane Transit District
map produced: July 23, 2014

Roadways

The major transportation route through Cottage Grove, OR 99, runs north to south bisecting the city. Parallel to OR 99, Cottage Grove roadways are fairly well connected and generally follow a grid pattern where practical. The Coast Fork Willamette River, railroad tracks, and I-5, however, limit continuous east to west routes through the city. Main Street and the Cottage Grove Connector/Row River Road are the only continuous east-west streets between OR 99 and the east side of I-5, forcing most drivers to use them for longer trips within the city. For these reasons, it becomes necessary to manage the existing roadways by determining how the traffic from various parts of Cottage Grove can be routed within the network in a logical and efficient manner.

Functional Classification: To manage the roadway network, the city classifies the roadways based on a hierarchy according to the intended purpose of each road (as shown in Figure 7). From highest to lowest intended usage, the classifications are interstate, principal arterial, minor arterial, collector, and local streets. Roadways with a higher intended usage generally provide more efficient traffic movement (or mobility) through the city, while roadways with lower intended usage provide greater access for shorter trips to local destinations such as businesses or residences.

- **Interstates** are limited access state roadways that serve high volumes of motor vehicle traffic and are primarily utilized for longer distance regional trips. I-5 has a posted speed limit of 65 miles per hour through Cottage Grove.
- **Principal Arterial Roadways** are intended to move traffic through Cottage Grove. These roadways generally experience higher traffic volumes and often connect to locations outside of the city or act as a corridor connecting many parts of the city (such as OR 99 or the Cottage Grove Connector). Posted speed limits on these roadways vary between 25 to 55 miles per hour, with the higher speeds posted in less urbanized areas and lower speeds in areas such as downtown, where there is more pedestrian activity, driveways, and intersection congestion.
- **Minor Arterial Roadways** are intended to serve local traffic traveling to and from principal arterial roadways. These roadways provide greater accessibility to neighborhoods, often connecting to major activity generators and provide efficient through movement for local traffic. Posted speeds on minor arterial roadways typically range between 30 and 45 miles per hour.
- **Collector Roadways** often connect neighborhoods to minor arterial roadways. These roadways serve as major neighborhood routes and generally provide more

direct property access or driveways than arterial roadways. Posted speeds on collector roadways generally range between 25 and 35 miles per hour.

- **Local Roadways** provide more direct access to residences in Cottage Grove. These roadways are often lined with residences and are designed to serve lower volumes of traffic with a statutory speed limit of 25 miles per hour.

ODOT and Lane County also classify roadways in Cottage Grove under their jurisdiction. Roadways under ODOT jurisdiction (see Figure 8) include the roadways that the city classified as Interstate (I-5), and Principal Arterial (i.e. OR 99, and the Cottage Grove Connector). The major characteristics of ODOT roadways in Cottage Grove are summarized in Table 6.

Table 6: ODOT Roadway Characteristics

Roadway	ODOT Classification	Special Designations	Cross section	Posted Speed
I-5	Interstate Highway	*	4 lanes	65 mph
OR 99	District Highway	**	2 to 4 lanes	25 - 55 mph
Cottage Grove Connector	District Highway***	N/A	2 lanes	25 – 35 mph

Source: Oregon Highway Plan (OHP), Appendix D

* I-5 through Cottage Grove is part of the National Highway System, and is a designated federal truck route and Oregon Freight Route.

** OR 99 through Cottage Grove is part of the National Highway System, and has a scenic byway designation from Main Street to the Cottage Grove Connector.

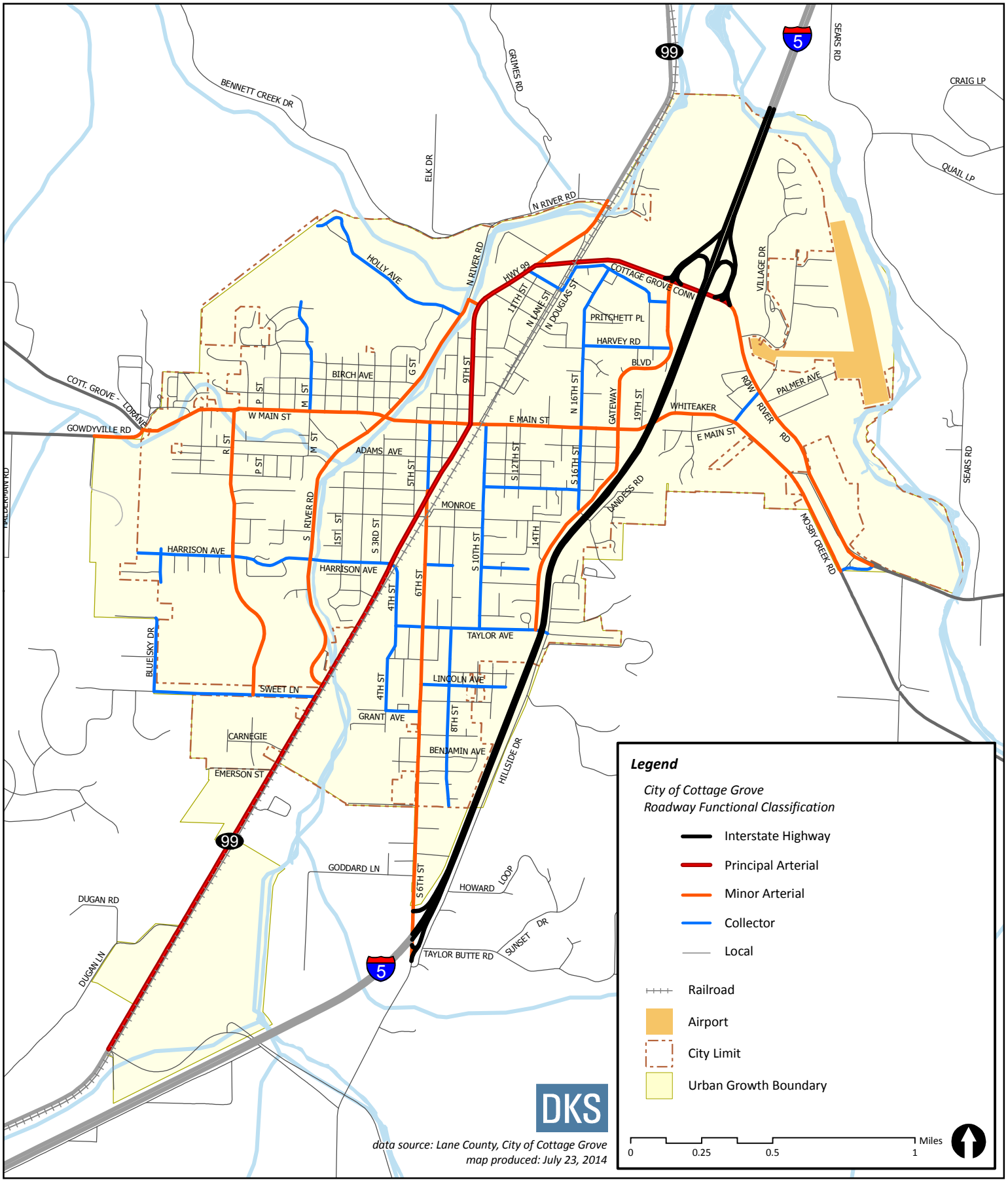
*** The Cottage Grove Connector was assumed as a District Highway.

All or portions of several significant roadways within the Cottage Grove Urban Growth Boundary are under Lane County jurisdiction, as shown in Figure 8. The County classifies Row River Road and the Currin Connector as urban minor arterials. The County classifies Cottage Grove-Lorane Road, Latham Road, Mosby Creek Road, and 6th Street as urban major collectors. Urban Minor Collectors include the Row River Connector (#1) and Sweet Lane. Other urban local roadways under County jurisdiction are also shown in Figure 8.

Transportation System Plan

FIGURE 7

Functional Class



Legend

City of Cottage Grove
Roadway Functional Classification

- Interstate Highway
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

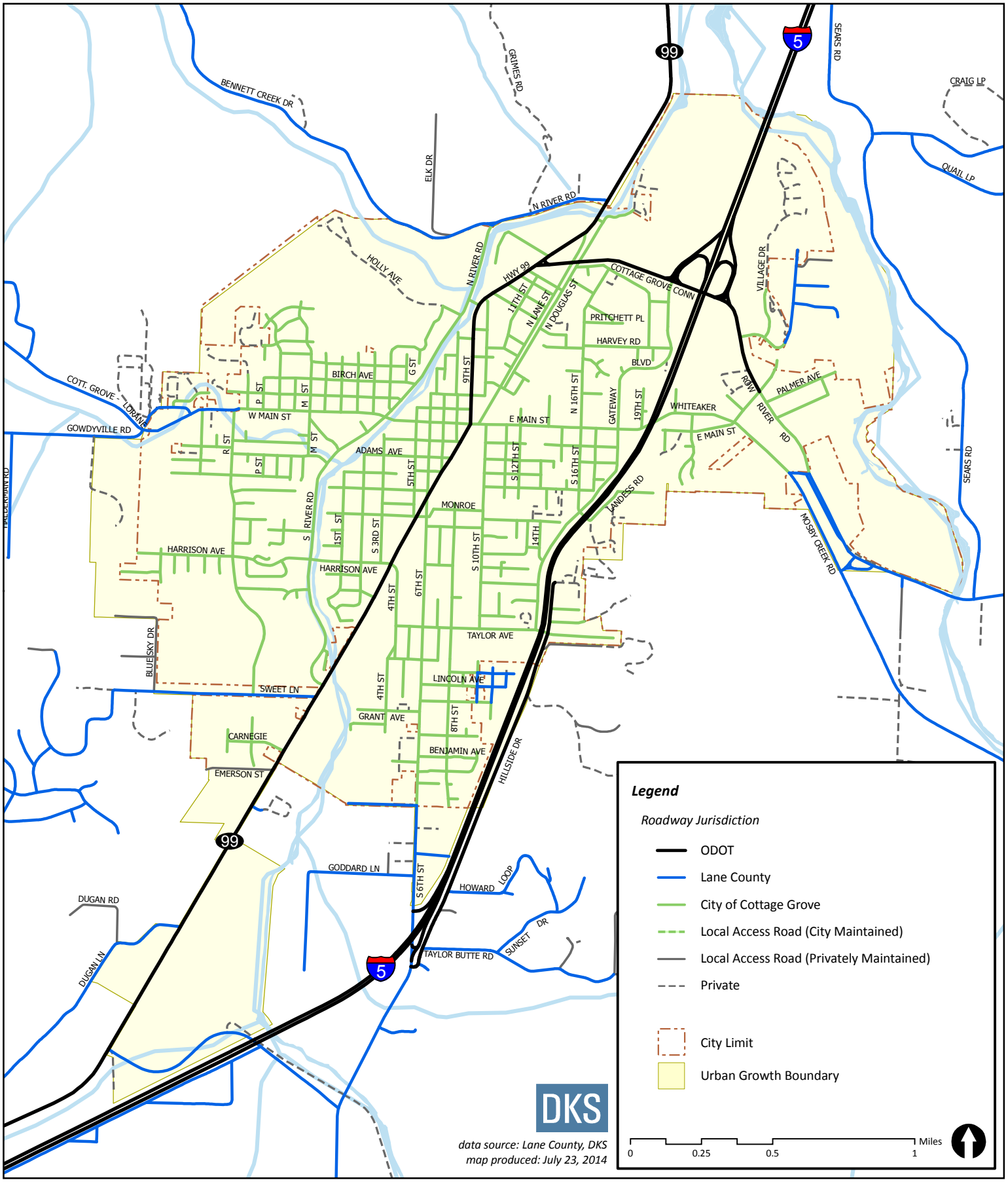
DKS

data source: Lane County, City of Cottage Grove
map produced: July 23, 2014

Transportation System Plan

FIGURE 8

Roadway Jurisdiction



Legend

Roadway Jurisdiction

- ODOT
- Lane County
- City of Cottage Grove
- Local Access Road (City Maintained)
- Local Access Road (Privately Maintained)
- Private

- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

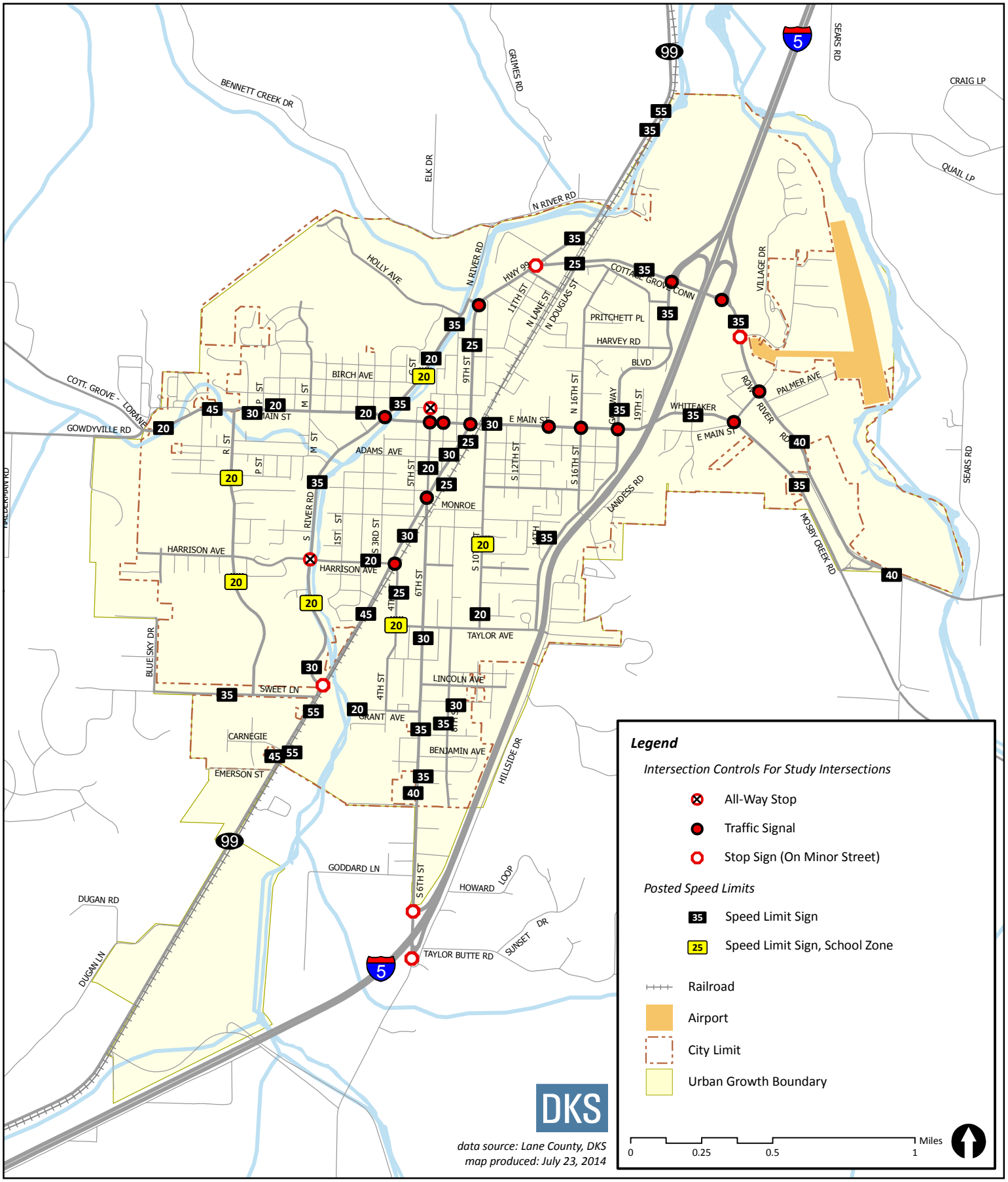
DKS

data source: Lane County, DKS
map produced: July 23, 2014

Transportation System Plan

FIGURE 9

Posted Speeds and Traffic Controls



Legend

Intersection Controls For Study Intersections

- All-Way Stop
- Traffic Signal
- Stop Sign (On Minor Street)

Posted Speed Limits

- 35 Speed Limit Sign
- 25 Speed Limit Sign, School Zone

- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

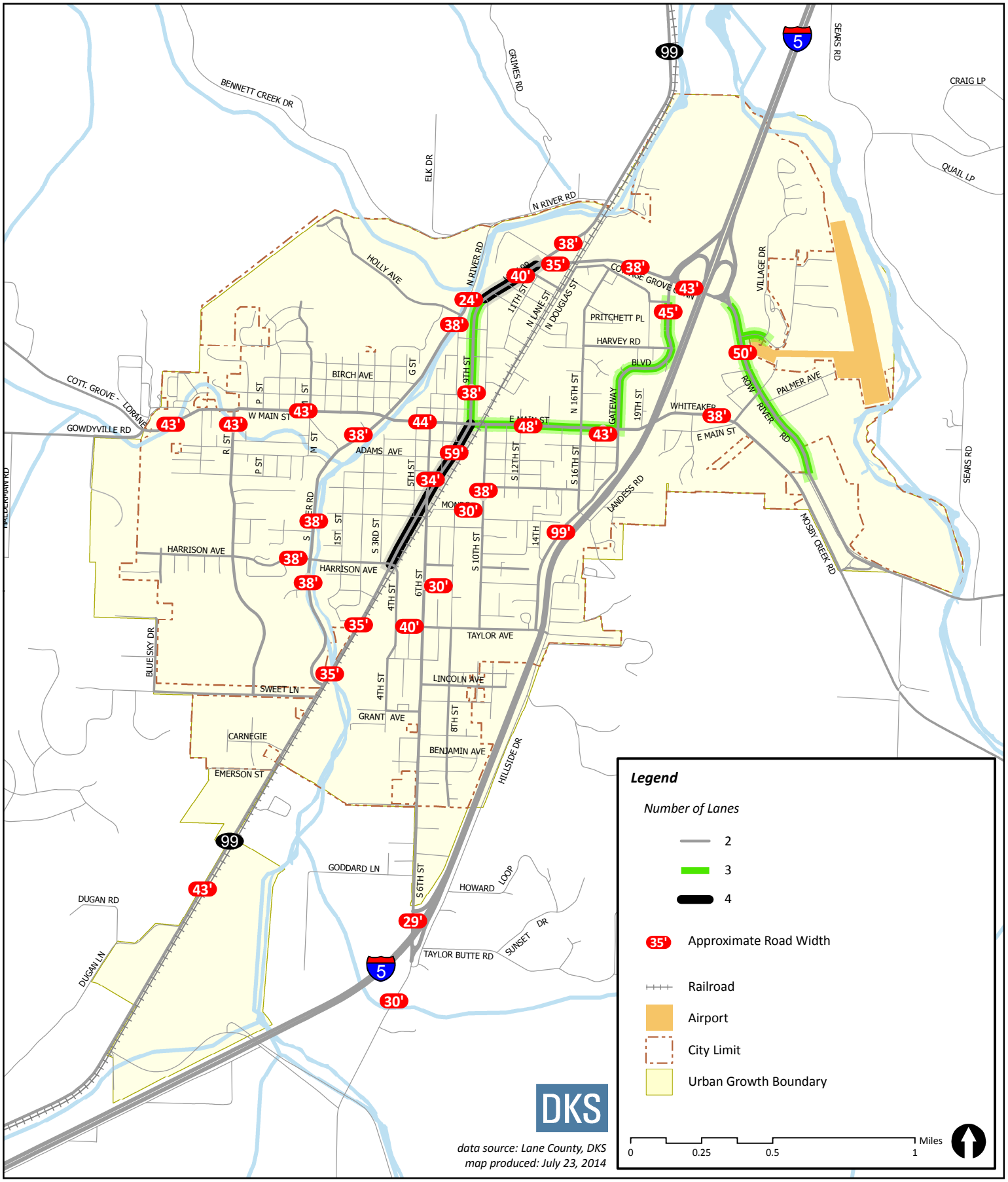
DKS

data source: Lane County, DKS
map produced: July 23, 2014

Transportation System Plan

FIGURE 10

Roadway Width and Number of Lanes



Freight

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement, while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. OR 99 through Cottage Grove is not classified by ODOT as a freight route, or a truck route by the federal government. The only designated route through Cottage Grove is I-5. Heavy vehicle volumes and percentages of the traffic stream were collected as part of the intersection turn movement counts and were used in intersection level of service calculations.

Rail

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

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

There are seven at-grade railroad crossings in the city. The railway intersections at Main Street and 4th Street are flashing-light signals with an overhead cantilever structure and automatic gates. The railway intersections at 6th Street and Latham Road include

Main Street Railroad Crossing

post-mounted flashing-light signals and automatic gates. The three remaining at-grade rail crossings at Chamberlain Avenue, Villard Avenue, and Rachel Road are stop-controlled with no signals or gates present. Over the last 10 years, there have been two motor vehicle/train collisions at rail crossings; one at 6th Street and one at Rachel Road.

Feedback from city residents indicates that significant delays exist at railroad crossings due to trains stopping for durations that can exceed 30 minutes. Blockage of at-grade crossings presents significant delays for emergency response crews who must reroute to railroad overpasses, school buses, and other vehicles, pedestrians, and bicyclists. Public railroad crossings may not be blocked for longer than 15 minutes between 10 p.m. and 6 a.m., with 10 minute limits between 6 a.m. and 10 p.m., except for continuously moving trains. Blockage complaints are handled by ODOT Rail Division which may fine rail operators for blockage infractions.

Air

The Cottage Grove State Airport, also known as Jim Wright Field, is located off Airport Road in northeast Cottage Grove within the urban growth boundary. The airport is owned by the Oregon Department of Aviation and is used by both public and private parties. Cottage Grove State Airport is classified as a Category 4 airport by ODOT and may be used by small recreational planes or light jets. The runway is approximately 3,200 feet long and 60 feet wide with pavement asphalt in good condition. Approximately 50 aircraft are based out of the airport. Oregon Aeronautical personnel routinely perform inspections of the facilities. The airport's runway protection zone and airport imaginary service regulations set limitations to development in the area immediately surrounding the airport.

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

Waterway

The Coast Fork Willamette River travels through Cottage Grove and the Row River borders the city on the east side. Silk Creek enters the city from the northwest and feeds the Coast Fork Willamette River. These waterways generally only serve recreational needs.

Pipeline

No major pipelines are located in Cottage Grove.

How is the Transportation System Managed?

A variety of measures used to monitor Cottage Grove's transportation system help to ensure acceptable quality for its residents. These measures include:

Collision Data: Collision data is useful in monitoring the safety of the roadways and intersections in Cottage Grove. Evaluating the data can show patterns of motor vehicle, pedestrian, and bicyclist collisions and identify safety issues in the transportation system.

Pavement Condition: The condition of roadway pavement is tracked by ODOT, Lane County and the City of Cottage Grove. The pavement conditions data helps to identify roadway maintenance needs and priorities.

Active Transportation Facilities Review: The TSP update reviewed facilities for travel by walking, bicycle, or public transportation to identify deficits or potential connectivity or access improvement opportunities.

Roadway Jurisdiction Standards: Roadways in Cottage Grove are under the jurisdiction of the City, Lane County or ODOT (see Figure 8). Each responsible jurisdiction sets various standards for the roadways to maintain the intended functional classification.

Intersection Mobility Targets: The TSP compares intersection operations in Cottage Grove to mobility targets intended to maintain a minimum level of efficiency for motor vehicle travel. Two methods to gauge intersection operations include volume-to-capacity (v/c) ratios and level of service (LOS).

Volume-to-capacity (V/C) ratio: A decimal representation (between 0.00 and 1.00) of the percentage of occupied capacity (capacity defined as the theoretical maximum vehicle throughput in a given time frame) at a turn movement, approach leg, or intersection. It is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance. A ratio of 1.00 indicates that traffic demand has reached full capacity for the turn movement, approach leg, or intersection, resulting in excessive queues and long delays.

Level of service (LOS): A rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are

progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and traffic is highly congested.

Table 7 lists applicable mobility targets in the city. The TSP will compare intersection operations to these targets. Intersections that do not meet the mobility targets shown will require mitigation.

Intersection mobility targets vary by jurisdiction of the roadways. All intersections under state jurisdiction in Cottage Grove must comply with the v/c ratios in the Oregon Highway Plan (OHP). The ODOT v/c targets are based on highway classification and posted speeds, and range between a v/c of 0.85 and 0.95 in Cottage Grove. A v/c ratio of 0.90 (for intersections with traffic signals) or Level of Service (LOS) "E" (for stop-controlled intersections) is the minimum mobility target for intersections under Cottage Grove jurisdiction.[5] The Lane County TSP[6] requires county roads inside an urban growth boundary to operate at LOS D or better (for arterials and collectors) and below a maximum v/c ratio during the peak hour depending on the posted speed (0.85 v/c for 40 mph or less, 0.75 v/c for 45 mph or more). These targets apply to intersections under county jurisdiction.

Table 7: Intersection Mobility Targets

Roadway	Signalized Intersections	Unsignalized Intersections
Roadways under Cottage Grove Jurisdiction	0.90 v/c	LOS E
Roadways under Lane County Jurisdiction	LOS D; 0.75-0.85 v/c	
OR 99 (north UGB to Harrison Avenue)	0.95 v/c	
OR 99 (Harrison Avenue to south UGB)	0.90 v/c	
Cottage Grove Connector/Row River Road* (OR 99 to Thornton Road)	0.95 v/c	
I-5 Interchange Ramp Terminals	0.85 v/c	

Source: Oregon Highway Plan (OHP), Policy 1F, Table 6
*The Cottage Grove Connector was assumed to be a District Highway.

[5] 2008 Cottage Grove TSP, Page 3-24.
[6] 2004 Lane County Transportation System Plan, Page 28-29

Access Spacing: Proper access spacing balances efficient, safe, and timely travel with access to individual destinations. Proper spacing between accesses (driveways and streets) reduces congestion, collision rates, and the need for additional highway capacity. ODOT applies its adopted access spacing standards to roadways under state jurisdiction.

ODOT access spacing standards for driveways and approaches to their roadways are based on state highway classification and vary with posted speed (see Table 7). Generally, the faster the speed limit, the greater the minimum required distance between accesses.

The City of Cottage Grove and Lane County also identify minimum intersection spacing standards for driveways or public roadways under their jurisdiction, as shown in Table 7.

Table 7: Access Spacing Standards

Roadway Segment	Posted Speed Limit; Annual Average Daily Traffic	Minimum Driveway or Public Roadway Spacing
Roadways under Cottage Grove Jurisdiction	N/A	600 feet for arterials*; 200 feet for collectors**
Roadways under Lane County Jurisdiction	N/A	150 feet – 700 feet
OR 99 (north UGB to Cottage Grove Connector)	35 mph; < 5,000	250 feet
OR 99 (Cottage Grove Connector to Quincy Avenue)	25 mph; > 5,000	250 feet
OR 99 (Quincy Avenue to Harrison Avenue)	35 mph; > 5,000	350 feet
OR 99 (Harrison Avenue to Sweet Lane)	45 mph; < 5,000	360 feet
OR 99 (Sweet Lane to south UGB)	55 mph; < 5,000	650 feet

Roadway Segment	Posted Speed Limit; Annual Average Daily Traffic	Minimum Driveway or Public Roadway Spacing
Cottage Grove Connector/Row River Road*** (OR 99 to Thornton Road)	35 mph; > 5,000	350 feet

Source: 1999 Oregon Highway Plan, Appendix C Revisions to Address Senate Bill 264
* Arterials located where existing block spacing is approximately 400 feet (such as downtown) would be exempt from the 600 foot standard and instead be subject to a 400 foot minimum spacing.
** Or 1 per residential lot
*** The Cottage Grove Connector was assumed to be a District Highway.

Seismic Lifeline Routes: Oregon Highway Plan (OHP) Goal 1, Policy 1E designates routes for emergency response in the event of an earthquake. In Cottage Grove, I-5 is classified in the ODOT Emergency Operations Plan as a Tier 1 Lifeline Route, considered essential for emergency response within the first 72 hours after an event. The ODOT Seismic Lifeline Route map for Lane County also identifies Main Street, River Road, as well as portions of OR 99, Mosby Creek Road, and Row River Road as priority lifeline routes. Local emergency coordinators originally identified the Seismic Lifeline Routes in 1995. Based on the geological analysis available at the time, they determined these routes most likely to be available after a seismic event. The routes initially were used to assess the need for retrofitting state and local bridges. ODOT is currently in the process of updating the list of designated routes.

What travel conditions do people face?

The assessment of transportation infrastructure in Cottage Grove uses the measures described in the previous section to summarize the travel conditions.

Safety Evaluation

Review of collision data identified patterns of motor vehicle, pedestrian, and bicyclist collisions. ODOT's collision data from 2008 to 2012 (the most recent five years of available data) for all roadways in Cottage Grove showed a total of 298 collisions (an average of nearly 60 collisions a year) in the city. A majority of these (about 53 percent) were either rear-end or turning type collisions (see Figure 11).

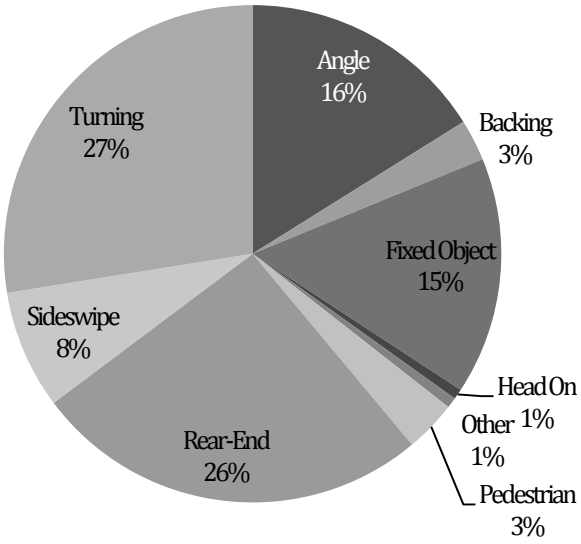


Figure 11: Collisions by Type

Although one fatality occurred during this period, the severity of the collisions in Cottage Grove over the past five years was generally low, with nearly 80 percent involving property damage only (53%) or minor injuries (25%).

Pedestrian Safety: There were ten collisions involving pedestrians documented over the five-year span in Cottage Grove. All ten collisions resulted in injuries, with one fatality. For the most part, pedestrian collisions were clustered geographically within Cottage Grove. Four of the ten collisions occurred on Main Street between OR 99 and Gateway Boulevard. Three occurred near the Village Shopping Center located on OR 99 between Lord Avenue and the Cottage Grove Connector. Two other pedestrian collisions occurred near the I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road intersection. One other pedestrian collision occurred at the Tyler Avenue/10th Street intersection.

The fatality occurred during November 2010, when a driver struck a pedestrian in dark clothing on the Cottage Grove Connector. The incident occurred during dark and wet conditions, when a motor vehicle traveling eastbound toward the I-5 SB Ramps/ Gateway Boulevard/Row River Road intersection struck a pedestrian crossing at an

unmarked location. Overall, six of the ten pedestrian involved collisions from 2008 to 2012 were caused by drivers failing to yield the right of way.

More recently, in October 2013 (not captured in the 2008 to 2012 data), an elderly pedestrian was killed when crossing OR 99 near Geer Street. The incident occurred around 5 p.m. when the pedestrian was struck by two vehicles while attempting to use the crosswalk between Geer Street and Chamberlain Avenue, not far from the Cottage Grove Connector.

Bicycle Safety: From 2008 to 2012, eight collisions involved bicyclists. Of the eight collisions, two occurred along Main Street and another two along streets near Bohemia Park. Most of the collisions were a result of the motorist failing to yield the right of way to the bicyclist when turning. Bicyclists sustained at least moderate injuries in all eight collisions in this five year time period, but no fatalities occurred.

Intersection Safety: The total number of collisions experienced at an intersection is typically proportional to the number of vehicles entering it. Therefore, a collision rate describing the frequency of collisions per million entering vehicles (MEV) is used to evaluate the intersection. A collision rate of 1.0 MEV or greater is commonly used to identify when collision occurrences are higher than average and should be further evaluated. The total number of collisions (based on the past five years of collision data) and collision rate for each study intersection are identified in Table 8.

Table 8: Intersection Collisions

Intersection	Total Collisions (2008-2012)	Observed Collision Rate (MEV)	Critical Collision Rate
Signalized Intersections			
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	22	**0.62**	0.56
OR 99/Main Street	15	0.50	0.58
I-5 NB Ramps/Row River Road	8	0.36	0.51
Main Street/Gateway Boulevard	7	0.27	0.60
OR 99/6th Street	5	0.30	0.66
OR 99/Woodson Place	5	0.26	0.51
Main Street/6th Street	4	0.35	0.72
OR 99/4th Street	2	0.16	0.71

Main Street/River Road	1	0.06	0.86
Unsignalized Intersections			
OR 99/Cottage Grove Connector	1	0.05	0.29
I-5 SB Off Ramp/6th Street	1	0.16	0.29
I-5 NB On Ramp/6th Street	0	0.00	N/A
OR 99/S.River Road	0	0.00	0.29
Jim Wright Way/Row River Road	0	0.00	0.41
Harrison Avenue/River Road	0	0.00	0.41

Source: ODOT Crash Data System

MEV = Collisions per million entering vehicles

Shaded and bolded values indicate the observed collision rate exceeds the critical collision rate.

In addition to comparing the collision rate to 1.0 MEV, the observed collision rate is compared to a critical collision rate.[7] The critical collision rates vary by intersection and are calculated based on intersection characteristics (e.g., intersection control, geometric configuration, surrounding environment).[8] Intersections with an observed collision rate greater than the critical collision rate warrant further review. The only study intersection to have collision rate that was significantly higher than similar intersections was I-5 SB Ramps/Gateway Boulevard/Row River Road/Cottage Grove Connector.

The I-5 SB Ramps/Gateway Boulevard/Row River Road/Cottage Grove Connector intersection is the first at-grade intersection a driver reaches when traveling east from OR 99 via the Cottage Grove Connector, or from the southbound I-5 off ramp. Of the 22 collisions recorded at the intersection, the majority have been either rear ends or involved turning movements. The majority of the rear end collisions (eight of the ten) resulted in injury, while the majority of the turning collisions (seven of the eight) resulted in property damage only. There was one pedestrian collision that occurred in 2009 during dark conditions, resulting in an injury. The vehicle was executing a right turn movement from Gateway Boulevard onto Row River Road and failed to yield to the pedestrian.

Roadway Segment Safety: Collision frequency was calculated on key arterial roadway segments in Cottage Grove, as shown in Table 9. The collision rate identifies collisions

[7] Methodology described in the Highway Safety Manual (HSM)

[8] There were some reference groups that had less than five intersections, which is an insufficient sample size; therefore those groups used a statewide 90th percentile collision rate. This approach is consistent with the Oregon Department of Transportation, Analysis Procedures Manual Version 2 - Chapter 4, 2013. Collision analysis worksheets detailing the collision rate calculations are included in the Technical Appendix.

per million vehicle-miles traveled, based on the number of collisions, traffic volumes, and segment length. This observed segment collision rate is then compared to a critical rate calculated for similar segments in the City. [9] As with the intersection safety evaluation, further review is warranted where observed collision rates are greater than the critical collision rates.

Table 9: Roadway Segment Collisions

Roadway	Begin	End	Observed Collision Rate	Critical Collision Rate
Principal Arterials				
OR 99	North City Limits	Cottage Grove Connector	2.72	3.28
	Cottage Grove Connector	Woodson Place	**4.70**	2.93
	Woodson Place	Main Street	1.35	2.66
	E Main Street	6th Street	1.38	2.88
	6th Street	Harrison Avenue	1.70	3.22
	Harrison Avenue	S. River Road	0.32	2.99
	S. River Road	Carnegie Way	2.56	3.64
Cottage Grove Connector/Row River Road	I-5 NB Ramps	I-5 SB Ramps	2.09	3.21
	I-5 SB Ramps	OR 99	0.30	2.53
Minor Arterials				
Row River Road	I-5 NB Ramps	Currin Connector	**2.35**	2.10
Whiteaker Avenue	Gateway Boulevard	Thornton Road	0.68	2.32
Cottage Grove-Lorane Highway	Gowdyville Road	R Street	1.46	4.52
Main Street	R Street	River Road	0.74	2.25
	River Road	OR 99	2.16	3.13
	OR 99	Gateway Boulevard	**2.39**	2.26
S. River Road	Main Street	Harrison Avenue	1.04	3.10
	Harrison Avenue	OR 99	0.46	2.98
6th Street	OR 99	Grant Avenue	1.23	2.33
	Grant Avenue	I-5 Off Ramp	0.47	2.50

Source: ODOT Crash Data System

Collision rate reflects number of collisions per million vehicle-miles traveled.

[9] The critical segment crash rates are calculated based on groupings by functional class.

There are three segments that had a higher collision rate over the past five years than the critical rate identified for the segment. These segments include the following:

- OR 99: Between the Cottage Grove Connector and the Woodson Bridge
  There have been sixteen collisions on this segment over the past five years of available data. The collisions are equally spread out among the four intersections within this segment, including the following locations: OR 99/Chamberlain Avenue, OR 99/Geer Avenue, OR 99/Lord Avenue, and OR 99/Pennoyer Avenue. There is no predominant collision type on this roadway segment; however there were three pedestrian collisions, not including the pedestrian fatality that occurred on the crosswalk at Geer Avenue in 2013.

Crosswalk on OR 99 near Geer Avenue

- Row River Road: Between I-5 NB Ramps and Currin Connector
  There have been sixteen collisions on this segment over the past five years. The majority occurred at the Row River Road/Thornton Road/Airport Road intersection, and most of those involved angle or turning movement collision types. A traffic signal was constructed at this intersection since the data was observed.
- Main Street: Between OR 99 and Gateway Boulevard
  There have been twenty-three collisions on this segment over the past five years. The most common collision types are turning movements (39%) and rear end (35%) collisions. There was one pedestrian collision in this roadway segment. The collisions are fairly spread out over the roadway segment, with the

highest number of collisions (seven at each location) occurring at the Main Street/14th Street and Main Street/16th Street intersections.

Further review is also warranted along the Cottage Grove Connector because of the 2010 pedestrian fatality that occurred.

ODOT High Collision Locations: The Safety Priority Index System (SPIS) is a tool developed by ODOT to identify and prioritize locations with safety concerns, based on a combination of collision frequency, rate, and severity. Thornton Road (between Mosby Creek Road and Row River Road) is identified as a top 10 percent SPIS site for non-ODOT facilities in Lane County. As previously mentioned the intersection of Row River Road/Thornton Road/Airport Road has experienced a significant amount of traffic collisions. New traffic signals have been constructed at the Thornton Road intersections at both the Mosby Creek Road and Row River Road in 2013. No locations within Cottage Grove are identified as being within the top ten percent of Lane County SPIS sites for ODOT facilities.

Pavement Conditions

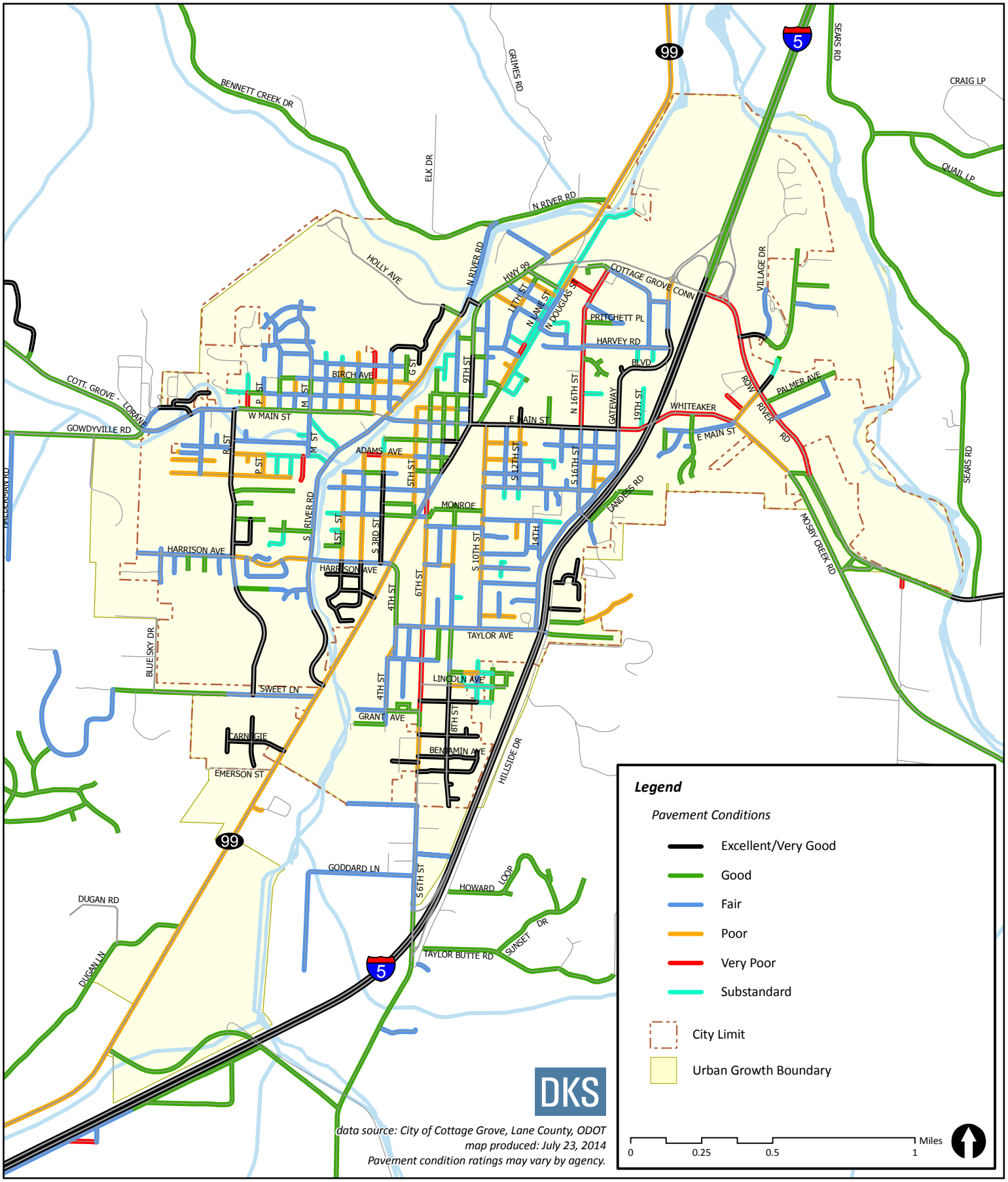
The condition of pavement affects the comfort of all travelers but can also impact safety. Collision risk may be at heightened when roadway markings are unclear or when loose or uneven pavement exacerbates slippery conditions. People walking or using bikes may be particularly sensitive to uneven pavement or poor striping. The condition of pavement in Cottage Grove is monitored by each of the agencies that have jurisdiction of roadways in the City: ODOT, Lane County, and the City. Figure 12 shows the pavement conditions reported by the agencies for roadways in Cottage Grove.

6th Street at OR 99

Transportation System Plan

FIGURE 12

Pavement Conditions



Legend

Pavement Conditions

- Excellent/Very Good
- Good
- Fair
- Poor
- Very Poor
- Substandard

- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

data source: City of Cottage Grove, Lane County, ODOT
map produced: July 23, 2014
Pavement condition ratings may vary by agency.

Active Transportation Facilities

Most of the arterial and collector streets within the city provide sidewalks that allow residents to walk between neighborhoods and commercial areas. Much of the city is comfortable for bike travel because of the relatively short distances between destinations in the city and the network of bike lanes and shared roadways with low traffic volumes and speeds. Multi-use trails supplement sidewalks and bike routes and provide access to recreational and tourist activities. There are many crosswalks and curb ramps throughout the city as well. Overall, the City is walkable and bikeable and transit stops are accessible. However, there is significant room for improvement in some of the areas where barriers remain.

Barriers: There are limited crossing opportunities along I-5, OR 99, and the Siskiyou Line railroad track that runs parallel to OR 99 for much of the City. Roadways with high-speed travel, such as portions of OR 99, are not only challenging to cross but can also be unpleasant for pedestrians and people on bikes who feel unsafe moving in close proximity to passing vehicles.

Natural features such as waterways and hills also create barriers to choosing active travel. The city is generally flat, but hilly areas around McFarland Butte and east of I-5, near Hillside Drive, limit travel options for nearby residents. The Coast Fork Willamette River can also serve as a barrier, limiting east/west connectivity within the City.

Pedestrian Facilities: Locations with sidewalk gaps, indirect connections or crossings, and faded crosswalk paint can discourage pedestrian travel. Significant gaps in the pedestrian network include:

- Limited crossing opportunities along OR 99 north of the Woodson Bridge and south of 4th Street/Harrison Avenue. These areas also tend to have higher speed traffic, making crossings more unpleasant for pedestrians.
- The location and design of the OR 99 crossing near Geer Avenue should be reexamined in light of the recent pedestrian fatality.
- Inadequate sidewalks on the Cottage Grove Connector, a key east to west route through the city, limit pedestrian travel opportunities between OR 99 and Gateway Boulevard.
- Limited crossing opportunities on Row River Road between Thornton Road/Airport Road and the I-5 NB ramps.

- Poor pedestrian facility connectivity between residential areas south of Taylor Avenue and activity generators to the north, particular near Lincoln Middle School.
- Significant sidewalk gaps on arterial and collector streets include Harrison Avenue (between 1st and 3rd Street) and River Road (between Harrison Avenue and Girard Avenue).

Fading Crosswalk Markings at Row River Road and Jim Wright Way

Bicycle Facilities: Bicycle trips typically cover distances that are longer than pedestrian trips. Inconsistent facilities and barriers to travel can inhibit the attractiveness of these potential trips. Significant gaps in the transportation network for bicycle trips include:

- Lack of consistent bike lanes across key arterial roadways such as OR 99, Main Street, Gateway Boulevard, and the Cottage Grove Connector.
- The Woodson Bridge provides a key crossing between OR 99 and River Road, but can be difficult to navigate by bike due to motor vehicle queuing and a lack of bike lanes.

Intersection Mobility

Motor vehicle operations were evaluated with peak seasonal traffic volumes for the weekday p.m. peak hour, as described in the Existing Activity Levels section of this document. The intersection operations for each of the 15 study intersections are shown

in Table 10 and detailed in the Technical Appendix. All of the intersections operate within jurisdictional mobility standards in Table 10. The highest delays of approximately 30 seconds on average (LOS C) are experienced at the I-5 SB Ramps/Cottage Grove Connector and OR 99/Main Street intersections. A more detailed intersection operations table is included in the Technical Appendix.

Table 10: Intersection Operations (2014 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.67	C	31
I-5 NB Ramps/Row River Road	0.85	0.49	A	7
OR 99/Woodson Place	0.95	0.46	A	7
OR 99/Main Street	0.95	0.68	C	31
OR 99/6th Street	0.95	0.37	A	9
OR 99/Harrison Avenue	0.90	0.30	B	15
Main Street/Gateway Boulevard	0.90	0.64	C	21
Main Street/River Road	0.90	0.37	B	13
Main Street/6th Street	0.90	0.28	A	5
All-Way Stop-controlled Intersections*				
Harrison Avenue/River Road	0.90	0.12	A	8
Two-Way Stop-controlled Intersections**				
I-5 SB Off Ramp/6th Street	0.85	0.19	B	11
I-5 NB On Ramp/6th Street	0.85	*N/A*	*N/A*	*N/A*
OR 99/Cottage Grove Connector[10]	0.95	0.29	B	13
OR 99/S. River Road	0.90	0.06	B	10
Jim Wright Way/Row River Road	0.90	0.27	D	27

*V/C ratio reported for worst minor street approach at all-way stop-controlled intersection.

**V/C ratio, LOS and average delay reported for worst minor street movement at two-way stop-controlled intersections.

[10] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.

Access Spacing

An access inventory was conducted along OR 99 within Cottage Grove to identify the number of existing approaches (driveways and public streets). Table 11 compares the approximate average spacing of approaches on segments of OR 99 to the applicable spacing standards (previously identified in Table 7).

Table 11: Existing Access Spacing on OR 99

Segment Begin	Segment End	Average Access Spacing (feet)	Spacing Standard (feet)
North City Limits	N. River Road	400	250
N. River Road	Cottage Grove Connector	**<150**	250
Cottage Grove Connector	Woodson Place	**<150**	250
Woodson Place	Main Street	**<150**	250
Main Street	Harrison Avenue	**<150**	250
Harrison Avenue	S. River Road	500	350-360
S. River Road	Emerson Lane	**250**	360-650

Shaded and bolded values indicate the access spacing exceeds the standard.

Most segments of OR 99 do not meet ODOT access spacing standards as a result of frequent roadway intersections or driveways located along the highway as it passes through residential and commercial areas. Access management considerations along OR 99 include:

- Between North River Road and the Cottage Grove Connector, there are both residential and commercial land uses, with residential roadways constituting most of the access points on the western side of the roadway and commercial land uses on the eastern side.
- South of the Cottage Grove Connector to the Woodson Bridge, land uses are primarily commercial to the west of the highway and residential to the east. Access point consolidation may be considered along this segment.
- The segment of OR 99 (9th Street) between the Woodson Bridge and Main Street is primarily single family residential, therefore access improvements are unlikely, though further safety measures, such as the turn movement restriction applied at Gibbs Avenue, may be considered.
- OR 99 between Main Street and Harrison Avenue includes a high frequency of driveways which are primarily for commercial uses. This segment of roadway has potential locations for implementation of access management practices.

- Between Harrison Road and South River Road there are few access points, as the roadway is bordered by recently developed land to the west and the railroad right of way to the east.
- South of Harrison Avenue to Emerson Lane, OR 99 has moderate access density despite being bordered by the railroad right of way to the east side. Driveways corresponding to individual tax lots and roadways make up the majority of access points along this higher speed segment. Changes to access may be considered where properties currently accessing OR 99 can be redeveloped with access to Sweet Lane, Carnegie Way, or Emerson Lane.

As redevelopment occurs along other roadways in the City, the appropriate access spacing standards should be met wherever feasible.

Summary of Existing Issues

The review of existing conditions identified the following key issues:

- Four significant barriers to east-west connectivity exist in Cottage Grove: I-5, OR 99, the railroad tracks, and the Coast Fork Willamette River. Main Street and the Cottage Grove Connector provide the most direct opportunities for east-west travel. New crossings and enhancements to existing crossings should be provided to reduce out of direction travel and encourage safe travel by bike or walking.
- Additional amenities are needed to support multimodal travel in Cottage Grove:
    - Sidewalks should be added along all collectors and arterials when possible.
    - Bike lanes or shared road designations should be added along all collectors and arterials when possible.
    - Bike parking structures should be added throughout the city near major traffic generators.
    - Signing can be added to direct people on bikes to low-volume and low-speed connections.
- Roadways with high collision rates:
    - OR 99 between the Woodson Bridge and Cottage Grove Connector: a fatality occurred at the pedestrian crossing near Geer Avenue and traffic data indicates that at least half of motor vehicles exceed the posted speed limit.
    - Row River Road between I-5 NB Ramps and the Currin Connector: the segment should be monitored closely, along with Thornton Road, to evaluate if safety has improved as a result of the traffic signals constructed at the Row River Road/Thornton Road/Airport Road intersection.
    - Main Street between OR 99 and Gateway Boulevard: collisions are fairly spread out throughout the roadway segment with frequent turn-movement and rear-end collisions.
    - The intersection of I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road has a high overall crash rate.
- The amount of driveways along several stretches of OR 99 exceed the recommended number of approaches based on ODOT standards. Most street segments between public intersections include multiple driveways. While the high number of driveways improves access, it also reduces mobility for the highway through the corridor and introduces potential conflicts that compromise safety. The segment of OR 99 between the Cottage Grove Connector and the Woodson Bridge, where a pedestrian fatality occurred in 2013, is one of the locations where access spacing standards are

exceeded. As redevelopment occurs, access management strategies should be pursued to reduce driveway conflicts along OR 99.

- All intersections analyzed meet City and ODOT mobility standards for delay or capacity. Motor vehicle Mobility should be maintained to support convenient access for businesses in Cottage Grove and the large percentage of commuters traveling via I-5.
- Strategies should be pursued to improve freight movement through the City. Rail operations regularly block roadway crossings and some residents complain about large trucks traveling through the city instead of via I-5.

- The transportation system plan should identify design standards to support the community vision and goals related to further development of the Downtown Historic District. Two prominent issues include the redesign of Main Street[11] and the placement of the traffic signal pole at the intersection of OR 99 and Main Street. The current placement blocks some views of the "Historic District" sign that spans Main Street.

Main Street at OR 99

[11] The Main Street Refinement Plan will identify a preferred design for the corridor once it has been completed.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #5 –

Existing Conditions Evaluation

Contents:

- Design Hour Volume Development - Worksheets & Assumptions
- Design Hour Intersection Volumes, Geometry, & PM Peak Operations Summary
- Detailed Intersection Traffic Operations Table
- Intersection Traffic Operations Worksheets (Synchro Outputs)
- Traffic Counts
- Collision Analysis Worksheets

Design Hour Volume Development - Worksheets & Assumptions

			Original Counts				Total Vehicle Volumes									
				Northbound			Southbound			Eastbound			Westbound			
Intersection #	Intersection	Count Date	Peak Hr Start	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
0	Existing Conditions 2014															
1	I-5 SB Ramps/Cottage Grove Connector	3/4/2014	4:00 PM	66	73	197	145	303	262	7	209	55	116	144	49	0.96
2	I-5 NB Ramps/Row River Road	3/4/2014	4:00 PM	0	0	0	42	0	50	244	306	0	0	252	143	0.96
3	I-5 Off Ramp/6th Street	3/4/2014	4:00 PM	0	76	0	0	123	0	0	0	0	70	0	39	0.83
4	I-5 On Ramp/6th Street	3/4/2014	4:00 PM	0	78	46	31	164	0	0	0	0	0	0	0	0.92
5	OR 99/Cottage Grove Connector	3/4/2014	4:00 PM	0	113	242	35	147	0	0	0	0	403	0	70	0.96
6	OR 99/Woodson Bridge	3/4/2014	4:00 PM	18	273	0	0	385	172	99	0	15	0	0	0	0.96
7	OR 99/Main Street	3/4/2014	4:00 PM	14	152	175	147	229	34	49	203	9	177	188	103	0.93
8	OR 99/6th Street	3/4/2014	4:00 PM	14	211	0	107	266	18	7	44	18	3	50	85	0.89
9	OR 99/4th Street	3/4/2014	4:00 PM	5	166	10	33	163	75	48	36	4	8	29	37	0.97
10	OR 99/S. River Road	3/5/2014	4:00 PM	17	166	0	0	151	11	11	0	27	0	0	0	0.89
11	Main Street/Gateway Boulevard	3/4/2014	4:00 PM	14	55	62	25	80	235	158	286	12	91	251	17	0.94
12	Main Street/River Road	3/4/2014	4:00 PM	16	38	21	31	52	132	68	166	11	39	149	39	0.94
13	Harrison Avenue/River Road	3/5/2014	4:00 PM	11	34	27	18	40	28	18	46	6	30	46	14	0.94
14	Jim Wright Way / Row River Road	3/4/2014	4:00 PM	2	325	40	46	301	8	0	0	1	50	0	66	0.90
15	Main Street / 6th Street	3/4/2014	4:00 PM	29	20	33	10	22	11	8	201	27	25	168	7	0.87

			Adjusted with Seasonal Factors (30 HV)				Total Vehicle Volumes									
				Northbound			Southbound			Eastbound			Westbound			
Intersection #	Intersection	Count Date	Peak Hr Start	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
0	Existing Conditions 2014															
1	I-5 SB Ramps/Cottage Grove Connector	3/4/2014	4:00 PM	83	92	247	182	380	329	9	262	69	146	181	62	0.96
2	I-5 NB Ramps/Row River Road	3/4/2014	4:00 PM	0	0	0	53	0	63	306	384	0	0	316	180	0.96
3	I-5 Off Ramp/6th Street	3/4/2014	4:00 PM	0	84	0	0	136	0	0	0	0	78	0	43	0.83
4	I-5 On Ramp/6th Street	3/4/2014	4:00 PM	0	86	51	34	182	0	0	0	0	0	0	0	0.92
5	OR 99/Cottage Grove Connector	3/4/2014	4:00 PM	0	125	268	39	163	0	0	0	0	447	0	78	0.96
6	OR 99/Woodson Bridge	3/4/2014	4:00 PM	20	303	0	0	427	191	110	0	17	0	0	0	0.96
7	OR 99/Main Street	3/4/2014	4:00 PM	16	169	194	163	254	38	54	225	10	196	208	114	0.93
8	OR 99/6th Street	3/4/2014	4:00 PM	16	234	0	119	295	20	8	49	20	3	55	94	0.89
9	OR 99/4th Street	3/4/2014	4:00 PM	6	184	11	37	181	83	53	40	4	9	32	41	0.97
10	*OR 99/S. River Road*	3/5/2014	4:00 PM	19	184	0	0	168	12	12	0	30	0	0	0	0.89
11	Main Street/Gateway Boulevard	3/4/2014	4:00 PM	16	61	69	28	89	261	175	317	13	101	278	19	0.94
12	Main Street/River Road	3/4/2014	4:00 PM	18	42	23	34	58	146	75	184	12	43	165	43	0.94
13	Harrison Avenue/River Road	3/5/2014	4:00 PM	12	38	30	20	44	31	20	51	7	33	51	16	0.94
14	Jim Wright Way / Row River Road	3/4/2014	4:00 PM	2	360	44	51	334	9	0	0	1	55	0	73	0.90
15	Main Street / 6th Street	3/4/2014	4:00 PM	32	22	37	11	24	12	9	223	30	28	186	8	0.87

			Balancing Adjustments				Total Vehicle Volumes									
				Northbound			Southbound			Eastbound			Westbound			
Intersection #	Intersection	Count Date	Peak Hr Start	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
0	Existing Conditions 2014															
1	I-5 SB Ramps/Cottage Grove Connector	3/4/2014	4:00 PM	-10	10	0	0	20	-25	0	-35	5	-5	-35	0	0.96
2	I-5 NB Ramps/Row River Road	3/4/2014	4:00 PM	0	0	0	0	0	0	5	-45	0	0	-35	-15	0.96
3	I-5 Off Ramp/6th Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.83
4	I-5 On Ramp/6th Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.92
5	OR 99/Cottage Grove Connector	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.96
6	OR 99/Woodson Bridge	3/4/2014	4:00 PM	0	-5	0	0	0	0	0	0	0	0	0	0	0.96
7	OR 99/Main Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.93
8	OR 99/6th Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.89
9	OR 99/4th Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.97
10	OR 99/S. River Road	3/5/2014	4:00 PM	0	0	0	0	-5	0	0	0	0	0	0	0	0.89
11	Main Street/Gateway Boulevard	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.94
12	Main Street/River Road	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.94
13	Harrison Avenue/River Road	3/5/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.94
14	Jim Wright Way / Row River Road	3/4/2014	4:00 PM	0	10	0	0	0	0	0	0	0	0	0	0	0.90
15	Main Street / 6th Street	3/4/2014	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0.87

Value Decreased

Value Increased

			Final Volumes / Balanced / Rounded				Total Vehicle Volumes									
				Northbound			Southbound			Eastbound			Westbound			
Intersection #	Intersection	Count Date	Peak Hr Start	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
0	Existing Conditions 2014															
1	I-5 SB Ramps/Cottage Grove Connector	3/4/2014	4:00 PM	75	100	245	180	400	305	10	225	75	140	145	60	0.96
2	I-5 NB Ramps/Row River Road	3/4/2014	4:00 PM	0	0	0	55	0	65	310	340	0	0	280	165	0.96
3	I-5 Off Ramp/6th Street	3/4/2014	4:00 PM	0	85	0	0	135	0	0	0	0	80	0	45	0.83
4	I-5 On Ramp/6th Street	3/4/2014	4:00 PM	0	85	50	35	180	0	0	0	0	0	0	0	0.92
5	OR 99/Cottage Grove Connector	3/4/2014	4:00 PM	0	125	270	40	165	0	0	0	0	445	0	80	0.96
6	OR 99/Woodson Bridge	3/4/2014	4:00 PM	20	300	0	0	425	190	110	0	15	0	0	0	0.96
7	OR 99/Main Street	3/4/2014	4:00 PM	15	170	195	165	255	40	55	225	10	195	210	115	0.93
8	OR 99/6th Street	3/4/2014	4:00 PM	15	235	0	120	295	20	10	50	20	5	55	95	0.89
9	OR 99/4th Street	3/4/2014	4:00 PM	5	185	10	35	180	85	55	40	5	10	30	40	0.97
10	OR 99/S. River Road	3/5/2014	4:00 PM	20	185	0	0	165	10	10	0	30	0	0	0	0.89
11	Main Street/Gateway Boulevard	3/4/2014	4:00 PM	15	60	70	30	90	260	175	315	15	100	280	20	0.94
12	Main Street/River Road	3/4/2014	4:00 PM	20	40	25	35	60	145	75	185	10	45	165	45	0.94
13	Harrison Avenue/River Road	3/5/2014	4:00 PM	10	40	30	20	45	30	20	50	5	35	50	15	0.94
14	Jim Wright Way / Row River Road	3/4/2014	4:00 PM	5	370	45	50	335	10	0	0	5	55	0	75	0.90
15	Main Street / 6th Street	3/4/2014	4:00 PM	30	20	35	10	25	10	10	225	30	30	185	10	0.87

Technical Memorandum

DATE: June 30, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, P.E., DKS Associates
Edith Lopez-Victoria, DKS Associates

SUBJECT: **Cottage Grove Transportation System Plan Update**
Seasonal Factor Assumptions

This memorandum details the seasonal factor adjustment applied for traffic analysis performed for the Existing Conditions analysis of the Cottage Grove Transportation System Plan (TSP) Update. The approach was reviewed and supported by ODOT staff.[1]

Seasonal adjustment factors were applied for the Cottage Grove TSP update based on the Seasonal Trend Method. The "commuter" seasonal trend was applied for all study intersections with the exception of the I-5 ramp intersections at the Cottage Grove Connector and Row River Road, where the "commuter/summer" average trend was used instead. These seasonal adjustment factors were applied for calculating design hour volumes at study intersections.

Table 1 shows the seasonal adjustment factors using the commuter and commuter/summer average seasonal trends for a March 1 traffic counts. These factors were applied to counts taken on March 4th and 5th, 2014.

Table 1. Proposed Seasonal Trend Adjustment March 1 Counts

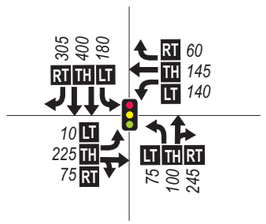
Seasonal Trend	March 1 Seasonal Trend Factor	Peak Seasonal Trend Factor	Seasonal Adjustment Factor
Commuter	1.043*	0.942*	**1.107**
Commuter / Summer Average	1.102	0.876	**1.257**

**Source: ODOT 2013 Seasonal Trend Table*

[1] Email received from Christina McDaniel-Wilson, ODOT Transportation Planning and Analysis Unit, February 18, 2014.

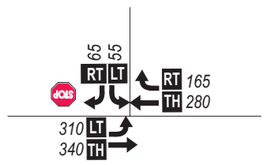
Design Hour Intersection Volumes, Geometry, & PM Peak Operations Summary

1 Cottage Grove Connector/I-5 SB Ramps & Gateway Blvd



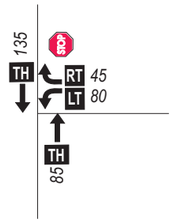
31 | C | 0.67

2 Cottage Grove Connector & River Rd/ I-5 NB Ramps



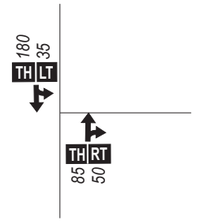
7 | A | 0.49

3 I-5 SB Off-Ramp/6th St



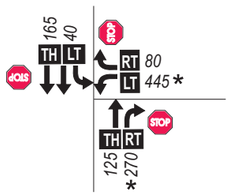
11 | B | 0.19

4 I-5 NB On-Ramp/6th St



N/A

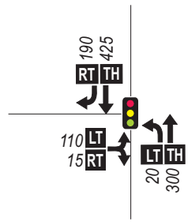
5 Cottage Grove Connector/OR 99



13 | B | 0.29

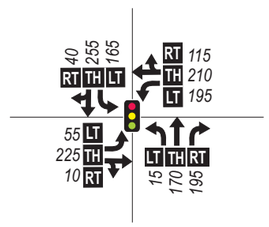
* Movement does not stop.

6 Woodson Pl/OR 99



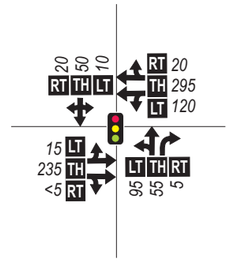
7 | A | 0.46

7 Main St/OR 99



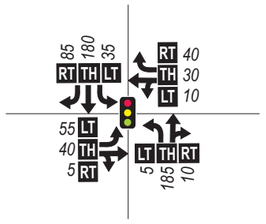
31 | C | 0.68

8 6th St/OR 99



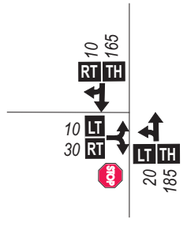
9 | A | 0.37

9 Harrison Ave/OR 99



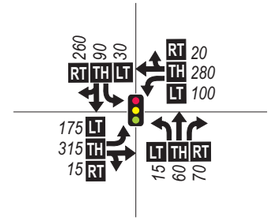
15 | B | 0.30

10 S. River Rd/OR 99



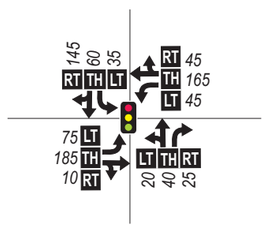
10 | B | 0.06

11 Main St/Gateway Blvd



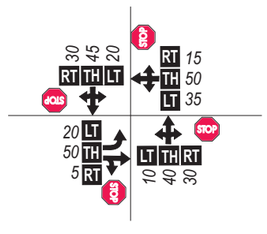
21 | C | 0.64

12 Main St/River Rd



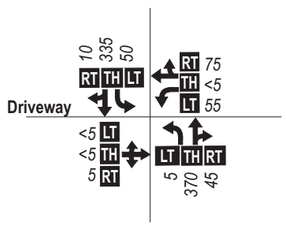
13 | B | 0.37

13 Harrison Ave/River Rd



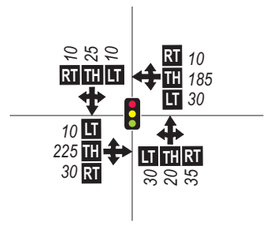
8 | A | 0.12

14 Jim Wright Way/Row River Rd



27 | D | 0.27

15 Main St/6th St

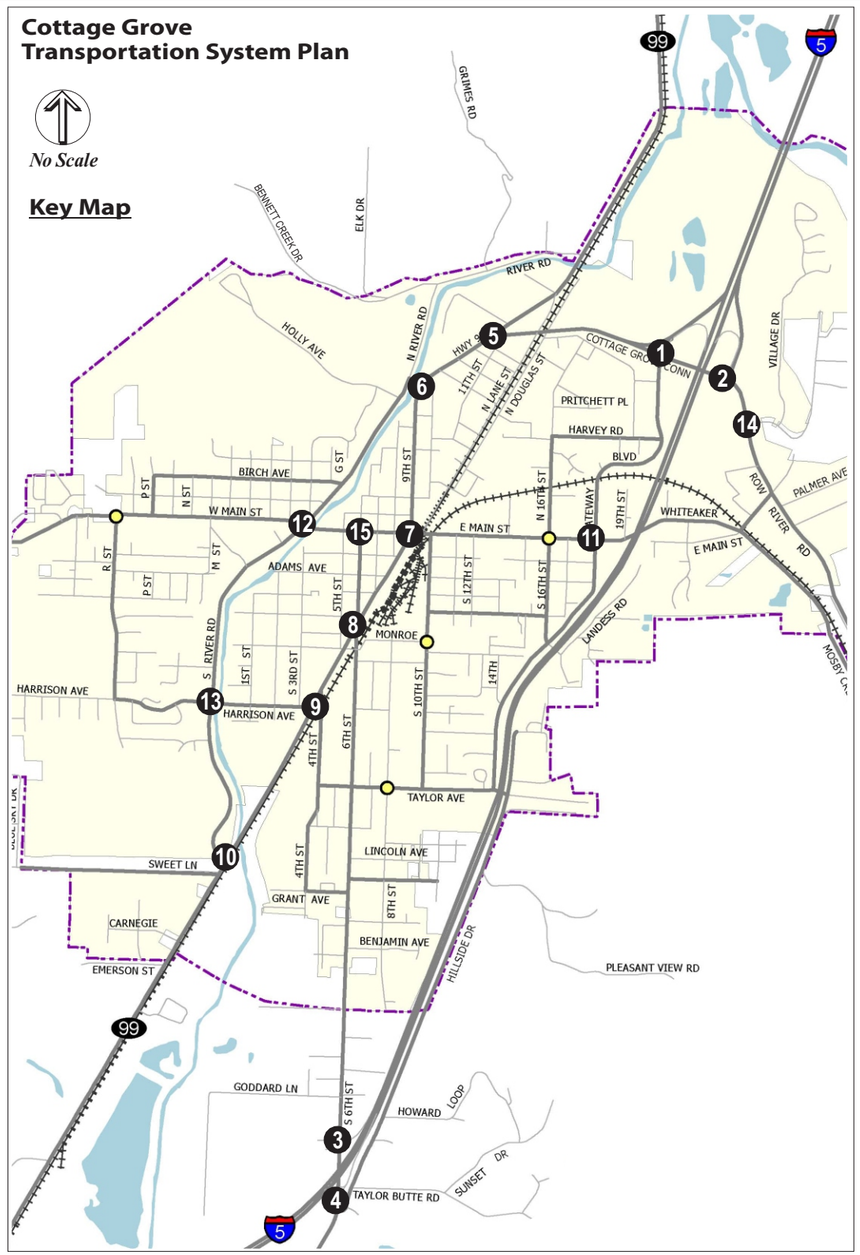


5 | A | 0.28

Cottage Grove Transportation System Plan

No Scale

Key Map



LEGEND

- 0 - Study Intersection & Number
- STOP - Stop Sign
- - Traffic Signal
- ← - Lane Configuration
- *000* - PM Peak Hour Traffic Volume
  Note: All Indicated Volumes are 30th Highest Hour Volumes Calculated for 2014 Based on Count Data
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

00 | X | 0.00
Delay LOS V/C

V/C ratio reported for worst minor street lane at all-way stop-controlled intersections.
V/C ratio, LOS, and average delay reported for worst minor street lane at two-way stop-controlled intersections.

DKS

Figure **1**

EXISTING 2014 PM PEAK HOUR TRAFFIC VOLUMES & OPERATIONS

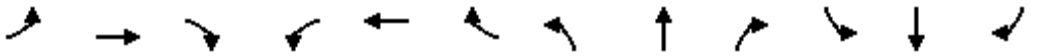
Detailed Intersection Traffic Operations Table

Detailed Intersection Operations Table (2014 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[1]	Level of Service Overall (Major/Minor)[2]	Average Delay (seconds) Overall (Major/Minor)[3]
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.67 (0.78/0.65)	C (D/C)	31 (48/35)
I-5 NB Ramps/Row River Road	0.85	0.49 (0.47/0.30)	A (B/B)	7 (11/18)
OR 99/Woodson Place	0.95	0.46 (0.44/0.51)	A (A/C)	7 (7/20)
OR 99/Main Street	0.95	0.68 (0.69/0.73)	C (D/D)	31 (44/41)
OR 99/6th Street	0.95	0.37 (0.57/0.15)	A (A/A)	9 (10/9)
OR 99/Harrison Avenue	0.90	0.30 (0.88[4]/0.33)	B (F/B)	15 (112/17)
Main Street/Gateway Boulevard	0.90	0.64 (0.62/0.62)	C (C/D)	21 (29/54)
Main Street/River Road	0.90	0.37 (0.56/0.22)	B (C/A)	13 (21/9)
Main Street/6th Street	0.90	0.28 (0.28/0.31)	A (A/B)	5 (3/14)
All-Way Stop-controlled Intersections				
Harrison Avenue/River Road	0.90	(0.09/0.12)	A (A/A)	8 (9/9)
Two-Way Stop-controlled Intersections				
I-5 SB Off Ramp/6th Street	0.85	(0/0.19)	A(A/B)	4 (0/11)
I-5 NB On Ramp/6th Street[5]	0.85	(0.03/-)	(A/-)	0 (8/-)
OR 99/Cottage Grove Connector[6]	0.95	(0.12/0.29)	A (A/C)	4 (9/24)
OR 99/S. River Road	0.90	(0.01/0.06)	A (A/B)	1 (8/10)
Jim Wright Way/Row River Road	0.90	(0.05/0.27)	A (A/D)	3 (8/27)

[1] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[2] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[3] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[4] This reflects operations for the southbound left turn movement. The overall southbound approach operates at LOS B with average delay of 19 seconds.
[5] This intersection is not controlled. V/C ratio, LOS, and average delay are shown for the southbound left turn.
[6] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.

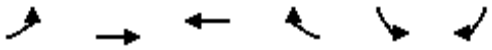
Intersection Traffic Operations Worksheets (Synchro Outputs)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	225	75	140	145	60	75	100	245	180	400	305
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1612	1630		1583	1667	1385	1568	1453		1614	3228	1395
Flt Permitted	0.66	1.00		0.32	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1122	1630		536	1667	1385	1568	1453		1614	3228	1395
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	234	78	146	151	62	78	104	255	188	417	318
RTOR Reduction (vph)	0	10	0	0	0	38	0	69	0	0	0	210
Lane Group Flow (vph)	10	302	0	146	151	24	78	290	0	188	417	108
Confl. Peds. (#/hr)	1					1	7					7
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						4
Actuated Green, G (s)	28.5	27.5		42.2	37.2	37.2	8.3	25.0		16.1	32.8	32.8
Effective Green, g (s)	28.5	27.5		42.2	37.2	37.2	8.3	25.0		16.1	32.8	32.8
Actuated g/C Ratio	0.29	0.28		0.44	0.38	0.38	0.09	0.26		0.17	0.34	0.34
Clearance Time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	4.8		2.5	4.8	4.8	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	335	462		349	639	531	134	374		268	1092	472
v/s Ratio Prot	0.00	c0.19		c0.05	0.09		0.05	c0.20		c0.12	0.13	
v/s Ratio Perm	0.01			0.14		0.02						0.08
v/c Ratio	0.03	0.65		0.42	0.24	0.04	0.58	0.78		0.70	0.38	0.23
Uniform Delay, d1	24.3	30.5		18.2	20.2	18.7	42.6	33.3		38.1	24.3	23.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	4.3		0.6	0.4	0.1	5.2	9.3		7.5	0.2	0.2
Delay (s)	24.3	34.8		18.8	20.6	18.8	47.9	42.7		45.6	24.5	23.2
Level of Service	C	C		B	C	B	D	D		D	C	C
Approach Delay (s)		34.5			19.5			43.6			28.3	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	96.9	Sum of lost time (s)	17.6
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	310	340	280	165	55	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.5	4.5	4.5	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1599	1683	1699	1444	1511	1352
Flt Permitted	0.45	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	758	1683	1699	1444	1511	1352
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	323	354	292	172	57	68
RTOR Reduction (vph)	0	0	0	106	0	60
Lane Group Flow (vph)	323	354	292	66	57	9
Heavy Vehicles (%)	4%	4%	3%	3%	10%	10%
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	1	6	2		8	
Permitted Phases	6			2		8
Actuated Green, G (s)	30.0	30.0	17.0	17.0	5.5	5.5
Effective Green, g (s)	30.0	30.0	17.0	17.0	5.5	5.5
Actuated g/C Ratio	0.68	0.68	0.39	0.39	0.12	0.12
Clearance Time (s)	4.0	4.5	4.5	4.5	4.0	4.0
Vehicle Extension (s)	2.5	4.8	4.8	4.8	2.5	2.5
Lane Grp Cap (vph)	688	1147	656	557	188	169
v/s Ratio Prot	c0.10	0.21	0.17		c0.04	
v/s Ratio Perm	c0.22			0.05		0.01
v/c Ratio	0.47	0.31	0.45	0.12	0.30	0.05
Uniform Delay, d1	3.2	2.8	10.0	8.7	17.5	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.9	0.2	0.7	0.1
Delay (s)	3.5	3.1	10.9	8.9	18.2	17.0
Level of Service	A	A	B	A	B	B
Approach Delay (s)		3.3	10.2		17.6	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	44.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	80	45	85	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	1	1
Mvmt Flow	96	54	102	0	0	163

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	265	102	0	0	102	0
Stage 1	102	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Follow-up Headway	4	3	-	-	2	-
Pot Capacity-1 Maneuver	722	950	-	-	1496	-
Stage 1	920	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	722	950	-	-	1496	-
Mov Capacity-2 Maneuver	722	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	790	1496	-
HCM Lane V/C Ratio	-	-	0.191	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS			B	A	
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	85	50	35	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	0	92	54	38	196

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	392	120	0	0	147	0
Stage 1	120	-	-	-	-	-
Stage 2	272	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	616	937	-	-	1435	-
Stage 1	910	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	600	937	-	-	1435	-
Mov Cap-2 Maneuver	600	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0		
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1435	-
HCM Lane V/C Ratio	-	-	-	0.027	-
HCM Control Delay (s)	-	-	0	7.6	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	125	270	445	80	40	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Stop	-	None
Storage Length	1000	-	-	-	0	115
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	2	2
Mvmt Flow	130	281	464	83	42	172

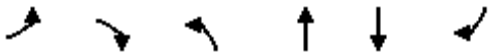
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	464	0	-	0	1006	464
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	542	-
Follow-up Headway	2	-	-	-	4	3
Pot Capacity-1 Maneuver	1092	-	-	-	267	598
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	583	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1092	-	-	-	235	598
Mov Capacity-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	514	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	15

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1092	-	-	-	235	598
HCM Lane V/C Ratio	0.119	-	-	-	0.177	0.287
HCM Control Delay (s)	8.743	-	-	-	23.6	13.4
HCM Lane LOS	A				C	B
HCM 95th %tile Q(veh)	0.405	-	-	-	0.63	1.184

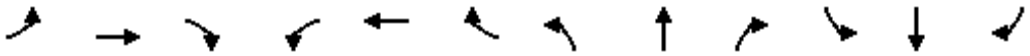
Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



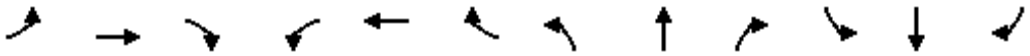
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	110	15	20	300	425	190
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601		1614	1699	1716	1427
Flt Permitted	0.96		0.40	1.00	1.00	1.00
Satd. Flow (perm)	1601		685	1699	1716	1427
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	115	16	21	312	443	198
RTOR Reduction (vph)	7	0	0	0	0	82
Lane Group Flow (vph)	124	0	21	312	443	116
Confl. Peds. (#/hr)			1			1
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA		pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases			6			2
Actuated Green, G (s)	7.5		33.5	33.5	28.7	28.7
Effective Green, g (s)	7.5		33.5	33.5	28.7	28.7
Actuated g/C Ratio	0.15		0.68	0.68	0.59	0.59
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5		2.5	6.0	6.0	6.0
Lane Grp Cap (vph)	245		483	1161	1005	835
v/s Ratio Prot	c0.08		0.00	c0.18	c0.26	
v/s Ratio Perm			0.03			0.08
v/c Ratio	0.51		0.04	0.27	0.44	0.14
Uniform Delay, d1	19.1		2.9	3.0	5.7	4.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		0.0	0.4	0.9	0.2
Delay (s)	20.3		3.0	3.4	6.5	4.8
Level of Service	C		A	A	A	A
Approach Delay (s)	20.3			3.3	6.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	225	10	195	210	115	15	170	195	165	255	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1646	1721		1630	1610		1630	1716	1427	1630	1681	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1646	1721		1630	1610		1630	1716	1427	1630	1681	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	59	242	11	210	226	124	16	183	210	177	274	43
RTOR Reduction (vph)	0	2	0	0	16	0	0	0	160	0	4	0
Lane Group Flow (vph)	59	251	0	210	334	0	16	183	50	177	313	0
Confl. Bikes (#/hr)						5			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases		8			4			6	6		2	
Actuated Green, G (s)	6.6	18.2		15.0	26.6		2.4	20.0	20.0	13.4	31.0	
Effective Green, g (s)	6.6	18.2		15.0	26.6		2.4	20.0	20.0	13.4	31.0	
Actuated g/C Ratio	0.08	0.22		0.18	0.31		0.03	0.24	0.24	0.16	0.37	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8	4.8	2.5	4.8	
Lane Grp Cap (vph)	128	370		289	506		46	405	337	258	615	
v/s Ratio Prot	0.04	0.15		c0.13	c0.21		0.01	0.11		c0.11	c0.19	
v/s Ratio Perm									0.03			
v/c Ratio	0.46	0.68		0.73	0.66		0.35	0.45	0.15	0.69	0.51	
Uniform Delay, d1	37.3	30.5		32.9	25.1		40.3	27.6	25.6	33.6	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	4.5		8.3	2.9		3.3	1.6	0.4	6.8	1.3	
Delay (s)	39.2	35.0		41.1	28.0		43.6	29.2	25.9	40.4	22.2	
Level of Service	D	C		D	C		D	C	C	D	C	
Approach Delay (s)		35.8			32.9			28.1			28.7	
Approach LOS		D			C			C			C	

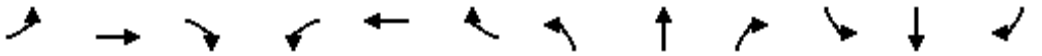
Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	50	20	5	55	95	15	235	1	120	295	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0	5.0		7.0			7.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frpb, ped/bikes		1.00			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.97			1.00	0.85		1.00			0.99	
Flt Protected		0.99			1.00	1.00		1.00			0.99	
Satd. Flow (prot)		1658			1725	1453		3216			3186	
Flt Permitted		0.96			0.97	1.00		0.90			0.79	
Satd. Flow (perm)		1607			1687	1453		2888			2540	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	11	56	22	6	62	107	17	264	1	135	331	22
RTOR Reduction (vph)	0	15	0	0	0	74	0	1	0	0	5	0
Lane Group Flow (vph)	0	74	0	0	68	33	0	281	0	0	483	0
Confl. Peds. (#/hr)	4		8	8		4	4		15	15		4
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)		10.5			10.5	10.5		11.4			11.4	
Effective Green, g (s)		10.5			10.5	10.5		11.4			11.4	
Actuated g/C Ratio		0.31			0.31	0.31		0.34			0.34	
Clearance Time (s)		5.0			5.0	5.0		7.0			7.0	
Vehicle Extension (s)		5.3			5.3	5.3		2.5			2.5	
Lane Grp Cap (vph)		497			522	450		971			854	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04	0.02		0.10			c0.19	
v/c Ratio		0.15			0.13	0.07		0.29			0.57	
Uniform Delay, d1		8.5			8.4	8.3		8.3			9.2	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.3			0.3	0.2		0.1			0.7	
Delay (s)		8.8			8.7	8.4		8.4			9.9	
Level of Service		A			A	A		A			A	
Approach Delay (s)		8.8			8.5			8.4			9.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	33.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	40	5	10	30	40	5	185	10	35	180	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0			5.0	5.0	4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1622	1684			1711	1436	1595	1670		1614	1699	1411
Flt Permitted	0.89	1.00			0.90	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1518	1684			1562	1436	1595	1670		1614	1699	1411
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	57	41	5	10	31	41	5	191	10	36	186	88
RTOR Reduction (vph)	0	4	0	0	0	36	0	2	0	0	0	47
Lane Group Flow (vph)	57	42	0	0	41	5	5	199	0	36	186	41
Confl. Peds. (#/hr)	6		2	2		6	3					3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						2
Actuated Green, G (s)	4.5	4.5			4.5	4.5	0.8	18.3		1.0	18.5	18.5
Effective Green, g (s)	4.5	4.5			4.5	4.5	0.8	18.3		1.0	18.5	18.5
Actuated g/C Ratio	0.11	0.11			0.11	0.11	0.02	0.47		0.03	0.47	0.47
Clearance Time (s)	5.0	5.0			5.0	5.0	4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	4.8		2.5	4.8	4.8
Lane Grp Cap (vph)	173	192			178	164	32	777		41	799	664
v/s Ratio Prot		0.02					0.00	c0.12		c0.02	0.11	
v/s Ratio Perm	c0.04				0.03	0.00						0.03
v/c Ratio	0.33	0.22			0.23	0.03	0.16	0.26		0.88	0.23	0.06
Uniform Delay, d1	16.0	15.8			15.8	15.5	18.9	6.4		19.1	6.2	5.7
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4			0.5	0.1	1.7	0.3		92.5	0.3	0.1
Delay (s)	16.8	16.2			16.3	15.5	20.6	6.7		111.6	6.5	5.7
Level of Service	B	B			B	B	C	A		F	A	A
Approach Delay (s)		16.6			15.9			7.1			18.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	39.3	Sum of lost time (s)	15.5
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	30	20	185	165	10
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	5	3	3	3	3
Mvmt Flow	11	34	22	208	185	11

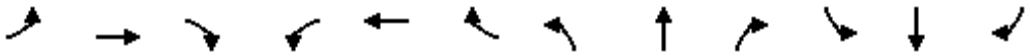
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	444	196	197	0	-	0
Stage 1	191	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Follow-up Headway	4	3	2	-	-	-
Pot Capacity-1 Maneuver	566	838	1370	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	556	835	1364	-	-	-
Mov Capacity-2 Maneuver	556	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	768	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	1	0

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1364	-	742	-	-
HCM Lane V/C Ratio	0.016	-	0.061	-	-
HCM Control Delay (s)	7.684	0	10.2	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.05	-	0.193	-	-

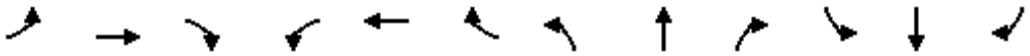
Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	315	15	100	280	20	15	60	70	30	90	260
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1704		1630	1695		1646	1733	1439	1630	1525	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1630	1704		1630	1695		1646	1733	1439	1630	1525	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	186	335	16	106	298	21	16	64	74	32	96	277
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	56	0	120	0
Lane Group Flow (vph)	186	349	0	106	316	0	16	64	18	32	253	0
Confl. Peds. (#/hr)	7					7			2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	8.9	19.2		6.3	16.6		0.9	13.6	13.6	2.2	14.9	
Effective Green, g (s)	8.9	19.2		6.3	16.6		0.9	13.6	13.6	2.2	14.9	
Actuated g/C Ratio	0.16	0.35		0.11	0.30		0.02	0.25	0.25	0.04	0.27	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
Vehicle Extension (s)	2.0	4.1		2.0	3.5		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)	262	591		185	508		26	426	353	64	410	
v/s Ratio Prot	c0.11	c0.20		0.07	0.19		0.01	0.04		c0.02	c0.17	
v/s Ratio Perm									0.01			
v/c Ratio	0.71	0.59		0.57	0.62		0.62	0.15	0.05	0.50	0.62	
Uniform Delay, d1	22.0	14.8		23.2	16.7		27.0	16.3	15.9	26.0	17.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.0	1.9		2.7	2.5		26.7	0.2	0.1	2.2	2.8	
Delay (s)	29.0	16.7		25.9	19.1		53.7	16.5	16.0	28.2	20.5	
Level of Service	C	B		C	B		D	B	B	C	C	
Approach Delay (s)		21.0			20.8			20.1			21.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	185	10	45	165	45	20	40	25	35	60	145
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1614	1683		1630	1650			1705	1429	1633	1526	
Flt Permitted	0.95	1.00		0.95	1.00			0.89	1.00	0.72	1.00	
Satd. Flow (perm)	1614	1683		1630	1650			1542	1429	1229	1526	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	80	197	11	48	176	48	21	43	27	37	64	154
RTOR Reduction (vph)	0	2	0	0	12	0	0	0	17	0	98	0
Lane Group Flow (vph)	80	206	0	48	212	0	0	64	10	37	120	0
Confl. Peds. (#/hr)	10					10			9	9		
Confl. Bikes (#/hr)			3			1			1			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	3	8		7	4			6			2	
Permitted Phases		8			4		6	6	6	2	2	
Actuated Green, G (s)	4.0	10.7		2.3	9.0			14.3	14.3	14.3	14.3	
Effective Green, g (s)	4.0	10.7		2.3	9.0			14.3	14.3	14.3	14.3	
Actuated g/C Ratio	0.10	0.27		0.06	0.23			0.36	0.36	0.36	0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	164	458		95	377			561	519	447	555	
v/s Ratio Prot	c0.05	0.12		0.03	c0.13						c0.08	
v/s Ratio Perm								0.04	0.01	0.03		
v/c Ratio	0.49	0.45		0.51	0.56			0.11	0.02	0.08	0.22	
Uniform Delay, d1	16.7	11.9		17.9	13.4			8.3	8.0	8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.5		3.1	1.6			0.3	0.0	0.2	0.6	
Delay (s)	18.3	12.4		21.0	15.0			8.6	8.0	8.4	9.2	
Level of Service	B	B		C	B			A	A	A	A	
Approach Delay (s)		14.0			16.0			8.4			9.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	39.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	50	5	35	50	15	10	40	30	20	45	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	5	5	5	1	1	1	1	1	1
Mvmt Flow	21	53	5	37	53	16	11	43	32	21	48	32
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.2	8.3	7.8	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	100%	0%	100%	0%	21%
Vol Thru, %	50%	0%	91%	0%	77%	47%
Vol Right, %	38%	0%	9%	0%	23%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	20	55	35	65	95
LT Vol	40	0	50	0	50	45
Through Vol	30	0	5	0	15	30
RT Vol	10	20	0	35	0	20
Lane Flow Rate	85	21	59	37	69	101
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.102	0.033	0.081	0.058	0.094	0.122
Departure Headway (Hd)	4.299	5.538	4.971	5.58	4.915	4.333
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	835	647	721	643	730	829
Service Time	2.317	3.263	2.696	3.304	2.639	2.351
HCM Lane V/C Ratio	0.102	0.032	0.082	0.058	0.095	0.122
HCM Control Delay	7.8	8.5	8.1	8.6	8.2	8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0.3	0.2	0.3	0.4

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	1	1	5	55	1	75	5	370	45
Conflicting Peds, #/hr	0	0	1	1	0	0	5	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	135	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3
Mvmt Flow	1	1	6	61	1	83	6	411	50

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	980	963	384	941	943	442	384	0	0
Stage 1	490	490	-	448	448	-	-	-	-
Stage 2	490	473	-	493	495	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.227	-	-
Pot Cap-1 Maneuver	231	258	668	243	263	615	1169	-	-
Stage 1	564	552	-	590	573	-	-	-	-
Stage 2	564	562	-	558	546	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	189	243	665	228	247	612	1164	-	-
Mov Cap-2 Maneuver	189	243	-	228	247	-	-	-	-
Stage 1	560	523	-	585	569	-	-	-	-
Stage 2	481	558	-	522	517	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	13.9	18.1	
HCM LOS	B	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	414	228	600	1089	-	-
HCM Lane V/C Ratio	0.005	-	-	0.019	0.268	0.141	0.051	-	-
HCM Control Delay (s)	8.1	0	-	13.9	26.5	12	8.5	-	-
HCM Lane LOS	A	A	-	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0	0	-	-

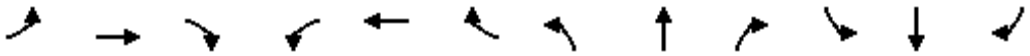
Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	50	335	10
Conflicting Peds, #/hr	0	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	240	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	90	90	90
Heavy Vehicles, %	3	3	3
Mvmt Flow	56	372	11

Major/Minor	Major2		
Conflicting Flow All	462	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1094	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1089	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	
HCM LOS	

Minor Lane/Major Mvmt



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	225	30	30	185	10	30	20	35	10	25	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.98			0.99	
Satd. Flow (prot)		1691			1685			1592			1662	
Flt Permitted		0.99			0.95			0.86			0.91	
Satd. Flow (perm)		1677			1607			1398			1526	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	259	34	34	213	11	34	23	40	11	29	11
RTOR Reduction (vph)	0	7	0	0	2	0	0	34	0	0	9	0
Lane Group Flow (vph)	0	297	0	0	256	0	0	63	0	0	42	0
Confl. Peds. (#/hr)	21		31	31		21	18		8	8		18
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		21.5			21.5			4.9			4.9	
Effective Green, g (s)		21.5			21.5			4.9			4.9	
Actuated g/C Ratio		0.64			0.64			0.15			0.15	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		1079			1034			205			223	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.16			c0.04			0.03	
v/c Ratio		0.28			0.25			0.31			0.19	
Uniform Delay, d1		2.6			2.5			12.7			12.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.0			1.0			0.5	
Delay (s)		2.6			2.6			13.7			13.0	
Level of Service		A			A			B			B	
Approach Delay (s)		2.6			2.6			13.7			13.0	
Approach LOS		A			A			B			B	

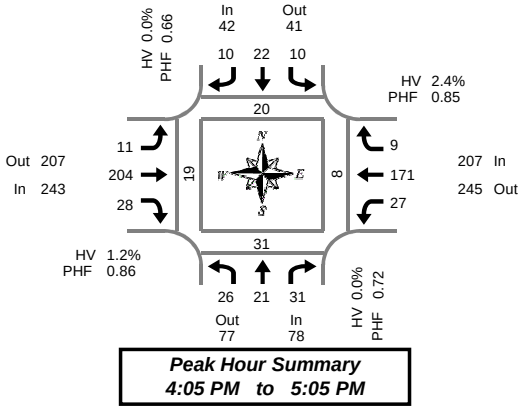
Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Traffic Counts

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



6th St & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	3	1	3	0	0	2	1	0	1	13	1	0	0	9	0	0	34	1	2	0	0
4:05 PM	4	0	1	0	1	1	2	0	0	17	2	0	2	16	0	0	46	0	6	0	0
4:10 PM	1	1	5	0	1	4	1	0	1	24	3	0	3	10	0	2	54	4	4	0	3
4:15 PM	1	1	1	0	0	1	0	0	1	18	3	2	1	18	0	0	45	3	3	0	4
4:20 PM	5	1	0	0	0	3	3	0	1	14	1	1	3	11	1	0	43	3	3	1	1
4:25 PM	4	3	4	0	1	2	0	0	0	11	1	0	1	12	0	0	39	1	0	3	3
4:30 PM	0	2	4	0	4	3	0	0	1	13	1	0	1	14	2	0	45	2	2	3	0
4:35 PM	3	4	3	0	1	2	2	0	0	20	3	0	2	17	0	0	57	0	0	0	0
4:40 PM	2	1	3	0	0	0	0	0	0	13	2	0	2	12	2	0	37	5	4	0	1
4:45 PM	2	2	1	0	0	3	1	0	2	20	5	0	3	12	1	0	52	2	0	0	0
4:50 PM	2	2	2	0	1	1	0	0	0	24	2	0	4	18	0	1	56	0	3	0	2
4:55 PM	2	2	6	0	1	0	1	0	1	14	3	0	3	19	1	0	53	0	4	1	4
5:00 PM	0	2	1	0	0	2	0	0	4	16	2	0	2	12	2	0	43	0	2	0	1
5:05 PM	3	2	3	0	1	2	0	0	5	10	6	0	0	7	1	0	40	3	0	1	1
5:10 PM	2	3	3	0	0	2	1	0	0	16	2	0	2	19	0	0	50	4	0	1	2
5:15 PM	0	0	3	0	1	3	1	0	0	17	2	0	4	18	0	1	49	5	0	0	3
5:20 PM	0	0	2	0	0	2	0	0	0	12	0	0	0	20	3	0	39	0	1	0	0
5:25 PM	4	1	5	1	2	2	0	0	0	14	2	0	0	9	0	0	39	4	3	0	0
5:30 PM	2	3	2	0	0	1	0	0	0	13	0	0	2	21	0	0	44	0	1	0	1
5:35 PM	4	0	2	0	3	1	1	0	1	6	4	0	1	20	0	0	43	0	1	0	0
5:40 PM	4	0	0	0	0	1	2	0	0	13	2	1	2	12	0	0	36	1	0	1	0
5:45 PM	2	3	5	0	0	0	1	0	1	16	1	0	2	21	0	0	52	0	1	0	0
5:50 PM	1	2	3	0	0	4	1	0	0	9	1	2	2	12	2	0	37	0	1	1	1
5:55 PM	1	2	0	0	1	3	0	0	1	12	1	0	0	13	0	0	34	2	0	1	0
Total Survey	52	38	62	1	18	45	18	0	20	355	50	6	42	352	15	4	1,067	40	41	13	27

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	8	2	9	0	2	7	4	0	2	54	6	0	5	35	0	2	134	5	12	0	3
4:15 PM	10	5	5	0	1	6	3	0	2	43	5	3	5	41	1	0	127	7	6	4	8
4:30 PM	5	7	10	0	5	5	2	0	1	46	6	0	5	43	4	0	139	7	6	3	1
4:45 PM	6	6	9	0	2	4	2	0	3	58	10	0	10	49	2	1	161	2	7	1	6
5:00 PM	5	7	7	0	1	6	1	0	9	42	10	0	4	38	3	0	133	7	2	2	4
5:15 PM	4	1	10	1	3	7	1	0	0	43	4	0	4	47	3	1	127	9	4	0	3
5:30 PM	10	3	4	0	3	3	3	0	1	32	6	1	5	53	0	0	123	1	2	1	1
5:45 PM	4	7	8	0	1	7	2	0	2	37	3	2	4	46	2	0	123	2	2	2	1
Total Survey	52	38	62	1	18	45	18	0	20	355	50	6	42	352	15	4	1,067	40	41	13	27

Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	78	77	155	0	42	41	83	0	243	207	450	3	207	245	452	3	570	20	31	8	19
%HV	0.0%				0.0%				1.2%				2.4%				1.4%				
PHF	0.72				0.66				0.86				0.85				0.89				

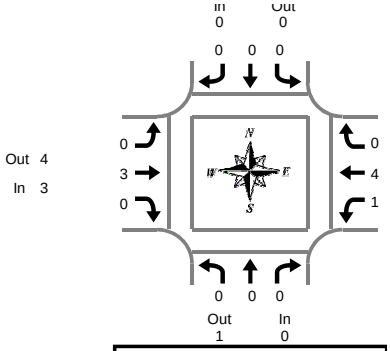
By Movement	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	26	21	31	78	10	22	10	42	11	204	28	243	27	171	9	207	570
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	1.2%	3.7%	2.3%	0.0%	2.4%	1.4%
PHF	0.65	0.58	0.70	0.72	0.42	0.69	0.63	0.66	0.55	0.86	0.70	0.86	0.68	0.87	0.56	0.85	0.89

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	29	20	33	0	10	22	11	0	8	201	27	3	25	168	7	3	561	21	31	8	18
4:15 PM	26	25	31	0	9	21	8	0	15	189	31	3	24	171	10	1	560	23	21	10	19
4:30 PM	20	21	36	1	11	22	6	0	13	189	30	0	23	177	12	2	560	25	19	6	14
4:45 PM	25	17	30	1	9	20	7	0	13	175	30	1	23	187	8	2	544	19	15	4	14
5:00 PM	23	18	29	1	8	23	7	0	12	154	23	3	17	184	8	1	506	19	10	5	9

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



6th St & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:05 PM to 5:05 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:10 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:25 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	0	6	0	6	1	5	1	7	13

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	0	6	0	6	1	5	1	7	13

Heavy Vehicle Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound 6th St			Southbound 6th St			Eastbound E Main St			Westbound E Main St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	1	1	0	0	0	3	4	7	5	3	8	8
PHF	0.00			0.00			0.38			0.63			0.67

By Movement	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	3	0	3	1	4	0	5	8
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38	0.25	0.50	0.00	0.63	0.67

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	3	1	4	0	5	8
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	3	1	5	6
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	1	2	1	4	6
4:45 PM	0	0	0	0	0	0	0	0	0	4	0	4	1	1	1	3	7
5:00 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	1	1	2	5

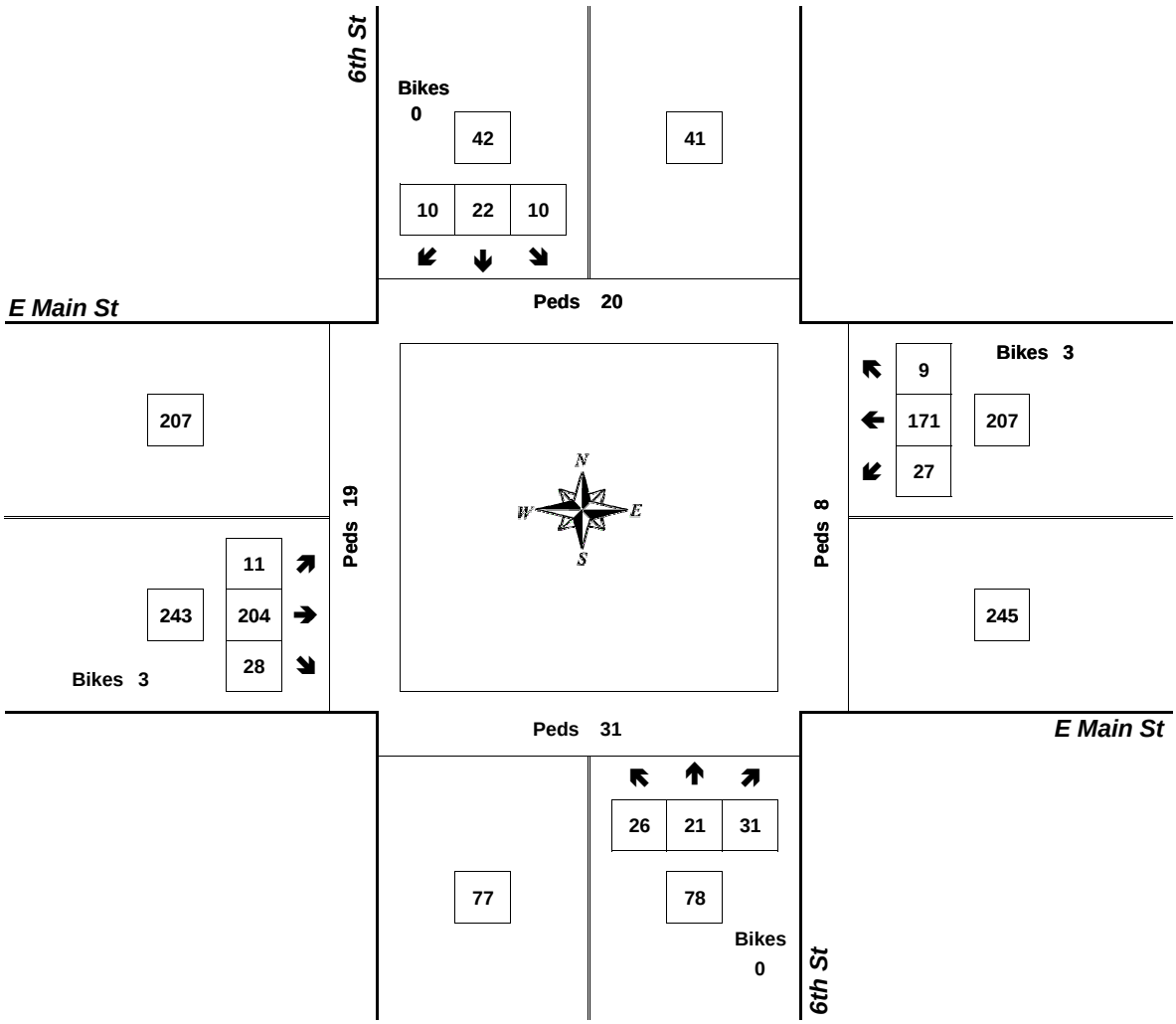
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

6th St & E Main St

4:05 PM to 5:05 PM
Tuesday, March 04, 2014

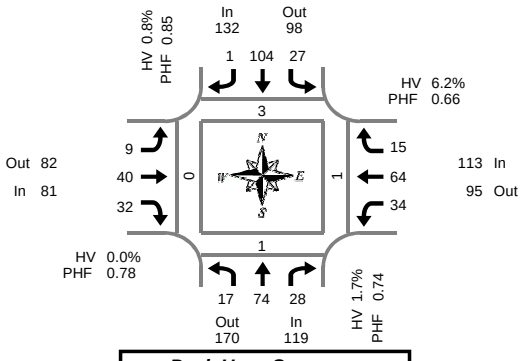


Approach	PHF	HV%	Volume
EB	0.86	1.2%	243
WB	0.85	2.4%	207
NB	0.72	0.0%	78
SB	0.66	0.0%	42
Intersection	0.89	1.4%	570

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:55 PM to 5:55 PM

6th St & Taylor Ave

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	3	3	0	2	7	0	1	0	2	0	0	3	1	3	0	25	0	0	0	0
4:05 PM	1	2	0	0	0	6	0	0	0	2	4	0	4	4	1	0	24	0	0	0	0
4:10 PM	4	8	0	0	3	8	0	0	0	2	2	0	3	2	3	0	35	0	0	1	0
4:15 PM	1	7	1	0	1	8	0	0	2	1	1	0	2	2	1	0	27	0	0	0	0
4:20 PM	2	4	1	0	2	8	0	0	0	3	1	0	5	2	1	0	29	0	0	0	0
4:25 PM	3	9	1	0	0	4	1	0	1	4	1	0	4	4	2	0	34	2	0	0	0
4:30 PM	2	5	2	0	2	11	1	0	0	3	1	0	3	4	1	0	35	0	1	2	0
4:35 PM	2	7	1	0	1	9	0	0	1	3	3	0	3	5	3	0	38	0	0	0	0
4:40 PM	0	3	2	0	2	9	0	0	0	6	2	0	4	5	2	0	35	1	0	0	0
4:45 PM	0	7	3	0	3	4	0	0	0	3	1	0	7	4	1	0	33	0	0	0	1
4:50 PM	1	8	3	0	1	5	1	0	0	2	2	0	4	4	1	0	32	0	1	0	0
4:55 PM	1	8	1	0	1	11	0	0	1	3	2	0	4	4	0	0	36	0	1	0	0
5:00 PM	4	11	4	0	1	7	0	0	0	0	2	0	5	3	1	0	38	0	0	0	0
5:05 PM	3	7	1	0	4	7	0	0	0	3	6	0	2	3	1	0	37	0	0	0	0
5:10 PM	1	4	1	0	0	11	0	0	1	3	2	0	4	4	1	0	32	0	0	0	0
5:15 PM	0	5	4	0	0	7	0	0	1	5	2	0	3	2	2	0	31	0	0	0	0
5:20 PM	0	6	4	0	2	9	0	0	2	2	3	0	0	4	2	0	34	0	0	0	0
5:25 PM	1	9	4	0	3	3	0	0	1	0	2	0	3	4	1	0	31	0	0	0	0
5:30 PM	1	5	2	0	4	15	0	0	1	3	3	0	4	6	1	0	45	0	0	0	0
5:35 PM	2	5	3	0	1	7	0	0	1	9	1	0	4	8	2	1	43	2	0	1	0
5:40 PM	1	3	1	0	0	8	1	0	0	4	2	0	1	14	3	0	38	0	0	0	0
5:45 PM	2	5	1	0	6	11	0	0	0	5	4	0	3	3	1	0	41	0	0	0	0
5:50 PM	1	6	2	0	5	8	0	0	1	3	3	0	1	9	0	0	39	1	0	0	0
5:55 PM	3	13	1	0	2	6	1	0	0	3	0	0	4	2	0	0	35	0	0	0	0
Total Survey	37	150	46	0	46	189	5	1	13	74	50	0	80	103	34	1	827	6	3	4	1

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	6	13	3	0	5	21	0	1	0	6	6	0	10	7	7	0	84	0	0	1	0
4:15 PM	6	20	3	0	3	20	1	0	3	8	3	0	11	8	4	0	90	2	0	0	0
4:30 PM	4	15	5	0	5	29	1	0	1	12	6	0	10	14	6	0	108	1	1	2	0
4:45 PM	2	23	7	0	5	20	1	0	1	8	5	0	15	12	2	0	101	0	2	0	1
5:00 PM	8	22	6	0	5	25	0	0	1	6	10	0	11	10	3	0	107	0	0	0	0
5:15 PM	1	20	12	0	5	19	0	0	4	7	7	0	6	10	5	0	96	0	0	0	0
5:30 PM	4	13	6	0	5	30	1	0	2	16	6	0	9	28	6	1	126	2	0	1	0
5:45 PM	6	24	4	0	13	25	1	0	1	11	7	0	8	14	1	0	115	1	0	0	0
Total Survey	37	150	46	0	46	189	5	1	13	74	50	0	80	103	34	1	827	6	3	4	1

Peak Hour Summary
4:55 PM to 5:55 PM

By Approach	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	119	170	289	0	132	98	230	0	81	82	163	0	113	95	208	1	445	3	1	1	0
%HV	1.7%				0.8%				0.0%				6.2%				2.2%				
PHF	0.74				0.85				0.78				0.66				0.88				

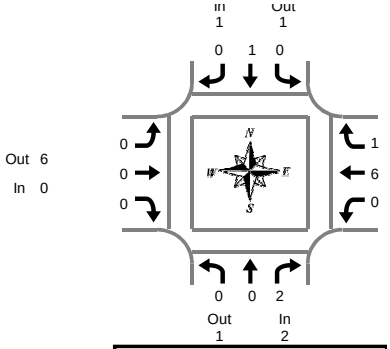
By Movement	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	17	74	28	119	27	104	1	132	9	40	32	81	34	64	15	113	445
%HV	0.0%	0.0%	7.1%	1.7%	0.0%	1.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	9.4%	6.7%	6.2%	2.2%
PHF	0.53	0.71	0.58	0.74	0.61	0.87	0.25	0.85	0.56	0.56	0.80	0.78	0.77	0.57	0.63	0.66	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	18	71	18	0	18	90	3	1	5	34	20	0	46	41	19	0	383	3	3	3	1
4:15 PM	20	80	21	0	18	94	3	0	6	34	24	0	47	44	15	0	406	3	3	2	1
4:30 PM	15	80	30	0	20	93	2	0	7	33	28	0	42	46	16	0	412	1	3	2	1
4:45 PM	15	78	31	0	20	94	2	0	8	37	28	0	41	60	16	1	430	2	2	1	1
5:00 PM	19	79	28	0	28	99	2	0	8	40	30	0	34	62	15	1	444	3	0	1	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



6th St & Taylor Ave

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:55 PM to 5:55 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:25 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
5:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	1	2	4	0	1	0	1	0	1	0	1	0	7	2	9	15

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	1	1	2	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	3
5:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	2	1	3	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Survey	1	1	2	4	0	1	0	1	0	1	0	1	0	7	2	9	15

Heavy Vehicle Peak Hour Summary
4:55 PM to 5:55 PM

By Approach	Northbound 6th St			Southbound 6th St			Eastbound Taylor Ave			Westbound Taylor Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	1	3	1	1	2	0	6	6	7	2	9	10
PHF	0.50			0.25			0.00			0.58			0.63

By Movement	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	2	2	0	1	0	1	0	0	0	0	0	6	1	7	10
PHF	0.00	0.00	0.50	0.50	0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.50	0.25	0.58	0.63

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 6th St				Southbound 6th St				Eastbound Taylor Ave				Westbound Taylor Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	1	0	2	0	1	0	1	0	1	0	1	0	2	1	3	7
4:15 PM	1	1	1	3	0	1	0	1	0	1	0	1	0	2	1	3	8
4:30 PM	0	0	1	1	0	1	0	1	0	1	0	1	0	2	0	2	5
4:45 PM	0	0	2	2	0	1	0	1	0	1	0	1	0	4	1	5	9
5:00 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	5	1	6	8

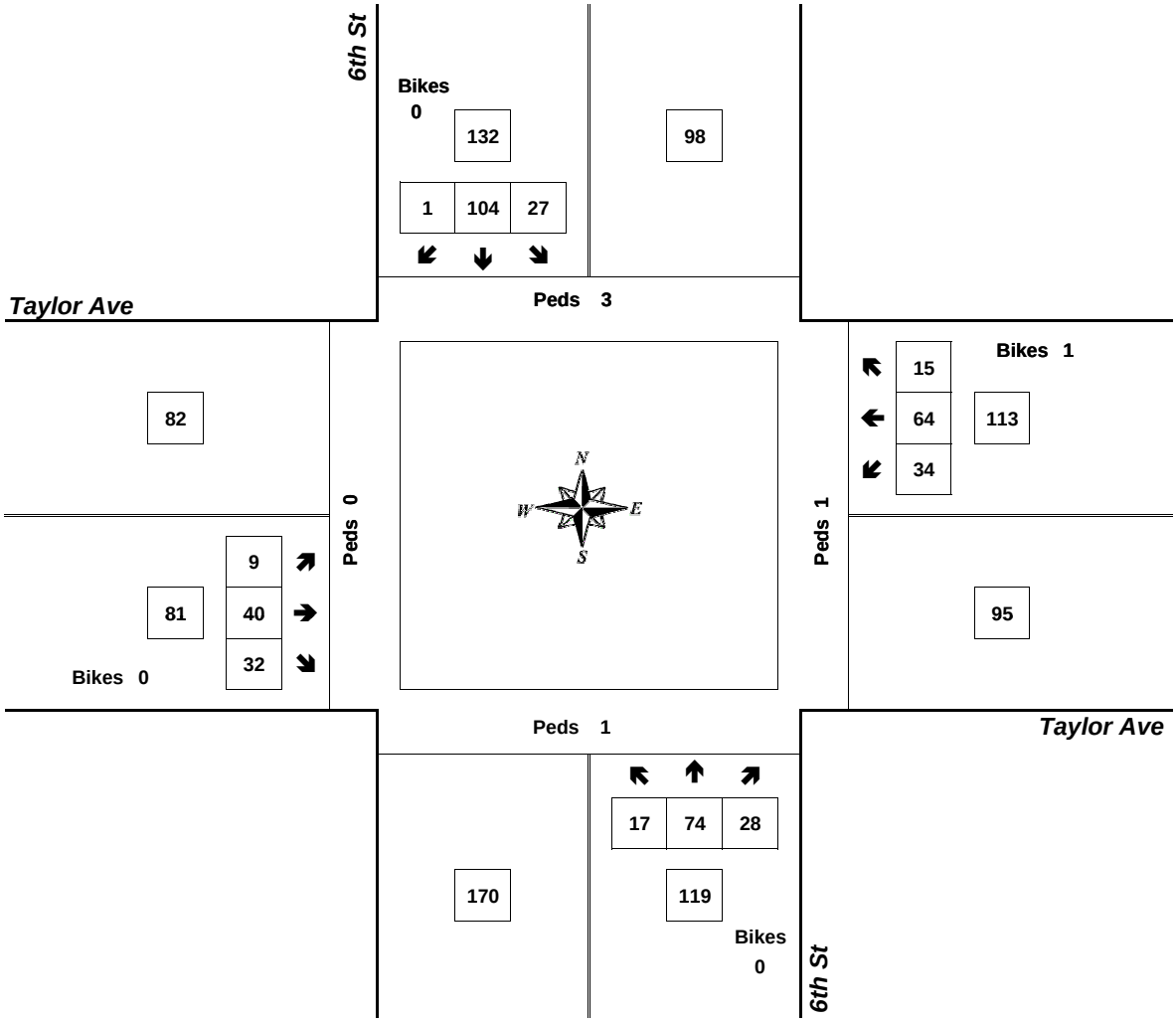
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

6th St & Taylor Ave

4:55 PM to 5:55 PM
Wednesday, March 05, 2014

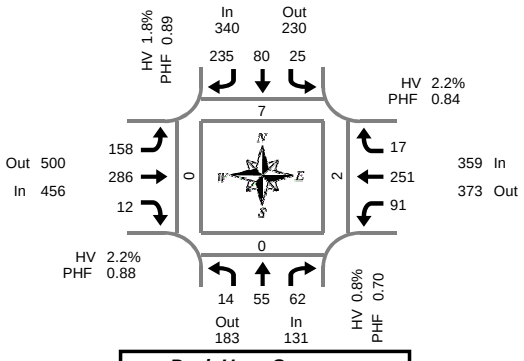


Approach	PHF	HV%	Volume
EB	0.78	0.0%	81
WB	0.66	6.2%	113
NB	0.74	1.7%	119
SB	0.85	0.8%	132
Intersection	0.88	2.2%	445

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

Gateway Blvd & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	7	7	0	2	6	20	0	15	19	1	0	13	26	2	0	119	0	0	0	0
4:05 PM	1	5	12	0	1	5	16	0	15	27	1	0	3	22	1	0	109	0	0	0	0
4:10 PM	3	3	8	0	5	8	12	0	13	32	2	0	5	22	2	0	115	3	0	0	0
4:15 PM	0	2	5	0	2	3	26	0	10	30	0	0	5	20	3	0	106	0	0	0	0
4:20 PM	1	8	2	0	1	7	21	0	10	26	2	0	11	22	3	0	114	0	0	2	0
4:25 PM	2	6	1	0	1	9	20	0	20	26	0	0	12	22	3	0	122	0	0	0	0
4:30 PM	1	7	4	0	1	6	25	0	12	20	0	0	8	25	1	0	110	0	0	0	0
4:35 PM	3	5	1	0	1	6	20	0	11	23	1	0	9	21	0	0	101	2	0	0	0
4:40 PM	1	4	3	0	5	7	24	0	11	14	1	0	8	13	0	0	91	2	0	0	0
4:45 PM	0	6	7	0	4	6	16	0	10	22	2	0	5	13	1	0	92	0	0	0	0
4:50 PM	0	2	5	0	0	8	18	0	14	20	2	0	4	21	0	0	94	0	0	0	0
4:55 PM	1	0	7	0	2	9	17	0	17	27	0	0	8	24	1	0	113	0	0	0	0
5:00 PM	3	3	5	0	1	8	15	0	17	18	1	0	11	15	4	0	101	0	0	0	1
5:05 PM	1	6	5	0	4	4	24	0	11	16	0	0	12	23	3	0	109	0	0	0	0
5:10 PM	0	4	6	0	4	6	18	0	12	21	1	0	3	14	0	0	89	3	0	0	0
5:15 PM	1	3	4	0	2	8	14	0	21	16	1	0	8	17	2	0	97	0	0	0	0
5:20 PM	3	6	4	0	1	14	17	0	17	19	2	0	5	21	0	0	109	4	0	0	0
5:25 PM	1	4	5	0	3	7	15	0	15	21	1	0	4	22	3	0	101	0	0	0	0
5:30 PM	1	5	8	0	5	12	21	0	12	25	0	0	5	24	1	0	119	0	0	0	0
5:35 PM	0	3	6	0	2	11	21	0	10	26	0	0	11	16	1	0	107	0	0	0	0
5:40 PM	2	2	4	0	0	8	16	0	5	24	2	0	5	18	2	0	88	0	0	0	0
5:45 PM	1	2	6	0	2	8	21	0	12	16	0	0	6	16	1	0	91	2	1	1	2
5:50 PM	1	5	8	0	1	6	17	0	9	18	2	0	4	14	2	0	87	0	0	0	0
5:55 PM	0	7	7	0	4	4	14	0	6	21	0	0	5	16	2	0	86	0	0	0	0
Total Survey	28	105	130	0	54	176	448	0	305	527	22	0	170	467	38	0	2,470	16	1	3	3

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	5	15	27	0	8	19	48	0	43	78	4	0	21	70	5	0	343	3	0	0	0
4:15 PM	3	16	8	0	4	19	67	0	40	82	2	0	28	64	9	0	342	0	0	2	0
4:30 PM	5	16	8	0	7	19	69	0	34	57	2	0	25	59	1	0	302	4	0	0	0
4:45 PM	1	8	19	0	6	23	51	0	41	69	4	0	17	58	2	0	299	0	0	0	0
5:00 PM	4	13	16	0	9	18	57	0	40	55	2	0	26	52	7	0	299	3	0	0	1
5:15 PM	5	13	13	0	6	29	46	0	53	56	4	0	17	60	5	0	307	4	0	0	0
5:30 PM	3	10	18	0	7	31	58	0	27	75	2	0	21	58	4	0	314	0	0	0	0
5:45 PM	2	14	21	0	7	18	52	0	27	55	2	0	15	46	5	0	264	2	1	1	2
Total Survey	28	105	130	0	54	176	448	0	305	527	22	0	170	467	38	0	2,470	16	1	3	3

Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	131	183	314	0	340	230	570	0	456	500	956	0	359	373	732	0	1,286	7	0	2	0
%HV	0.8%				1.8%				2.2%				2.2%				1.9%				
PHF	0.70				0.89				0.88				0.84				0.93				

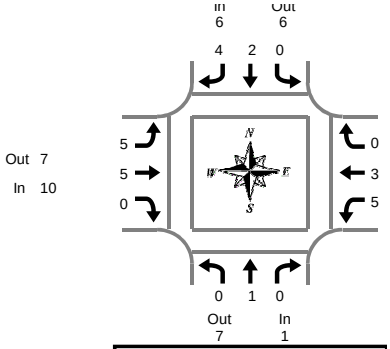
By Movement	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	14	55	62	131	25	80	235	340	158	286	12	456	91	251	17	359	1,286
%HV	0.0%	1.8%	0.0%	0.8%	0.0%	2.5%	1.7%	1.8%	3.2%	1.7%	0.0%	2.2%	5.5%	1.2%	0.0%	2.2%	1.9%
PHF	0.58	0.65	0.57	0.70	0.63	0.87	0.85	0.89	0.92	0.80	0.60	0.88	0.73	0.90	0.47	0.84	0.93

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	14	55	62	0	25	80	235	0	158	286	12	0	91	251	17	0	1,286	7	0	2	0
4:15 PM	13	53	51	0	26	79	244	0	155	263	10	0	96	233	19	0	1,242	7	0	2	1
4:30 PM	15	50	56	0	28	89	223	0	168	237	12	0	85	229	15	0	1,207	11	0	0	1
4:45 PM	13	44	66	0	28	101	212	0	161	255	12	0	81	228	18	0	1,219	7	0	0	1
5:00 PM	14	50	68	0	29	96	213	0	147	241	10	0	79	216	21	0	1,184	9	1	1	3

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Gateway Blvd & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	0	1	1	0	2	0	2	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:20 PM	0	0	0	0	0	1	0	1	2	0	0	2	1	0	0	1	4
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	2	3
4:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:40 PM	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	1	3
4:45 PM	0	1	0	1	0	0	1	1	1	0	0	1	0	0	0	0	3
4:50 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:55 PM	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:20 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	1	1	2	0	2	4	6	8	8	0	16	5	5	0	10	34

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	1	1	1	2	0	3	0	1	0	1	5
4:15 PM	0	0	0	0	0	1	0	1	3	0	0	3	2	1	0	3	7
4:30 PM	0	0	0	0	0	1	1	2	0	2	0	2	2	1	0	3	7
4:45 PM	0	1	0	1	0	0	2	2	1	1	0	2	1	0	0	1	6
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:15 PM	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	1	2	0	3	0	1	0	1	4
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Survey	0	1	1	2	0	2	4	6	8	8	0	16	5	5	0	10	34

Heavy Vehicle Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound Gateway Blvd			Southbound Gateway Blvd			Eastbound E Main St			Westbound E Main St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	7	8	6	6	12	10	7	17	8	5	13	25
PHF	0.25			0.50			0.50			0.40			0.69

By Movement	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	0	1	0	2	4	6	5	5	0	10	5	3	0	8	25
PHF	0.00	0.25	0.00	0.25	0.00	0.50	0.50	0.50	0.42	0.63	0.00	0.50	0.42	0.38	0.00	0.40	0.69

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

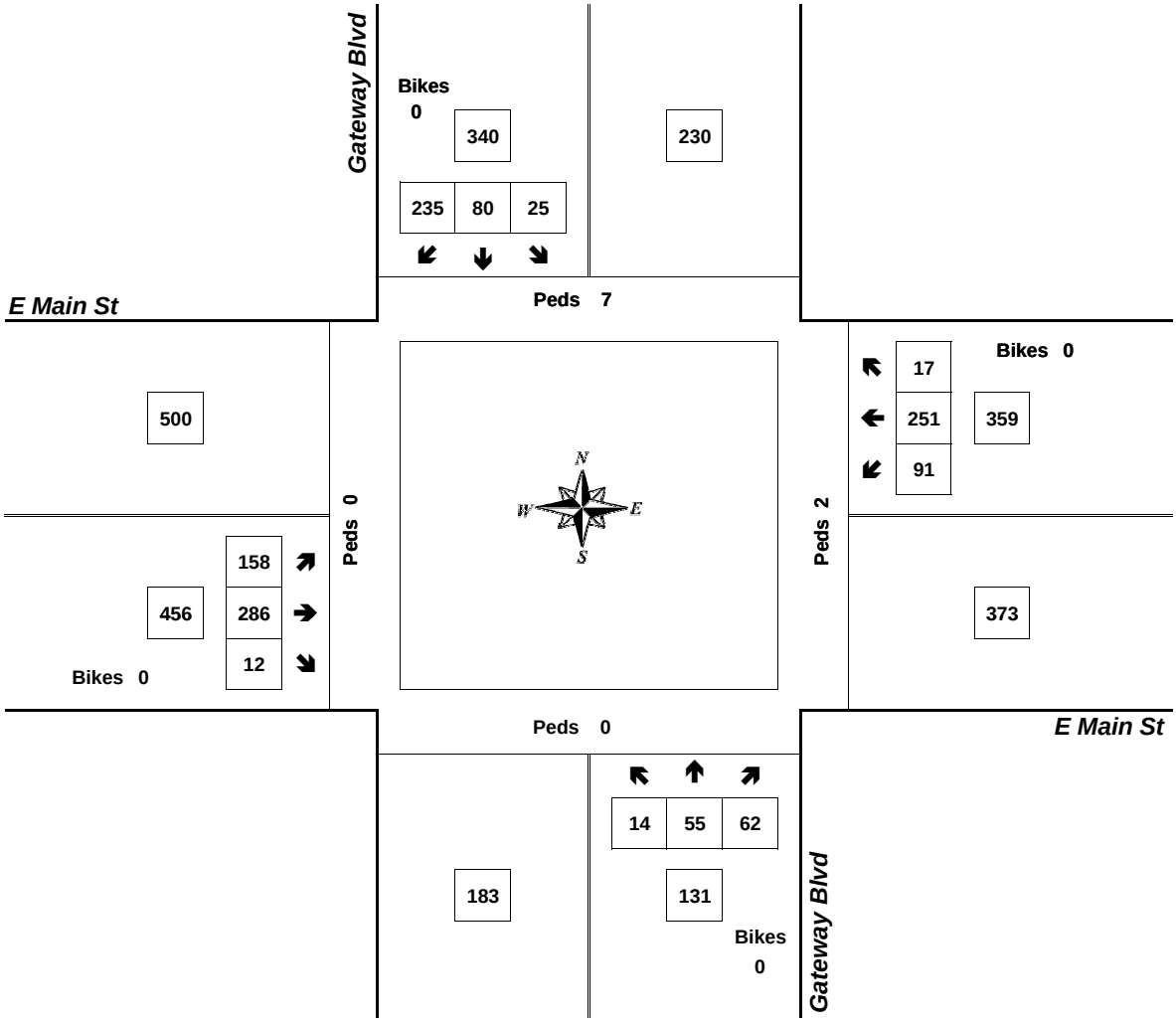
Interval Start Time	Northbound Gateway Blvd				Southbound Gateway Blvd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	0	2	4	6	5	5	0	10	5	3	0	8	25
4:15 PM	0	1	0	1	0	2	3	5	4	4	0	8	5	3	0	8	22
4:30 PM	0	1	1	2	0	1	3	4	2	4	0	6	3	2	0	5	17
4:45 PM	0	1	1	2	0	0	2	2	3	4	0	7	1	2	0	3	14
5:00 PM	0	0	1	1	0	0	0	0	3	3	0	6	0	2	0	2	9

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

Gateway Blvd & E Main St

4:00 PM to 5:00 PM
Tuesday, March 04, 2014

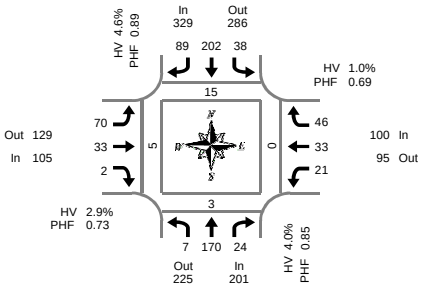


Approach	PHF	HV%	Volume
EB	0.88	2.2%	456
WB	0.84	2.2%	359
NB	0.70	0.8%	131
SB	0.89	1.8%	340
Intersection	0.93	1.9%	1,286

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
3:05 PM to 4:05 PM

Hwy 99 & 4th St

Wednesday, March 05, 2014
3:00 PM to 6:00 PM

5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	0	15	1	0	6	15	7	0	4	6	0	0	1	1	3	0	59	1	0	0	0
3:05 PM	1	12	2	0	6	14	6	0	5	1	1	0	0	0	4	0	52	0	0	0	0
3:10 PM	1	20	1	0	4	17	8	0	4	2	0	0	1	1	3	0	62	1	0	0	0
3:15 PM	0	7	2	0	4	16	1	0	5	3	0	0	5	3	3	0	49	2	0	0	1
3:20 PM	1	8	2	0	3	16	15	0	11	1	0	0	1	4	5	0	67	1	0	0	0
3:25 PM	0	13	0	0	2	17	4	0	3	2	1	0	2	2	5	0	51	1	1	0	1
3:30 PM	2	13	6	0	1	13	8	0	5	7	0	0	0	3	2	0	60	4	1	0	0
3:35 PM	1	22	1	0	4	19	7	0	5	5	0	0	3	2	2	0	71	0	0	0	2
3:40 PM	0	12	2	0	4	15	11	0	3	1	0	0	2	3	4	0	57	0	1	0	1
3:45 PM	0	12	6	0	4	17	8	0	4	4	0	0	5	6	5	0	71	6	0	0	0
3:50 PM	0	12	1	0	3	18	12	0	12	2	0	0	1	2	3	0	66	0	0	0	0
3:55 PM	0	16	0	0	2	14	3	0	10	4	0	0	1	5	8	0	63	0	0	0	0
4:00 PM	1	23	1	0	1	26	6	0	3	1	0	0	0	2	2	0	66	0	0	0	0
4:05 PM	0	17	0	0	3	14	4	0	3	4	0	0	1	3	2	0	51	0	0	0	0
4:10 PM	1	8	0	0	4	8	4	0	3	5	0	0	1	3	4	0	41	1	0	0	0
4:15 PM	1	14	1	0	2	14	9	0	7	2	0	0	1	1	3	0	55	0	0	0	0
4:20 PM	1	13	2	0	3	9	6	0	4	0	0	0	0	3	4	0	45	1	0	0	0
4:25 PM	0	12	0	0	3	9	8	0	7	2	2	0	1	3	3	0	50	1	0	0	0
4:30 PM	0	11	1	0	4	21	8	0	5	2	1	0	1	2	2	0	58	0	0	0	2
4:35 PM	0	13	2	0	2	12	7	0	5	9	0	0	3	2	4	0	59	0	0	0	0
4:40 PM	0	14	1	0	2	9	3	0	1	3	0	0	0	2	4	0	39	0	0	0	0
4:45 PM	0	16	1	0	3	10	7	0	5	0	0	0	0	2	2	0	46	1	2	0	0
4:50 PM	1	15	1	0	3	20	8	0	4	5	1	0	0	2	4	0	64	2	0	0	1
4:55 PM	0	10	0	0	3	11	5	0	1	3	0	0	0	4	3	0	40	0	0	0	0
5:00 PM	0	15	0	0	3	14	6	0	3	3	1	0	2	4	3	0	54	0	0	0	0
5:05 PM	0	16	2	0	3	27	10	0	6	4	0	0	1	7	3	0	79	0	0	0	1
5:10 PM	0	13	2	0	4	16	9	0	6	6	0	0	2	0	2	0	60	1	0	0	1
5:15 PM	0	19	4	0	5	15	13	0	6	4	0	0	1	4	7	0	78	2	0	0	1
5:20 PM	0	11	3	0	5	15	7	0	5	2	1	0	0	1	1	0	51	0	0	2	0
5:25 PM	0	13	3	0	4	11	9	0	11	4	0	0	1	4	2	0	62	0	0	1	0
5:30 PM	0	18	1	0	4	18	7	0	8	4	0	0	0	3	2	0	65	0	0	0	0
5:35 PM	0	5	4	0	6	11	7	0	4	2	0	0	1	3	2	0	45	0	0	0	0
5:40 PM	1	15	3	0	6	13	6	0	4	3	0	0	5	3	5	0	64	2	0	0	0
5:45 PM	0	8	0	0	1	10	4	0	2	5	0	0	0	5	5	0	40	0	0	0	0
5:50 PM	0	10	5	0	1	20	4	0	2	2	0	0	2	5	3	0	54	0	0	0	0
5:55 PM	0	8	2	0	2	10	4	0	11	4	0	0	1	3	3	0	48	0	0	0	0
Total Survey	12	479	63	0	120	534	251	0	187	117	8	0	46	103	122	0	2,042	27	5	3	11

15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	2	47	4	0	16	46	21	0	13	9	1	0	2	2	10	0	173	2	0	0	0
3:15 PM	1	28	4	0	9	49	20	0	19	6	1	0	8	9	13	0	167	4	1	0	2
3:30 PM	3	47	9	0	9	47	26	0	13	13	0	0	5	8	8	0	188	4	2	0	3
3:45 PM	0	40	7	0	9	49	23	0	26	10	0	0	7	13	16	0	200	6	0	0	0
4:00 PM	2	48	1	0	8	48	14	0	9	10	0	0	2	8	8	0	158	1	0	0	0
4:15 PM	2	39	3	0	8	32	23	0	18	4	2	0	2	7	10	0	150	2	0	0	0
4:30 PM	0	38	4	0	8	42	18	0	11	14	1	0	4	6	10	0	156	0	0	0	2
4:45 PM	1	41	2	0	9	41	20	0	10	8	1	0	0	8	9	0	150	3	2	0	1
5:00 PM	0	44	4	0	10	57	25	0	15	13	1	0	5	11	8	0	193	1	0	0	2
5:15 PM	0	43	10	0	14	41	29	0	22	10	1	0	2	9	10	0	191	2	0	3	1
5:30 PM	1	38	8	0	16	42	20	0	16	9	0	0	6	9	9	0	174	2	0	0	0
5:45 PM	0	26	7	0	4	40	12	0	15	11	0	0	3	13	11	0	142	0	0	0	0
Total Survey	12	479	63	0	120	534	251	0	187	117	8	0	46	103	122	0	2,042	27	5	3	11

Peak Hour Summary
3:05 PM to 4:05 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	201	225	426	0	329	286	615	0	105	129	234	0	100	95	195	0	735	15	3	0	5
%HV	4.0%				4.6%				2.9%				1.0%				3.7%				
PHF	0.85				0.89				0.73				0.69				0.92				

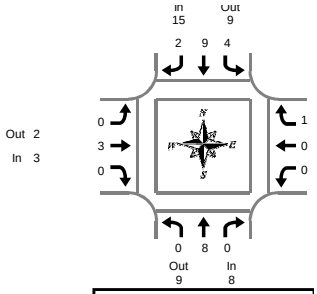
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	7	170	24	201	38	202	89	329	70	33	2	105	21	33	46	100	735
%HV	0.0%	4.7%	0.0%	4.0%	10.5%	4.5%	2.2%	4.6%	0.0%	9.1%	0.0%	2.9%	0.0%	0.0%	2.2%	1.0%	3.7%
PHF	0.58	0.83	0.67	0.85	0.68	0.87	0.72	0.89	0.67	0.59	0.50	0.73	0.53	0.63	0.72	0.69	0.92

Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	6	162	24	0	43	191	90	0	71	38	2	0	22	32	47	0	728	16	3	0	5
3:15 PM	6	163	21	0	35	193	83	0	67	39	1	0	22	38	45	0	713	15	3	0	5
3:30 PM	7	174	20	0	34	176	86	0	66	37	2	0	16	36	42	0	696	13	2	0	3
3:45 PM	4	165	15	0	33	171	78	0	64	38	3	0	15	34	44	0	664	9	0	0	2
4:00 PM	5	166	10	0	33	163	75	0	48	36	4	0	8	29	37	0	614	6	2	0	3
4:15 PM	3	162	13	0	35	172	86	0	54	39	5	0	11	32	37	0	649	6	2	0	5
4:30 PM	1	166	20	0	41	181	92	0	58	45	4	0	11	34	37	0	690	6	2	3	6
4:45 PM	2	166	24	0	49	181	94	0	63	40	3	0	13	37	36	0	708	8	2	3	4
5:00 PM	1	151	29	0	44	180	86	0	68	43	2	0	16	42	38	0	700	5	0	3	3

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & 4th St

Wednesday, March 05, 2014
3:00 PM to 6:00 PM

Peak Hour Summary
3:05 PM to 4:05 PM

Heavy Vehicle 5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
3:05 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:10 PM	0	2	0	2	1	2	0	3	0	0	0	0	0	0	0	0	5
3:15 PM	0	1	0	1	2	0	0	2	0	1	0	1	0	0	0	0	4
3:20 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
3:35 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:40 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
3:50 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
3:55 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:00 PM	0	2	0	2	0	3	2	5	0	0	0	0	0	0	0	0	7
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:25 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	1	2	0	1	0	1	1	0	0	1	0	0	0	0	4
4:35 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:50 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	13	1	15	5	16	5	26	1	7	0	8	0	2	2	4	53

Heavy Vehicle 15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	4	0	4	1	2	0	3	0	2	0	2	0	0	0	0	9
3:15 PM	0	2	0	2	2	2	0	4	0	1	0	1	0	0	0	0	7
3:30 PM	0	1	0	1	1	1	0	2	0	1	0	1	0	0	0	0	4
3:45 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	1	1	3
4:00 PM	1	2	0	3	0	3	2	5	0	0	0	0	0	0	0	0	8
4:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	3	1	4	0	1	0	1	1	1	0	2	0	0	0	0	7
4:45 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	1	0	1	3
5:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	1	1	1	3	0	1	0	1	0	0	0	0	4
5:30 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	3
Total Survey	1	13	1	15	5	16	5	26	1	7	0	8	0	2	2	4	53

Heavy Vehicle Peak Hour Summary
3:05 PM to 4:05 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound 4th St			Westbound 4th St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	8	9	17	15	9	24	3	2	5	1	7	8	27
PHF	0.50			0.54			0.38			0.25			0.56

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	8	0	8	4	9	2	15	0	3	0	3	0	0	1	1	27
PHF	0.00	0.50	0.00	0.50	0.33	0.56	0.25	0.54	0.00	0.38	0.00	0.38	0.00	0.00	0.25	0.25	0.56

Heavy Vehicle Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 4th St				Westbound 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	7	0	7	4	6	0	10	0	5	0	5	0	0	1	1	23
3:15 PM	1	5	0	6	3	7	2	12	0	3	0	3	0	0	1	1	22
3:30 PM	1	3	0	4	1	5	3	9	0	2	0	2	0	0	1	1	16
3:45 PM	1	5	1	7	0	5	3	8	1	2	0	3	0	0	1	1	19
4:00 PM	1	5	1	7	0	5	4	9	1	1	0	2	0	1	0	1	19
4:15 PM	0	3	1	4	0	4	2	6	1	1	0	2	0	1	0	1	13
4:30 PM	0	3	1	4	1	5	2	8	1	2	0	3	0	1	0	1	16
4:45 PM	0	1	0	1	1	5	2	8	0	1	0	1	0	1	0	1	11
5:00 PM	0	1	0	1	1	5	1	7	0	1	0	1	0	1	1	2	11

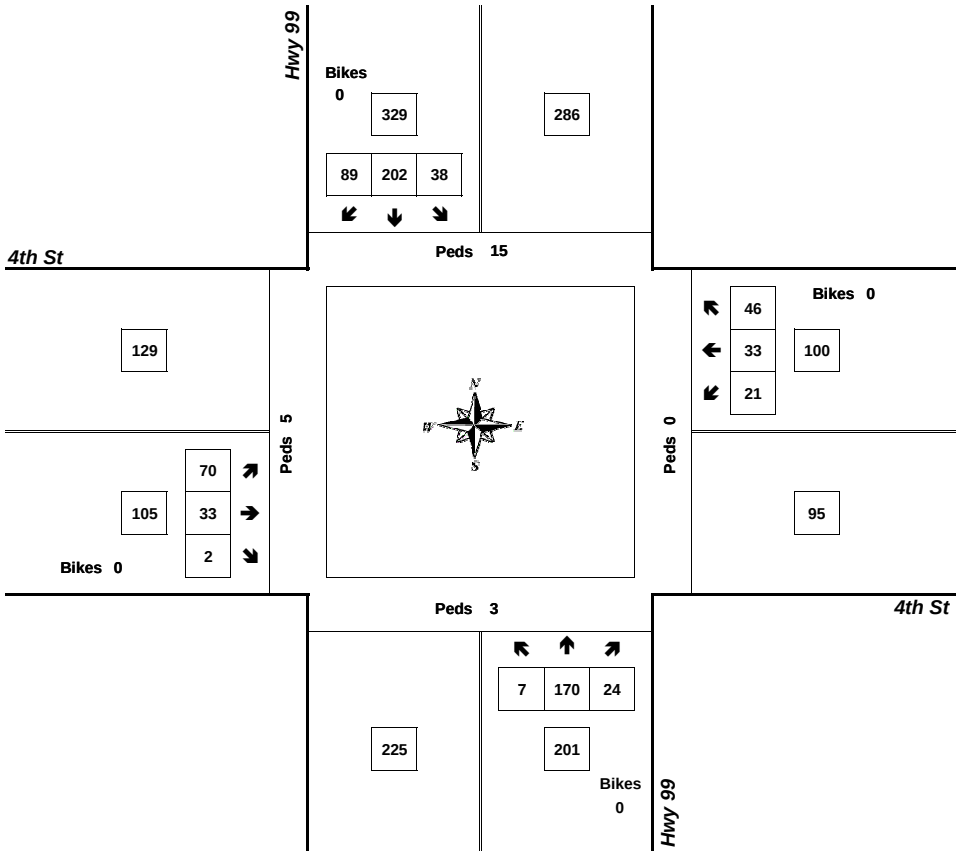
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 99 & 4th St

3:05 PM to 4:05 PM
Wednesday, March 05, 2014

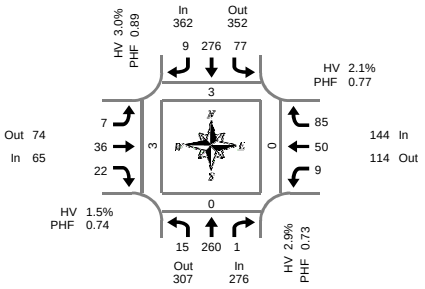


Approach	PHF	HV%	Volume
EB	0.73	2.9%	105
WB	0.69	1.0%	100
NB	0.85	4.0%	201
SB	0.89	4.6%	329
Intersection	0.92	3.7%	735

Count Period: 3:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
3:05 PM to 4:05 PM

Hwy 99 & 6th St

Tuesday, March 04, 2014
3:00 PM to 6:00 PM

5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	1	21	0	0	2	30	0	0	1	2	1	0	0	1	6	0	65	0	0	0	2
3:05 PM	0	24	0	0	8	25	0	0	0	5	1	0	0	5	13	0	81	0	0	0	0
3:10 PM	3	34	0	0	1	24	0	0	0	0	1	0	2	7	7	0	79	0	0	0	0
3:15 PM	2	32	0	0	5	16	4	0	0	3	0	0	0	6	7	0	75	0	0	0	0
3:20 PM	0	18	0	0	5	24	1	0	1	4	2	0	1	4	7	0	67	0	0	0	0
3:25 PM	1	15	0	0	14	24	0	0	0	3	5	0	0	3	5	0	70	1	0	0	0
3:30 PM	1	22	0	0	5	13	0	0	0	3	3	0	1	5	8	0	61	0	0	0	0
3:35 PM	0	22	0	0	9	28	0	0	0	4	4	0	1	2	9	0	79	0	0	0	2
3:40 PM	2	14	0	0	9	29	2	0	1	2	2	0	0	5	5	0	71	1	0	0	0
3:45 PM	1	19	1	0	5	20	0	0	1	4	1	0	1	2	5	0	60	0	0	0	0
3:50 PM	2	27	0	0	4	25	1	0	0	3	1	0	2	1	9	0	75	0	0	0	1
3:55 PM	2	16	0	0	5	19	1	0	3	4	1	0	1	2	7	0	61	1	0	0	0
4:00 PM	1	17	0	0	7	29	0	0	1	1	1	0	0	8	3	0	68	0	0	0	0
4:05 PM	3	21	0	0	8	22	3	0	1	2	2	0	0	6	7	0	75	0	1	1	0
4:10 PM	1	20	0	1	4	20	0	0	0	5	3	0	1	3	5	0	62	0	0	1	0
4:15 PM	1	24	0	0	11	31	3	0	0	3	3	0	0	5	8	0	89	1	1	1	1
4:20 PM	1	25	0	0	11	17	1	0	0	5	1	1	0	0	5	0	66	1	2	3	1
4:25 PM	0	11	0	0	15	27	4	0	1	4	0	0	1	4	8	0	75	2	1	0	2
4:30 PM	4	12	0	0	8	24	1	0	0	3	2	0	1	1	7	0	63	0	2	6	0
4:35 PM	0	18	0	0	5	22	1	0	3	4	1	0	0	4	12	0	70	0	0	0	0
4:40 PM	0	12	0	0	11	20	1	0	1	2	2	0	0	3	8	0	60	0	0	1	0
4:45 PM	2	14	0	0	8	12	0	0	0	7	0	0	0	4	7	0	54	0	1	0	0
4:50 PM	1	22	0	0	10	19	3	0	0	5	1	0	0	8	7	0	76	0	0	0	0
4:55 PM	0	15	0	0	9	23	1	0	0	3	2	0	0	4	8	0	65	0	0	2	0
5:00 PM	2	16	0	0	3	26	2	0	1	1	3	0	0	0	0	0	54	0	1	0	0
5:05 PM	1	15	0	0	10	25	1	0	0	3	0	0	2	6	12	0	75	0	0	0	0
5:10 PM	1	13	0	0	1	17	0	0	0	1	2	0	1	1	8	0	45	0	0	0	0
5:15 PM	1	24	0	0	6	29	0	0	0	3	3	0	0	0	7	0	73	0	0	0	0
5:20 PM	1	15	0	0	18	34	2	0	0	1	1	0	0	3	4	0	79	0	0	1	0
5:25 PM	0	19	0	0	5	23	0	0	0	3	1	0	0	10	8	0	69	0	0	0	0
5:30 PM	4	16	0	0	4	20	1	0	1	2	2	0	1	4	8	0	63	1	0	1	0
5:35 PM	0	14	0	0	5	14	3	0	2	7	2	0	0	4	2	0	53	0	1	0	0
5:40 PM	3	21	0	0	5	19	1	0	1	2	0	0	0	4	2	0	58	0	0	0	0
5:45 PM	1	8	0	0	2	27	1	0	0	1	2	0	0	3	2	0	47	0	0	0	2
5:50 PM	0	17	1	0	5	17	0	0	0	3	2	0	0	4	3	0	52	0	0	0	0
5:55 PM	0	17	0	0	3	23	0	0	0	4	2	0	0	6	6	0	61	0	1	0	0
Total Survey	43	670	2	1	246	817	38	0	19	112	60	1	16	138	235	0	2,396	8	11	17	11

15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	4	79	0	0	11	79	0	0	1	7	3	0	2	13	26	0	225	0	0	0	2
3:15 PM	3	65	0	0	24	64	5	0	1	10	7	0	1	13	19	0	212	1	0	0	0
3:30 PM	3	58	0	0	23	70	2	0	1	9	9	0	2	12	22	0	211	1	0	0	2
3:45 PM	5	62	1	0	14	64	2	0	4	11	3	0	4	5	21	0	196	1	0	0	1
4:00 PM	5	58	0	1	19	71	3	0	2	8	6	0	1	17	15	0	205	0	1	2	0
4:15 PM	2	60	0	0	37	75	8	0	1	12	4	1	1	9	21	0	230	4	4	4	4
4:30 PM	4	42	0	0	24	66	3	0	4	9	5	0	1	8	27	0	193	0	2	7	0
4:45 PM	3	51	0	0	27	54	4	0	0	15	3	0	0	16	22	0	195	0	1	2	0
5:00 PM	4	44	0	0	14	68	3	0	1	5	5	0	3	7	20	0	174	0	1	0	0
5:15 PM	2	58	0	0	29	86	2	0	0	7	5	0	0	13	19	0	221	0	0	1	0
5:30 PM	7	51	0	0	14	53	5	0	4	11	4	0	1	12	12	0	174	1	1	1	0
5:45 PM	1	42	1	0	10	67	1	0	0	8	6	0	0	13	11	0	160	0	1	0	2
Total Survey	43	670	2	1	246	817	38	0	19	112	60	1	16	138	235	0	2,396	8	11	17	11

Peak Hour Summary
3:05 PM to 4:05 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	276	307	583	0	362	352	714	0	65	74	139	0	144	114	258	0	847	3	0	0	3
%HV	2.9%				3.0%				1.5%				2.1%				2.7%				
PHF	0.73				0.89				0.74				0.77				0.90				

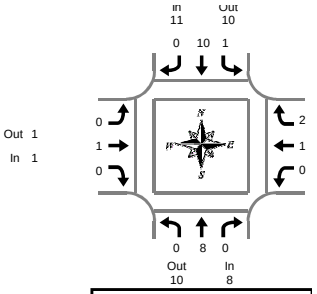
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	15	260	1	276	77	276	9	362	7	36	22	65	9	50	85	144	847
%HV	0.0%	3.1%	0.0%	2.9%	1.3%	3.6%	0.0%	3.0%	0.0%	2.8%	0.0%	1.5%	0.0%	2.0%	2.4%	2.1%	2.7%
PHF	0.75	0.72	0.25	0.73	0.69	0.90	0.45	0.89	0.44	0.82	0.46	0.74	0.56	0.69	0.79	0.77	0.90

Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	15	264	1	0	72	277	9	0	7	37	22	0	9	43	88	0	844	3	0	0	5
3:15 PM	16	243	1	1	80	269	12	0	8	38	25	0	8	47	77	0	824	3	1	2	3
3:30 PM	15	238	1	1	93	280	15	0	8	40	22	1	8	43	79	0	842	6	5	6	7
3:45 PM	16	222	1	1	94	276	16	0	11	40	18	1	7	39	84	0	824	5	7	13	5
4:00 PM	14	211	0	1	107	266	18	0	7	44	18	1	3	50	85	0	823	4	8	15	4
4:15 PM	13	197	0	0	102	263	18	0	6	41	17	1	5	40	90	0	792	4	8	13	4
4:30 PM	13	195	0	0	94	274	12	0	5	36	18	0	4	44	88	0	783	0	4	10	0
4:45 PM	16	204	0	0	84	261	14	0	5	38	17	0	4	48	73	0	764	1	3	4	0
5:00 PM	14	195	1	0	67	274	11	0	5	31	20	0	4	45	62	0	729	1	3	2	2

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Hwy 99 & 6th St

Tuesday, March 04, 2014
3:00 PM to 6:00 PM

Peak Hour Summary
3:05 PM to 4:05 PM

Heavy Vehicle 5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
3:10 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	3
3:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
3:20 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	1	1	1	0	2	0	0	0	0	0	0	0	0	3
3:35 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
3:50 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
3:55 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	1	0	1	4
4:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:10 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:20 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:55 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0	0	3
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	15	0	15	2	19	0	21	0	2	0	2	0	1	2	3	41

Heavy Vehicle 15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	1	1	5
3:15 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
3:30 PM	0	2	0	2	1	1	0	2	0	1	0	1	0	0	1	1	6
3:45 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
4:00 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	1	0	1	6
4:15 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
4:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	2	0	2	0	1	0	1	0	0	0	0	3
5:00 PM	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	15	0	15	2	19	0	21	0	2	0	2	0	1	2	3	41

Heavy Vehicle Peak Hour Summary
3:05 PM to 4:05 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound 6th St			Westbound 6th St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	8	10	18	11	10	21	1	1	2	3	2	5	23
PHF	0.67			0.69			0.25			0.75			0.82

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	8	0	8	1	10	0	11	0	1	0	1	0	1	2	3	23
PHF	0.00	0.67	0.00	0.67	0.25	0.63	0.00	0.69	0.00	0.25	0.00	0.25	0.00	0.25	0.50	0.75	0.82

Heavy Vehicle Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound 6th St				Westbound 6th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	8	0	8	1	8	0	9	0	1	0	1	0	0	2	2	20
3:15 PM	0	8	0	8	1	9	0	10	0	1	0	1	0	1	1	2	21
3:30 PM	0	8	0	8	1	9	0	10	0	1	0	1	0	1	1	2	21
3:45 PM	0	9	0	9	0	8	0	8	0	0	0	0	0	1	0	1	18
4:00 PM	0	7	0	7	0	7	0	7	0	1	0	1	0	1	0	1	16
4:15 PM	0	5	0	5	1	6	0	7	0	1	0	1	0	0	0	0	13
4:30 PM	0	3	0	3	1	5	0	6	0	1	0	1	0	0	0	0	10
4:45 PM	0	0	0	0	1	6	0	7	0	1	0	1	0	0	0	0	8
5:00 PM	0	0	0	0	1	4	0	5	0	0	0	0	0	0	0	0	5

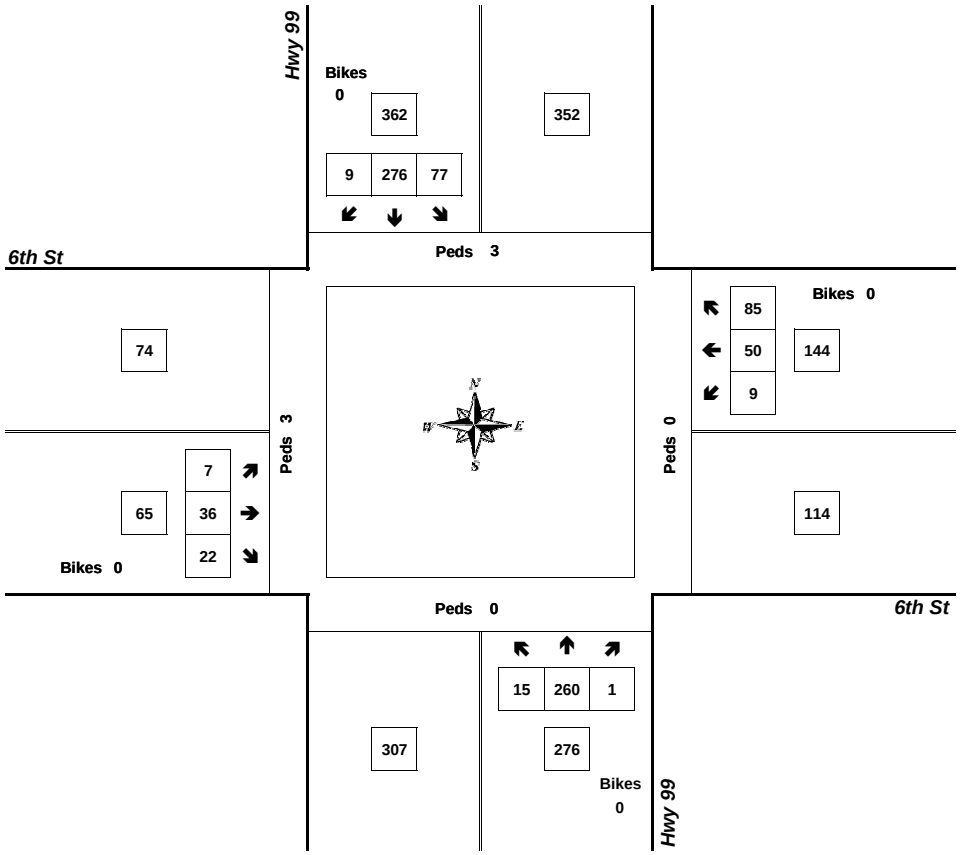
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 99 & 6th St

3:05 PM to 4:05 PM
Tuesday, March 04, 2014

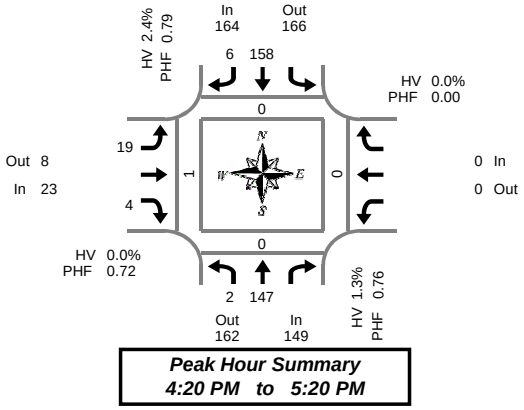


Approach	PHF	HV%	Volume
EB	0.74	1.5%	65
WB	0.77	2.1%	144
NB	0.73	2.9%	276
SB	0.89	3.0%	362
Intersection	0.90	2.7%	847

Count Period: 3:00 PM to 6:00 PM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
4:20 PM to 5:20 PM

Hwy 99 & Carnegie Way

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L		R	Bikes				Bikes		North	South	East	West
4:00 PM	0	16		0	13	0	0		1		0	0				0	30	0	0	0	0
4:05 PM	0	9		0	11	0	0		1		0	0				0	21	0	0	0	0
4:10 PM	0	12		0	8	1	0		0		0	0				0	21	0	0	0	0
4:15 PM	0	13		0	9	1	0		2		0	0				0	25	0	0	0	0
4:20 PM	1	9		0	9	0	0		2		1	0				0	22	0	0	0	0
4:25 PM	0	10		1	13	1	0		1		2	0				0	27	0	0	0	0
4:30 PM	0	14		0	10	1	0		2		0	0				0	27	0	0	0	0
4:35 PM	0	11		0	16	2	0		3		0	0				0	32	0	0	0	1
4:40 PM	0	7		0	10	0	0		2		1	0				0	20	0	0	0	0
4:45 PM	0	13		0	7	0	0		1		0	0				0	21	0	0	0	0
4:50 PM	0	13		0	13	0	0		1		0	0				0	27	0	0	0	0
4:55 PM	0	9		0	14	1	0		0		0	0				0	24	0	0	0	0
5:00 PM	0	13		0	18	1	0		3		0	0				0	35	0	0	0	0
5:05 PM	0	15		0	10	0	0		4		0	0				0	29	0	0	0	0
5:10 PM	1	10		0	23	0	0		0		0	0				0	34	0	0	0	0
5:15 PM	0	23		0	15	0	1		0		0	0				0	38	0	0	0	0
5:20 PM	0	10		0	11	0	0		0		0	0				0	21	0	0	0	0
5:25 PM	0	9		0	6	2	0		1		0	0				0	18	0	0	0	0
5:30 PM	0	15		0	10	0	0		0		1	0				0	26	0	0	0	0
5:35 PM	0	3		0	13	1	0		1		0	0				0	18	0	0	0	0
5:40 PM	0	9		0	7	0	0		2		0	0				0	18	0	0	0	0
5:45 PM	0	8		0	10	0	0		1		0	0				0	19	0	0	0	0
5:50 PM	0	10		0	8	1	0		0		0	0				0	19	0	0	0	0
5:55 PM	0	5		0	15	0	0		0		0	0				0	20	0	0	0	0
Total Survey	2	266		1	279	12	1		28		5	0				0	592	0	0	0	1

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L		R	Bikes				Bikes		North	South	East	West
4:00 PM	0	37		0	32	1	0		2		0	0				0	72	0	0	0	0
4:15 PM	1	32		1	31	2	0		5		3	0				0	74	0	0	0	0
4:30 PM	0	32		0	36	3	0		7		1	0				0	79	0	0	0	1
4:45 PM	0	35		0	34	1	0		2		0	0				0	72	0	0	0	0
5:00 PM	1	38		0	51	1	0		7		0	0				0	98	0	0	0	0
5:15 PM	0	42		0	32	2	1		1		0	0				0	77	0	0	0	0
5:30 PM	0	27		0	30	1	0		3		1	0				0	62	0	0	0	0
5:45 PM	0	23		0	33	1	0		1		0	0				0	58	0	0	0	0
Total Survey	2	266		1	279	12	1		28		5	0				0	592	0	0	0	1

Peak Hour Summary
4:20 PM to 5:20 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	149	162	311	1	164	166	330	1	23	8	31	0	0	0	0	0	336	0	0	0	1
%HV	1.3%				2.4%				0.0%				0.0%				1.8%				
PHF	0.76				0.79				0.72				0.00				0.83				

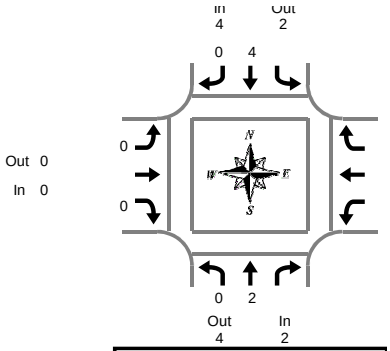
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Total
	L	T		Total	T	R	Total		L		R	Total				Total	
Volume	2	147		149	158	6	164		19		4	23				0	336
%HV	0.0%	1.4%	NA	1.3%	2.5%	0.0%	2.4%		0.0%	NA	0.0%	0.0%	NA	NA	NA	0.0%	1.8%
PHF	0.50	0.77		0.76	0.77	0.38	0.79		0.68		0.33	0.72				0.00	0.83

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L		R	Bikes				Bikes		North	South	East	West
4:00 PM	1	136		1	133	7	0		16		4	0				0	297	0	0	0	1
4:15 PM	2	137		1	152	7	0		21		4	0				0	323	0	0	0	1
4:30 PM	1	147		0	153	7	1		17		1	0				0	326	0	0	0	1
4:45 PM	1	142		0	147	5	1		13		1	0				0	309	0	0	0	0
5:00 PM	1	130		0	146	5	1		12		1	0				0	295	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & Carnegie Way

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:20 PM to 5:20 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	0		0	0	0	0		1		0	1				0	1
4:05 PM	0	0		0	2	0	2		0		0	0				0	2
4:10 PM	0	1		1	0	0	0		0		0	0				0	1
4:15 PM	0	0		0	0	0	0		0		0	0				0	0
4:20 PM	0	0		0	0	0	0		0		0	0				0	0
4:25 PM	0	0		0	0	0	0		0		0	0				0	0
4:30 PM	0	1		1	0	0	0		0		0	0				0	1
4:35 PM	0	1		1	0	0	0		0		0	0				0	1
4:40 PM	0	0		0	1	0	1		0		0	0				0	1
4:45 PM	0	0		0	0	0	0		0		0	0				0	0
4:50 PM	0	0		0	0	0	0		0		0	0				0	0
4:55 PM	0	0		0	1	0	1		0		0	0				0	1
5:00 PM	0	0		0	1	0	1		0		0	0				0	1
5:05 PM	0	0		0	0	0	0		0		0	0				0	0
5:10 PM	0	0		0	0	0	0		0		0	0				0	0
5:15 PM	0	0		0	1	0	1		0		0	0				0	1
5:20 PM	0	0		0	0	0	0		0		0	0				0	0
5:25 PM	0	1		1	0	0	0		0		0	0				0	1
5:30 PM	0	0		0	0	0	0		0		0	0				0	0
5:35 PM	0	0		0	0	0	0		0		0	0				0	0
5:40 PM	0	1		1	0	0	0		0		0	0				0	1
5:45 PM	0	0		0	0	0	0		0		0	0				0	0
5:50 PM	0	0		0	0	0	0		0		0	0				0	0
5:55 PM	0	0		0	0	0	0		0		0	0				0	0
Total Survey	0	5		5	6	0	6		1		0	1				0	12

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	1		1	2	0	2		1		0	1				0	4
4:15 PM	0	0		0	0	0	0		0		0	0				0	0
4:30 PM	0	2		2	1	0	1		0		0	0				0	3
4:45 PM	0	0		0	1	0	1		0		0	0				0	1
5:00 PM	0	0		0	1	0	1		0		0	0				0	1
5:15 PM	0	1		1	1	0	1		0		0	0				0	2
5:30 PM	0	1		1	0	0	0		0		0	0				0	1
5:45 PM	0	0		0	0	0	0		0		0	0				0	0
Total Survey	0	5		5	6	0	6		1		0	1				0	12

Heavy Vehicle Peak Hour Summary
4:20 PM to 5:20 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Carnegie Way			Westbound Carnegie Way			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	4	6	4	2	6	0	0	0	0	0	0	6
PHF	0.25			0.50			0.00			0.00			0.50

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Total
	L	T		Total	T	R	Total		L		R	Total				Total	
Volume	0	2		2	4	0	4		0		0	0				0	6
PHF	0.00	0.25		0.25	0.50	0.00	0.50		0.00		0.00	0.00				0.00	0.50

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

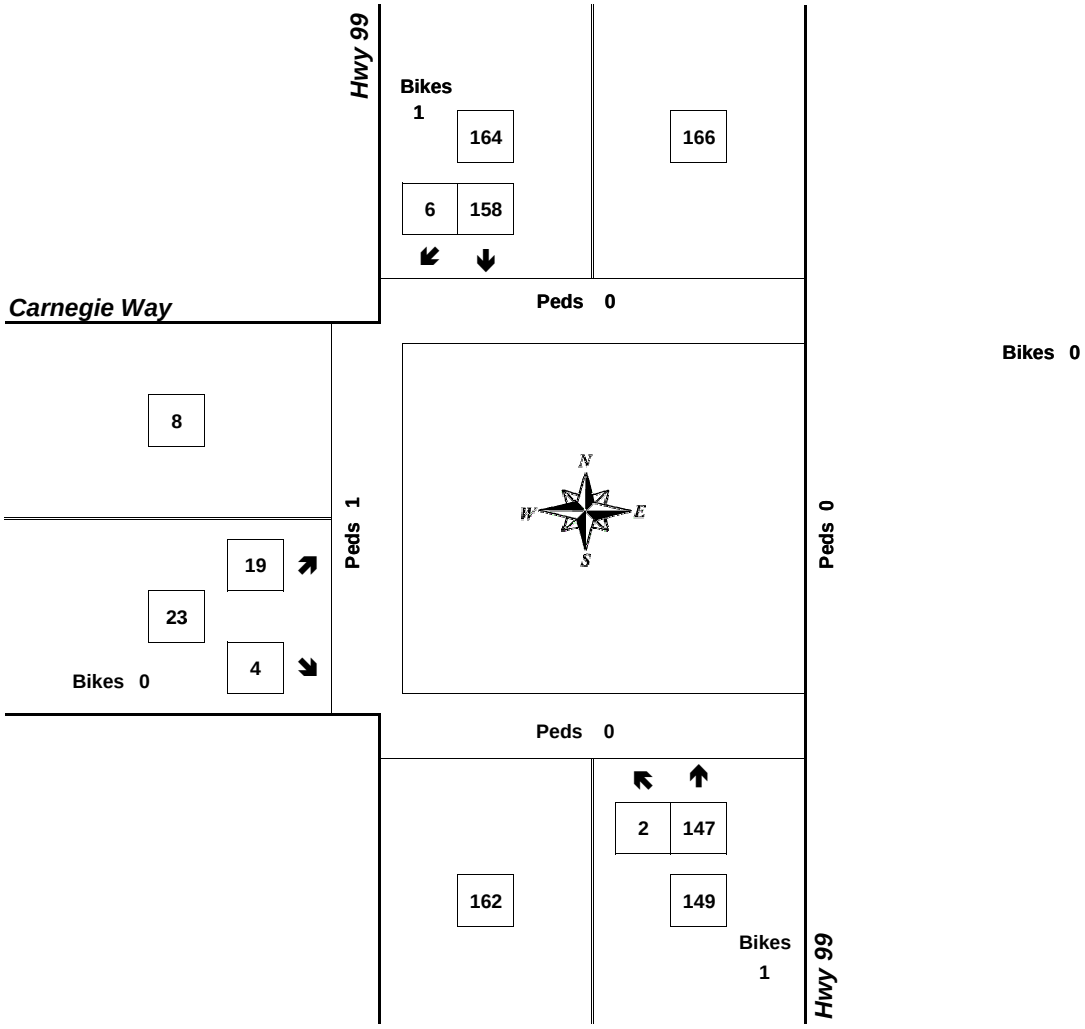
Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Carnegie Way				Westbound Carnegie Way				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	3		3	4	0	4		1		0	1				0	8
4:15 PM	0	2		2	3	0	3		0		0	0				0	5
4:30 PM	0	3		3	4	0	4		0		0	0				0	7
4:45 PM	0	2		2	3	0	3		0		0	0				0	5
5:00 PM	0	2		2	2	0	2		0		0	0				0	4

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 99 & Carnegie Way

4:20 PM to 5:20 PM
Wednesday, March 05, 2014

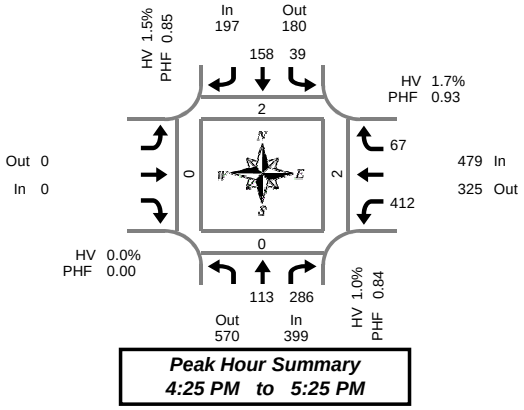


Approach	PHF	HV%	Volume
EB	0.72	0.0%	23
WB	0.00	0.0%	0
NB	0.76	1.3%	149
SB	0.79	2.4%	164
Intersection	0.83	1.8%	336

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & Cottage Grove Con

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	14	17	0		3	13		0				0	25		4	0	76	0	0	0	0
4:05 PM	6	17	0		3	14		0				0	44		8	0	92	0	0	0	0
4:10 PM	6	18	0		5	15		0				0	32		7	0	83	0	0	0	0
4:15 PM	6	23	0		1	11		0				0	29		4	0	74	0	0	0	0
4:20 PM	7	13	0		2	7		0				0	38		5	0	72	0	0	0	0
4:25 PM	13	12	0		3	14		0				0	36		9	0	87	0	0	0	0
4:30 PM	13	23	0		2	15		1				0	38		6	0	97	2	0	0	0
4:35 PM	10	21	0		2	14		0				0	33		6	0	86	0	0	0	0
4:40 PM	10	22	0		5	15		0				0	25		2	0	79	0	0	0	0
4:45 PM	5	35	0		2	8		0				0	29		6	0	85	0	0	0	0
4:50 PM	9	18	0		5	12		0				0	43		8	1	95	0	0	0	0
4:55 PM	14	23	0		2	9		0				0	31		5	0	84	0	0	0	0
5:00 PM	9	29	0		4	16		0				0	38		4	0	100	0	0	0	0
5:05 PM	9	34	0		0	11		0				0	39		7	0	100	0	0	1	0
5:10 PM	8	30	0		5	9		0				0	34		7	0	93	0	0	1	0
5:15 PM	5	29	0		2	19		0				0	30		3	0	88	0	0	0	0
5:20 PM	8	10	0		7	16		0				0	36		4	0	81	0	0	0	0
5:25 PM	6	19	0		3	8		0				0	35		5	0	76	0	0	0	0
5:30 PM	12	18	0		3	4		0				0	41		6	0	84	0	0	0	0
5:35 PM	9	28	0		2	5		0				0	29		2	0	75	0	0	0	0
5:40 PM	13	20	0		2	14		0				0	22		1	0	72	0	0	0	0
5:45 PM	6	15	0		2	11		0				0	38		4	0	76	0	0	0	0
5:50 PM	7	14	0		2	11		0				0	27		4	0	65	0	0	0	0
5:55 PM	5	20	0		1	4		0				0	39		1	0	70	0	0	0	0
Total Survey	210	508	0		68	275		1				0	811		118	1	1,990	2	0	2	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	26	52	0		11	42		0				0	101		19	0	251	0	0	0	0
4:15 PM	26	48	0		6	32		0				0	103		18	0	233	0	0	0	0
4:30 PM	33	66	0		9	44		1				0	96		14	0	262	2	0	0	0
4:45 PM	28	76	0		9	29		0				0	103		19	1	264	0	0	0	0
5:00 PM	26	93	0		9	36		0				0	111		18	0	293	0	0	2	0
5:15 PM	19	58	0		12	43		0				0	101		12	0	245	0	0	0	0
5:30 PM	34	66	0		7	23		0				0	92		9	0	231	0	0	0	0
5:45 PM	18	49	0		5	26		0				0	104		9	0	211	0	0	0	0
Total Survey	210	508	0		68	275		1				0	811		118	1	1,990	2	0	2	0

Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	399	570	969	0	197	180	377	1	0	0	0	0	479	325	804	1	1,075	2	0	2	0
%HV	1.0%				1.5%				0.0%				1.7%				1.4%				
PHF	0.84				0.85				0.00				0.93				0.92				

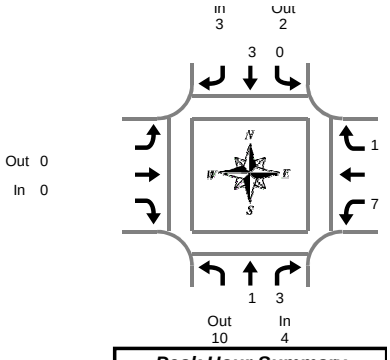
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total
	T	R	Total		L	T		Total				Total	L		R	Total	
Volume	113	286	399		39	158		197				0	412		67	479	1,075
%HV	NA	0.9%	1.0%	1.0%	0.0%	1.9%	NA	1.5%	NA	NA	NA	0.0%	1.7%	NA	1.5%	1.7%	1.4%
PHF		0.78	0.77	0.84	0.70	0.90		0.85				0.00	0.92		0.80	0.93	0.92

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	113	242	0		35	147		1				0	403		70	1	1,010	2	0	0	0
4:15 PM	113	283	0		33	141		1				0	413		69	1	1,052	2	0	2	0
4:30 PM	106	293	0		39	152		1				0	411		63	1	1,064	2	0	2	0
4:45 PM	107	293	0		37	131		0				0	407		58	1	1,033	0	0	2	0
5:00 PM	97	266	0		33	128		0				0	408		48	0	980	0	0	2	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & Cottage Grove Con

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:25 PM to 5:25 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		0	2	2	0	1		1				0	1		0	1	4
4:05 PM		1	2	3	0	1		1				0	1		0	1	5
4:10 PM		1	1	2	0	0		0				0	0		0	0	2
4:15 PM		1	0	1	0	1		1				0	1		0	1	3
4:20 PM		0	0	0	0	1		1				0	0		1	1	2
4:25 PM		0	0	0	0	0		0				0	0		0	0	0
4:30 PM		0	0	0	0	0		0				0	0		0	0	0
4:35 PM		0	0	0	0	0		0				0	0		1	1	1
4:40 PM		0	0	0	0	0		0				0	0		0	0	0
4:45 PM		1	1	2	0	0		0				0	0		0	0	2
4:50 PM		0	0	0	0	0		0				0	1		0	1	1
4:55 PM		0	1	1	0	0		0				0	0		0	0	1
5:00 PM		0	0	0	0	2		2				0	1		0	1	3
5:05 PM		0	0	0	0	1		1				0	2		0	2	3
5:10 PM		0	1	1	0	0		0				0	0		0	0	1
5:15 PM		0	0	0	0	0		0				0	1		0	1	1
5:20 PM		0	0	0	0	0		0				0	2		0	2	2
5:25 PM		0	1	1	0	0		0				0	0		0	0	1
5:30 PM		0	0	0	0	0		0				0	1		0	1	1
5:35 PM		0	0	0	0	0		0				0	0		0	0	0
5:40 PM		1	0	1	0	0		0				0	0		0	0	1
5:45 PM		0	0	0	0	0		0				0	1		0	1	1
5:50 PM		0	1	1	0	1		1				0	0		0	0	2
5:55 PM		0	0	0	0	0		0				0	0		0	0	0
Total Survey		5	10	15	0	8		8				0	12		2	14	37

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		2	5	7	0	2		2				0	2		0	2	11
4:15 PM		1	0	1	0	2		2				0	1		1	2	5
4:30 PM		0	0	0	0	0		0				0	0		1	1	1
4:45 PM		1	2	3	0	0		0				0	1		0	1	4
5:00 PM		0	1	1	0	3		3				0	3		0	3	7
5:15 PM		0	1	1	0	0		0				0	3		0	3	4
5:30 PM		1	0	1	0	0		0				0	1		0	1	2
5:45 PM		0	1	1	0	1		1				0	1		0	1	3
Total Survey		5	10	15	0	8		8				0	12		2	14	37

Heavy Vehicle Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Cottage Grove Con			Westbound Cottage Grove Con			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	4	10	14	3	2	5	0	0	0	8	3	11	15
PHF	0.33			0.25			0.00			0.67			0.54

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		1	3	4	0	3		3				0	7		1	8	15
PHF		0.25	0.38	0.33	0.00	0.25		0.25				0.00	0.58		0.25	0.67	0.54

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

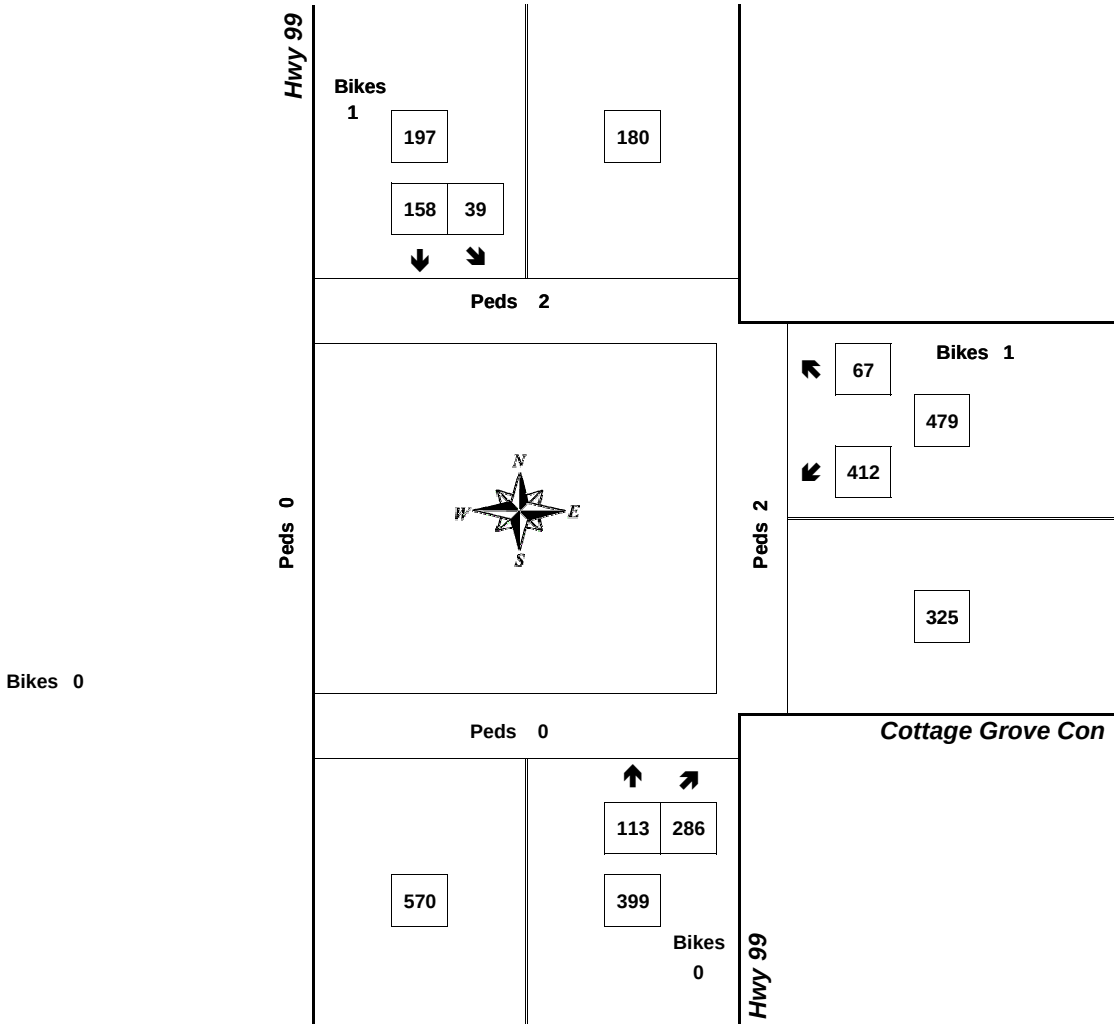
Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		4	7	11	0	4		4				0	4		2	6	21
4:15 PM		2	3	5	0	5		5				0	5		2	7	17
4:30 PM		1	4	5	0	3		3				0	7		1	8	16
4:45 PM		2	4	6	0	3		3				0	8		0	8	17
5:00 PM		1	3	4	0	4		4				0	8		0	8	16

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 99 & Cottage Grove Con

4:25 PM to 5:25 PM
Tuesday, March 04, 2014

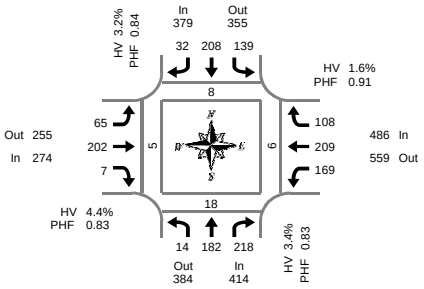


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.93	1.7%	479
NB	0.84	1.0%	399
SB	0.85	1.5%	197
Intersection	0.92	1.4%	1,075

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Hwy 99 & E Main St

Tuesday, March 04, 2014
3:00 PM to 6:00 PM

Peak Hour Summary
3:00 PM to 4:00 PM

5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	0	14	12	0	9	20	3	0	3	17	0	0	14	18	10	0	120	1	0	0	0
3:05 PM	0	17	16	0	5	11	2	0	7	17	2	1	19	18	8	0	122	0	5	0	0
3:10 PM	0	22	24	0	15	11	2	0	5	9	0	0	10	13	14	0	125	0	0	0	0
3:15 PM	2	16	21	0	8	16	3	0	8	25	0	0	8	31	13	0	151	0	2	0	0
3:20 PM	2	16	22	0	9	26	2	0	6	24	2	0	17	9	7	0	142	0	0	0	0
3:25 PM	0	7	15	0	23	18	2	0	4	13	1	0	13	18	11	0	125	0	3	1	2
3:30 PM	1	11	18	0	12	17	4	0	6	17	0	0	10	20	5	0	121	0	3	0	2
3:35 PM	2	15	21	0	11	23	2	0	5	17	0	0	19	12	9	0	136	0	0	0	0
3:40 PM	1	13	18	0	14	16	4	0	5	16	1	0	15	17	5	1	125	1	0	1	0
3:45 PM	1	12	14	0	11	13	3	0	5	24	1	0	20	14	13	0	131	0	0	1	0
3:50 PM	3	14	16	0	13	16	2	0	4	15	0	0	14	23	4	0	124	2	4	1	1
3:55 PM	2	25	21	0	9	21	3	0	7	8	0	0	10	16	9	0	131	4	1	2	0
4:00 PM	2	4	15	0	12	14	1	0	3	14	0	0	20	12	12	0	109	0	0	0	0
4:05 PM	0	4	15	0	14	21	3	0	3	19	0	0	16	16	5	0	116	0	0	0	0
4:10 PM	1	16	15	0	15	15	6	0	3	26	1	0	7	16	10	0	131	0	0	0	0
4:15 PM	0	19	20	0	13	30	1	0	4	17	0	0	11	13	7	0	135	0	0	0	0
4:20 PM	0	17	16	0	15	17	5	0	7	12	1	0	19	12	13	0	134	0	0	0	0
4:25 PM	0	18	12	0	8	32	3	0	2	16	2	0	17	11	10	1	131	0	0	0	0
4:30 PM	1	11	10	1	16	17	2	0	5	14	1	0	15	14	12	0	118	0	0	0	0
4:35 PM	5	11	12	0	12	20	3	0	6	11	2	0	7	16	5	0	110	0	0	0	0
4:40 PM	1	8	11	0	13	19	3	0	4	15	0	0	14	23	3	1	114	0	0	0	0
4:45 PM	1	10	14	0	12	11	3	0	4	14	1	0	11	17	8	0	106	0	0	0	0
4:50 PM	1	18	18	0	9	15	3	0	3	22	1	0	19	13	9	3	131	0	0	0	0
4:55 PM	2	16	17	0	8	18	1	0	5	23	0	0	21	25	9	0	145	0	0	0	0
5:00 PM	0	14	9	0	3	23	2	0	1	5	1	0	10	6	7	0	81	0	2	2	0
5:05 PM	2	19	1	0	0	21	5	0	0	0	0	0	0	0	1	0	49	0	0	1	0
5:10 PM	0	19	21	0	24	10	5	0	2	31	1	0	12	20	4	0	149	1	2	3	0
5:15 PM	1	14	20	0	12	23	0	0	5	12	0	0	19	30	6	1	142	4	0	0	0
5:20 PM	1	12	18	0	10	34	1	0	1	12	0	0	16	15	9	0	129	9	7	1	0
5:25 PM	0	7	11	0	15	14	1	0	3	18	1	0	14	14	12	0	110	0	0	0	0
5:30 PM	0	24	16	0	11	22	3	0	2	11	0	0	10	22	3	1	124	0	2	4	0
5:35 PM	1	8	12	0	12	10	3	0	4	8	0	0	11	18	8	0	95	0	1	0	0
5:40 PM	1	20	12	0	4	15	1	0	2	12	0	0	16	15	10	0	108	0	0	0	0
5:45 PM	0	9	12	0	9	17	2	0	3	11	1	0	13	9	13	0	99	1	0	0	0
5:50 PM	1	7	10	0	10	12	2	0	1	12	0	2	17	16	14	0	102	2	1	0	0
5:55 PM	2	15	14	0	7	12	1	0	1	11	1	0	13	9	5	0	91	0	1	0	0
Total Survey	37	502	549	1	403	650	92	0	139	548	21	3	497	571	303	8	4,312	25	34	17	5

15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	0	53	52	0	29	42	7	0	15	43	2	1	43	49	32	0	367	1	5	0	0
3:15 PM	4	39	58	0	40	60	7	0	18	62	3	0	38	58	31	0	418	0	5	1	2
3:30 PM	4	39	57	0	37	56	10	0	16	50	1	0	44	49	19	1	382	1	3	1	2
3:45 PM	6	51	51	0	33	50	8	0	16	47	1	0	44	53	26	0	386	6	5	4	1
4:00 PM	3	24	45	0	41	50	10	0	9	59	1	0	43	44	27	0	356	0	0	0	0
4:15 PM	0	54	48	0	36	79	9	0	13	45	3	0	47	36	30	1	400	0	0	0	0
4:30 PM	7	30	33	1	41	56	8	0	15	40	3	0	36	53	20	1	342	0	0	0	0
4:45 PM	4	44	49	0	29	44	7	0	12	59	2	0	51	55	26	3	382	0	0	0	0
5:00 PM	2	52	31	0	27	54	12	0	3	36	2	0	22	26	12	0	279	1	4	6	0
5:15 PM	2	33	49	0	37	71	2	0	9	42	1	0	49	59	27	1	381	13	7	1	0
5:30 PM	2	52	40	0	27	47	7	0	8	31	0	0	37	55	21	1	327	0	3	4	0
5:45 PM	3	31	36	0	26	41	5	0	5	34	2	2	43	34	32	0	292	3	2	0	0
Total Survey	37	502	549	1	403	650	92	0	139	548	21	3	497	571	303	8	4,312	25	34	17	5

Peak Hour Summary
3:00 PM to 4:00 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	414	384	798	0	379	355	734	0	274	255	529	1	486	559	1,045	1	1,553	8	18	6	5
%HV	3.4%				3.2%				4.4%				1.6%				3.0%				
PHF	0.83				0.84				0.83				0.91				0.93				

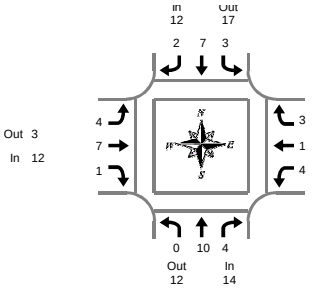
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	14	182	218	414	139	208	32	379	65	202	7	274	169	209	108	486	1,553
%HV	0.0%	5.5%	1.8%	3.4%	2.2%	3.4%	6.3%	3.2%	6.2%	3.5%	14.3%	4.4%	2.4%	0.5%	2.8%	1.6%	3.0%
PHF	0.58	0.83	0.81	0.83	0.76	0.85	0.80	0.84	0.81	0.81	0.58	0.83	0.78	0.84	0.77	0.91	0.93

Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	14	182	218	0	139	208	32	0	65	202	7	1	169	209	108	1	1,553	8	18	6	5
3:15 PM	17	153	211	0	151	216	35	0	59	218	6	0	169	204	103	1	1,542	7	13	6	5
3:30 PM	13	168	201	0	147	235	37	0	54	201	6	0	178	182	102	2	1,524	7	8	5	3
3:45 PM	16	159	177	1	151	235	35	0	53	191	8	0	170	186	103	2	1,484	6	5	4	1
4:00 PM	14	152	175	1	147	229	34	0	49	203	9	0	177	188	103	5	1,480	0	0	0	0
4:15 PM	13	180	161	1	133	233	36	0	43	180	10	0	156	170	88	5	1,403	1	4	6	0
4:30 PM	15	159	162	1	134	225	29	0	39	177	8	0	158	193	85	5	1,384	14	11	7	0
4:45 PM	10	181	169	0	120	216	28	0	32	168	5	0	159	195	86	5	1,369	14	14	11	0
5:00 PM	9	168	156	0	117	213	26	0	25	143	5	2	151	174	92	2	1,279	17	16	11	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Hwy 99 & E Main St

Tuesday, March 04, 2014
3:00 PM to 6:00 PM

Peak Hour Summary
3:00 PM to 4:00 PM

Heavy Vehicle 5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
3:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	2
3:10 PM	0	1	1	2	0	0	0	0	1	1	0	2	0	0	1	1	5
3:15 PM	0	1	0	1	0	1	0	1	0	2	0	2	0	0	2	2	6
3:20 PM	0	0	1	1	0	1	0	1	0	1	1	2	1	0	0	1	5
3:25 PM	0	1	0	1	2	1	0	3	2	0	0	2	0	0	0	0	6
3:30 PM	0	1	1	2	0	0	1	1	1	0	0	1	1	1	0	2	6
3:35 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
3:40 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
3:45 PM	0	0	0	0	0	1	1	2	0	1	0	1	0	0	0	0	3
3:50 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
3:55 PM	0	1	1	2	0	0	0	0	0	0	0	0	1	0	0	1	3
4:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
4:05 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	3
4:10 PM	0	1	1	2	2	0	0	2	0	0	0	0	0	1	0	1	5
4:15 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:20 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:25 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
4:45 PM	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0	1	3
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	2
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:05 PM	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	4
5:10 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:25 PM	0	0	0	0	2	0	0	2	0	1	0	1	0	1	0	1	4
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
5:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:55 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Survey	0	13	8	21	9	18	4	31	5	11	1	17	6	11	3	20	89

Heavy Vehicle 15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	2	1	3	1	1	0	2	1	1	0	2	1	0	1	2	9
3:15 PM	0	2	1	3	2	3	0	5	2	3	1	6	1	0	2	3	17
3:30 PM	0	3	1	4	0	0	1	1	1	2	0	3	1	1	0	2	10
3:45 PM	0	3	1	4	0	3	1	4	0	1	0	1	1	0	0	1	10
4:00 PM	0	1	1	2	2	3	0	5	0	1	0	1	0	3	0	3	11
4:15 PM	0	1	1	2	1	2	0	3	0	0	0	0	0	1	0	1	6
4:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	2	0	2	3
4:45 PM	0	0	1	1	0	1	0	1	1	0	0	1	1	1	0	2	5
5:00 PM	0	0	0	0	1	3	2	6	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	2	1	0	3	0	1	0	1	0	2	0	2	6
5:30 PM	0	0	0	0	0	1	0	1	0	2	0	2	1	0	0	1	4
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total Survey	0	13	8	21	9	18	4	31	5	11	1	17	6	11	3	20	89

Heavy Vehicle Peak Hour Summary
3:00 PM to 4:00 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound E Main St			Westbound E Main St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	14	12	26	12	17	29	12	3	15	8	14	22	46
PHF	0.88			0.60			0.50			0.50			0.68

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	10	4	14	3	7	2	12	4	7	1	12	4	1	3	8	46
PHF	0.00	0.83	0.50	0.88	0.38	0.58	0.50	0.60	0.33	0.44	0.25	0.50	0.50	0.25	0.25	0.50	0.68

Heavy Vehicle Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	0	10	4	14	3	7	2	12	4	7	1	12	4	1	3	8	46
3:15 PM	0	9	4	13	4	9	2	15	3	7	1	11	3	4	2	9	48
3:30 PM	0	8	4	12	3	8	2	13	1	4	0	5	2	5	0	7	37
3:45 PM	0	5	4	9	3	8	1	12	0	2	0	2	1	6	0	7	30
4:00 PM	0	2	4	6	3	6	0	9	1	1	0	2	1	7	0	8	25
4:15 PM	0	1	3	4	2	6	2	10	1	0	0	1	1	4	0	5	20
4:30 PM	0	0	2	2	3	5	2	10	1	1	0	2	1	5	0	6	20
4:45 PM	0	0	1	1	3	6	2	11	1	3	0	4	2	3	0	5	21
5:00 PM	0	1	0	1	3	5	2	10	0	3	0	3	1	3	0	4	18

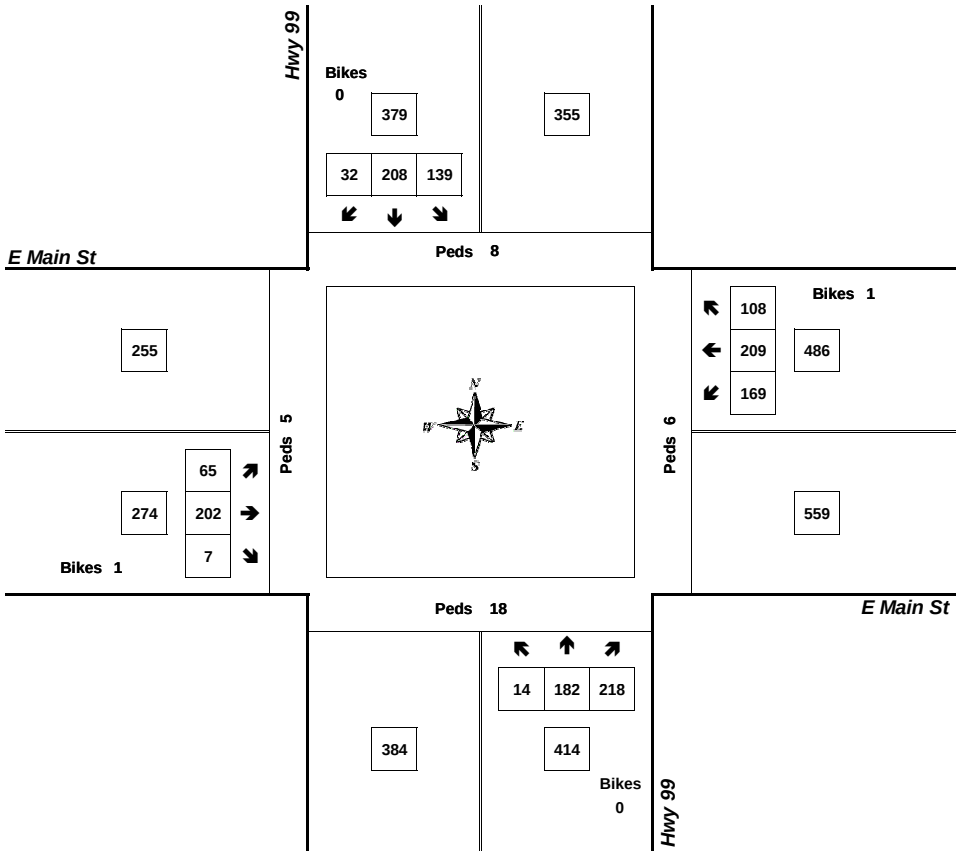
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 99 & E Main St

3:00 PM to 4:00 PM
Tuesday, March 04, 2014

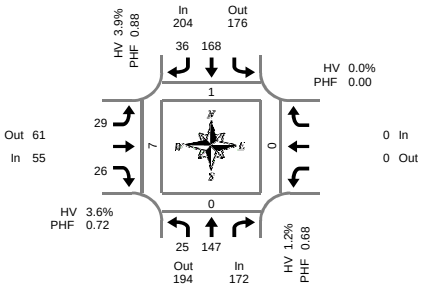


Approach	PHF	HV%	Volume
EB	0.83	4.4%	274
WB	0.91	1.6%	486
NB	0.83	3.4%	414
SB	0.84	3.2%	379
Intersection	0.93	3.0%	1,553

Count Period: 3:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
3:15 PM to 4:15 PM

Hwy 99 & S River Rd

Wednesday, March 05, 2014
3:00 PM to 6:00 PM

5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
3:00 PM	0	14		0	10	0		0	2		0	0				0	26	0	0	0	0
3:05 PM	1	15		0	16	2		0	1		1	0				0	36	0	0	0	0
3:10 PM	1	12		0	13	1		0	2		2	0				0	31	0	0	0	0
3:15 PM	0	15		0	11	1		0	5		1	0				0	33	1	0	0	4
3:20 PM	0	4		0	17	5		0	5		1	0				0	32	0	0	0	0
3:25 PM	5	6		0	15	3		0	2		0	0				0	31	0	0	0	0
3:30 PM	1	9		0	16	2		0	2		6	0				0	36	0	0	0	1
3:35 PM	5	21		0	10	3		0	1		4	0				0	44	0	0	0	0
3:40 PM	1	17		0	14	3		0	4		2	0				0	41	0	0	0	1
3:45 PM	5	14		0	14	3		0	2		4	0				0	42	0	0	0	1
3:50 PM	2	9		0	14	7		0	1		2	0				0	35	0	0	0	0
3:55 PM	1	8		0	15	2		0	2		1	0				0	29	0	0	0	0
4:00 PM	1	17		0	13	2		0	1		1	0				0	35	0	0	0	0
4:05 PM	3	15		0	14	4		0	4		1	0				0	41	0	0	0	0
4:10 PM	1	12		0	15	1		0	0		3	0				0	32	0	0	0	0
4:15 PM	0	12		0	11	0		0	0		2	0				0	25	0	0	0	0
4:20 PM	4	15		0	11	0		0	1		2	0				0	33	0	0	0	0
4:25 PM	1	12		0	9	1		0	0		1	0				0	24	0	0	0	2
4:30 PM	1	14		1	11	0		0	0		3	0				0	29	0	0	0	1
4:35 PM	2	11		0	19	1		0	0		1	0				0	34	0	0	0	0
4:40 PM	1	14		0	16	2		0	1		5	0				0	39	0	0	0	0
4:45 PM	0	13		0	12	0		0	1		4	0				0	30	0	0	0	1
4:50 PM	2	19		0	6	0		0	0		2	0				0	29	0	0	0	1
4:55 PM	1	12		0	14	0		0	3		2	0				0	32	0	0	0	0
5:00 PM	2	9		0	15	0		0	2		2	0				0	30	0	0	0	0
5:05 PM	3	11		0	15	3		0	1		5	0				0	38	0	0	0	2
5:10 PM	3	19		0	15	1		0	1		0	0				0	39	0	0	0	1
5:15 PM	4	9		0	22	2		0	6		2	0				0	45	0	0	0	0
5:20 PM	3	20		0	16	2		0	1		3	0				0	45	0	0	0	0
5:25 PM	3	12		0	14	1		0	0		3	0				0	33	0	0	0	1
5:30 PM	2	14		0	11	2		0	2		1	0				0	32	0	0	0	0
5:35 PM	2	16		0	15	3		0	2		0	0				0	38	0	0	0	0
5:40 PM	0	6		0	11	2		0	1		5	0				0	25	0	0	0	0
5:45 PM	3	13		0	12	2		0	4		4	0				0	38	0	0	0	0
5:50 PM	1	7		0	9	1		0	0		2	0				0	20	0	0	0	0
5:55 PM	2	10		0	12	4		0	3		2	0				0	33	0	0	0	0
Total Survey	67	456		1	483	66		0	63		80	0				0	1,215	1	0	0	16

15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
3:00 PM	2	41		0	39	3		0	5		3	0				0	93	0	0	0	0
3:15 PM	5	25		0	43	9		0	12		2	0				0	96	1	0	0	4
3:30 PM	7	47		0	40	8		0	7		12	0				0	121	0	0	0	2
3:45 PM	8	31		0	43	12		0	5		7	0				0	106	0	0	0	1
4:00 PM	5	44		0	42	7		0	5		5	0				0	108	0	0	0	0
4:15 PM	5	39		0	31	1		0	1		5	0				0	82	0	0	0	2
4:30 PM	4	39		1	46	3		0	1		9	0				0	102	0	0	0	1
4:45 PM	3	44		0	32	0		0	4		8	0				0	91	0	0	0	2
5:00 PM	8	39		0	45	4		0	4		7	0				0	107	0	0	0	3
5:15 PM	10	41		0	52	5		0	7		8	0				0	123	0	0	0	1
5:30 PM	4	36		0	37	7		0	5		6	0				0	95	0	0	0	0
5:45 PM	6	30		0	33	7		0	7		8	0				0	91	0	0	0	0
Total Survey	67	456		1	483	66		0	63		80	0				0	1,215	1	0	0	16

Peak Hour Summary
3:15 PM to 4:15 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	172	194	366	0	204	176	380	0	55	61	116	0	0	0	0	0	431	1	0	0	7
%HV	1.2%				3.9%				3.6%				0.0%				2.8%				
PHF	0.68				0.88				0.72				0.00				0.85				

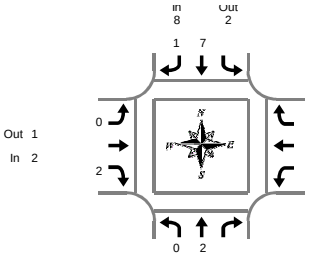
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Total
	L	T		Total	T	R		Total	L		R	Total				Total	
Volume	25	147		172	168	36		204	29		26	55				0	431
%HV	0.0%	1.4%	NA	1.2%	NA	4.2%	2.8%	3.9%	0.0%	NA	7.7%	3.6%	NA	NA	NA	0.0%	2.8%
PHF	0.57	0.71		0.68		0.88	0.69	0.88	0.60		0.54	0.72				0.00	0.85

Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
3:00 PM	22	144		0	165	32		0	29		24	0				0	416	1	0	0	7
3:15 PM	25	147		0	168	36		0	29		26	0				0	431	1	0	0	7
3:30 PM	25	161		0	156	28		0	18		29	0				0	417	0	0	0	5
3:45 PM	22	153		1	162	23		0	12		26	0				0	398	0	0	0	4
4:00 PM	17	166		1	151	11		0	11		27	0				0	383	0	0	0	5
4:15 PM	20	161		1	154	8		0	10		29	0				0	382	0	0	0	8
4:30 PM	25	163		1	175	12		0	16		32	0				0	423	0	0	0	7
4:45 PM	25	160		0	166	16		0	20		29	0				0	416	0	0	0	6
5:00 PM	28	146		0	167	23		0	23		29	0				0	416	0	0	0	4

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & S River Rd

Wednesday, March 05, 2014
3:00 PM to 6:00 PM

Peak Hour Summary
3:15 PM to 4:15 PM

Heavy Vehicle 5-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total
	L	T		Total	T	R	Total	L		R	Total				Total	
3:00 PM	0	1		1	0	0	0	0		0	0				0	1
3:05 PM	0	2		2	0	0	0	0		0	0				0	2
3:10 PM	0	1		1	0	0	0	0		0	0				0	1
3:15 PM	0	0		0	0	0	0	0		0	0				0	0
3:20 PM	0	0		0	2	0	2	0		0	0				0	2
3:25 PM	0	0		0	0	0	0	0		0	0				0	0
3:30 PM	0	0		0	1	0	1	0		1	1				0	2
3:35 PM	0	0		0	0	1	1	0		0	0				0	1
3:40 PM	0	1		1	0	0	0	0		1	1				0	2
3:45 PM	0	0		0	0	0	0	0		0	0				0	0
3:50 PM	0	0		0	0	0	0	0		0	0				0	0
3:55 PM	0	0		0	0	0	0	0		0	0				0	0
4:00 PM	0	0		0	1	0	1	0		0	0				0	1
4:05 PM	0	1		1	1	0	1	0		0	0				0	2
4:10 PM	0	0		0	2	0	2	0		0	0				0	2
4:15 PM	0	1		1	0	0	0	0		0	0				0	1
4:20 PM	0	0		0	0	0	0	0		0	0				0	0
4:25 PM	0	0		0	0	0	0	0		0	0				0	0
4:30 PM	0	0		0	0	0	0	0		0	0				0	0
4:35 PM	0	1		1	0	1	1	0		0	0				0	2
4:40 PM	0	1		1	0	0	0	1		0	1				0	2
4:45 PM	0	0		0	0	0	0	0		1	1				0	1
4:50 PM	0	1		1	0	0	0	0		0	0				0	1
4:55 PM	0	0		0	0	0	0	0		0	0				0	0
5:00 PM	0	0		0	1	0	1	0		0	0				0	1
5:05 PM	0	0		0	1	0	1	0		0	0				0	1
5:10 PM	0	0		0	0	0	0	0		0	0				0	0
5:15 PM	0	0		0	0	0	0	0		0	0				0	0
5:20 PM	0	0		0	2	0	2	0		0	0				0	2
5:25 PM	0	0		0	0	0	0	0		0	0				0	0
5:30 PM	1	0		1	0	0	0	0		0	0				0	1
5:35 PM	0	0		0	0	1	1	0		0	0				0	1
5:40 PM	0	0		0	0	0	0	0		0	0				0	0
5:45 PM	0	1		1	0	0	0	0		0	0				0	1
5:50 PM	0	0		0	1	0	1	0		0	0				0	1
5:55 PM	0	0		0	0	0	0	0		0	0				0	0
Total Survey	1	11		12	12	3	15	1		3	4				0	31

Heavy Vehicle 15-Minute Interval Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total
	L	T		Total	T	R	Total	L		R	Total				Total	
3:00 PM	0	4		4	0	0	0	0		0	0				0	4
3:15 PM	0	0		0	2	0	2	0		0	0				0	2
3:30 PM	0	1		1	1	1	2	0		2	2				0	5
3:45 PM	0	0		0	0	0	0	0		0	0				0	0
4:00 PM	0	1		1	4	0	4	0		0	0				0	5
4:15 PM	0	1		1	0	0	0	0		0	0				0	1
4:30 PM	0	2		2	0	1	1	1		0	1				0	4
4:45 PM	0	1		1	0	0	0	0		1	1				0	2
5:00 PM	0	0		0	2	0	2	0		0	0				0	2
5:15 PM	0	0		0	2	0	2	0		0	0				0	2
5:30 PM	1	0		1	0	1	1	0		0	0				0	2
5:45 PM	0	1		1	1	0	1	0		0	0				0	2
Total Survey	1	11		12	12	3	15	1		3	4				0	31

Heavy Vehicle Peak Hour Summary
3:15 PM to 4:15 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound S River Rd			Westbound S River Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	9	11	8	2	10	2	1	3	0	0	0	12
PHF	0.50			0.50			0.25			0.00			0.60

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Total
	L	T		Total	T	R	Total	L		R	Total				Total	
Volume	0	2		2	7	1	8	0		2	2				0	12
PHF	0.00	0.50		0.50	0.44	0.25	0.50	0.00		0.25	0.25				0.00	0.60

Heavy Vehicle Rolling Hour Summary
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound S River Rd				Westbound S River Rd				Interval Total
	L	T		Total	T	R	Total	L		R	Total				Total	
3:00 PM	0	5		5	3	1	4	0		2	2				0	11
3:15 PM	0	2		2	7	1	8	0		2	2				0	12
3:30 PM	0	3		3	5	1	6	0		2	2				0	11
3:45 PM	0	4		4	4	1	5	1		0	1				0	10
4:00 PM	0	5		5	4	1	5	1		1	2				0	12
4:15 PM	0	4		4	2	1	3	1		1	2				0	9
4:30 PM	0	3		3	4	1	5	1		1	2				0	10
4:45 PM	1	1		2	4	1	5	0		1	1				0	8
5:00 PM	1	1		2	5	1	6	0		0	0				0	8

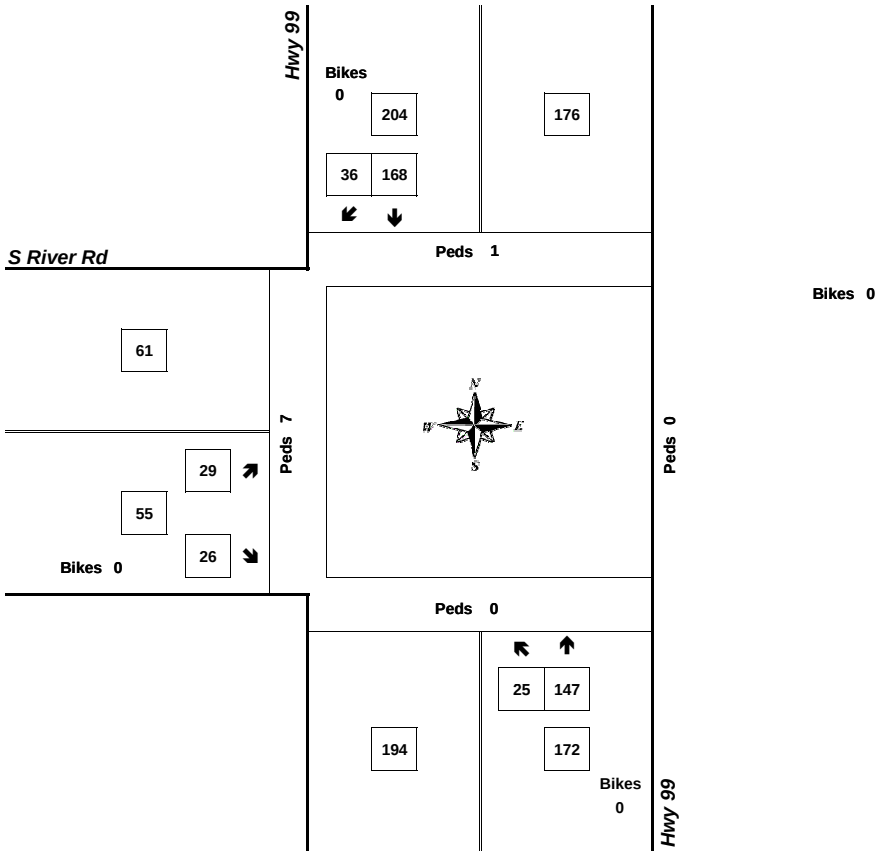
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 99 & S River Rd

3:15 PM to 4:15 PM
Wednesday, March 05, 2014

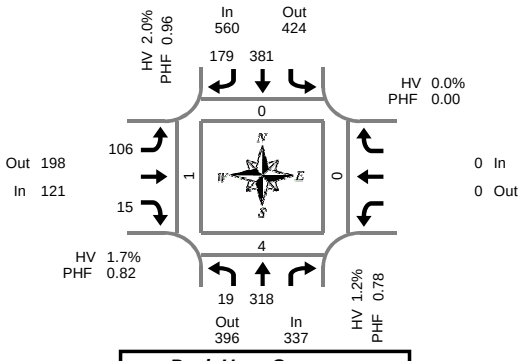


Approach	PHF	HV%	Volume
EB	0.72	3.6%	55
WB	0.00	0.0%	0
NB	0.68	1.2%	172
SB	0.88	3.9%	204
Intersection	0.85	2.8%	431

Count Period: 3:00 PM to 6:00 PM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & Woodson Pl

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	3	30		0	26	14	0		6		3	0				0	82	0	0	0	0
4:05 PM	0	19		0	27	7	0		12		1	0				0	66	0	0	0	0
4:10 PM	1	18		0	42	24	0		7		1	0				0	93	0	0	0	0
4:15 PM	1	18		0	24	16	0		12		2	0				0	73	0	0	0	0
4:20 PM	3	22		0	35	11	0		6		0	0				0	77	0	0	0	0
4:25 PM	2	19		0	35	14	0		5		1	0				0	76	0	0	0	0
4:30 PM	4	26		0	34	18	0		7		1	0				0	90	0	0	0	0
4:35 PM	1	30		0	36	12	0		4		0	0				0	83	0	0	0	1
4:40 PM	0	23		0	32	14	0		8		1	0				0	78	0	0	0	0
4:45 PM	1	22		0	33	12	0		12		2	0				0	82	0	0	0	0
4:50 PM	1	24		0	24	8	0		10		2	0				0	69	0	0	0	0
4:55 PM	1	22		0	37	22	0		10		1	0				0	93	0	0	0	0
5:00 PM	2	29		0	27	13	0		11		0	0				0	82	0	1	0	0
5:05 PM	0	36		0	33	12	0		14		1	0				0	96	0	0	0	0
5:10 PM	0	35		0	32	18	0		6		1	0				0	92	0	2	0	0
5:15 PM	4	33		0	27	19	0		9		3	0				0	95	0	0	0	0
5:20 PM	2	18		0	31	19	0		8		1	0				0	79	0	1	0	0
5:25 PM	3	20		0	35	12	0		7		2	0				0	79	0	0	0	0
5:30 PM	0	22		0	29	17	0		9		1	0				0	78	0	0	0	0
5:35 PM	2	25		0	23	21	0		10		3	0				0	84	0	0	0	0
5:40 PM	0	20		0	19	16	0		3		4	0				0	62	0	0	0	0
5:45 PM	2	28		0	23	14	0		7		0	0				0	74	0	0	0	0
5:50 PM	2	18		0	21	14	0		9		1	0				0	65	0	0	0	0
5:55 PM	4	20		0	26	15	0		7		1	0				0	73	0	0	0	2
Total Survey	39	577		0	711	362	0		199		33	0				0	1,921	0	4	0	3

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	4	67		0	95	45	0		25		5	0				0	241	0	0	0	0
4:15 PM	6	59		0	94	41	0		23		3	0				0	226	0	0	0	0
4:30 PM	5	79		0	102	44	0		19		2	0				0	251	0	0	0	1
4:45 PM	3	68		0	94	42	0		32		5	0				0	244	0	0	0	0
5:00 PM	2	100		0	92	43	0		31		2	0				0	270	0	3	0	0
5:15 PM	9	71		0	93	50	0		24		6	0				0	253	0	1	0	0
5:30 PM	2	67		0	71	54	0		22		8	0				0	224	0	0	0	0
5:45 PM	8	66		0	70	43	0		23		2	0				0	212	0	0	0	2
Total Survey	39	577		0	711	362	0		199		33	0				0	1,921	0	4	0	3

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	337	396	733	0	560	424	984	0	121	198	319	0	0	0	0	0	1,018	0	4	0	1
%HV	1.2%				2.0%				1.7%				0.0%				1.7%				
PHF	0.78				0.96				0.82				0.00				0.90				

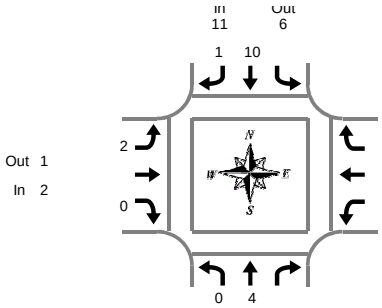
By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Total
	L	T		Total		T	R	Total	L		R	Total				Total	
Volume	19	318		337		381	179	560	106		15	121				0	1,018
%HV	0.0%	1.3%	NA	1.2%	NA	2.6%	0.6%	2.0%	1.9%	NA	0.0%	1.7%	NA	NA	NA	0.0%	1.7%
PHF	0.53	0.76		0.78		0.93	0.80	0.96	0.76		0.63	0.82				0.00	0.90

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	18	273		0	385	172	0		99		15	0				0	962	0	0	0	1
4:15 PM	16	306		0	382	170	0		105		12	0				0	991	0	3	0	1
4:30 PM	19	318		0	381	179	0		106		15	0				0	1,018	0	4	0	1
4:45 PM	16	306		0	350	189	0		109		21	0				0	991	0	4	0	0
5:00 PM	21	304		0	326	190	0		100		18	0				0	959	0	4	0	2

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 & Woodson Pl

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	1		1	0	0	0		0		0	0				0	1
4:05 PM	0	1		1	2	0	2		0		0	0				0	3
4:10 PM	0	2		2	2	0	2		2		0	2				0	6
4:15 PM	0	0		0	0	0	0		1		0	1				0	1
4:20 PM	0	1		1	1	1	2		0		0	0				0	3
4:25 PM	0	0		0	1	0	1		0		0	0				0	1
4:30 PM	0	0		0	1	0	1		0		0	0				0	1
4:35 PM	0	1		1	0	0	0		0		0	0				0	1
4:40 PM	0	0		0	0	0	0		0		0	0				0	0
4:45 PM	0	0		0	0	0	0		0		0	0				0	0
4:50 PM	0	1		1	0	0	0		0		0	0				0	1
4:55 PM	0	1		1	1	0	1		1		0	1				0	3
5:00 PM	0	0		0	1	0	1		1		0	1				0	2
5:05 PM	0	0		0	1	1	2		0		0	0				0	2
5:10 PM	0	1		1	4	0	4		0		0	0				0	5
5:15 PM	0	0		0	1	0	1		0		0	0				0	1
5:20 PM	0	0		0	0	0	0		0		0	0				0	0
5:25 PM	0	0		0	1	0	1		0		0	0				0	1
5:30 PM	0	0		0	0	0	0		0		0	0				0	0
5:35 PM	0	0		0	1	0	1		0		1	1				0	2
5:40 PM	0	0		0	0	0	0		0		0	0				0	0
5:45 PM	0	1		1	0	0	0		0		0	0				0	1
5:50 PM	0	0		0	0	0	0		0		0	0				0	0
5:55 PM	0	0		0	0	1	1		0		0	0				0	1
Total Survey	0	10		10	17	3	20		5		1	6				0	36

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	4		4	4	0	4		2		0	2				0	10
4:15 PM	0	1		1	2	1	3		1		0	1				0	5
4:30 PM	0	1		1	1	0	1		0		0	0				0	2
4:45 PM	0	2		2	1	0	1		1		0	1				0	4
5:00 PM	0	1		1	6	1	7		1		0	1				0	9
5:15 PM	0	0		0	2	0	2		0		0	0				0	2
5:30 PM	0	0		0	1	0	1		0		1	1				0	2
5:45 PM	0	1		1	0	1	1		0		0	0				0	2
Total Survey	0	10		10	17	3	20		5		1	6				0	36

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Woodson Pl			Westbound Woodson Pl			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	4	10	14	11	6	17	2	1	3	0	0	0	17
PHF	0.50			0.39			0.25			0.00			0.47

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Total
	L	T		Total	T	R	Total		L		R	Total				Total	
Volume	0	4		4	10	1	11		2		0	2				0	17
PHF	0.00	0.50		0.50	0.42	0.25	0.39		0.25		0.00	0.25				0.00	0.47

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Woodson Pl				Westbound Woodson Pl				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	0	8		8	8	1	9		4		0	4				0	21
4:15 PM	0	5		5	10	2	12		3		0	3				0	20
4:30 PM	0	4		4	10	1	11		2		0	2				0	17
4:45 PM	0	3		3	10	1	11		2		1	3				0	17
5:00 PM	0	2		2	9	2	11		1		1	2				0	15

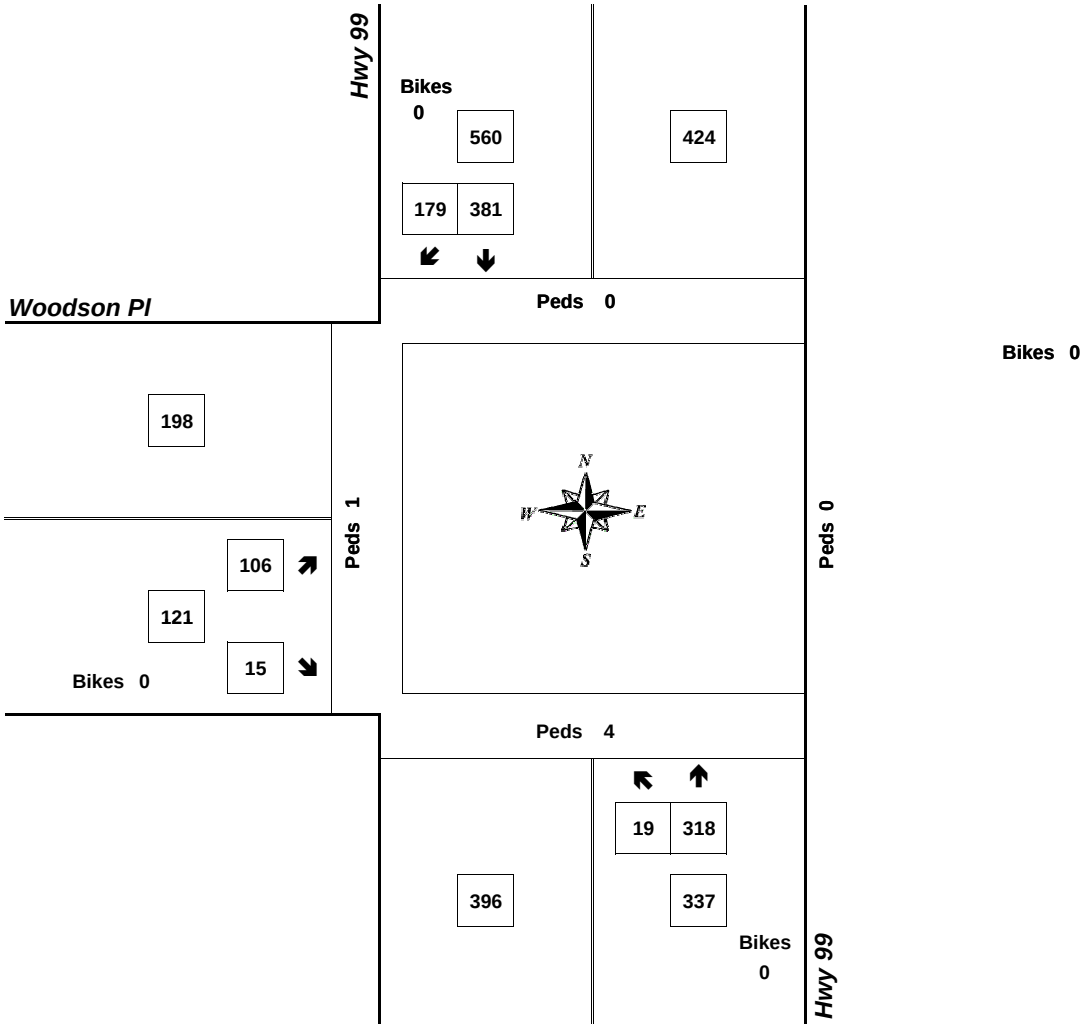
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 99 & Woodson Pl

4:30 PM to 5:30 PM
Tuesday, March 04, 2014

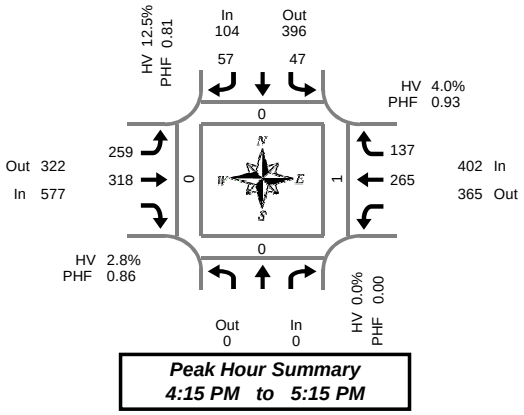


Approach	PHF	HV%	Volume
EB	0.82	1.7%	121
WB	0.00	0.0%	0
NB	0.78	1.2%	337
SB	0.96	2.0%	560
Intersection	0.90	1.7%	1,018

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:15 PM to 5:15 PM

I-5 NB Ramps & Row River Rd

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	5		3	0	18	19		0		21	15	0	81	0	0	0	0
4:05 PM				0	0		1	0	29	30		0		18	11	0	89	0	0	0	0
4:10 PM				0	2		2	0	15	29		0		22	14	0	84	0	0	0	0
4:15 PM				0	4		6	0	17	21		0		29	8	0	85	0	0	0	0
4:20 PM				0	4		3	0	20	36		0		21	17	0	101	0	0	0	0
4:25 PM				0	5		7	0	18	26		0		25	3	0	84	0	0	0	0
4:30 PM				0	1		10	0	15	31		0		20	9	0	86	0	0	0	0
4:35 PM				0	3		0	0	18	28		1		18	15	0	82	0	0	0	0
4:40 PM				0	3		3	0	24	26		0		16	13	0	85	0	0	0	0
4:45 PM				0	11		6	0	21	24		0		22	13	0	97	0	0	0	0
4:50 PM				0	2		7	0	26	18		0		24	12	0	89	0	0	0	0
4:55 PM				0	2		2	0	23	18		0		16	13	0	74	0	0	0	0
5:00 PM				0	4		3	0	24	31		0		30	11	0	103	0	0	1	0
5:05 PM				0	4		4	0	33	35		0		20	15	0	111	0	0	0	0
5:10 PM				0	4		6	0	20	24		0		24	8	0	86	0	0	0	0
5:15 PM				0	0		3	0	26	27		0		13	15	0	84	0	0	0	0
5:20 PM				0	5		8	0	20	28		0		16	12	0	89	0	0	0	0
5:25 PM				0	4		2	0	22	39		0		18	10	1	95	0	0	0	0
5:30 PM				0	1		1	0	23	25		0		20	18	0	88	0	0	0	0
5:35 PM				0	4		1	0	20	22		0		17	12	0	76	0	0	0	0
5:40 PM				0	1		3	0	18	31		0		17	9	0	79	0	0	0	0
5:45 PM				0	0		3	0	21	30		0		14	12	0	80	0	0	0	0
5:50 PM				0	6		6	0	14	26		0		22	16	0	90	0	0	0	0
5:55 PM				0	4		4	0	18	26		0		18	9	0	79	0	0	0	0
Total Survey				0	79		94	0	503	650		1		481	290	1	2,097	0	0	1	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	7		6	0	62	78		0		61	40	0	254	0	0	0	0
4:15 PM				0	13		16	0	55	83		0		75	28	0	270	0	0	0	0
4:30 PM				0	7		13	0	57	85		1		54	37	0	253	0	0	0	0
4:45 PM				0	15		15	0	70	60		0		62	38	0	260	0	0	0	0
5:00 PM				0	12		13	0	77	90		0		74	34	0	300	0	0	1	0
5:15 PM				0	9		13	0	68	94		0		47	37	1	268	0	0	0	0
5:30 PM				0	6		5	0	61	78		0		54	39	0	243	0	0	0	0
5:45 PM				0	10		13	0	53	82		0		54	37	0	249	0	0	0	0
Total Survey				0	79		94	0	503	650		1		481	290	1	2,097	0	0	1	0

Peak Hour Summary
4:15 PM to 5:15 PM

By Approach	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	104	396	500	0	577	322	899	1	402	365	767	0	1,083	0	0	1	0
%HV	0.0%				12.5%				2.8%				4.0%				4.2%				
PHF	0.00				0.81				0.86				0.93				0.90				

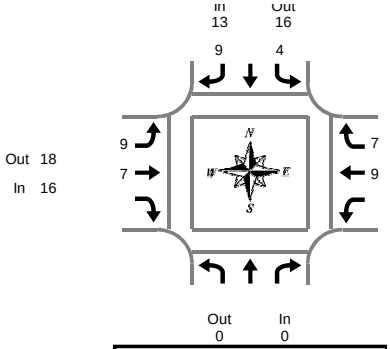
By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	47		57	104	259	318		577		265	137	402	1,083
%HV	NA	NA	NA	0.0%	8.5%	NA	15.8%	12.5%	3.5%	2.2%	NA	2.8%	NA	3.4%	5.1%	4.0%	4.2%
PHF				0.00	0.69		0.71	0.81	0.81	0.85		0.86		0.88	0.84	0.93	0.90

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	42		50	0	244	306		1		252	143	0	1,037	0	0	0	0
4:15 PM				0	47		57	0	259	318		1		265	137	0	1,083	0	0	1	0
4:30 PM				0	43		54	0	272	329		1		237	146	1	1,081	0	0	1	0
4:45 PM				0	42		46	0	276	322		0		237	148	1	1,071	0	0	1	0
5:00 PM				0	37		44	0	259	344		0		229	147	1	1,060	0	0	1	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



I-5 NB Ramps & Row River Rd

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:15 PM to 5:15 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	1		0	1	1	2		3		0	0	0	4
4:05 PM				0	0		0	0	3	1		4		1	0	1	5
4:10 PM				0	0		0	0	2	0		2		0	1	1	3
4:15 PM				0	1		2	3	0	0		0		2	0	2	5
4:20 PM				0	0		1	1	2	2		4		1	2	3	8
4:25 PM				0	0		0	0	1	0		1		1	0	1	2
4:30 PM				0	0		0	0	1	0		1		0	1	1	2
4:35 PM				0	0		0	0	1	0		1		0	0	0	1
4:40 PM				0	1		0	1	0	0		0		1	1	2	3
4:45 PM				0	1		2	3	1	0		1		1	1	2	6
4:50 PM				0	0		1	1	3	1		4		0	0	0	5
4:55 PM				0	0		0	0	0	1		1		0	0	0	1
5:00 PM				0	0		1	1	0	0		0		1	1	2	3
5:05 PM				0	0		0	0	0	3		3		2	1	3	6
5:10 PM				0	1		2	3	0	0		0		0	0	0	3
5:15 PM				0	0		1	1	0	3		3		0	2	2	6
5:20 PM				0	0		1	1	0	0		0		2	0	2	3
5:25 PM				0	0		0	0	1	3		4		0	1	1	5
5:30 PM				0	0		1	1	2	0		2		0	1	1	4
5:35 PM				0	0		0	0	1	0		1		0	0	0	1
5:40 PM				0	0		0	0	0	0		0		0	0	0	0
5:45 PM				0	0		0	0	0	0		0		0	0	0	0
5:50 PM				0	0		1	1	0	0		0		0	1	1	2
5:55 PM				0	0		0	0	1	0		1		0	0	0	1
Total Survey				0	5		13	18	20	16		36		12	13	25	79

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	1		0	1	6	3		9		1	1	2	12
4:15 PM				0	1		3	4	3	2		5		4	2	6	15
4:30 PM				0	1		0	1	2	0		2		1	2	3	6
4:45 PM				0	1		3	4	4	2		6		1	1	2	12
5:00 PM				0	1		3	4	0	3		3		3	2	5	12
5:15 PM				0	0		2	2	1	6		7		2	3	5	14
5:30 PM				0	0		1	1	3	0		3		0	1	1	5
5:45 PM				0	0		1	1	1	0		1		0	1	1	3
Total Survey				0	5		13	18	20	16		36		12	13	25	79

Heavy Vehicle Peak Hour Summary
4:15 PM to 5:15 PM

By Approach	Northbound I-5 NB Ramps			Southbound I-5 NB Ramps			Eastbound Row River Rd			Westbound Row River Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	13	16	29	16	18	34	16	11	27	45
PHF	0.00			0.65			0.67			0.67			0.75

By Movement	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	4		9	13	9	7		16		9	7	16	45
PHF				0.00	0.50		0.75	0.65	0.56	0.44		0.67		0.56	0.58	0.67	0.75

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

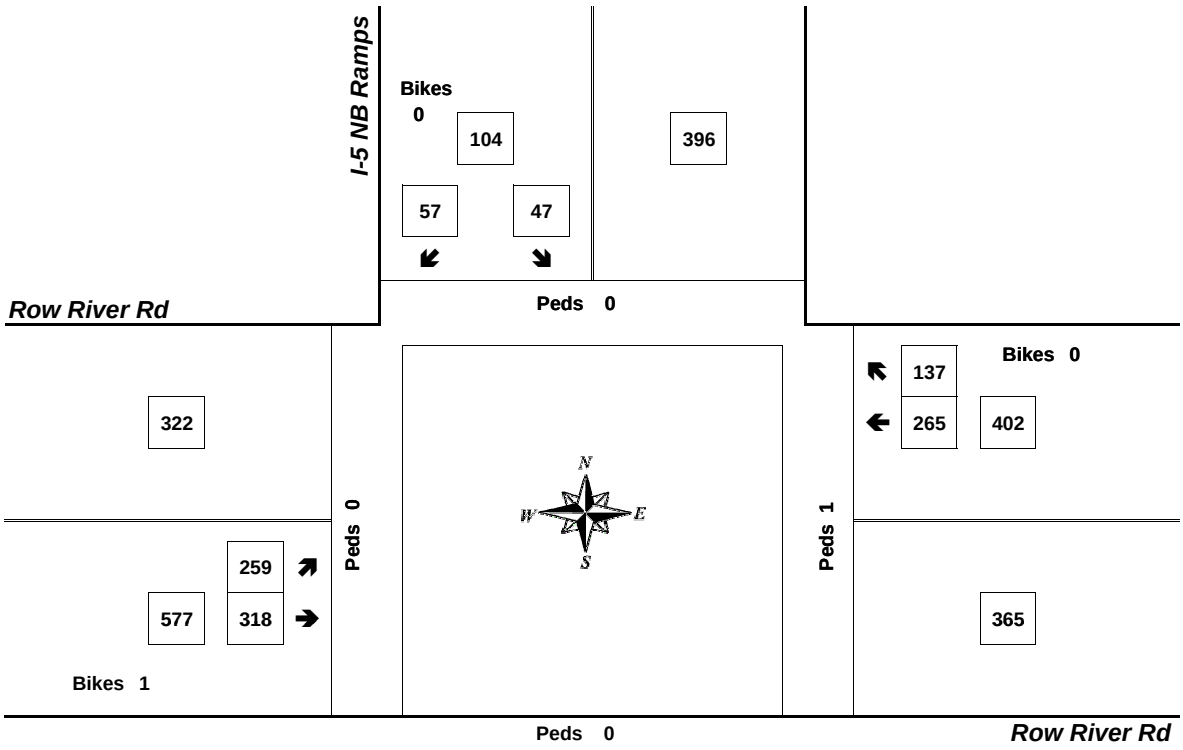
Interval Start Time	Northbound I-5 NB Ramps				Southbound I-5 NB Ramps				Eastbound Row River Rd				Westbound Row River Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	4		6	10	15	7		22		7	6	13	45
4:15 PM				0	4		9	13	9	7		16		9	7	16	45
4:30 PM				0	3		8	11	7	11		18		7	8	15	44
4:45 PM				0	2		9	11	8	11		19		6	7	13	43
5:00 PM				0	1		7	8	5	9		14		5	7	12	34

Peak Hour Summary

Clay Carney
(503) 833-2740

I-5 NB Ramps & Row River Rd

4:15 PM to 5:15 PM
Tuesday, March 04, 2014



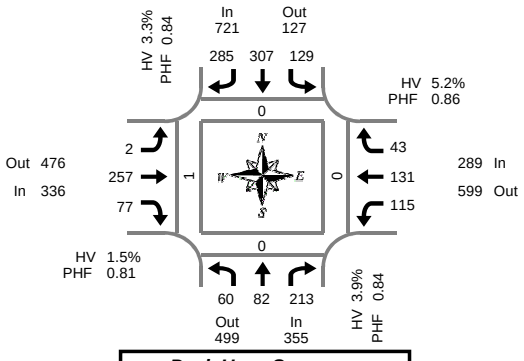
Bikes
0

Approach	PHF	HV%	Volume
EB	0.86	2.8%	577
WB	0.93	4.0%	402
NB	0.00	0.0%	0
SB	0.81	12.5%	104
Intersection	0.90	4.2%	1,083

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:35 PM to 5:35 PM

I-5 SB Ramps & Cottage Grove Con

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	3	13	1	7	20	9	0	0	14	3	0	14	14	3	0	102	0	0	0	0
4:05 PM	9	6	30	0	18	32	32	0	0	15	8	0	6	10	2	0	168	0	0	0	0
4:10 PM	9	5	18	0	14	17	23	0	2	15	1	0	10	12	3	0	129	0	0	0	0
4:15 PM	3	11	11	0	8	24	14	0	1	18	2	0	8	15	9	0	124	0	0	0	0
4:20 PM	4	5	16	0	16	25	23	0	1	16	6	0	10	14	3	0	139	0	0	0	0
4:25 PM	6	7	13	0	23	29	25	0	1	11	2	0	9	11	3	0	140	1	0	0	3
4:30 PM	8	4	19	0	15	21	21	0	1	11	5	0	11	15	6	0	137	0	0	0	3
4:35 PM	7	7	15	0	12	22	25	0	0	16	6	1	13	9	4	0	136	0	0	0	1
4:40 PM	4	4	12	0	17	28	18	0	0	25	5	0	4	5	4	0	126	0	0	0	0
4:45 PM	3	7	11	0	5	22	21	0	0	26	4	0	10	13	3	0	125	0	0	0	0
4:50 PM	5	10	22	0	5	22	27	0	1	21	9	0	10	16	7	0	155	0	0	0	0
4:55 PM	6	4	17	0	5	41	24	0	0	21	4	0	11	10	2	0	145	0	0	0	0
5:00 PM	5	5	22	0	13	21	19	0	0	21	3	0	8	8	3	0	128	0	0	0	0
5:05 PM	6	12	20	0	13	21	26	0	0	28	4	0	14	17	4	0	165	0	0	0	0
5:10 PM	12	9	15	0	11	19	16	0	0	23	16	0	8	16	2	0	147	0	0	0	0
5:15 PM	2	5	21	0	7	28	19	0	1	20	12	0	10	11	2	0	138	0	0	0	0
5:20 PM	3	6	16	0	16	26	32	0	0	21	6	0	11	7	4	0	148	0	0	0	0
5:25 PM	3	6	24	0	15	33	23	0	0	16	3	0	7	7	2	0	139	0	0	0	0
5:30 PM	4	7	18	0	10	24	35	0	0	19	5	0	9	12	6	0	149	0	0	0	0
5:35 PM	10	6	12	0	19	33	15	0	3	17	4	0	4	7	3	0	133	0	0	0	0
5:40 PM	3	0	16	0	16	19	13	0	0	17	4	0	8	8	3	0	107	0	0	0	0
5:45 PM	9	10	17	0	11	30	26	0	1	16	2	0	11	4	3	0	140	0	0	0	0
5:50 PM	5	9	18	0	14	27	18	0	1	14	6	0	14	10	1	0	137	0	0	0	0
5:55 PM	4	2	12	0	13	20	22	0	1	15	4	0	14	15	2	0	124	0	0	0	0
Total Survey	132	150	408	1	303	604	526	0	14	436	124	1	234	266	84	0	3,281	1	0	0	7

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	20	14	61	1	39	69	64	0	2	44	12	0	30	36	8	0	399	0	0	0	0
4:15 PM	13	23	40	0	47	78	62	0	3	45	10	0	27	40	15	0	403	1	0	0	3
4:30 PM	19	15	46	0	44	71	64	0	1	52	16	1	28	29	14	0	399	0	0	0	4
4:45 PM	14	21	50	0	15	85	72	0	1	68	17	0	31	39	12	0	425	0	0	0	0
5:00 PM	23	26	57	0	37	61	61	0	0	72	23	0	30	41	9	0	440	0	0	0	0
5:15 PM	8	17	61	0	38	87	74	0	1	57	21	0	28	25	8	0	425	0	0	0	0
5:30 PM	17	13	46	0	45	76	63	0	3	53	13	0	21	27	12	0	389	0	0	0	0
5:45 PM	18	21	47	0	38	77	66	0	3	45	12	0	39	29	6	0	401	0	0	0	0
Total Survey	132	150	408	1	303	604	526	0	14	436	124	1	234	266	84	0	3,281	1	0	0	7

Peak Hour Summary
4:35 PM to 5:35 PM

By Approach	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	355	499	854	0	721	127	848	0	336	476	812	1	289	599	888	0	1,701	0	0	0	1
%HV	3.9%				3.3%				1.5%				5.2%				3.4%				
PHF	0.84				0.84				0.81				0.86				0.95				

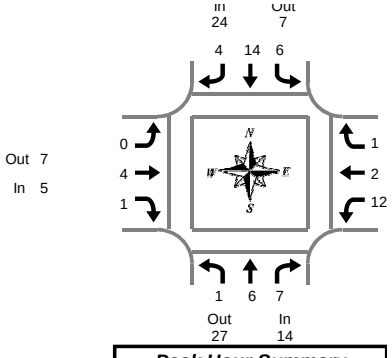
By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	60	82	213	355	129	307	285	721	2	257	77	336	115	131	43	289	1,701
%HV	1.7%	7.3%	3.3%	3.9%	4.7%	4.6%	1.4%	3.3%	0.0%	1.6%	1.3%	1.5%	10.4%	1.5%	2.3%	5.2%	3.4%
PHF	0.65	0.79	0.87	0.84	0.79	0.88	0.79	0.84	0.50	0.89	0.57	0.81	0.87	0.74	0.77	0.86	0.95

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	66	73	197	1	145	303	262	0	7	209	55	1	116	144	49	0	1,626	1	0	0	7
4:15 PM	69	85	193	0	143	295	259	0	5	237	66	1	116	149	50	0	1,667	1	0	0	7
4:30 PM	64	79	214	0	134	304	271	0	3	249	77	1	117	134	43	0	1,689	0	0	0	4
4:45 PM	62	77	214	0	135	309	270	0	5	250	74	0	110	132	41	0	1,679	0	0	0	0
5:00 PM	66	77	211	0	158	301	264	0	7	227	69	0	118	122	35	0	1,655	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



I-5 SB Ramps & Cottage Grove Con

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:35 PM to 5:35 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
4:05 PM	0	1	2	3	2	3	0	5	0	2	0	2	1	0	0	1	11
4:10 PM	0	0	1	1	0	0	1	1	0	1	0	1	0	0	0	0	3
4:15 PM	0	1	0	1	0	2	0	2	0	2	0	2	1	1	1	3	8
4:20 PM	0	1	3	4	1	1	0	2	0	0	0	0	1	2	0	3	9
4:25 PM	0	1	1	2	0	2	0	2	0	0	0	0	0	1	0	1	5
4:30 PM	0	0	1	1	0	2	0	2	0	0	0	0	1	0	0	1	4
4:35 PM	1	1	0	2	0	1	0	1	0	1	0	1	0	0	0	0	4
4:40 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	2	0	1	3	4
4:50 PM	0	2	3	5	0	0	1	1	0	1	0	1	2	0	0	2	9
4:55 PM	0	0	0	0	0	4	0	4	0	0	0	0	1	0	0	1	5
5:00 PM	0	0	0	0	0	2	1	3	0	1	0	1	0	0	0	0	4
5:05 PM	0	1	0	1	3	0	0	3	0	0	0	0	2	0	0	2	6
5:10 PM	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	2	3
5:15 PM	0	0	0	0	1	1	1	3	0	0	0	0	1	0	0	1	4
5:20 PM	0	0	0	0	1	1	0	2	0	0	0	0	1	1	0	2	4
5:25 PM	0	1	1	2	1	2	0	3	0	0	0	0	1	0	0	1	6
5:30 PM	0	0	2	2	0	1	1	2	0	1	0	1	1	0	0	1	6
5:35 PM	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
5:50 PM	0	1	0	1	0	1	1	2	0	0	1	1	1	0	0	1	5
5:55 PM	0	0	1	1	0	1	0	1	0	0	0	0	1	0	0	1	3
Total Survey	1	17	17	35	9	26	7	42	0	10	2	12	18	6	2	26	115

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	2	3	5	2	3	2	7	0	4	0	4	1	0	0	1	17
4:15 PM	0	3	4	7	1	5	0	6	0	2	0	2	2	4	1	7	22
4:30 PM	1	2	1	4	0	5	0	5	0	1	0	1	1	0	0	1	11
4:45 PM	0	2	4	6	0	4	1	5	0	1	0	1	5	0	1	6	18
5:00 PM	0	1	0	1	3	2	1	6	0	1	1	2	3	1	0	4	13
5:15 PM	0	1	1	2	3	4	1	8	0	0	0	0	3	1	0	4	14
5:30 PM	0	2	3	5	0	1	1	2	0	1	0	1	1	0	0	1	9
5:45 PM	0	4	1	5	0	2	1	3	0	0	1	1	2	0	0	2	11
Total Survey	1	17	17	35	9	26	7	42	0	10	2	12	18	6	2	26	115

Heavy Vehicle Peak Hour Summary
4:35 PM to 5:35 PM

By Approach	Northbound I-5 SB Ramps			Southbound I-5 SB Ramps			Eastbound Cottage Grove Con			Westbound Cottage Grove Con			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	14	27	41	24	7	31	5	7	12	15	17	32	58
PHF	0.50			0.60			0.63			0.63			0.81

By Movement	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	6	7	14	6	14	4	24	0	4	1	5	12	2	1	15	58
PHF	0.25	0.50	0.44	0.50	0.38	0.58	0.50	0.60	0.00	0.50	0.25	0.63	0.60	0.25	0.25	0.63	0.81

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

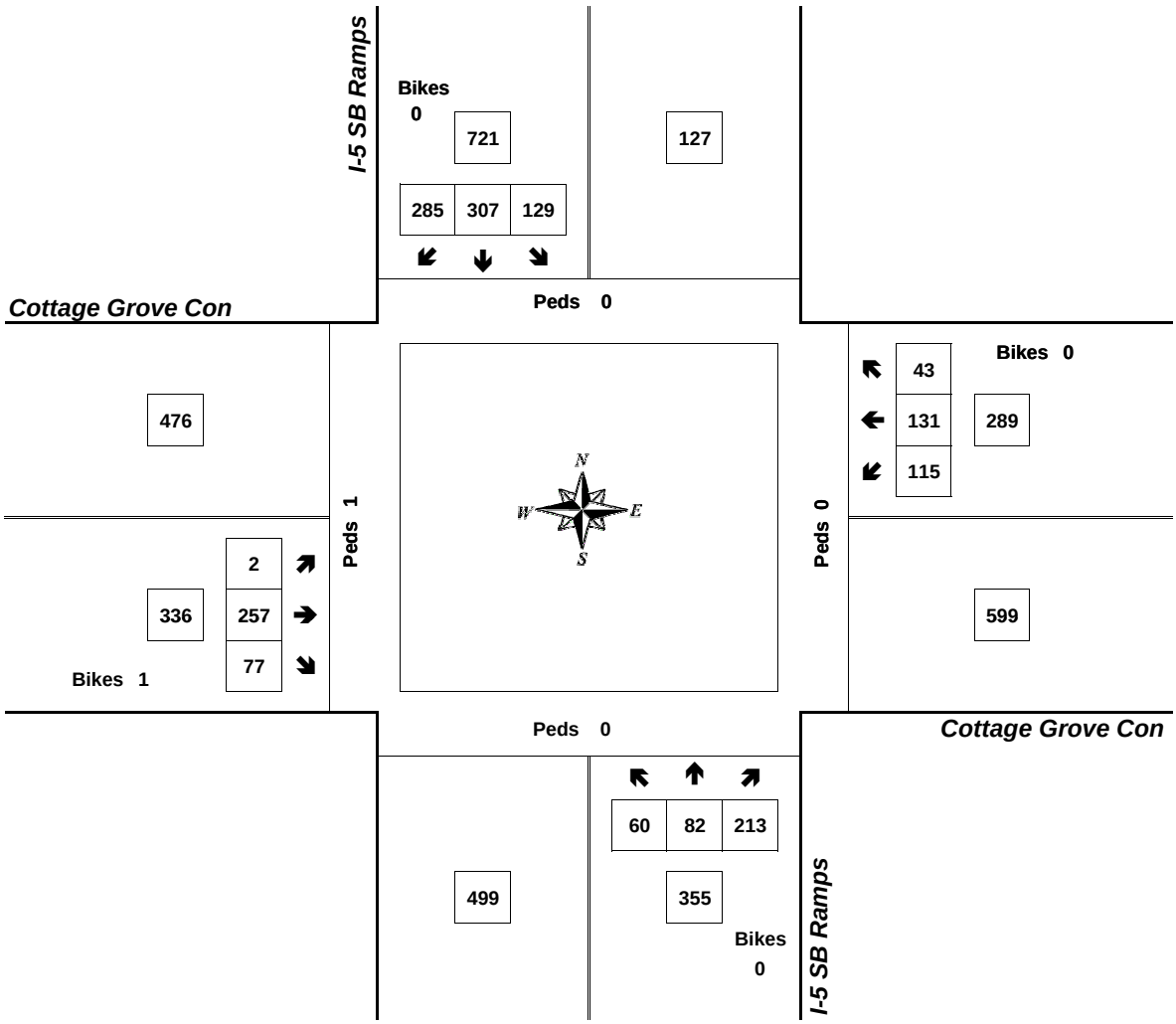
Interval Start Time	Northbound I-5 SB Ramps				Southbound I-5 SB Ramps				Eastbound Cottage Grove Con				Westbound Cottage Grove Con				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	9	12	22	3	17	3	23	0	8	0	8	9	4	2	15	68
4:15 PM	1	8	9	18	4	16	2	22	0	5	1	6	11	5	2	18	64
4:30 PM	1	6	6	13	6	15	3	24	0	3	1	4	12	2	1	15	56
4:45 PM	0	6	8	14	6	11	4	21	0	3	1	4	12	2	1	15	54
5:00 PM	0	8	5	13	6	9	4	19	0	2	2	4	9	2	0	11	47

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

I-5 SB Ramps & Cottage Grove Con

4:35 PM to 5:35 PM
Tuesday, March 04, 2014

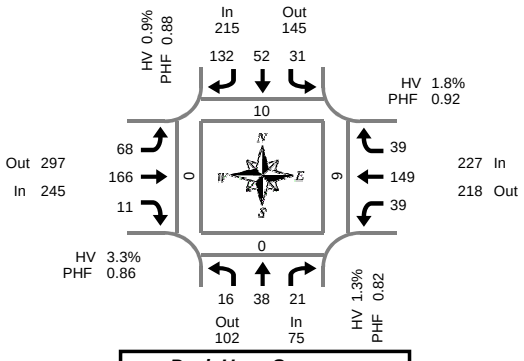


Approach	PHF	HV%	Volume
EB	0.81	1.5%	336
WB	0.86	5.2%	289
NB	0.84	3.9%	355
SB	0.84	3.3%	721
Intersection	0.95	3.4%	1,701

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

River Rd & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	4	1	0	1	6	6	0	7	12	2	0	2	14	6	0	61	0	0	2	0
4:05 PM	1	4	2	0	3	4	11	1	5	14	0	0	1	13	5	0	63	0	0	0	0
4:10 PM	1	2	2	0	1	8	9	0	9	18	3	0	6	11	0	0	70	0	0	0	0
4:15 PM	1	4	1	1	1	2	17	0	3	14	1	2	6	9	3	0	62	1	0	2	0
4:20 PM	2	4	2	0	0	2	12	0	5	15	1	1	5	12	4	0	64	1	0	0	0
4:25 PM	3	3	1	0	2	6	10	0	5	10	0	0	3	12	3	0	58	1	0	2	0
4:30 PM	1	1	1	0	3	4	10	0	5	11	0	0	1	14	2	0	53	1	0	0	0
4:35 PM	1	2	1	0	2	4	12	0	6	14	1	0	3	10	2	0	58	1	0	1	0
4:40 PM	1	7	2	0	1	7	13	0	6	14	1	0	4	12	2	0	70	0	0	0	0
4:45 PM	3	2	0	0	7	3	6	0	6	21	2	0	2	9	5	0	66	1	0	0	0
4:50 PM	1	1	6	0	7	4	13	0	5	9	0	0	4	18	3	1	71	4	0	2	0
4:55 PM	1	4	2	0	3	2	13	0	6	14	0	0	2	15	4	0	66	0	0	0	0
5:00 PM	0	6	0	0	2	7	6	0	6	8	0	0	3	11	1	0	50	0	0	0	0
5:05 PM	0	2	3	0	5	2	18	0	3	7	1	0	1	9	3	0	54	2	4	0	1
5:10 PM	1	1	2	0	2	5	9	0	7	7	1	0	0	13	2	0	50	2	0	0	0
5:15 PM	3	3	1	0	1	3	18	0	3	12	3	0	2	23	2	0	74	1	1	0	0
5:20 PM	2	4	2	0	1	6	13	0	3	10	0	0	3	20	2	2	66	4	1	0	0
5:25 PM	2	6	1	0	4	4	6	0	3	8	3	0	3	10	1	0	51	0	1	0	0
5:30 PM	0	3	1	0	1	7	17	0	8	9	2	0	2	22	3	0	75	0	2	0	0
5:35 PM	1	0	2	0	1	2	10	0	3	8	0	0	1	20	3	0	51	0	0	0	0
5:40 PM	0	5	3	0	2	2	7	2	3	13	2	1	2	14	2	0	55	2	1	2	0
5:45 PM	0	3	4	0	4	5	11	0	8	12	0	0	3	12	1	1	63	0	3	3	0
5:50 PM	2	3	1	0	3	9	6	0	5	14	2	4	3	14	2	0	64	0	1	0	0
5:55 PM	0	3	4	0	1	8	13	0	5	11	3	0	1	13	0	1	62	2	0	0	0
Total Survey	27	77	45	1	58	112	266	3	125	285	28	8	63	330	61	5	1,477	23	14	14	1

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	10	5	0	5	18	26	1	21	44	5	0	9	38	11	0	194	0	0	2	0
4:15 PM	6	11	4	1	3	10	39	0	13	39	2	3	14	33	10	0	184	3	0	4	0
4:30 PM	3	10	4	0	6	15	35	0	17	39	2	0	8	36	6	0	181	2	0	1	0
4:45 PM	5	7	8	0	17	9	32	0	17	44	2	0	8	42	12	1	203	5	0	2	0
5:00 PM	1	9	5	0	9	14	33	0	16	22	2	0	4	33	6	0	154	4	4	0	1
5:15 PM	7	13	4	0	6	13	37	0	9	30	6	0	8	53	5	2	191	5	3	0	0
5:30 PM	1	8	6	0	4	11	34	2	14	30	4	1	5	56	8	0	181	2	3	2	0
5:45 PM	2	9	9	0	8	22	30	0	18	37	5	4	7	39	3	2	189	2	4	3	0
Total Survey	27	77	45	1	58	112	266	3	125	285	28	8	63	330	61	5	1,477	23	14	14	1

Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	75	102	177	1	215	145	360	1	245	297	542	3	227	218	445	1	762	10	0	9	0
%HV	1.3%				0.9%				3.3%				1.8%				2.0%				
PHF	0.82				0.88				0.86				0.92				0.92				

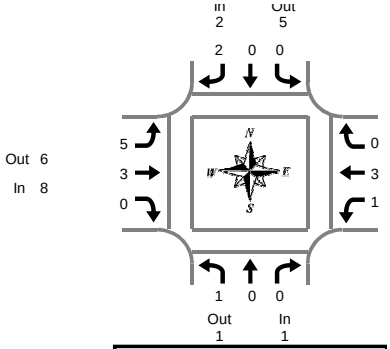
By Movement	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	16	38	21	75	31	52	132	215	68	166	11	245	39	149	39	227	762
%HV	6.3%	0.0%	0.0%	1.3%	0.0%	0.0%	1.5%	0.9%	7.4%	1.8%	0.0%	3.3%	2.6%	2.0%	0.0%	1.8%	2.0%
PHF	0.67	0.86	0.66	0.82	0.46	0.72	0.85	0.88	0.81	0.85	0.55	0.86	0.57	0.89	0.81	0.92	0.92

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	16	38	21	1	31	52	132	1	68	166	11	3	39	149	39	1	762	10	0	9	0
4:15 PM	15	37	21	1	35	48	139	0	63	144	8	3	34	144	34	1	722	14	4	7	1
4:30 PM	16	39	21	0	38	51	137	0	59	135	12	0	28	164	29	3	729	16	7	3	1
4:45 PM	14	37	23	0	36	47	136	2	56	126	14	1	25	184	31	3	729	16	10	4	1
5:00 PM	11	39	24	0	27	60	134	2	57	119	17	5	24	181	22	4	715	13	14	5	1

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



River Rd & E Main St

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:05 PM	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0	0	3
4:10 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:20 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
4:25 PM	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Survey	1	1	0	2	0	0	4	4	5	6	0	11	1	4	0	5	22

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	3	2	0	5	0	0	0	0	5
4:15 PM	1	0	0	1	0	0	1	1	1	0	0	1	1	1	0	2	5
4:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	2	3
4:45 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:30 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Survey	1	1	0	2	0	0	4	4	5	6	0	11	1	4	0	5	22

Heavy Vehicle Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound River Rd			Southbound River Rd			Eastbound E Main St			Westbound E Main St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	1	2	2	5	7	8	6	14	4	3	7	15
PHF	0.25			0.25			0.40			0.50			0.75

By Movement	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	0	0	1	0	0	2	2	5	3	0	8	1	3	0	4	15
PHF	0.25	0.00	0.00	0.25	0.00	0.00	0.25	0.25	0.42	0.38	0.00	0.40	0.25	0.38	0.00	0.50	0.75

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

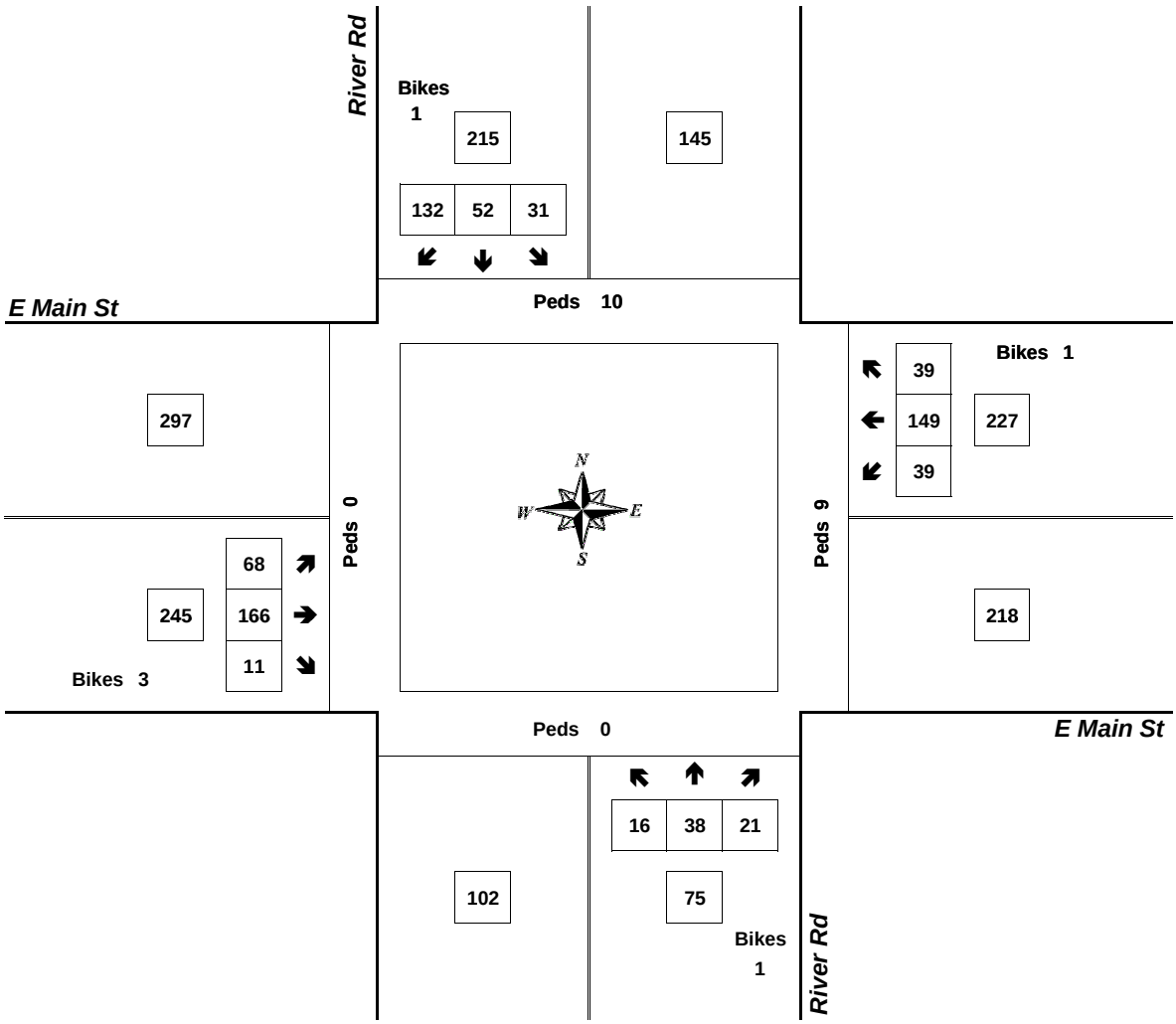
Interval Start Time	Northbound River Rd				Southbound River Rd				Eastbound E Main St				Westbound E Main St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	0	1	0	0	2	2	5	3	0	8	1	3	0	4	15
4:15 PM	1	0	0	1	0	0	3	3	2	1	0	3	1	3	0	4	11
4:30 PM	0	0	0	0	0	0	2	2	1	2	0	3	0	3	0	3	8
4:45 PM	0	1	0	1	0	0	1	1	1	4	0	5	0	1	0	1	8
5:00 PM	0	1	0	1	0	0	2	2	0	3	0	3	0	1	0	1	7

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

River Rd & E Main St

4:00 PM to 5:00 PM
Tuesday, March 04, 2014

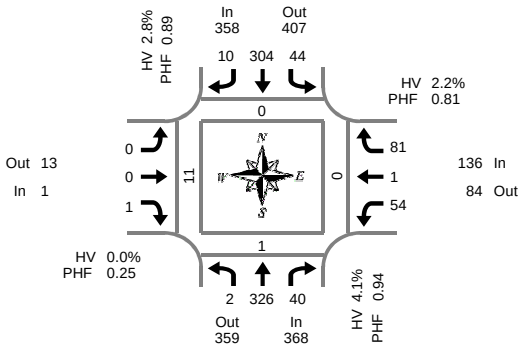


Approach	PHF	HV%	Volume
EB	0.86	3.3%	245
WB	0.92	1.8%	227
NB	0.82	1.3%	75
SB	0.88	0.9%	215
Intersection	0.92	2.0%	762

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Row River Rd & Jim Wright Way

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:10 PM to 5:10 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	26	2	0	6	25	0	0	0	0	0	0	3	0	5	0	67	0	0	0	0
4:05 PM	0	28	3	0	3	31	0	0	0	0	0	0	3	0	3	0	71	0	0	0	0
4:10 PM	0	34	2	0	0	26	0	0	0	0	0	0	2	0	6	0	70	0	0	0	0
4:15 PM	1	25	5	0	3	26	1	0	0	0	0	0	5	0	9	0	75	0	0	0	0
4:20 PM	0	23	6	0	4	33	2	0	0	0	0	0	7	0	6	0	81	0	0	0	0
4:25 PM	0	34	4	0	6	24	0	0	0	0	0	0	7	0	2	0	77	0	1	0	0
4:30 PM	0	21	1	0	5	25	2	0	0	0	1	0	5	0	6	0	66	0	0	0	2
4:35 PM	0	33	3	0	1	26	1	1	0	0	0	0	4	0	4	0	72	0	0	0	0
4:40 PM	0	16	6	0	6	19	0	0	0	0	0	0	2	0	6	0	55	0	0	0	1
4:45 PM	1	27	4	0	5	30	1	0	0	0	0	0	2	0	11	0	81	0	0	0	0
4:50 PM	0	35	0	0	1	17	1	0	0	0	0	0	5	0	5	0	64	0	0	0	1
4:55 PM	0	23	4	0	6	19	0	0	0	0	0	0	5	0	3	0	60	0	0	0	1
5:00 PM	0	34	2	0	5	33	1	0	0	0	0	0	5	0	10	0	90	0	0	0	6
5:05 PM	0	21	3	0	2	26	1	0	0	0	0	0	5	1	13	0	72	0	0	0	0
5:10 PM	0	23	1	0	1	31	0	0	0	0	0	0	1	2	7	0	66	0	0	0	0
5:15 PM	1	22	0	0	2	26	1	0	0	0	0	0	4	0	3	0	59	0	0	0	1
5:20 PM	0	24	2	0	4	29	1	0	0	0	0	0	3	0	4	0	67	0	0	0	0
5:25 PM	0	26	3	0	6	28	3	0	0	0	2	0	2	0	4	0	74	0	0	0	0
5:30 PM	0	31	3	0	2	24	0	0	0	0	0	0	4	0	8	0	72	0	0	0	0
5:35 PM	0	17	2	0	5	25	1	0	0	0	0	0	1	0	6	0	57	0	0	0	1
5:40 PM	0	23	2	0	2	29	0	0	0	0	0	0	0	0	7	0	63	0	0	0	0
5:45 PM	0	31	1	0	5	23	1	0	0	0	0	0	3	0	3	0	67	0	0	0	0
5:50 PM	0	30	2	0	4	28	0	0	0	0	0	0	0	0	7	0	71	0	0	0	0
5:55 PM	0	23	2	0	6	21	1	0	0	0	0	0	1	0	2	0	56	0	0	0	0
Total Survey	3	630	63	0	90	624	18	1	0	0	3	0	79	3	140	0	1,653	0	1	0	13

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	88	7	0	9	82	0	0	0	0	0	0	8	0	14	0	208	0	0	0	0
4:15 PM	1	82	15	0	13	83	3	0	0	0	0	0	19	0	17	0	233	0	1	0	0
4:30 PM	0	70	10	0	12	70	3	1	0	0	1	0	11	0	16	0	193	0	0	0	3
4:45 PM	1	85	8	0	12	66	2	0	0	0	0	0	12	0	19	0	205	0	0	0	2
5:00 PM	0	78	6	0	8	90	2	0	0	0	0	0	11	3	30	0	228	0	0	0	6
5:15 PM	1	72	5	0	12	83	5	0	0	0	2	0	9	0	11	0	200	0	0	0	1
5:30 PM	0	71	7	0	9	78	1	0	0	0	0	0	5	0	21	0	192	0	0	0	1
5:45 PM	0	84	5	0	15	72	2	0	0	0	0	0	4	0	12	0	194	0	0	0	0
Total Survey	3	630	63	0	90	624	18	1	0	0	3	0	79	3	140	0	1,653	0	1	0	13

Peak Hour Summary
4:10 PM to 5:10 PM

By Approach	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	368	359	727	0	358	407	765	1	1	13	14	0	136	84	220	0	863	0	1	0	11
%HV	4.1%				2.8%				0.0%				2.2%				3.2%				
PHF	0.94				0.89				0.25				0.81				0.93				

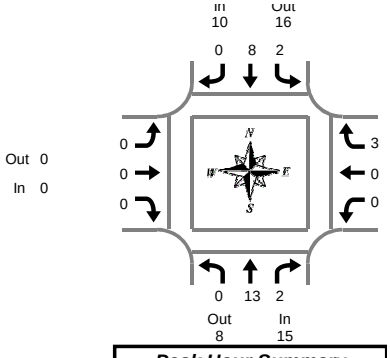
By Movement	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	326	40	368	44	304	10	358	0	0	1	1	54	1	81	136	863
%HV	0.0%	4.0%	5.0%	4.1%	4.5%	2.6%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	2.2%	3.2%
PHF	0.50	0.89	0.67	0.94	0.73	0.89	0.63	0.89	0.00	0.00	0.25	0.25	0.71	0.25	0.78	0.81	0.93

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	325	40	0	46	301	8	1	0	0	1	0	50	0	66	0	839	0	1	0	5
4:15 PM	2	315	39	0	45	309	10	1	0	0	1	0	53	3	82	0	859	0	1	0	11
4:30 PM	2	305	29	0	44	309	12	1	0	0	3	0	43	3	76	0	826	0	0	0	12
4:45 PM	2	306	26	0	41	317	10	0	0	0	2	0	37	3	81	0	825	0	0	0	10
5:00 PM	1	305	23	0	44	323	10	0	0	0	2	0	29	3	74	0	814	0	0	0	8

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Row River Rd & Jim Wright Way

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:10 PM to 5:10 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	1	1	1	1	0	2	0	0	0	0	0	0	0	0	3
4:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:10 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	1	1	4
4:20 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:25 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:40 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
4:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:00 PM	0	2	1	3	1	1	0	2	0	0	0	0	0	0	1	1	6
5:05 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:10 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	1	1	5
5:20 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:25 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	1	1	4
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	20	3	23	3	16	0	19	0	0	0	0	1	0	5	6	48

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	2	1	3	1	2	0	3	0	0	0	0	0	0	0	0	6
4:15 PM	0	4	0	4	0	3	0	3	0	0	0	0	0	0	1	1	8
4:30 PM	0	3	1	4	0	1	0	1	0	0	0	0	0	0	1	1	6
4:45 PM	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0	0	3
5:00 PM	0	4	1	5	1	3	0	4	0	0	0	0	0	0	1	1	10
5:15 PM	0	5	0	5	0	5	0	5	0	0	0	0	0	0	2	2	12
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Survey	0	20	3	23	3	16	0	19	0	0	0	0	1	0	5	6	48

Heavy Vehicle Peak Hour Summary
4:10 PM to 5:10 PM

By Approach	Northbound Row River Rd			Southbound Row River Rd			Eastbound Jim Wright Way			Westbound Jim Wright Way			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	15	8	23	10	16	26	0	0	0	3	4	7	28
PHF	0.75			0.63			0.00			0.75			0.70

By Movement	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	13	2	15	2	8	0	10	0	0	0	0	0	0	3	3	28
PHF	0.00	0.65	0.50	0.75	0.50	0.67	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.70

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

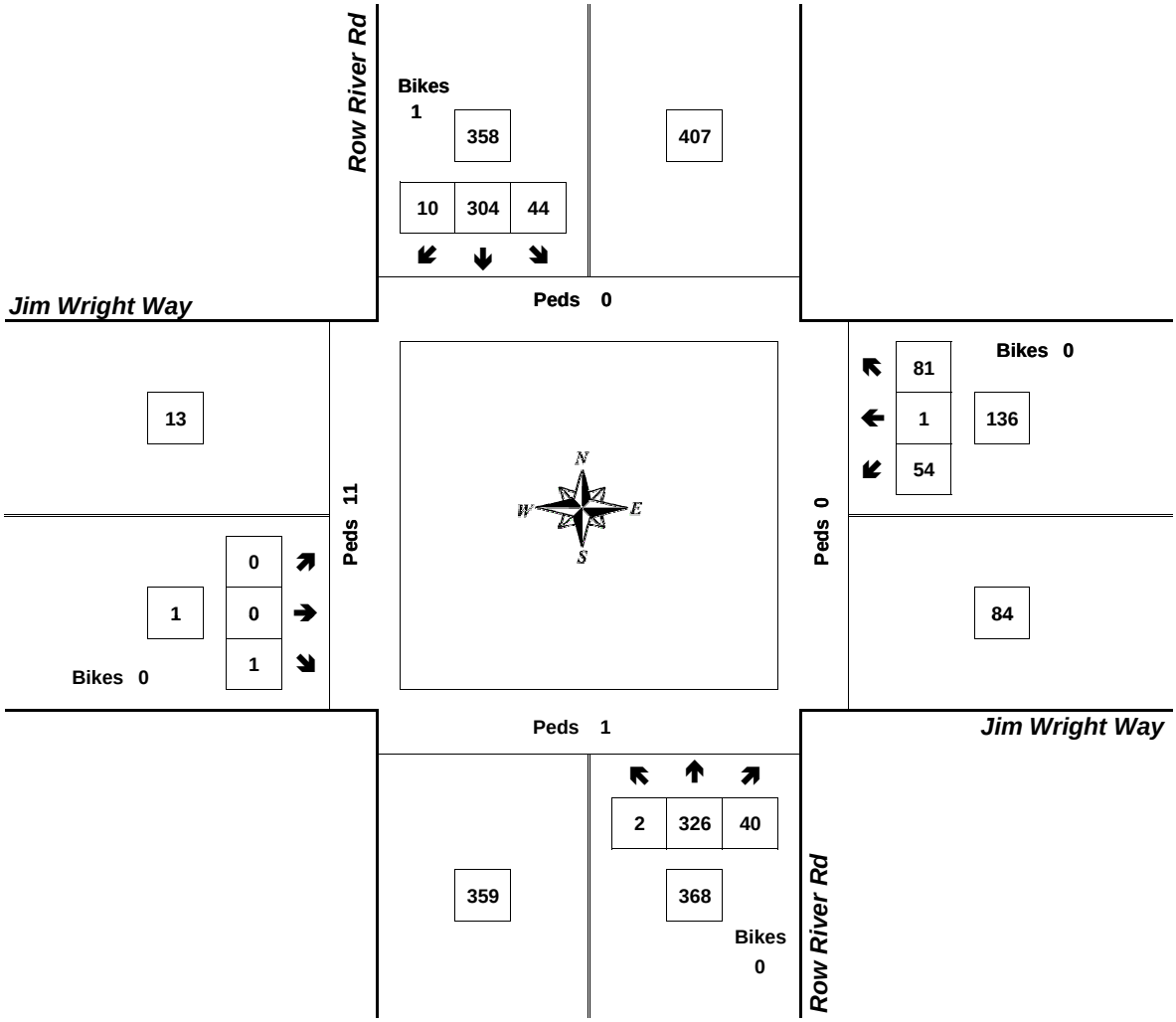
Interval Start Time	Northbound Row River Rd				Southbound Row River Rd				Eastbound Jim Wright Way				Westbound Jim Wright Way				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	9	2	11	2	8	0	10	0	0	0	0	0	0	2	2	23
4:15 PM	0	11	2	13	2	9	0	11	0	0	0	0	0	0	3	3	27
4:30 PM	0	12	2	14	2	11	0	13	0	0	0	0	0	0	4	4	31
4:45 PM	0	10	1	11	2	10	0	12	0	0	0	0	1	0	3	4	27
5:00 PM	0	11	1	12	1	8	0	9	0	0	0	0	1	0	3	4	25

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

Row River Rd & Jim Wright Way

4:10 PM to 5:10 PM
Tuesday, March 04, 2014

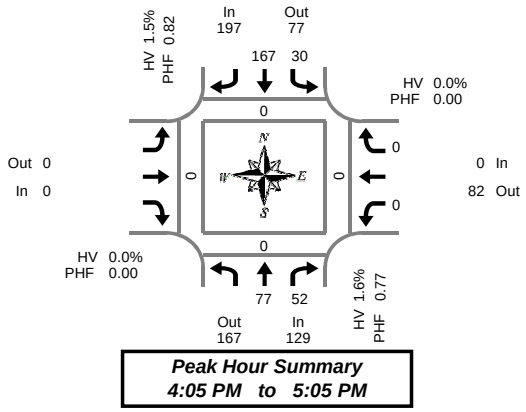


Approach	PHF	HV%	Volume
EB	0.25	0.0%	1
WB	0.81	2.2%	136
NB	0.94	4.1%	368
SB	0.89	2.8%	358
Intersection	0.93	3.2%	863

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

Clay Carney
(503) 833-2740



S 6th St & I-5 NB Ramps

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	9	1	0		1	8		0				0	0		0	0	19	0	0	0	0
4:05 PM	8	9	0		2	16		0				0	0		0	0	35	0	0	0	0
4:10 PM	7	6	0		0	7		0				0	0		0	0	20	0	0	0	0
4:15 PM	5	7	0		5	15		0				0	0		0	0	32	0	0	0	0
4:20 PM	5	2	0		3	16		0				0	0		0	0	26	0	0	0	0
4:25 PM	4	7	0		3	13		0				0	0		0	0	27	0	0	0	0
4:30 PM	2	2	0		4	13		0				0	0		0	0	21	0	0	0	0
4:35 PM	7	2	0		0	13		0				0	0		0	0	22	0	0	0	0
4:40 PM	10	4	0		5	11		0				0	0		0	0	30	0	0	0	0
4:45 PM	6	1	0		3	12		0				0	0		0	0	22	0	0	0	0
4:50 PM	4	3	0		3	22		0				0	0		0	0	32	0	0	0	0
4:55 PM	11	2	0		2	18		0				0	0		0	0	33	0	0	0	0
5:00 PM	8	7	0		0	11		0				0	0		0	0	26	0	0	0	0
5:05 PM	5	2	0		2	9		0				0	0		0	0	18	0	0	0	0
5:10 PM	3	3	0		0	13		0				0	0		0	0	19	0	0	0	0
5:15 PM	4	5	0		1	17		0				0	0		0	0	27	0	0	0	0
5:20 PM	5	4	0		4	16		0				0	0		0	0	29	0	0	0	0
5:25 PM	10	2	0		6	15		0				0	0		0	0	33	0	0	0	0
5:30 PM	4	6	0		2	14		0				0	0		0	0	26	0	0	0	0
5:35 PM	8	3	0		0	17		0				0	0		0	0	28	0	0	0	0
5:40 PM	4	4	0		2	15		0				0	0		0	0	25	0	0	0	0
5:45 PM	4	1	0		1	17		0				0	0		0	0	23	0	0	0	0
5:50 PM	10	1	0		1	14		0				0	0		0	0	26	0	0	0	0
5:55 PM	5	3	0		1	16		0				0	0		0	0	25	0	0	0	0
Total Survey	148	87	0		51	338		0				0	0		0	0	624	0	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	24	16	0		3	31		0				0	0		0	0	74	0	0	0	0
4:15 PM	14	16	0		11	44		0				0	0		0	0	85	0	0	0	0
4:30 PM	19	8	0		9	37		0				0	0		0	0	73	0	0	0	0
4:45 PM	21	6	0		8	52		0				0	0		0	0	87	0	0	0	0
5:00 PM	16	12	0		2	33		0				0	0		0	0	63	0	0	0	0
5:15 PM	19	11	0		11	48		0				0	0		0	0	89	0	0	0	0
5:30 PM	16	13	0		4	46		0				0	0		0	0	79	0	0	0	0
5:45 PM	19	5	0		3	47		0				0	0		0	0	74	0	0	0	0
Total Survey	148	87	0		51	338		0				0	0		0	0	624	0	0	0	0

Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	129	167	296	0	197	77	274	0	0	0	0	0	0	82	82	0	326	0	0	0	0
%HV	1.6%				1.5%				0.0%				0.0%				1.5%				
PHF	0.77				0.82				0.00				0.00				0.90				

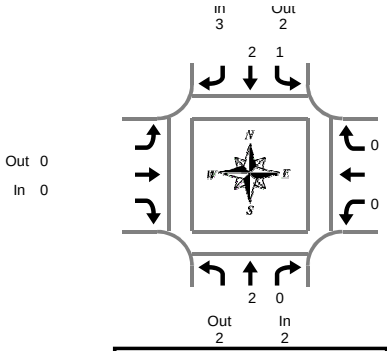
By Movement	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Total
	T	R	Total		L	T		Total				Total	L		R	Total	
Volume	77	52	129		30	167		197				0	0		0	0	326
%HV	NA	2.6%	0.0%	1.6%	3.3%	1.2%	NA	1.5%	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	1.5%
PHF		0.84	0.59	0.77	0.68	0.80		0.82				0.00	0.00		0.00	0.00	0.90

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	78	46	0		31	164		0				0	0		0	0	319	0	0	0	0
4:15 PM	70	42	0		30	166		0				0	0		0	0	308	0	0	0	0
4:30 PM	75	37	0		30	170		0				0	0		0	0	312	0	0	0	0
4:45 PM	72	42	0		25	179		0				0	0		0	0	318	0	0	0	0
5:00 PM	70	41	0		20	174		0				0	0		0	0	305	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



S 6th St & I-5 NB Ramps

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:05 PM to 5:05 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		0	0	0	0	1		1				0	0		0	0	1
4:05 PM		1	0	1	0	1		1				0	0		0	0	2
4:10 PM		0	0	0	0	0		0				0	0		0	0	0
4:15 PM		0	0	0	0	0		0				0	0		0	0	0
4:20 PM		0	0	0	0	0		0				0	0		0	0	0
4:25 PM		1	0	1	1	0		1				0	0		0	0	2
4:30 PM		0	0	0	0	0		0				0	0		0	0	0
4:35 PM		0	0	0	0	1		1				0	0		0	0	1
4:40 PM		0	0	0	0	0		0				0	0		0	0	0
4:45 PM		0	0	0	0	0		0				0	0		0	0	0
4:50 PM		0	0	0	0	0		0				0	0		0	0	0
4:55 PM		0	0	0	0	0		0				0	0		0	0	0
5:00 PM		0	0	0	0	0		0				0	0		0	0	0
5:05 PM		0	0	0	0	1		1				0	0		0	0	1
5:10 PM		0	0	0	0	0		0				0	0		0	0	0
5:15 PM		1	0	1	0	0		0				0	0		0	0	1
5:20 PM		0	0	0	0	0		0				0	0		0	0	0
5:25 PM		0	0	0	0	0		0				0	0		0	0	0
5:30 PM		0	0	0	0	0		0				0	0		0	0	0
5:35 PM		0	1	1	0	2		2				0	0		0	0	3
5:40 PM		0	0	0	0	0		0				0	0		0	0	0
5:45 PM		0	0	0	0	1		1				0	0		0	0	1
5:50 PM		0	0	0	0	1		1				0	0		0	0	1
5:55 PM		0	0	0	0	0		0				0	0		0	0	0
Total Survey		3	1	4	1	8		9				0	0		0	0	13

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		1	0	1	0	2		2				0	0		0	0	3
4:15 PM		1	0	1	1	0		1				0	0		0	0	2
4:30 PM		0	0	0	0	1		1				0	0		0	0	1
4:45 PM		0	0	0	0	0		0				0	0		0	0	0
5:00 PM		0	0	0	0	1		1				0	0		0	0	1
5:15 PM		1	0	1	0	0		0				0	0		0	0	1
5:30 PM		0	1	1	0	2		2				0	0		0	0	3
5:45 PM		0	0	0	0	2		2				0	0		0	0	2
Total Survey		3	1	4	1	8		9				0	0		0	0	13

Heavy Vehicle Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound S 6th St			Southbound S 6th St			Eastbound I-5 NB Ramps			Westbound I-5 NB Ramps			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	2	4	3	2	5	0	0	0	0	1	1	5
PHF	0.50			0.38			0.00			0.00			0.42

By Movement	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		2	0	2	1	2		3				0	0		0	0	5
PHF		0.50	0.00	0.50	0.25	0.50		0.38				0.00	0.00		0.00	0.00	0.42

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 NB Ramps				Westbound I-5 NB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		2	0	2	1	3		4				0	0		0	0	6
4:15 PM		1	0	1	1	2		3				0	0		0	0	4
4:30 PM		1	0	1	0	2		2				0	0		0	0	3
4:45 PM		1	1	2	0	3		3				0	0		0	0	5
5:00 PM		1	1	2	0	5		5				0	0		0	0	7

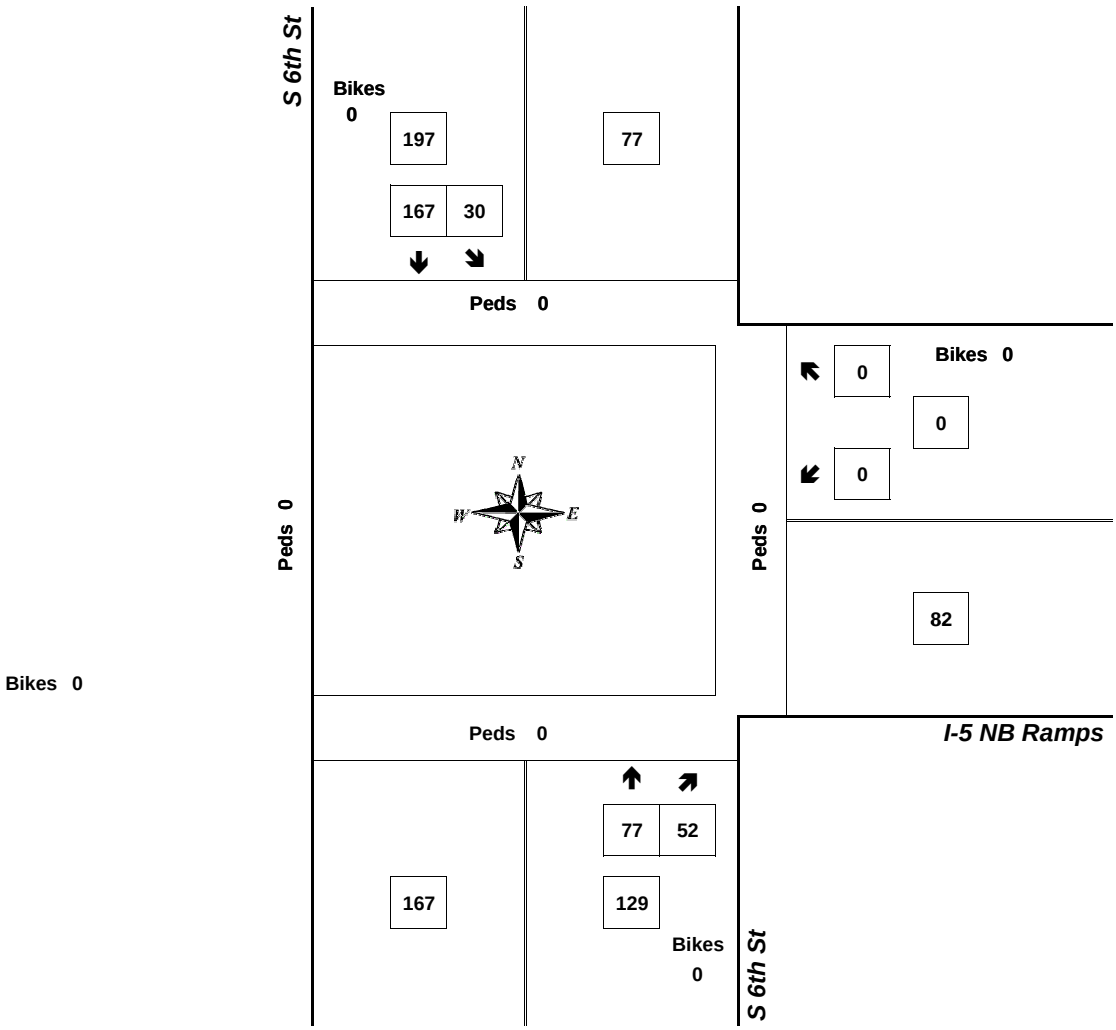
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

S 6th St & I-5 NB Ramps

4:05 PM to 5:05 PM
Tuesday, March 04, 2014

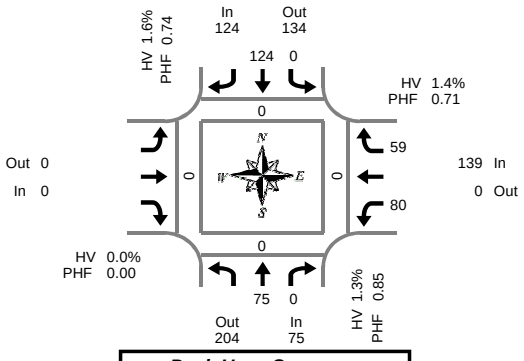


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.00	0.0%	0
NB	0.77	1.6%	129
SB	0.82	1.5%	197
Intersection	0.90	1.5%	326

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



S 6th St & I-5 SB Ramps

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	6	0	0		0	10		0				0	3		2	0	21	0	0	0	0
4:05 PM	10	0	0		0	7		0				0	6		2	0	25	0	0	0	0
4:10 PM	7	0	0		0	7		0				0	3		6	0	23	0	0	0	0
4:15 PM	5	0	0		0	14		0				0	3		3	0	25	0	0	0	0
4:20 PM	7	0	0		0	10		0				0	12		0	0	29	0	0	0	0
4:25 PM	5	0	0		0	7		0				0	5		3	0	20	0	0	0	0
4:30 PM	6	0	0		0	11		0				0	7		5	0	29	0	0	0	0
4:35 PM	4	0	0		0	5		0				0	3		4	0	16	0	0	0	0
4:40 PM	6	0	0		0	10		0				0	10		1	0	27	0	0	0	0
4:45 PM	8	0	0		0	18		0				0	7		3	0	36	0	0	0	0
4:50 PM	3	0	0		0	10		0				0	8		4	0	25	0	0	0	0
4:55 PM	9	0	0		0	14		0				0	3		6	0	32	0	0	0	0
5:00 PM	7	0	0		0	7		0				0	4		3	0	21	0	0	0	0
5:05 PM	6	0	0		0	8		0				0	6		4	0	24	0	0	0	0
5:10 PM	5	0	0		0	5		0				0	4		5	0	19	0	0	0	0
5:15 PM	6	0	0		0	11		0				0	13		5	0	35	0	0	0	0
5:20 PM	6	0	0		0	10		0				0	7		9	0	32	0	0	0	0
5:25 PM	8	0	0		0	10		0				0	9		6	0	33	0	0	0	0
5:30 PM	4	0	0		0	10		0				0	6		3	0	23	0	0	0	0
5:35 PM	5	0	0		0	11		0				0	5		6	0	27	0	0	0	0
5:40 PM	8	0	0		0	10		0				0	8		5	0	31	0	0	0	0
5:45 PM	8	0	0		0	13		0				0	10		4	0	35	0	0	0	0
5:50 PM	5	0	0		0	7		0				0	4		9	0	25	0	0	0	0
5:55 PM	7	0	0		0	8		0				0	8		3	0	26	0	0	0	0
Total Survey	151	0	0		0	233		0				0	154		101	0	639	0	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	23	0	0		0	24		0				0	12		10	0	69	0	0	0	0
4:15 PM	17	0	0		0	31		0				0	20		6	0	74	0	0	0	0
4:30 PM	16	0	0		0	26		0				0	20		10	0	72	0	0	0	0
4:45 PM	20	0	0		0	42		0				0	18		13	0	93	0	0	0	0
5:00 PM	18	0	0		0	20		0				0	14		12	0	64	0	0	0	0
5:15 PM	20	0	0		0	31		0				0	29		20	0	100	0	0	0	0
5:30 PM	17	0	0		0	31		0				0	19		14	0	81	0	0	0	0
5:45 PM	20	0	0		0	28		0				0	22		16	0	86	0	0	0	0
Total Survey	151	0	0		0	233		0				0	154		101	0	639	0	0	0	0

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	75	204	279	0	124	134	258	0	0	0	0	0	139	0	139	0	338	0	0	0	0
%HV	1.3%				1.6%				0.0%				1.4%				1.5%				
PHF	0.85				0.74				0.00				0.71				0.85				

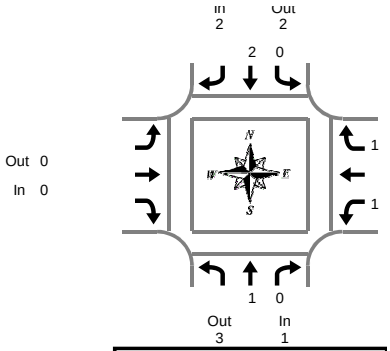
By Movement	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Total
	T	R	Total		L	T		Total				Total	L		R	Total	
Volume	75	0	75		0	124		124				0	80		59	139	338
%HV	NA	1.3%	0.0%	1.3%	0.0%	1.6%	NA	1.6%	NA	NA	NA	0.0%	1.3%	NA	1.7%	1.4%	1.5%
PHF		0.85	0.00	0.85	0.00	0.74		0.74				0.00	0.69		0.74	0.71	0.85

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	76	0	0		0	123		0				0	70		39	0	308	0	0	0	0
4:15 PM	71	0	0		0	119		0				0	72		41	0	303	0	0	0	0
4:30 PM	74	0	0		0	119		0				0	81		55	0	329	0	0	0	0
4:45 PM	75	0	0		0	124		0				0	80		59	0	338	0	0	0	0
5:00 PM	75	0	0		0	110		0				0	84		62	0	331	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



S 6th St & I-5 SB Ramps

Tuesday, March 04, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:45 PM to 5:45 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		0	0	0	0	1		1				0	0		0	0	1
4:05 PM		1	0	1	0	0		0				0	1		0	1	2
4:10 PM		0	0	0	0	0		0				0	0		0	0	0
4:15 PM		0	0	0	0	0		0				0	0		0	0	0
4:20 PM		0	0	0	0	0		0				0	1		0	1	1
4:25 PM		1	0	1	0	0		0				0	0		0	0	1
4:30 PM		0	0	0	0	0		0				0	0		0	0	0
4:35 PM		0	0	0	0	0		0				0	1		0	1	1
4:40 PM		0	0	0	0	0		0				0	0		0	0	0
4:45 PM		0	0	0	0	0		0				0	0		0	0	0
4:50 PM		0	0	0	0	0		0				0	0		0	0	0
4:55 PM		0	0	0	0	0		0				0	0		0	0	0
5:00 PM		0	0	0	0	0		0				0	0		0	0	0
5:05 PM		0	0	0	0	0		0				0	1		0	1	1
5:10 PM		0	0	0	0	0		0				0	0		0	0	0
5:15 PM		1	0	1	0	0		0				0	0		1	1	2
5:20 PM		0	0	0	0	0		0				0	0		0	0	0
5:25 PM		0	0	0	0	0		0				0	0		0	0	0
5:30 PM		0	0	0	0	0		0				0	0		0	0	0
5:35 PM		0	0	0	0	2		2				0	0		0	0	2
5:40 PM		0	0	0	0	0		0				0	0		0	0	0
5:45 PM		0	0	0	0	1		1				0	0		0	0	1
5:50 PM		0	0	0	0	1		1				0	0		0	0	1
5:55 PM		0	0	0	0	0		0				0	0		0	0	0
Total Survey		3	0	3	0	5		5				0	4		1	5	13

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		1	0	1	0	1		1				0	1		0	1	3
4:15 PM		1	0	1	0	0		0				0	1		0	1	2
4:30 PM		0	0	0	0	0		0				0	1		0	1	1
4:45 PM		0	0	0	0	0		0				0	0		0	0	0
5:00 PM		0	0	0	0	0		0				0	1		0	1	1
5:15 PM		1	0	1	0	0		0				0	0		1	1	2
5:30 PM		0	0	0	0	2		2				0	0		0	0	2
5:45 PM		0	0	0	0	2		2				0	0		0	0	2
Total Survey		3	0	3	0	5		5				0	4		1	5	13

Heavy Vehicle Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound S 6th St			Southbound S 6th St			Eastbound I-5 SB Ramps			Westbound I-5 SB Ramps			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	3	4	2	2	4	0	0	0	2	0	2	5
PHF	0.25			0.25			0.00			0.25			0.42

By Movement	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		1	0	1	0	2		2				0	1		1	2	5
PHF		0.25	0.00	0.25	0.00	0.25		0.25				0.00	0.25		0.25	0.25	0.42

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

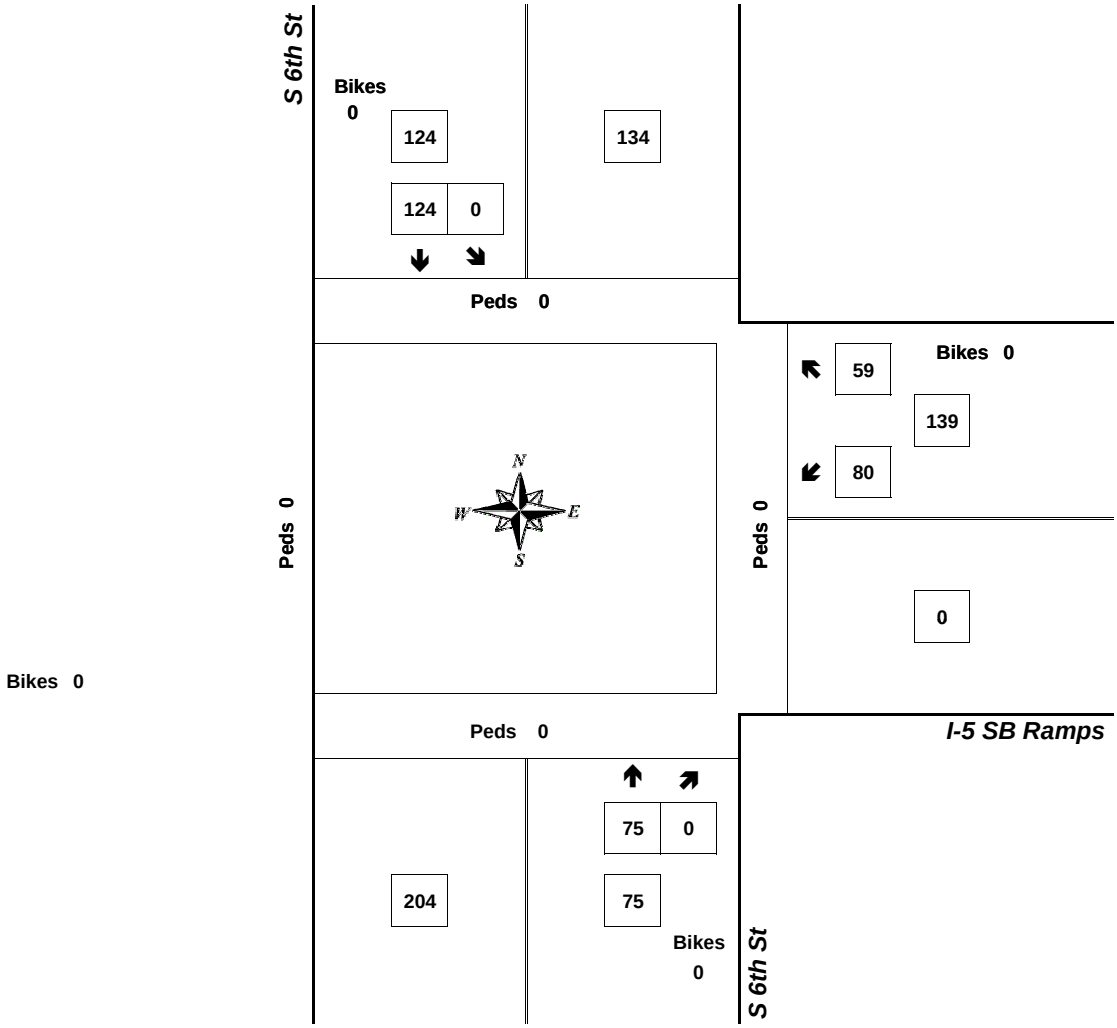
Interval Start Time	Northbound S 6th St				Southbound S 6th St				Eastbound I-5 SB Ramps				Westbound I-5 SB Ramps				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		2	0	2	0	1		1				0	3		0	3	6
4:15 PM		1	0	1	0	0		0				0	3		0	3	4
4:30 PM		1	0	1	0	0		0				0	2		1	3	4
4:45 PM		1	0	1	0	2		2				0	1		1	2	5
5:00 PM		1	0	1	0	4		4				0	1		1	2	7

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

S 6th St & I-5 SB Ramps

4:45 PM to 5:45 PM
Tuesday, March 04, 2014

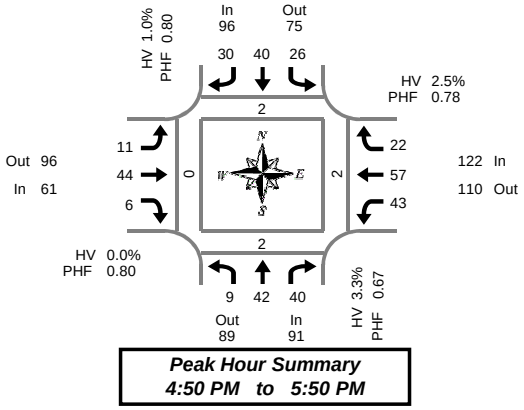


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.71	1.4%	139
NB	0.85	1.3%	75
SB	0.74	1.6%	124
Intersection	0.85	1.5%	338

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:50 PM to 5:50 PM

S River Rd & E Harrison Ave

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	1	5	0	0	0	5	0	1	3	0	0	2	4	1	0	24	0	0	0	0
4:05 PM	1	6	3	0	0	4	3	0	2	4	1	0	3	3	3	0	33	1	0	0	2
4:10 PM	0	2	2	0	0	4	1	0	1	8	0	0	3	3	0	0	24	0	0	0	0
4:15 PM	2	1	1	0	1	1	4	0	0	7	0	0	1	2	0	0	20	0	0	2	2
4:20 PM	0	4	1	0	1	2	2	0	1	3	0	0	3	4	2	0	23	0	0	0	0
4:25 PM	1	1	4	0	2	4	3	0	2	1	1	1	3	5	2	0	29	0	0	0	0
4:30 PM	3	4	3	0	1	3	2	0	3	2	1	0	5	3	2	0	32	0	0	0	0
4:35 PM	1	3	2	0	3	4	3	0	1	8	0	0	2	4	0	0	31	0	0	0	0
4:40 PM	0	1	1	0	0	7	0	0	3	1	1	0	0	3	0	0	17	0	0	0	0
4:45 PM	0	2	1	0	3	2	1	0	2	2	0	0	1	4	3	0	21	0	1	2	0
4:50 PM	0	4	4	0	5	3	1	0	1	4	2	0	3	5	0	0	32	0	0	0	0
4:55 PM	1	5	0	0	2	6	3	0	1	3	0	0	4	6	1	0	32	0	0	0	0
5:00 PM	1	6	4	0	1	5	4	0	1	4	0	0	3	4	2	0	35	0	1	0	0
5:05 PM	2	3	5	0	4	1	3	0	0	5	2	0	5	4	2	0	36	0	0	0	0
5:10 PM	0	4	6	0	3	4	3	0	0	4	0	0	4	5	0	0	33	0	1	0	0
5:15 PM	2	6	6	0	0	2	4	0	0	2	0	0	2	10	2	0	36	0	0	1	0
5:20 PM	1	3	3	0	0	5	2	0	2	1	0	0	6	4	1	0	28	0	0	0	0
5:25 PM	0	3	5	0	2	3	2	0	1	5	0	0	6	5	3	0	35	2	0	0	0
5:30 PM	0	1	5	0	2	1	3	0	0	7	1	0	4	2	4	0	30	0	0	0	0
5:35 PM	1	1	0	0	5	3	2	0	2	1	0	0	4	3	4	0	26	0	0	0	0
5:40 PM	1	3	0	0	1	2	1	0	2	5	1	0	2	2	1	0	21	0	0	1	0
5:45 PM	0	3	2	0	1	5	2	0	1	3	0	0	0	7	2	0	26	0	0	0	0
5:50 PM	1	5	1	0	2	3	3	0	0	5	1	0	3	5	0	0	29	0	0	0	0
5:55 PM	2	5	2	0	1	1	1	0	1	6	0	0	0	2	0	0	21	0	0	0	0
Total Survey	22	77	66	0	40	75	58	0	28	94	11	1	69	99	35	0	674	3	3	6	4

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	3	9	10	0	0	8	9	0	4	15	1	0	8	10	4	0	81	1	0	0	2
4:15 PM	3	6	6	0	4	7	9	0	3	11	1	1	7	11	4	0	72	0	0	2	2
4:30 PM	4	8	6	0	4	14	5	0	7	11	2	0	7	10	2	0	80	0	0	0	0
4:45 PM	1	11	5	0	10	11	5	0	4	9	2	0	8	15	4	0	85	0	1	2	0
5:00 PM	3	13	15	0	8	10	10	0	1	13	2	0	12	13	4	0	104	0	2	0	0
5:15 PM	3	12	14	0	2	10	8	0	3	8	0	0	14	19	6	0	99	2	0	1	0
5:30 PM	2	5	5	0	8	6	6	0	4	13	2	0	10	7	9	0	77	0	0	1	0
5:45 PM	3	13	5	0	4	9	6	0	2	14	1	0	3	14	2	0	76	0	0	0	0
Total Survey	22	77	66	0	40	75	58	0	28	94	11	1	69	99	35	0	674	3	3	6	4

Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	91	89	180	0	96	75	171	0	61	96	157	0	122	110	232	0	370	2	2	2	0
%HV	3.3%				1.0%				0.0%				2.5%				1.9%				
PHF	0.67				0.80				0.80				0.78				0.88				

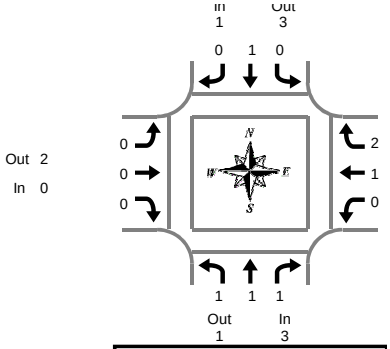
By Movement	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	42	40	91	26	40	30	96	11	44	6	61	43	57	22	122	370
%HV	11.1%	2.4%	2.5%	3.3%	0.0%	2.5%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	9.1%	2.5%	1.9%
PHF	0.56	0.70	0.59	0.67	0.72	0.71	0.75	0.80	0.55	0.85	0.75	0.80	0.67	0.75	0.50	0.78	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	11	34	27	0	18	40	28	0	18	46	6	1	30	46	14	0	318	1	1	4	4
4:15 PM	11	38	32	0	26	42	29	0	15	44	7	1	34	49	14	0	341	0	3	4	2
4:30 PM	11	44	40	0	24	45	28	0	15	41	6	0	41	57	16	0	368	2	3	3	0
4:45 PM	9	41	39	0	28	37	29	0	12	43	6	0	44	54	23	0	365	2	3	4	0
5:00 PM	11	43	39	0	22	35	30	0	10	48	5	0	39	53	21	0	356	2	2	2	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



S River Rd & E Harrison Ave

Wednesday, March 05, 2014
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:05 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:25 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:35 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	1	1	4	0	2	0	2	1	0	0	1	1	3	3	7	14

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	3
4:30 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Survey	2	1	1	4	0	2	0	2	1	0	0	1	1	3	3	7	14

Heavy Vehicle Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound S River Rd			Southbound S River Rd			Eastbound E Harrison Ave			Westbound E Harrison Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	3	1	4	1	3	4	0	2	2	3	1	4	7
PHF	0.25			0.25			0.00			0.75			0.44

By Movement	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	1	1	3	0	1	0	1	0	0	0	0	0	1	2	3	7
PHF	0.25	0.25	0.25	0.25	0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.25	0.50	0.75	0.44

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

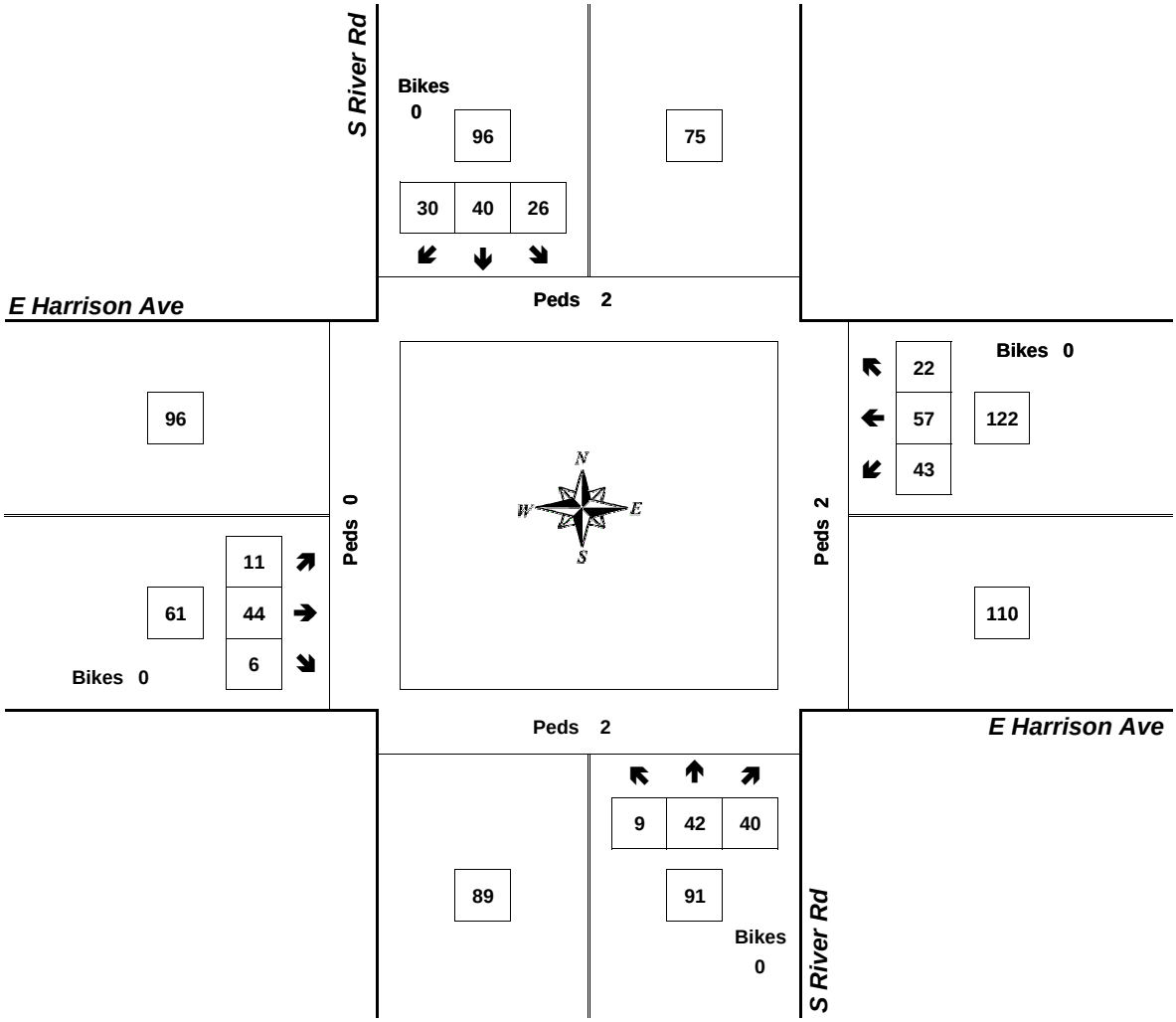
Interval Start Time	Northbound S River Rd				Southbound S River Rd				Eastbound E Harrison Ave				Westbound E Harrison Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	0	1	0	1	0	1	1	0	0	1	1	3	1	5	8
4:15 PM	1	0	0	1	0	1	0	1	0	0	0	0	1	2	1	4	6
4:30 PM	1	1	1	3	0	2	0	2	0	0	0	0	0	1	0	1	6
4:45 PM	1	1	1	3	0	1	0	1	0	0	0	0	0	1	1	2	6
5:00 PM	1	1	1	3	0	1	0	1	0	0	0	0	0	0	2	2	6

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

S River Rd & E Harrison Ave

4:50 PM to 5:50 PM
Wednesday, March 05, 2014



Approach	PHF	HV%	Volume
EB	0.80	0.0%	61
WB	0.78	2.5%	122
NB	0.67	3.3%	91
SB	0.80	1.0%	96
Intersection	0.88	1.9%	370

Count Period: 4:00 PM to 6:00 PM

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	58	110	60	5	**2**	0	0	0	0	0	0	0	0	0	235	21	24
14:00	**62**	138	56	4	0	0	0	0	0	0	0	0	0	0	**260**	20	23
15:00	52	123	**62**	9	2	0	0	0	0	0	0	0	0	0	248	21	24
16:00	58	**143**	47	3	0	0	0	0	0	0	0	0	0	0	251	20	23
17:00	43	106	47	8	0	0	0	0	0	0	0	0	0	0	204	21	24
18:00	34	68	47	6	1	0	0	0	0	0	0	0	0	0	156	22	25
19:00	14	34	43	4	2	0	0	0	0	0	0	0	0	0	97	23	26
20:00	8	22	36	**12**	2	0	0	0	0	0	0	0	0	0	80	25	28
21:00	0	10	26	4	0	**1**	0	0	0	0	0	0	0	0	41	25	28
22:00	0	9	8	3	1	0	0	0	0	0	0	0	0	0	21	25	29
23:00	0	2	5	2	0	0	0	0	0	0	0	0	0	0	9	26	28
Total	329	765	437	60	10	1	0	0	0	0	0	0	0	0	1602		
Percent	20.5%	47.8%	27.3%	3.7%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	14:00 62	16:00 143	15:00 62	20:00 12	13:00 2	21:00 1									14:00 260		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/05/14	2	1	4	0	1	0	0	0	0	0	0	0	0	0	8	24	32
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	19	20
02:00	0	3	1	3	0	0	0	0	0	0	0	0	0	0	7	27	29
03:00	1	2	2	3	0	0	0	0	0	0	0	0	0	0	8	27	29
04:00	1	0	3	2	0	0	0	0	0	0	0	0	0	0	6	27	29
05:00	0	1	11	13	0	0	0	0	0	0	0	0	0	0	25	28	30
06:00	2	13	28	9	**5**	0	0	0	0	0	0	0	0	0	57	27	31
07:00	8	42	**68**	16	2	**1**	0	0	0	0	0	0	0	0	137	25	28
08:00	14	50	68	**20**	0	0	0	0	0	0	0	0	0	0	152	24	27
09:00	17	65	60	7	0	0	0	0	0	0	0	0	0	0	149	23	25
10:00	35	87	52	6	0	0	0	0	0	0	0	0	0	0	180	21	24
11:00	**48**	**137**	46	5	0	0	0	0	0	0	0	0	0	0	**236**	20	23
12 PM	56	129	49	7	0	0	0	0	0	0	0	0	0	0	241	20	24
13:00	66	135	58	4	0	0	0	0	0	0	0	0	0	0	263	20	23
14:00	71	110	57	3	0	0	0	0	0	0	0	0	0	0	241	20	23
15:00	61	112	45	5	0	0	0	0	0	0	0	0	0	0	223	20	23
16:00	**78**	**143**	50	3	0	0	0	0	0	0	0	0	0	0	**274**	20	23
17:00	51	93	62	9	**1**	0	0	0	0	0	0	0	0	0	216	22	25
18:00	8	72	**64**	10	1	0	0	0	0	0	0	0	0	0	155	23	26
19:00	6	34	40	**11**	1	0	0	0	0	0	0	0	0	0	92	24	27
20:00	15	31	31	11	1	0	0	0	0	0	0	0	0	0	89	24	27
21:00	0	8	19	7	1	0	0	0	0	0	0	0	0	0	35	26	29
22:00	1	5	7	4	0	0	0	0	0	0	0	0	0	0	17	26	28
23:00	0	5	7	5	1	0	0	0	0	0	0	0	0	0	18	27	30
Total	541	1280	832	163	14	1	0	0	0	0	0	0	0	0	2831		
Percent	19.1%	45.2%	29.4%	5.8%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	07:00	08:00	06:00	07:00									11:00		
Vol.	48	137	68	20	5	1									236		
PM Peak	16:00	16:00	18:00	19:00	17:00										16:00		
Vol.	78	143	64	11	1										274		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/06/14	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4	24	25
01:00	0	0	3	2	0	0	0	0	0	0	0	0	0	0	5	28	29
02:00	1	3	0	2	1	**1**	0	0	0	0	0	0	0	0	8	32	37
03:00	0	0	4	3	0	0	0	0	0	0	0	0	0	0	7	28	30
04:00	1	1	2	4	1	0	0	0	0	0	0	0	0	0	9	29	32
05:00	0	3	15	12	**2**	0	0	0	0	0	0	0	0	0	32	28	31
06:00	**2**	**8**	**26**	**21**	2	0	0	0	0	0	0	0	0	0	**59**	28	30
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	4	16	53	44	6	1	0	0	0	0	0	0	0	0	124		
Percent	3.2%	12.9%	42.7%	35.5%	4.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	06:00	06:00	06:00	06:00	05:00	02:00									06:00		
Vol.	2	8	26	21	2	1									59		
PM Peak																	
Vol.																	
Grand Total	874	2061	1322	267	30	3	0	0	0	0	0	0	0	0	4557		
Percent	19.2%	45.2%	29.0%	5.9%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

	15th Percentile :	8 MPH
	50th Percentile :	16 MPH
	85th Percentile :	22 MPH
	95th Percentile :	25 MPH
Statistics	10 MPH Pace Speed :	13-22 MPH
	Number in Pace :	2515
	Percent in Pace :	55.2%
	Number of Vehicles > 55 MPH :	0
	Percent of Vehicles > 55 MPH :	0.0%
	Mean Speed(Average) :	16 MPH

All Traffic Data
15105 SE 17th St.
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Site Code: 1
E Main St E-O 6th St

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	83	78	35	4	0	0	0	0	0	0	0	0	0	0	200	19	23
14:00	**94**	81	25	3	**1**	0	0	0	0	0	0	0	0	0	204	18	22
15:00	94	74	32	0	0	0	0	0	0	0	0	0	0	0	200	19	22
16:00	75	**91**	36	5	0	0	0	0	0	0	0	0	0	0	207	20	23
17:00	90	77	**45**	3	0	0	0	0	0	0	0	0	0	0	**215**	20	23
18:00	37	65	42	8	0	0	0	0	0	0	0	0	0	0	152	22	25
19:00	13	31	34	4	1	0	0	0	0	0	0	0	0	0	83	23	25
20:00	5	28	27	**10**	1	0	0	0	0	0	0	0	0	0	71	24	28
21:00	7	10	22	9	0	0	0	0	0	0	0	0	0	0	48	25	28
22:00	2	9	8	2	1	0	0	0	0	0	0	0	0	0	22	24	29
23:00	1	3	4	3	0	0	0	0	0	0	0	0	0	0	11	26	29
Total	501	547	310	51	4	0	0	0	0	0	0	0	0	0	1413		
Percent	35.5%	38.7%	21.9%	3.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	14:00 94	16:00 91	17:00 45	20:00 10	14:00 1										17:00 215		

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WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/05/14	2	3	4	3	0	0	0	0	0	0	0	0	0	0	12	26	28
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	19	20
02:00	1	0	1	1	1	0	0	0	0	0	0	0	0	0	4	31	33
03:00	2	0	2	0	0	0	0	0	0	0	0	0	0	0	4	22	24
04:00	1	3	1	3	0	0	0	0	0	0	0	0	0	0	8	27	29
05:00	0	4	6	2	1	0	0	0	0	0	0	0	0	0	13	26	31
06:00	0	6	10	2	0	0	0	0	0	0	0	0	0	0	18	24	27
07:00	14	27	40	**12**	**2**	0	0	0	0	0	0	0	0	0	95	24	28
08:00	15	41	36	4	0	0	0	0	0	0	0	0	0	0	96	22	25
09:00	25	46	**43**	2	1	0	0	0	0	0	0	0	0	0	117	22	24
10:00	57	65	41	2	1	0	0	0	0	0	0	0	0	0	166	21	24
11:00	**73**	**85**	29	1	1	0	0	0	0	0	0	0	0	0	**189**	19	22
12 PM	63	**98**	28	1	0	0	0	0	0	0	0	0	0	0	190	19	22
13:00	**113**	91	35	1	0	0	0	0	0	0	0	0	0	0	**240**	19	22
14:00	81	87	34	1	0	0	0	0	0	0	0	0	0	0	203	19	22
15:00	77	82	35	1	**1**	0	0	0	0	0	0	0	0	0	196	19	23
16:00	61	84	40	3	0	0	0	0	0	0	0	0	0	0	188	20	23
17:00	82	98	40	5	1	0	0	0	0	0	0	0	0	0	226	20	23
18:00	24	52	**53**	5	0	0	0	0	0	0	0	0	0	0	134	22	25
19:00	13	30	36	6	0	0	0	0	0	0	0	0	0	0	85	23	26
20:00	25	33	22	**9**	1	0	0	0	0	0	0	0	0	0	90	22	27
21:00	0	9	21	5	0	0	0	0	0	0	0	0	0	0	35	25	28
22:00	3	6	15	3	0	0	0	0	0	0	0	0	0	0	27	24	27
23:00	0	3	4	2	1	0	0	0	0	0	0	0	0	0	10	28	32
Total	732	956	576	74	11	0	0	0	0	0	0	0	0	0	2349		
Percent	31.2%	40.7%	24.5%	3.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	09:00	07:00	07:00										11:00		
Vol.	73	85	43	12	2										189		
PM Peak	13:00	12:00	18:00	20:00	15:00										13:00		
Vol.	113	98	53	9	1										240		

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WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/06/14	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	24	25
01:00	0	**4**	1	3	0	0	0	0	0	0	0	0	0	0	8	27	29
02:00	1	0	5	2	0	**1**	0	0	0	0	0	0	0	0	9	29	37
03:00	0	2	1	2	0	0	0	0	0	0	0	0	0	0	5	27	29
04:00	1	0	0	**4**	0	0	0	0	0	0	0	0	0	0	5	29	30
05:00	**2**	2	8	4	**1**	0	0	0	0	0	0	0	0	0	17	27	30
06:00	0	0	**20**	3	1	0	0	0	0	0	0	0	0	0	**24**	26	30
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	4	8	38	18	2	1	0	0	0	0	0	0	0	0	71		
Percent	5.6%	11.3%	53.5%	25.4%	2.8%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	05:00	01:00	06:00	04:00	05:00	02:00									06:00		
Vol.	2	4	20	4	1	1									24		
PM Peak Vol.																	
Grand Total	1237	1511	924	143	17	1	0	0	0	0	0	0	0	0	3833		
Percent	32.3%	39.4%	24.1%	3.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

	15th Percentile :	6 MPH
	50th Percentile :	14 MPH
	85th Percentile :	21 MPH
	95th Percentile :	24 MPH
Statistics	10 MPH Pace Speed :	10-19 MPH
	Number in Pace :	1925
	Percent in Pace :	50.2%
	Number of Vehicles > 55 MPH :	0
	Percent of Vehicles > 55 MPH :	0.0%
	Mean Speed(Average) :	15 MPH

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	6	140	57	0	20	1	0	1	0	1	0	0	0	9	235
14:00	4	165	60	0	13	3	0	2	1	0	0	0	0	12	260
15:00	4	142	68	3	10	4	0	2	1	1	0	0	0	13	248
16:00	5	162	54	0	17	3	0	3	0	0	0	0	0	7	251
17:00	6	130	38	2	11	0	0	2	1	1	0	0	0	13	204
18:00	2	98	42	1	10	0	0	1	0	0	0	0	0	2	156
19:00	0	67	18	0	7	0	0	0	0	0	0	0	0	5	97
20:00	0	55	15	1	8	0	0	0	0	0	0	0	0	1	80
21:00	1	30	9	0	1	0	0	0	0	0	0	0	0	0	41
22:00	0	14	3	0	4	0	0	0	0	0	0	0	0	0	21
23:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
Total	28	1010	366	7	101	11	0	11	3	3	0	0	0	62	1602
Percent	1.7%	63.0%	22.8%	0.4%	6.3%	0.7%	0.0%	0.7%	0.2%	0.2%	0.0%	0.0%	0.0%	3.9%	
AM Peak Vol.															
PM Peak	13:00	14:00	15:00	15:00	13:00	15:00		16:00	14:00	13:00				15:00	
Vol.	6	165	68	3	20	4		3	1	1				13	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/05/14	0	5	2	0	0	0	0	0	0	0	0	0	0	1	8
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	4	3	0	1	0	0	0	0	0	0	0	0	0	8
04:00	0	3	1	0	1	1	0	0	0	0	0	0	0	0	6
05:00	0	13	8	0	4	0	0	0	0	0	0	0	0	0	25
06:00	0	34	14	2	7	0	0	0	0	0	0	0	0	0	57
07:00	1	79	43	3	7	0	0	1	0	0	0	0	0	3	137
08:00	2	92	37	0	14	1	0	0	2	0	0	0	0	4	152
09:00	1	79	46	1	14	0	0	2	0	0	0	0	0	6	149
10:00	1	98	53	2	20	2	0	1	0	0	0	0	0	3	180
11:00	6	142	57	1	15	1	0	0	0	0	0	0	0	14	236
12 PM	5	147	55	0	21	3	0	1	0	0	0	0	0	9	241
13:00	5	166	57	0	16	3	1	3	0	0	1	0	0	11	263
14:00	2	157	51	2	17	2	0	1	0	0	0	0	0	9	241
15:00	4	134	57	0	10	1	0	2	0	0	0	0	0	15	223
16:00	5	176	57	1	17	2	0	2	0	0	0	0	0	14	274
17:00	4	147	34	1	14	2	0	1	0	0	0	0	0	13	216
18:00	2	102	36	1	9	1	0	0	0	0	0	0	0	4	155
19:00	1	60	19	0	9	1	0	1	0	0	0	0	0	1	92
20:00	3	52	24	1	4	0	0	0	0	0	0	0	0	5	89
21:00	0	23	7	0	4	0	0	1	0	0	0	0	0	0	35
22:00	0	15	0	0	2	0	0	0	0	0	0	0	0	0	17
23:00	0	14	3	0	0	0	0	1	0	0	0	0	0	0	18
Total	42	1747	668	15	206	20	1	17	2	0	1	0	0	112	2831
Percent	1.5%	61.7%	23.6%	0.5%	7.3%	0.7%	0.0%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	4.0%	
AM Peak	11:00	11:00	11:00	07:00	10:00	10:00		09:00	08:00					11:00	
Vol.	6	142	57	3	20	2		2	2					14	
PM Peak	12:00	16:00	13:00	14:00	12:00	12:00	13:00	13:00			13:00			15:00	
Vol.	5	176	57	2	21	3	1	3			1			15	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/06/14	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	4	3	0	1	0	0	0	0	0	0	0	0	0	8
03:00	0	3	2	0	2	0	0	0	0	0	0	0	0	0	7
04:00	0	5	2	0	1	0	0	0	0	0	0	0	0	1	9
05:00	0	17	10	0	5	0	0	0	0	0	0	0	0	0	32
06:00	0	31	12	2	13	0	0	0	1	0	0	0	0	0	59
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	65	33	2	22	0	0	0	1	0	0	0	0	1	124
Percent	0.0%	52.4%	26.6%	1.6%	17.7%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.8%	
AM Peak		06:00	06:00	06:00	06:00				06:00					04:00	
Vol.		31	12	2	13				1					1	
PM Peak															
Vol.															
Grand Total	70	2822	1067	24	329	31	1	28	6	3	1	0	0	175	4557
Percent	1.5%	61.9%	23.4%	0.5%	7.2%	0.7%	0.0%	0.6%	0.1%	0.1%	0.0%	0.0%	0.0%	3.8%	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	6	131	36	0	9	1	0	3	0	0	0	0	0	14	200
14:00	2	140	35	0	12	0	0	1	0	0	0	0	0	14	204
15:00	8	124	46	1	10	0	0	3	0	0	0	0	0	8	200
16:00	3	140	43	0	12	1	0	0	0	0	0	0	0	8	207
17:00	3	143	40	0	15	0	0	1	0	1	0	0	0	12	215
18:00	2	100	36	0	11	0	0	0	0	0	0	0	0	3	152
19:00	0	60	16	0	4	0	0	0	0	0	0	0	0	3	83
20:00	1	45	19	0	4	0	0	1	0	0	0	0	0	1	71
21:00	1	31	10	0	2	0	0	0	0	0	0	0	0	4	48
22:00	0	13	9	0	0	0	0	0	0	0	0	0	0	0	22
23:00	0	8	2	0	1	0	0	0	0	0	0	0	0	0	11
Total	26	935	292	1	80	2	0	9	0	1	0	0	0	67	1413
Percent	1.8%	66.2%	20.7%	0.1%	5.7%	0.1%	0.0%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	4.7%	
AM Peak Vol.															
PM Peak	15:00	17:00	15:00	15:00	17:00	13:00		13:00		17:00				13:00	
Vol.	8	143	46	1	15	1		3		1				14	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/05/14	0	7	4	0	1	0	0	0	0	0	0	0	0	0	12
01:00	0	1	1	0	0	0	0	1	0	0	0	0	0	0	3
02:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	1	4
04:00	0	2	4	0	2	0	0	0	0	0	0	0	0	0	8
05:00	0	7	5	0	1	0	0	0	0	0	0	0	0	0	13
06:00	0	10	5	0	3	0	0	0	0	0	0	0	0	0	18
07:00	1	57	26	2	7	0	0	1	1	0	0	0	0	0	95
08:00	1	55	23	0	8	0	1	1	0	0	0	0	0	7	96
09:00	0	60	40	0	12	0	0	1	0	1	0	0	0	3	117
10:00	1	107	39	1	12	1	0	0	0	0	0	0	0	5	166
11:00	4	114	46	0	14	2	0	0	1	0	0	0	0	8	189
12 PM	6	120	37	1	11	3	0	0	0	0	0	0	0	12	190
13:00	6	140	56	0	17	2	0	1	0	1	0	0	0	17	240
14:00	2	130	48	2	10	0	0	0	0	0	0	0	0	11	203
15:00	3	124	46	0	10	1	0	0	0	1	0	0	0	11	196
16:00	2	121	35	0	13	5	0	0	0	0	0	0	0	12	188
17:00	4	145	52	0	11	2	0	1	0	0	0	0	0	11	226
18:00	2	88	29	0	9	1	0	1	0	0	0	0	0	4	134
19:00	1	64	13	0	3	0	0	1	0	0	0	0	0	3	85
20:00	0	65	19	0	1	2	0	0	0	0	0	0	0	3	90
21:00	0	27	3	0	5	0	0	0	0	0	0	0	0	0	35
22:00	0	20	6	0	1	0	0	0	0	0	0	0	0	0	27
23:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
Total	33	1476	542	6	151	19	1	8	2	3	0	0	0	108	2349
Percent	1.4%	62.8%	23.1%	0.3%	6.4%	0.8%	0.0%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	4.6%	
AM Peak	11:00	11:00	11:00	07:00	11:00	11:00	08:00	01:00	07:00	09:00				11:00	
Vol.	4	114	46	2	14	2	1	1	1	1				8	
PM Peak	12:00	17:00	13:00	14:00	13:00	16:00		13:00		13:00				13:00	
Vol.	6	145	56	2	17	5		1		1				17	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
E Main St E-O 6th St

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/06/14	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	4	4	0	0	0	0	0	0	0	0	0	0	0	8
02:00	0	5	3	0	1	0	0	0	0	0	0	0	0	0	9
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	3	1	0	0	0	0	0	0	0	0	0	0	1	5
05:00	0	9	4	0	2	0	0	1	0	0	0	0	0	1	17
06:00	0	15	3	0	4	1	0	1	0	0	0	0	0	0	24
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	42	17	0	7	1	0	2	0	0	0	0	0	2	71
Percent	0.0%	59.2%	23.9%	0.0%	9.9%	1.4%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	
AM Peak		06:00	01:00		06:00	06:00		05:00						04:00	
Vol.		15	4		4	1		1						1	
PM Peak Vol.															
Grand Total	59	2453	851	7	238	22	1	19	2	4	0	0	0	177	3833
Percent	1.5%	64.0%	22.2%	0.2%	6.2%	0.6%	0.0%	0.5%	0.1%	0.1%	0.0%	0.0%	0.0%	4.6%	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	55	14	37	113	**125**	18	**9**	**1**	0	0	0	0	0	0	**372**	33	36
13:00	45	17	34	105	113	**24**	5	1	0	0	0	0	0	0	344	33	37
14:00	43	21	30	117	105	22	1	0	0	0	0	0	0	0	339	33	36
15:00	55	13	**56**	115	101	24	2	0	0	0	0	0	0	0	366	33	36
16:00	**73**	**22**	50	**134**	70	14	0	0	0	0	0	0	0	0	363	31	34
17:00	58	18	50	130	94	19	3	0	0	0	0	0	0	0	372	32	35
18:00	35	19	37	100	74	11	0	0	0	0	0	0	0	0	276	32	35
19:00	18	5	14	65	52	14	3	0	0	0	0	0	0	0	171	34	37
20:00	13	3	21	45	38	16	3	0	0	0	0	0	0	0	139	34	38
21:00	3	1	9	30	31	6	0	0	0	0	0	0	0	0	80	34	36
22:00	3	0	9	11	17	3	0	0	0	0	0	0	0	0	43	34	36
23:00	1	0	2	12	7	4	0	0	0	0	0	0	0	0	26	35	38
Total	402	133	349	977	827	175	26	2	0	0	0	0	0	0	2891		
Percent	13.9%	4.6%	12.1%	33.8%	28.6%	6.1%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	16:00 73	16:00 22	15:00 56	16:00 134	12:00 125	13:00 24	12:00 9	12:00 1							12:00 372		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/05/14	0	0	2	5	4	2	0	0	0	0	0	0	0	0	13	35	38
01:00	0	0	1	4	2	0	0	0	0	0	0	0	0	0	7	32	34
02:00	1	0	2	3	1	2	0	0	0	0	0	0	0	0	9	36	38
03:00	0	1	5	10	9	1	2	0	0	0	0	0	0	0	28	34	41
04:00	1	1	2	24	18	4	1	0	0	0	0	0	0	0	51	34	37
05:00	1	2	8	44	63	6	2	0	0	0	0	0	0	0	126	34	36
06:00	10	4	8	99	80	18	1	0	**1**	0	0	0	0	0	221	34	37
07:00	25	4	34	131	**114**	**20**	3	**1**	0	0	0	0	0	0	332	33	36
08:00	30	10	27	**133**	83	10	**4**	0	0	0	0	0	0	0	297	32	35
09:00	35	11	41	104	67	16	4	0	0	0	0	0	0	0	278	33	36
10:00	43	13	47	101	62	7	2	0	0	0	0	0	0	0	275	31	34
11:00	**52**	**30**	**48**	130	68	14	3	0	0	0	0	0	0	0	**345**	31	35
12 PM	**70**	**25**	44	130	65	15	1	0	0	0	0	0	0	0	350	31	35
13:00	67	18	39	**155**	83	8	1	**1**	0	0	0	0	0	0	372	31	34
14:00	60	23	43	155	89	13	**4**	0	0	0	0	0	0	0	387	32	35
15:00	61	18	41	124	81	13	2	0	**1**	0	0	0	0	0	341	32	35
16:00	55	19	**50**	140	**110**	**20**	2	0	0	0	0	0	0	0	**396**	32	35
17:00	50	18	41	148	99	16	1	0	0	0	0	0	0	0	373	32	35
18:00	37	12	24	115	61	13	3	0	0	0	0	0	0	0	265	32	36
19:00	16	16	22	76	51	14	1	0	0	0	0	0	0	0	196	33	36
20:00	20	4	16	45	42	13	1	0	0	0	0	0	0	0	141	33	37
21:00	2	1	13	33	22	4	3	0	0	0	0	0	0	0	78	34	38
22:00	2	0	6	25	32	8	0	0	0	0	0	0	0	0	73	34	37
23:00	0	0	1	9	4	3	1	0	0	0	0	0	0	0	18	37	40
Total	638	230	565	1943	1310	240	42	2	2	0	0	0	0	0	4972		
Percent	12.8%	4.6%	11.4%	39.1%	26.3%	4.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	08:00	07:00	07:00	08:00	07:00	06:00						11:00		
Vol.	52	30	48	133	114	20	4	1	1						345		
PM Peak	12:00	12:00	16:00	13:00	16:00	16:00	14:00	13:00	15:00						16:00		
Vol.	70	25	50	155	110	20	4	1	1						396		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/06/14	1	0	4	10	5	1	**1**	0	0	0	0	0	0	0	22	33	39
01:00	0	1	1	4	2	2	0	0	0	0	0	0	0	0	10	36	38
02:00	0	1	1	5	3	2	0	0	0	0	0	0	0	0	12	35	38
03:00	0	0	4	13	11	3	1	0	0	0	0	0	0	0	32	35	39
04:00	0	0	6	17	15	3	0	0	0	0	0	0	0	0	41	34	36
05:00	2	0	5	62	50	10	0	0	0	0	0	0	0	0	129	34	36
06:00	**8**	**3**	**10**	**87**	**74**	**22**	0	0	0	0	0	0	0	0	**204**	34	37
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	11	5	31	198	160	43	2	0	0	0	0	0	0	0	450		
Percent	2.4%	1.1%	6.9%	44.0%	35.6%	9.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	06:00	06:00	06:00	06:00	06:00	06:00	00:00								06:00		
Vol.	8	3	10	87	74	22	1								204		
PM Peak Vol.																	
Grand Total	1051	368	945	3118	2297	458	70	4	2	0	0	0	0	0	8313		
Percent	12.6%	4.4%	11.4%	37.5%	27.6%	5.5%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	10 MPH
50th Percentile :	27 MPH
85th Percentile :	33 MPH
95th Percentile :	36 MPH

Statistics

10 MPH Pace Speed :	25-34 MPH
Number in Pace :	4437
Percent in Pace :	53.4%
Number of Vehicles > 25 MPH :	5949
Percent of Vehicles > 25 MPH :	71.6%
Mean Speed(Average) :	25 MPH

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	69	**33**	31	114	109	23	2	**1**	0	0	0	0	0	0	382	33	36
13:00	42	26	35	121	104	24	2	1	0	0	0	0	0	0	355	33	36
14:00	56	28	33	150	106	18	1	0	0	0	0	0	0	0	392	32	35
15:00	60	21	33	179	143	17	1	1	0	0	0	0	0	0	455	32	35
16:00	**85**	26	**43**	**254**	130	25	0	0	0	0	0	0	0	0	**563**	32	35
17:00	72	26	40	225	**153**	**28**	1	0	0	0	0	0	0	0	545	32	35
18:00	46	19	43	163	102	20	**4**	0	0	0	0	0	0	0	397	32	36
19:00	20	9	28	111	57	10	0	0	0	0	0	0	0	0	235	32	35
20:00	8	9	17	56	35	9	0	0	0	0	0	0	0	0	134	33	36
21:00	7	6	11	57	32	8	0	0	0	0	0	0	0	0	121	33	36
22:00	1	0	10	44	25	4	0	0	0	0	0	0	0	0	84	33	35
23:00	0	0	11	17	10	3	1	0	0	0	0	0	0	0	42	33	38
Total	466	203	335	1491	1006	189	12	3	0	0	0	0	0	0	3705		
Percent	12.6%	5.5%	9.0%	40.2%	27.2%	5.1%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	16:00 85	12:00 33	16:00 43	16:00 254	17:00 153	17:00 28	18:00 4	12:00 1							16:00 563		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/05/14	0	2	3	13	6	0	0	0	0	0	0	0	0	0	24	31	34
01:00	0	1	1	6	2	1	0	0	0	0	0	0	0	0	11	33	37
02:00	0	1	2	5	6	0	0	0	0	0	0	0	0	0	14	33	34
03:00	2	0	1	7	3	0	1	0	0	0	0	0	0	0	14	32	40
04:00	1	0	2	4	3	1	0	0	0	0	0	0	0	0	11	33	37
05:00	1	1	5	18	10	5	0	0	0	0	0	0	0	0	40	34	37
06:00	5	2	7	30	37	8	1	0	0	0	0	0	0	0	90	34	37
07:00	16	8	18	52	**101**	20	**4**	0	0	0	0	0	0	0	219	34	38
08:00	25	7	16	65	95	**41**	4	0	0	0	0	0	0	0	253	35	38
09:00	36	16	18	67	71	17	2	0	0	0	0	0	0	0	227	33	36
10:00	41	12	27	105	85	16	3	0	0	0	0	0	0	0	289	33	36
11:00	**44**	**24**	**42**	**116**	88	9	1	0	0	0	0	0	0	0	**324**	32	35
12 PM	46	21	35	130	100	20	1	0	**1**	0	0	0	0	0	354	33	36
13:00	**77**	19	48	155	97	23	1	**1**	0	0	0	0	0	0	421	32	35
14:00	37	26	39	150	115	16	1	0	0	0	0	0	0	0	384	32	35
15:00	57	**29**	45	155	149	30	**5**	0	0	0	0	0	0	0	470	33	36
16:00	60	28	**49**	189	156	23	1	0	0	0	0	0	0	0	506	33	35
17:00	67	27	39	**194**	**161**	**45**	4	1	0	0	0	0	0	0	**538**	33	37
18:00	41	11	26	144	106	13	0	1	0	0	0	0	0	0	342	32	35
19:00	20	7	23	94	52	8	1	0	0	0	0	0	0	0	205	32	35
20:00	11	5	26	82	52	10	0	0	0	0	0	0	0	0	186	33	35
21:00	12	3	10	56	41	7	2	0	0	0	0	0	0	0	131	33	36
22:00	3	0	12	47	16	2	0	0	0	0	0	0	0	0	80	31	34
23:00	0	2	4	13	10	3	0	0	0	0	0	0	0	0	32	34	37
Total	602	252	498	1897	1562	318	32	3	1	0	0	0	0	0	5165		
Percent	11.7%	4.9%	9.6%	36.7%	30.2%	6.2%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	11:00	07:00	08:00	07:00								11:00		
Vol.	44	24	42	116	101	41	4								324		
PM Peak	13:00	15:00	16:00	17:00	17:00	17:00	15:00	13:00	12:00						17:00		
Vol.	77	29	49	194	161	45	5	1	1						538		

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/06/14	0	0	2	13	13	0	0	0	0	0	0	0	0	0	28	33	35
01:00	0	0	1	9	8	0	0	0	0	0	0	0	0	0	18	33	35
02:00	1	0	4	9	3	2	0	0	0	0	0	0	0	0	19	33	37
03:00	0	0	0	5	4	5	0	0	0	0	0	0	0	0	14	37	39
04:00	1	2	3	3	5	2	0	0	0	0	0	0	0	0	16	34	37
05:00	3	1	0	10	12	3	**1**	**1**	0	0	0	0	0	0	31	35	41
06:00	**4**	**3**	**11**	**32**	**19**	**8**	0	0	0	0	0	0	0	0	**77**	33	37
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	9	6	21	81	64	20	1	1	0	0	0	0	0	0	203		
Percent	4.4%	3.0%	10.3%	39.9%	31.5%	9.9%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	06:00	06:00	06:00	06:00	06:00	06:00	05:00	05:00							06:00		
Vol.	4	3	11	32	19	8	1	1							77		
PM Peak Vol.																	
Grand Total	1077	461	854	3469	2632	527	45	7	1	0	0	0	0	0	9073		
Percent	11.9%	5.1%	9.4%	38.2%	29.0%	5.8%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	10 MPH
50th Percentile :	27 MPH
85th Percentile :	33 MPH
95th Percentile :	36 MPH

Statistics

10 MPH Pace Speed :	25-34 MPH
Number in Pace :	4960
Percent in Pace :	54.7%
Number of Vehicles > 25 MPH :	6681
Percent of Vehicles > 25 MPH :	73.6%
Mean Speed(Average) :	25 MPH

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	2	212	82	1	38	6	0	4	1	0	0	0	0	26	372
13:00	1	177	111	3	27	1	0	5	1	0	0	0	0	18	344
14:00	0	192	78	4	38	5	1	3	0	0	0	0	0	18	339
15:00	2	199	88	4	34	4	3	7	2	0	0	0	0	23	366
16:00	3	202	81	1	35	6	0	7	0	0	0	0	0	28	363
17:00	1	213	83	1	36	7	0	7	0	0	0	0	0	24	372
18:00	0	170	67	0	20	1	0	3	1	0	0	0	0	14	276
19:00	2	108	43	0	12	0	0	0	0	0	0	0	0	6	171
20:00	1	96	20	1	12	3	0	0	0	0	0	0	0	6	139
21:00	0	46	25	0	6	0	0	1	0	0	0	0	0	2	80
22:00	0	28	11	0	4	0	0	0	0	0	0	0	0	0	43
23:00	1	19	5	0	1	0	0	0	0	0	0	0	0	0	26
Total	13	1662	694	15	263	33	4	37	5	0	0	0	0	165	2891
Percent	0.4%	57.5%	24.0%	0.5%	9.1%	1.1%	0.1%	1.3%	0.2%	0.0%	0.0%	0.0%	0.0%	5.7%	
AM Peak Vol.															
PM Peak	16:00	17:00	13:00	14:00	12:00	17:00	15:00	15:00	15:00					16:00	
Vol.	3	213	111	4	38	7	3	7	2					28	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/05/14	0	10	2	0	0	0	0	0	1	0	0	0	0	0	13
01:00	0	4	2	0	1	0	0	0	0	0	0	0	0	0	7
02:00	0	3	4	0	2	0	0	0	0	0	0	0	0	0	9
03:00	1	14	10	0	3	0	0	0	0	0	0	0	0	0	28
04:00	0	30	15	0	5	0	0	0	0	0	0	0	0	1	51
05:00	1	72	32	0	20	1	0	0	0	0	0	0	0	0	126
06:00	3	129	57	3	23	0	0	1	1	0	0	0	0	4	221
07:00	0	195	90	1	28	2	1	2	0	0	0	0	0	13	332
08:00	1	173	76	1	25	5	0	4	0	0	0	0	0	12	297
09:00	2	151	73	1	30	3	0	3	1	0	0	0	0	14	278
10:00	0	154	62	3	29	6	1	4	0	0	0	0	0	16	275
11:00	1	199	89	2	29	5	1	2	1	0	0	0	0	16	345
12 PM	2	195	91	1	26	5	0	1	1	0	0	0	0	28	350
13:00	1	207	86	4	35	5	2	4	2	0	0	0	0	26	372
14:00	0	222	89	2	37	7	0	6	0	0	0	0	0	24	387
15:00	0	177	88	0	37	8	0	2	4	0	1	0	0	24	341
16:00	2	248	79	0	37	2	0	3	1	0	0	0	0	24	396
17:00	1	242	76	0	28	5	0	2	1	0	0	0	0	18	373
18:00	0	159	66	0	22	1	0	0	1	0	0	0	0	16	265
19:00	1	119	45	1	23	1	0	0	0	0	0	0	0	6	196
20:00	0	92	25	1	14	1	0	0	0	0	0	0	0	8	141
21:00	0	48	21	0	7	0	0	0	0	0	0	0	0	2	78
22:00	0	52	11	0	8	0	1	0	0	1	0	0	0	0	73
23:00	0	13	2	0	1	0	0	1	0	0	0	0	1	0	18
Total	16	2908	1191	20	470	57	6	35	14	1	1	0	1	252	4972
Percent	0.3%	58.5%	24.0%	0.4%	9.5%	1.1%	0.1%	0.7%	0.3%	0.0%	0.0%	0.0%	0.0%	5.1%	
AM Peak	06:00	11:00	07:00	06:00	09:00	10:00	07:00	08:00	00:00					10:00	
Vol.	3	199	90	3	30	6	1	4	1					16	
PM Peak	12:00	16:00	12:00	13:00	14:00	15:00	13:00	14:00	15:00	22:00	15:00		23:00	12:00	
Vol.	2	248	91	4	37	8	2	6	4	1	1		1	28	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/06/14	0	14	6	0	0	0	0	0	1	0	0	0	0	1	22
01:00	0	7	2	0	1	0	0	0	0	0	0	0	0	0	10
02:00	0	6	4	0	1	0	0	0	0	1	0	0	0	0	12
03:00	0	18	10	0	4	0	0	0	0	0	0	0	0	0	32
04:00	0	22	13	0	5	1	0	0	0	0	0	0	0	0	41
05:00	1	75	34	0	16	1	0	0	1	0	0	0	0	1	129
06:00	1	129	44	2	20	2	0	2	0	0	0	0	0	4	204
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	2	271	113	2	47	4	0	2	2	1	0	0	0	6	450
Percent	0.4%	60.2%	25.1%	0.4%	10.4%	0.9%	0.0%	0.4%	0.4%	0.2%	0.0%	0.0%	0.0%	1.3%	
AM Peak	05:00	06:00	06:00	06:00	06:00	06:00		06:00	00:00	02:00				06:00	
Vol.	1	129	44	2	20	2		2	1	1				4	
PM Peak Vol.															
Grand Total	31	4841	1998	37	780	94	10	74	21	2	1	0	1	423	8313
Percent	0.4%	58.2%	24.0%	0.4%	9.4%	1.1%	0.1%	0.9%	0.3%	0.0%	0.0%	0.0%	0.0%	5.1%	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/04/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	2	188	110	2	41	9	0	2	0	1	0	0	0	27	382
13:00	0	180	107	3	40	3	1	2	1	0	0	0	0	18	355
14:00	1	204	113	2	39	2	3	6	0	0	0	0	0	22	392
15:00	1	226	137	2	51	10	0	4	1	1	0	0	0	22	455
16:00	0	297	155	2	55	6	1	9	0	0	0	0	0	38	563
17:00	2	316	117	3	62	6	0	7	0	0	0	0	0	32	545
18:00	0	249	91	2	31	2	0	2	0	0	0	0	0	20	397
19:00	1	157	50	0	18	0	0	1	0	0	0	0	0	8	235
20:00	0	84	37	1	7	0	0	1	0	0	0	0	0	4	134
21:00	0	74	32	0	12	0	0	0	0	0	0	0	0	3	121
22:00	1	51	25	1	5	0	0	1	0	0	0	0	0	0	84
23:00	0	31	9	0	2	0	0	0	0	0	0	0	0	0	42
Total	8	2057	983	18	363	38	5	35	2	2	0	0	0	194	3705
Percent	0.2%	55.5%	26.5%	0.5%	9.8%	1.0%	0.1%	0.9%	0.1%	0.1%	0.0%	0.0%	0.0%	5.2%	
AM Peak Vol.															
PM Peak	12:00	17:00	16:00	13:00	17:00	15:00	14:00	16:00	13:00	12:00				16:00	
Vol.	2	316	155	3	62	10	3	9	1	1				38	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/05/14	0	15	5	0	3	0	0	1	0	0	0	0	0	0	24
01:00	0	9	1	0	1	0	0	0	0	0	0	0	0	0	11
02:00	0	5	8	0	1	0	0	0	0	0	0	0	0	0	14
03:00	0	8	2	0	3	0	0	0	0	0	0	0	0	1	14
04:00	0	2	5	2	2	0	0	0	0	0	0	0	0	0	11
05:00	1	17	12	1	8	1	0	0	0	0	0	0	0	0	40
06:00	0	47	23	2	15	2	0	0	0	0	0	0	0	1	90
07:00	1	103	64	6	29	3	0	2	3	0	0	0	0	8	219
08:00	0	115	82	1	39	1	1	2	0	1	0	0	0	11	253
09:00	2	103	64	3	39	1	1	3	0	1	0	0	0	10	227
10:00	1	155	77	3	31	3	1	2	2	0	0	0	0	14	289
11:00	0	173	86	2	40	4	1	3	0	0	0	0	1	14	324
12 PM	1	181	102	0	38	8	0	4	1	0	0	0	0	19	354
13:00	0	234	103	0	44	4	0	5	1	0	0	0	0	30	421
14:00	0	219	94	3	46	2	2	4	0	0	0	0	0	14	384
15:00	0	243	142	4	50	3	0	2	2	0	0	0	0	24	470
16:00	1	290	127	3	49	7	0	4	1	0	0	0	0	24	506
17:00	0	310	126	3	61	2	0	3	0	1	1	0	0	31	538
18:00	0	183	80	3	56	2	0	2	0	0	0	0	0	16	342
19:00	0	125	50	1	18	1	0	1	1	2	0	0	0	6	205
20:00	1	106	55	1	16	2	0	1	0	0	0	0	0	4	186
21:00	0	88	30	2	8	1	0	0	0	0	0	0	0	2	131
22:00	0	55	19	0	4	1	0	0	0	0	0	0	0	1	80
23:00	0	22	5	1	2	0	0	0	1	1	0	0	0	0	32
Total	8	2808	1362	41	603	48	6	39	12	6	1	0	1	230	5165
Percent	0.2%	54.4%	26.4%	0.8%	11.7%	0.9%	0.1%	0.8%	0.2%	0.1%	0.0%	0.0%	0.0%	4.5%	
AM Peak	09:00	11:00	11:00	07:00	11:00	11:00	08:00	09:00	07:00	08:00			11:00	10:00	
Vol.	2	173	86	6	40	4	1	3	3	1			1	14	
PM Peak	12:00	17:00	15:00	15:00	17:00	12:00	14:00	13:00	15:00	19:00	17:00			17:00	
Vol.	1	310	142	4	61	8	2	5	2	2	1			31	

All Traffic Data
15105 SE 17th St.
Vancouver, WA. 98683
503-833-2740

Site Code: 1
Hwy 99 S-O Geer Ave

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
03/06/14	0	19	3	1	5	0	0	0	0	0	0	0	0	0	28
01:00	0	12	2	1	3	0	0	0	0	0	0	0	0	0	18
02:00	0	8	8	2	1	0	0	0	0	0	0	0	0	0	19
03:00	0	7	5	0	2	0	0	0	0	0	0	0	0	0	14
04:00	0	2	8	2	2	1	0	0	1	0	0	0	0	0	16
05:00	0	7	8	2	12	1	0	1	0	0	0	0	0	0	31
06:00	0	46	17	2	10	0	0	0	0	0	0	0	0	2	77
07:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	1	101	51	10	35	2	0	1	1	0	0	0	0	2	204
Percent	0.5%	49.5%	25.0%	4.9%	17.2%	1.0%	0.0%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	1.0%	
AM Peak	07:00	06:00	06:00	02:00	05:00	04:00		05:00	04:00					06:00	
Vol.	1	46	17	2	12	1		1	1					2	
PM Peak															
Vol.															
Grand Total	17	4966	2396	69	1001	88	11	75	15	8	1	0	1	426	9074
Percent	0.2%	54.7%	26.4%	0.8%	11.0%	1.0%	0.1%	0.8%	0.2%	0.1%	0.0%	0.0%	0.0%	4.7%	

Collision Analysis Worksheets

Intersection Critical Crash Rate Calculations

General & Site Information	
Analyst:	ELV
Agency/Company:	DKS Associates
Date:	4/3/2014
Project Name:	Cottage Grove TSP

Intersection Crash Data

	Intersection	Year 2008	2009	2010	2011	2012	Total
1	I-5 SB Ramps/Cottage Grove Connector	2	5	2	8	5	22
2	I-5 NB Ramps/Row River Road	4	1	0	1	2	8
3	I-5 Off Ramp/6th Street	0	0	0	0	1	1
4	I-5 On Ramp/6th Street	0	0	0	0	0	0
5	OR 99/Cottage Grove Connector	0	1	0	0	0	1
6	OR 99/Woodson Bridge	0	1	2	0	2	5
7	OR 99/Main Street	1	2	3	4	5	15
8	OR 99/6th Street	2	1	1	0	1	5
9	OR 99/4th Street	0	1	1	0	0	2
10	OR 99/S. River Road	0	0	0	0	0	0
11	Main Street/Gateway Boulevard	3	1	1	1	1	7
12	Main Street/River Road	1	0	0	0	0	1
13	Harrison Avenue/River Road	0	0	0	0	0	0
14	Jim Wright Way / Row River Road	0	0	0	0	0	0
15	Main Street / 6th Street	0	1	3	0	0	4
	Total	13	14	13	14	17	71

Intersection Population Type Crash Rate

Average Crash Rate per intersection type

Intersection Pop. Type	Number	Sum of Crashes	Sum of 5-year MEV	Avg Crash Rate for Ref Pop.	
U3SG - Urban 3 Leg Signalized (n=2) *	1	13	42	0.3131	* n<5
U3ST - Urban 3 Leg Stop Controlled (n=2) *	2	1	28	0.0355	* n<5
U4SG - Urban 4 Leg Signalized (n=7)	3	56	148	0.38	
U4ST - Urban 4 Leg Stop Controlled (n=2)*	4	0	24	0.00	* n<5
R3ST - Rural 3 Leg Stop Controlled (n=1)*	5	1	6	0.16	* n<5
R4ST - Rural 3 Leg Unsignalized (n=1)	6	0	6	0.00	* n<5

Critical Rate Calculation

	Intersection	AADT Entering Intersection	5-year MEV	Crash Total	Intersection Population Type	Intersection Crash Rate	Reference Population Crash Rate	Critical Rate	Over Critical
1	I-5 SB Ramps/Cottage Grove Connector	19,600	35.8	22	3	0.62	0.38	0.562	**Over**
2	I-5 NB Ramps/Row River Road	12,150	22.2	8	1	0.36	0.31	0.509	Under
3	I-5 Off Ramp/6th Street	3,450	6.3	1	5	0.16	0.16	0.293	Under
4	I-5 On Ramp/6th Street	3,500	6.4	0	6	0.00	0.00	NA	Under
5	OR 99/Cottage Grove Connector	11,250	20.5	1	2	0.05	0.04	0.293	Under
6	OR 99/Woodson Bridge	10,600	19.3	5	1	0.26	0.31	0.509	Under
7	OR 99/Main Street	16,500	30.1	15	3	0.50	0.38	0.579	Under
8	OR 99/6th Street	9,200	16.8	5	3	0.30	0.38	0.655	Under
9	OR 99/4th Street	6,800	12.4	2	3	0.16	0.38	0.706	Under
10	OR 99/S. River Road	4,200	7.7	0	2	0.00	0.04	0.293	Under
11	Main Street/Gateway Boulevard	14,300	26.1	7	3	0.27	0.38	0.596	Under
12	Main Street/River Road	8,500	15.5	1	3	0.06	0.38	0.860	Under
13	Harrison Avenue/River Road	3,500	6.4	0	4	0.00	0.00	0.408	Under
14	Jim Wright Way / Row River Road	9,500	17.3	0	4	0.00	0.00	0.408	Under
15	Main Street / 6th Street	6,200	11.3	4	3	0.35	0.38	0.723	Under

Cells with an green highlight indicate intersections with a reference population of less than 5 intersections.
A reference population with less than 5 intersections is insufficient for a statistically significant critical rate.
Therefore, highlighted intersection critical rates use Statewide Average 90th Percentile Rates (APM Exhibit 4-1)

Exhibit 4-1 Intersection Crash Rates per MEV by Land Type and Traffic Control

	Rural				Urban			
	3SG	3ST	4SG	4ST	3SG	3ST	4SG	4ST
No. of Intersections	7	115	20	60	55	77	106	60
Mean Crash Rate	0.226	0.196	0.324	0.434	0.275	0.131	0.477	0.198
Median Crash Rate	0.163	0.092	0.320	0.267	0.252	0.105	0.420	0.145
Standard Deviation	0.185	0.314	0.223	0.534	0.155	0.121	0.273	0.176
Coefficient of Variation	0.819	1.602	0.688	1.230	0.564	0.924	0.572	0.889
90th Percentile Rate	**0.464**	**0.475**	**0.579**	**1.080**	**0.509**	**0.293**	**0.860**	**0.408**

Source: Assessment Of Statewide Intersection Safety Performance, FHWA-OR-RD-18, Portland State University and Oregon State University, June 2011, Table 4.1, p. 47.

A spreadsheet calculator has been developed that implements the critical rate calculations for intersections. For additional information see pages 4-35 through 4-39 in HSM Volume 1. Example 4-1 illustrates the use of the Critical Rate method for urban area intersections.

90th Percentile Comparison			
Intersection	**90th Percentile Rate**	**Intersection Crash Rate**	**Needs further review**
I-5 SB Ramps/	0.860	0.615	No
I-5 NB Ramps/	0.509	0.361	No
I-5 Off Ramp/6	0.293	0.159	No
I-5 On Ramp/6	N/A	0.000	No
OR 99/Cottage	0.293	0.049	No
OR 99/Woodso	0.509	0.258	No
OR 99/Main S	0.860	0.498	No
OR 99/6th Str	0.860	0.298	No
OR 99/4th Str	0.860	0.161	No
OR 99/S. Rive	0.293	0.000	No
Main Street/G	0.860	0.268	No
Main Street/R	0.860	0.064	No
Harrison Aven	0.408	0.000	No
Jim Wright Wa	0.408	0.000	No
Main Street / 6	0.860	0.354	No

General & Site Information	
Analyst:	CNF
Agency/Company:	DKS
Date:	5/28/2014
Project Name:	Cottage Grove TSP

Reference Population Type Crash Rates

Segment Reference Population Type	Population Type Number	No. of Segs in Reference Population	Sum of Crashes	Sum of MVMT	Avg Crash Rate for Ref Pop.
Principal Arterial	1	9	50	30.5	1.64
Minor Arterial	2	10	65	45.7	1.42

Critical Rate Calculation

Road Name	Segment	Ref. Pop. Type	Begin	End	5 Year Crash Total	AADT	Segment Length	Pop. Type Numb	MVMT	Segment Crash Rate	Ref. Pop. Crash Rate	Critical Rate	Over Critical	Peak Hour Volume	K 10
Cottage Grove Lorane Rd	1	Minor Arterial	Gowdville Rd	R St	1	1650	0.23	2	0.69	**1.46**	1.42	4.52	Under	165	0.1
Main St	2	Minor Arterial	R St	River Rd	5	6000	0.62	2	6.73	**0.74**	1.42	2.25	Under	600	0.1
Main St	3	Minor Arterial	River Rd	OR 99	4	5350	0.19	2	1.86	**2.16**	1.42	3.13	Under	535	0.1
Main St	4	Minor Arterial	OR 99	Gateway blvd	23	11400	0.47	2	9.78	**2.35**	1.42	2.10	**Over**	1140	0.1
E Whiteaker Ave	5	Minor Arterial	Gateway blvd	Thornton Ln	4	8150	0.40	2	5.90	**0.68**	1.42	2.32	Under	815	0.1
E Cottage Grove Con/Row	6	Principal Arterial	I-5 NB Ramps	I-5 SB Ramps	5	9950	0.13	1	2.40	**2.09**	1.64	3.21	Under	995	0.1
E Cottage Grove Con	7	Principal Arterial	I-5 SB Ramps	OR 99	2	8350	0.44	1	6.63	**0.30**	1.64	2.53	Under	835	0.1
OR 99	8	Principal Arterial	River (Outside City Limits)	E Cottage Grove Con	6	3800	0.32	1	2.21	**2.72**	1.64	3.28	Under	380	0.1
OR 99	9	Principal Arterial	E Cottage Grove Con	Woodson Bridge	16	10200	0.18	1	3.41	**4.70**	1.64	2.93	**Over**	1020	0.1
OR 99 (9th St)	10	Principal Arterial	Woodson Bridge	E Main St	7	7800	0.37	1	5.20	**1.35**	1.64	2.66	Under	780	0.1
OR 99	11	Principal Arterial	E Main St	6th St	5	8000	0.25	1	3.62	**1.38**	1.64	2.88	Under	800	0.1
OR 99	12	Principal Arterial	6th St	Harrison Ave	4	6000	0.22	1	2.35	**1.70**	1.64	3.22	Under	600	0.1
OR 99	13	Principal Arterial	Harrison Ave	S River Rd	1	3900	0.44	1	3.12	**0.32**	1.64	2.99	Under	390	0.1
OR 99	14	Principal Arterial	S River Rd	Carnegie	4	3650	0.24	1	1.57	**2.56**	1.64	3.64	Under	365	0.1
S River Rd	15	Minor Arterial	W Main St	Harrison Ave	2	1900	0.55	2	1.91	**1.04**	1.42	3.10	Under	190	0.1
S River Rd	16	Minor Arterial	Harrison Ave	OR 99	1	2800	0.43	2	2.17	**0.46**	1.42	2.98	Under	280	0.1
Row River Rd	17	Minor Arterial	I-5 NB Ramps	Currin Con	16	5500	0.67	2	6.70	**2.39**	1.42	2.26	**Over**	550	0.1
6th St	18	Minor Arterial	OR 99	Grant Ave	7	4250	0.74	2	5.71	**1.23**	1.42	2.33	Under	425	0.1
6th St	19	Minor Arterial	Grant Ave	I-5 Off Ramp	2	3450	0.67	2	4.23	**0.47**	1.42	2.50	Under	345	0.1

Technical Memorandum #6

DATE: August 26, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, P.E., DKS Associates
Garth Appanaitis, P.E., DKS Associates

SUBJECT: **Cottage Grove Transportation System Plan Update**
Future Forecast Methods & Assumptions

This memorandum documents the methods and assumptions used to forecast future travel demand in Cottage Grove and the results of the future forecasting for 2035. The travel forecasts are created by applying a Small Community Forecasting Tool[1] developed specifically for the Transportation System Plan (TSP). This memorandum documents the methodology and assumptions used to develop the forecasting tool, including the land use and trip growth that is expected to occur. Future traffic volume forecasts are developed for all study intersection turn movements for the 2035 TSP horizon year.

Introduction

Traffic forecasting is an important step in the transportation planning process and provides estimates of future travel demand. The forecasting methodology associated with the Small Community Forecast Tool is also referred to as the Enhanced Zonal Cumulative Analysis approach, as defined in the Oregon Department of Transportation (ODOT) Transportation Planning Analysis Unit's (TPAU's) *Analysis Procedures Manual*.[2] In the context of the traditional four-step travel demand model approach, the typical Cumulative Analysis is used for trip generation and trip distribution purposes only. The result is a trip table (for growth increment only) that is used as an input into traffic assignment, where analysis is completed by manually assigning the new trips to a transportation network and then adding them to the existing traffic volumes to estimate future volumes.

[1] Based on Enhanced Zonal Cumulative Analysis approach

[2] *Analysis Procedures Manual (APM)*, Oregon Department of Transportation (ODOT) Transportation Planning Analysis Unit (TPAU), Draft Chapter 6 (Revised June 2014)

The Small Community Forecast Tool, also known as the Enhanced Zonal Cumulative Analysis tool, uses the same trip generation and trip distribution methodology as the typical Cumulative Analysis, but it applies the methodology to all land uses within the city (i.e., both existing uses as well as any future development based on a land use inventory). The enhanced tool then uses Visum modeling software[3] and incorporates intersection node delay to complete the equilibrium trip assignment. The result is an improved traffic volume forecasting tool that dynamically assigns both new and existing trips to the transportation network. The tool uses an equilibrium assignment procedure that represents routing choice more accurately than manual assignment because it is responsive to varying levels of congestion and delay as traffic patterns change. As a result, this tool enables a more comprehensive analysis of future conditions and potential TSP alternatives.

The following sections of this memorandum detail each component of the proposed travel forecast methodology associated with the Small Community Forecast Tool. These components include the roadway network, transportation analysis zones (TAZs), land use, and travel demand. The resulting 2035 future forecast volumes are also provided. All traffic volume forecasts and associated tools are developed for the design hour, reflecting seasonally adjusted p.m. peak hour operating conditions.

Roadway Network

The roadway network included in the Cottage Grove TSP Visum tool consists of all local, collector, and arterial streets within the horizon year Cottage Grove Urban Growth Boundary (UGB). In addition, because there are routing alternatives outside of the Cottage Grove UGB, the tool includes some roadways surrounding Cottage Grove that serve local traffic.

The existing roadway network was built using NAVTEQ files as the initial base. Then, the initial base was modified to match real world conditions based on an existing conditions inventory that includes posted speeds, traffic controls, lane geometries, and number of travel lanes. The purpose of the existing conditions network is to configure the model and act as a base in the development of the future model.

The 2035 future year baseline roadway network was developed to identify TSP Future Needs (No-Build). Any identified capacity-related improvements that are already planned for construction in the near future (such as funded CIP or STIP projects) should

[3] Visum is a transportation travel demand modeling software developed by PTV Vision.

be included in the future No-Build network. In addition, streets or intersection improvements to be added as part of known development plans would also be included. The projects included in the future year forecast tool are all assumed to be constructed as part of land use development that is anticipated to occur by 2035:

- M Street extension north to Holly Avenue
- Harrison Avenue extension west and north to Gowdyville Road
- 4th Street extension south to Cleveland Avenue

The 2035 future year network will be further adjusted and used to perform analysis of the various transportation alternatives and improvements analyzed for the Cottage Grove TSP Update.

Transportation Analysis Zones

For transportation forecasting purposes, the Cottage Grove UGB was divided into transportation analysis zones (TAZs), which represent the sources of vehicle trip generation within the city. The TAZ structure was based on a combination of existing and future land use data, as well as a travel demand model developed for Cottage Grove in the 1990s by the Lane Council of Governments (LCOG).[4]

The Cottage Grove TSP Visum network also includes ten external TAZs at the key gateways into and out of the city (as well as outlying residential areas) to account for vehicle trips that enter and exit the Cottage Grove UGB. These external TAZs are located at:

- OR 99, north of N. River Road
- OR 99, south of Latham Road
- Row River Road, southeast of the Currin Connector
- Mosby Creek Road, southeast of the Currin Connector
- Cottage Grove Lorane Road, west of Gowdyville Road
- Gowdyville Road, west of Cottage Grove Lorane Road
- S. 6th Street/London Road, south of Latham Road/Weyerhauser Road
- I-5 ramps at the north interchange (separate zones are used for the southbound ramps at the Cottage Grove Connector/Row River Road/Gateway Boulevard intersection and the northbound ramps at Row River Road)

[4] The travel demand model developed for Cottage Grove has not been maintained or used by LCOG in many years and was previously determined to be out-of-date during development of forecasts for the 2008 TSP Update.

- I-5 ramps at the south interchange (northbound and southbound ramps at S. 6th Street)

A Visum model plot showing the roadway network and TAZs is included in the Technical Appendix. Centroid connectors were added to represent access to the street network.

Land Use

Land use is a key factor affecting the traffic demands placed on Cottage Grove's transportation system. The location, density, type, and mixture of land uses have a direct impact on traffic levels and patterns. An existing 2014 land use inventory and a future 2035 land use forecast were used to identify existing and future land uses for each TAZ in the Cottage Grove UGB, based on zoning and assumed development patterns.

Control Totals

The land use totals for the Cottage Grove UGB in 2014 and 2035 are summarized in Table 1. The land use totals for the UGB are based on control totals developed from the U.S. Census, Lane County coordinated population forecasts[5], and the 2009 Economic Opportunities Analysis.[6]

Table 1: Land Use Control Totals (Cottage Grove UGB Total)

Land Use Category	2014	2035	Growth
Population[7]	9,854	13,542	3,688 (37%)
Households[8]	3,963	5,446	1,483 (37%)
Employment[9,10]	3,727	4,916	1,189 (32%)

[5] *Lane County Rural Comprehensive Plan*, Updated June 2009, Lane County, Table 1.1

[6] *City of Cottage Grove Economic Opportunities Analysis*, Final Draft Report, Winterbrook Planning with ECONorthwest, March 21, 2009

[7] Population totals are derived from 2010 census data and Lane County population forecasts for 2035. The 2010 census population was 9,686. Growth from 2010 to the 2012 Census estimate is doubled to arrive at the projected 2014 population.

[8] Average household size and percent of population in group quarters is assumed to remain constant through 2035. Therefore, the growth for households mirrors population gain. 2010 census data indicate average household size is 2.47 and share of population in group quarters is small (0.86% of total population)

[9] The total employment values are derived from the 2009 EOA. The EOA has a 2009 base year and 2029 future year. The 20-year growth was factored to 26 years (30% more growth) to arrive at a total employment estimate for 2035. The 2014 employment total is identified in the EOA in Table 4-1.

TAZ Allocation

The land use control totals were allocated to TAZs within the UGB. The 2014 land use inventory approximates the number of households and employees that currently exist in each TAZ in Cottage Grove. The TAZ allocations were based on the previous 2008 TSP land use data, with updates made based on review of 2010 census data, validation from existing aerial photography, and review and input from the Project Management Team (PMT) and City staff. The employment is designated into seven possible categories; agricultural, industrial, retail, service, education, government, and other.

The future 2035 land use projection is an estimate of the amount of each land use that the TAZ could accommodate at expected build-out of vacant or underdeveloped lands assuming Comprehensive Plan zoning. The future year TAZ estimates were based on the previous TSP land use data (2026 horizon year), review of existing development and aerial photography, consideration of Comprehensive Plan zoning, and input from the PMT and City staff on expected future development.

Travel Demand

Travel demand on roadways and at intersections in Cottage Grove was estimated using methodology similar to that specified by the ODOT Analysis Procedures Manual for cumulative analysis models (often referred to as Level 2 models)[11] and is consistent with the Enhanced Zonal Cumulative Analysis that is in the current Draft APM update. Adjustments made to the methodology include modeling all vehicle trips (not just growth increment), adjusting the trip distribution to reduce household-to-household trips, and using Visum modeling software to perform the trip assignment. Travel demand was estimated for 30th highest hour conditions for the years 2014 and 2035. The purpose of the 2014 forecast tool was to calibrate the network in preparation for developing the 2035 network, which would then be used for future analysis.

[10] A factor was applied to convert the EOA estimates of total employment to 'covered' employment. Covered employment represents approximately 76% of total employment in Lane County, according to the EOA (page 29). Covered Employment does not include sole proprietors and other workers that are not covered by unemployment insurance. Only covered employment is included for the purposes of travel demand modeling because data for covered employment is more reliable, accurate, and consistent with other data sources. Covered employment is also considered to be more accurate for purposes of traffic generation.

[11] *Analysis Procedures Manual (APM)*, Oregon Department of Transportation (ODOT) Transportation Planning Analysis Unit (TPAU), Updated January 2011, pgs. 4-31 to 4-43

The travel demand analysis includes the translation of City land use information into motor vehicle trips. This was done for each of the Cottage Grove TAZs based on the existing and projected land uses described previously in the Land Use section of this memorandum. Trips traveling to and from the external TAZs were also estimated for both the 2014 and 2035 analysis years.

Trip Types

Travel demand projections involve the determination of three distinct types of trips, which are categorized based on whether their origin and/or destination (i.e., the trip ends) are internal or external to the Cottage Grove UGB. The three trip types and how they apply to Cottage Grove are described in the list below.

External-External (E-E) Trips do not have an origin or destination in Cottage Grove and do not stop while passing through the Cottage Grove UGB. These trips are typically referred to as through traffic. Through trips on I-5 are not included in the forecast tool.

Internal-External (I-E) Trips originate in Cottage Grove and are traveling to a location outside of the Cottage Grove UGB and **External-Internal (E-I)** Trips originate outside of the Cottage Grove UGB and are traveling to a location within Cottage Grove.

Internal-Internal (I-I) Trips travel from one location within the Cottage Grove UGB to another location within the UGB. The forecast tool assumes that these trips do not use I-5.

External Trip Ends

External trip ends consist of through trips (i.e., E-E trips) as well as trips that enter or leave Cottage Grove (i.e., I-E and E-I trips), and were estimated for both 2014 and 2035. The number of 2014 external trip ends was based on existing traffic volumes (30th highest hour conditions) at key gateways to the City, which include OR 99 and the I-5 ramps.

Future external trip end quantities on OR 99 were estimated based on the existing traffic volumes and forecasted growth at the external gateways. Forecasted external growth on OR 99 was based on the ODOT (2032) Highway Future Volume Table. The annual growth rates applied to entering and exiting trips are:

Table 2: Daily Traffic Volume Growth on ODOT roadways

Location	2011/2012	2032	Growth Percentage
OR 99: North of City Limits (on Coast Fork Willamette River Bridge)	2,900*	3,300	14.5%*
OR 99: South of City Limits (0.02 mile south of Latham Road)	2,800*	2,900	3.8%*
I-5: South of Cottage Grove Interchange (0.1 miles south)	24,600**	33,000	34.1%**

Source: ODOT 2032 Highway Future Volume Table

*Base year 2012. 20-year growth (2012-2032) was scaled to 21 years for 2014-2035 growth estimates.

** Base year 2011. 21-year growth (2011-2032) was applied for 2014-2035 growth estimates.

The proportion of each external trip type on OR 99, specifically determining the portion of E-E through trips, was estimated based on the collection of origin-destination Bluetooth device data. The Bluetooth device data was collected at both ends of OR 99 near the UGB boundaries (north of N. River Road and south of Latham Road). The results of the Bluetooth data indicate that only 2 to 4 percent of traffic entering Cottage Grove via OR 99 travel through the City to exit on the other end of OR 99.[12] These data are intuitive, given the presence of I-5 as a parallel facility that offers a higher-speed alternative for most through travelers.

For other external zones, data sources for applicable traffic growth are limited. While growth for I-5 traffic volumes has been estimated, through travel on I-5 is not considered to be fully representative of the I-5 ramp growth in Cottage Grove. Travel demand growth on the Cottage Grove interchange ramps is more likely to depend on the growth in Cottage Grove and surrounding areas. It is unclear if the existing patterns of travel behavior for intercommunity trips (e.g., commutes between Eugene-Springfield via I-5) will hold through the TSP horizon year.

Without better information available, the forecasts for traffic volume growth at external gateways make a balanced assumption between the internal growth in Cottage Grove (as reflected by the land use/trip growth estimates) and the external growth of the surrounding communities and rural areas (as reflected in the OR 99 traffic volume forecasts in the north and south). The calculated external trip growth is based on the

[12] The Bluetooth data indicates that 2.1% of southbound trips on OR 99 enter from the north and travel through to the south end, while 3.6% of northbound travelers on the south end of OR 99 exit pass through Cottage Grove on the north end of OR 99. Due to the small sample size of data (23 total through trips collected over 1 week), the full dataset is applied

average of growth identified for OR 99 externals and the travel demand growth expected to occur in Cottage Grove, resulting in an estimate of 18 percent traffic volume growth. This external traffic growth rate represents a balance of growth expected to occur within Cottage Grove and the surrounding communities and rural areas and is applied to six of the ten external zones (not including the two OR 99 zones) in the Cottage Grove forecast tool. The external growth for the I-5 Cottage Grove Interchange (north interchange) includes the estimated growth for the I-5 mainline as well as the internal growth in Cottage Grove and the OR 99 growth estimates. Table 3 summarizes the growth applied for external zones.

Table 3: External Traffic Growth Estimates

Roadway/Location	Growth	Source
OR 99 (North)	15%	ODOT 2032 Highway Future Volume Table
OR 99 (South)	4%	ODOT 2032 Highway Future Volume Table
I-5 North Interchange (Southbound and Northbound)	22%	Average of internal growth and ODOT 2032 Highway Future Volume Table estimates for OR 99 and I-5
Other External Roadways (6)	18%	Average of internal growth and ODOT 2032 Highway Future Volume Table estimates for OR 99

Internal Trip Ends

The number of internal trip ends in Cottage Grove was determined using land use trip generation methodology, which translates land use quantities (number of dwelling units or number of employees) into vehicle trip ends (number of vehicles entering or leaving a TAZ) using land use-specific trip generation rates. These rates were based on national rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition.[13] A blend of trip rates was used that reflects local development characteristics and was calibrated to existing vehicle count data.[14,15] The blend of trip rates applied for the forecasting tool is documented in the Technical Appendix.

[13] *Trip Generation Manual*, 9th Edition, Institute of Transportation Engineers, 2012.

[14] Two separate retail trip rates are used. One rate is applied for most retail uses in Cottage Grove. Another special rate is used for the auto-oriented retail services located near the southbound I-5 interchange (TAZ 38). This special trip rate accounts for the high traffic generating land uses (e.g., fast food restaurants) that are located in this zone, but do not reflect typical retail land uses in the rest of Cottage Grove.

[15] Trip rates for household dwelling units reflect a weighted average of trip rates for single-family and multi-family dwelling units (apartments). The initial weighting, based on census housing characteristics,

By applying the trip generation rates to the TAZ land uses, the number of trips entering and exiting each TAZ in Cottage Grove was estimated for both the existing year 2014 land uses and the projected year 2035 land uses. The internal trip end totals are summarized in Table 4. The growth of trips reflects a balance of the expected growth in households and employment for the UGB.

Table 4: Cottage Grove PM Peak Hour Trip Ends

2014	2035	Growth Percentage
3,829	5,210	36%

Note: Table shows average of calculated In trip ends and Out trip ends.

Trip Distribution

Trip distribution determines how many trips travel between each of the internal and external TAZs. The external trips passing through Cottage Grove on OR 99 were distributed based on the O-D survey discussed previously in the External Trip Ends section of this memorandum. Distribution for trips traveling to and from the other external zones (besides through trips on OR 99) were based on the trip routing for the external zones in the LCOG travel demand model.[16] Distribution for trips traveling to and from internal zones (i.e., trips having at least one internal trip end) were based on weighting the attractiveness of each zone, as measured by the number of trip ends generated by the zone. Separate weighting percentages were used for household and non-household trip ends to avoid yielding a disproportionate number of household-to-household trips during the PM peak hour.

Trip Assignment

Trip assignment involves the determination of the specific travel routes taken by all of the trips within the transportation network. This step was performed using Visum traffic assignment software. The inputs include the transportation network (i.e., road and intersection locations and characteristics, as determined from maps and field inventories) and a trip distribution table (determined using methodology described

was adjusted during the calibration process to better match the forecast tool traffic volumes to traffic count data.

[16] Although the travel demand model developed for Cottage Grove is out-of-date and has not been maintained or used by LCOG in many years, it was determined that the model was the best available source for distribution of most external to external trip patterns. These external trip distributions were applied based on the 2002 model scenario.

previously in this memorandum). Iterated assignment was then performed using estimated travel times along roadways and delays at intersection movements.[17] The path choice for each trip was based on minimal travel times between locations. The forecast tool outputs include traffic volumes on roadway segments and at intersections.

Calibration

Initial calibration and error-checking (network clean up) were performed on the 2014 base year forecasting tool through a qualitative review of circulation patterns and route demand. The base year tool was then evaluated by comparing turn movement volumes with traffic count data. The calibration evaluation is primarily based on study intersection turn movement traffic volumes that have been adjusted to represent the design hour volumes (i.e., 30th highest hour conditions). Beyond the fifteen study intersections, additional turn movement counts were used to better reflect travel patterns throughout the City, including external traffic volumes. The plot shown in Figure 1 was developed to compare turn movement traffic volumes from counts to turn movement volumes for the base year forecasting tool. This plot was used to analyze and evaluate the accuracy of the tool.

Based on this calibration, the forecasting tool can be evaluated based on the slope of the fitted curve and R^2 values of the plotted data. The slope of the fitted curve was 1.05; indicating that forecast tool volumes are approximately five percent higher than existing counts. This indicates that the trip generation is slightly higher than traffic count data, but generally appropriate and does not require further refinement. Furthermore, the R^2 value of 0.92 indicates that the forecast tool volumes are consistent with the target volumes.

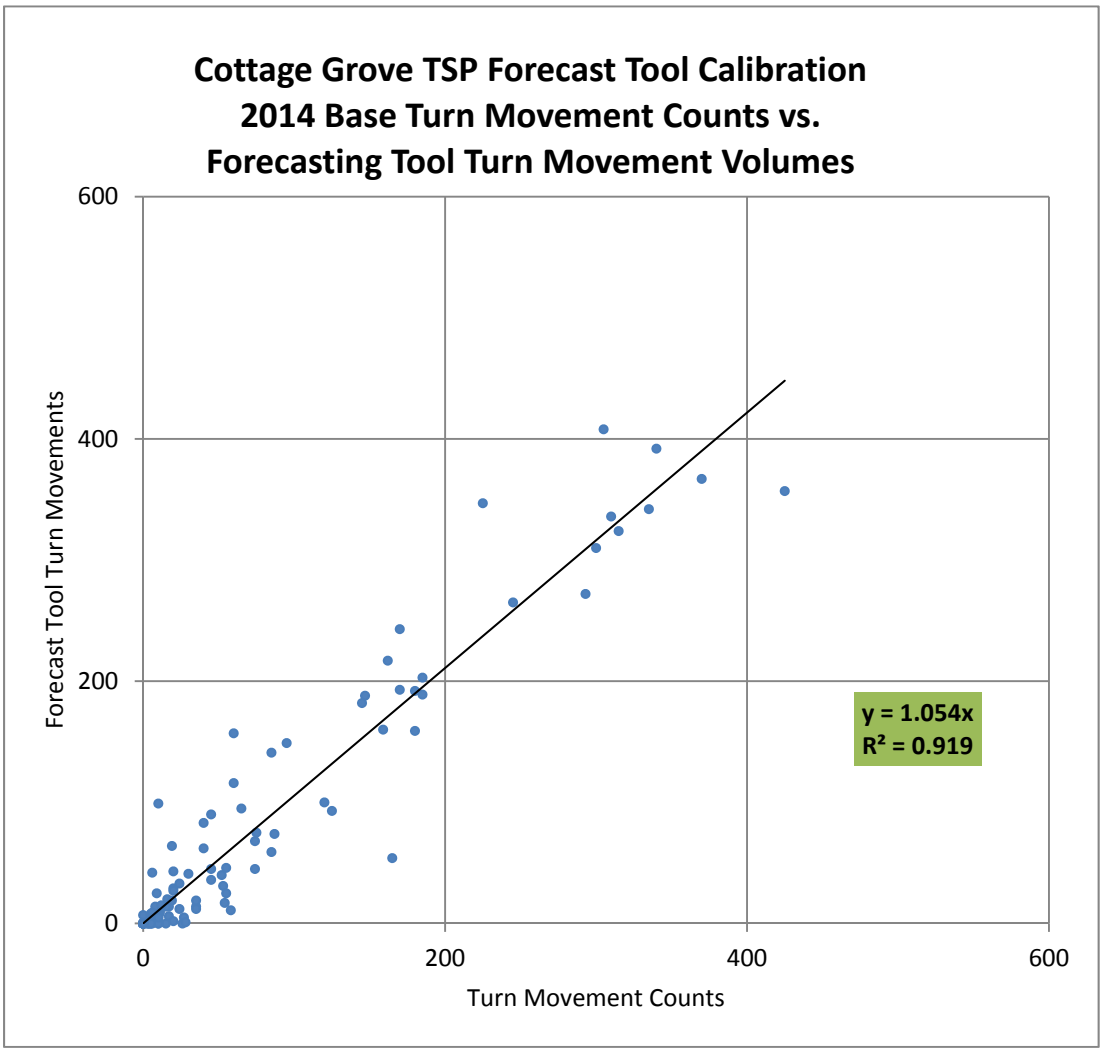
The calibration analysis for the 2014 base year forecast tool indicates that the forecast tool reasonably predicts trip patterns and volumes. Therefore, the 2035 future year forecast tool is expected to reasonably forecast future year traffic volumes for the following reasons:

- The 2035 future year forecast tool was created using the 2014 base year forecast tool as a starting point.

[17] Roadway travel times will be calculated based on distance and travel speed. Intersection movement delays will be calculated using Highway Capacity Manual (HCM) methodology for signalized and unsignalized intersections. Detailed lane geometry, traffic control, roadway cross-section, and roadway travel speed information is required for model accuracy.

- No roadway network changes are assumed for the future year that would significantly alter travel patterns.
- Future land use projections for the year 2035 were prepared using methodology consistent with the 2014 base year land use estimates.

Figure 2: 2014 Forecast Tool Calibration Plot



Forecasted Volumes

The forecast traffic volumes used to evaluate the future needs of the transportation system are based on a combination of the base year count data, forecast tool traffic volumes in the base and future year, and post-processing adjustments based on engineering judgment. Final future 2035 turn movement forecasts and adjustments are provided in the Technical Appendix.

Forecast Tool Link Volumes

Traffic volume plots from the Visum tool are provided in the Technical Appendix. The plots show the traffic volumes in the forecast tool for 2014 base year, for the 2035 future year, and the increment of traffic growth between 2014 and 2035 during the PM peak (design) hour.

Post-Processing Methodology

While the travel demand forecast tools were calibrated to local conditions and volumes, raw volumes from the tools will not be used for capacity analysis. Rather, motor vehicle turn movement volume forecasts were developed using post-processing methods consistent with the ODOT Procedures Manual. This approach is derived from methodologies outlined by the National Cooperative Highway Research Program (NCHRP)[18].

The post-processing methodology involves estimating trip growth (i.e., volume differences between base and future forecast tools), scaling the growth by the number of forecast years (i.e., forecast years divided by difference in forecast tool years), and adding these volumes to existing traffic counts. Engineering judgment is used as part of the post-processing methodology, with the routing decisions identified by the forecasting tool serving as a helpful starting point in making volume adjustments. The results of this process are future year forecasts derived from the Cottage Grove Small Community Forecasting Tool that are calibrated to observed data. These forecasts are presented in the Technical Appendix and will serve as a future base volume forecast.

[18] *Highway Traffic Data for Urbanized Area Project Planning and Design - National Cooperative Highway Research Program Report 255*, Transportation Research Board, Washington D.C., 1982.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #6 –

Future Forecast Methods & Assumptions

Contents:

Trip Generation Rates Applied for Forecast Tool

ITE Rates - Blended Rates Applied For Forecast Tool Trip Generation

Land Use Category	ITE Category	ITE Code	Trip Rate	Per	Trip Rate per Employee	Primary Trip Factor	Final Trip Rate per Employee	Applied Rate
Retail Employment								
	Building Materials & Lumber	812	2.77	EMP	2.77	1.00	2.8	
	Free-Standing Discount Super Store	813	4.35	KSF	2.90	0.75	2.2	
	Specialty Retail	826	2.71	KSF	1.81	1.00	1.8	
	Discount Store	815	3.48	EMP	3.48	0.59	2.1	
	Hardware/Paint Store	816	5.05	EMP	5.05	0.67	3.4	
	Nursery(Garden Center)	817	1.96	EMP	1.96	1.00	2.0	
	Shopping Center (100,000 - 300,000 sq ft)	820	5.99	KSF	3.99	0.57	2.3	
	Tire Store	843	5.98	KSF	3.99	0.66	2.6	
	Supermarket	848	4.15	KSF	2.77	0.43	1.2	
	Discount Supermarket	854	8.34	KSF	5.56	0.61	3.4	
	Pharmacy w/o drive through	880	8.40	KSF	5.60	0.42	2.4	
	Furniture Store	890	0.45	KSF	0.30	0.25	0.1	
	Drive-In Bank	912	5.42	EMP	5.42	0.37	2.0	
	Quality Restaurant	931	7.49	KSF	4.99	0.49	2.4	
	Average				**3.61**		**2.18**	**2.18**
Retail Employment (at I-5 Interchange)	*Special Retail Category to reflect auto-oriented convenience retail/services near I-5 SB Interchange (zone 38)						Applied via multiplier:	5.4
	Fast Food w/o Drive-Thru	933	26.15	KSF	17.43	1.00	17.4	
	Quality Restaurant	931	7.49	KSF	4.99	0.49	2.4	
	Convenience Market (24 hour)	851	52.41	KSF	34.94	0.45	15.7	
							11.9	**11.9**
Education Employment	Elementary School	520	1.76	EMP	1.76	1	1.76	
	Middle School/Junior High School	522	1.94	EMP	1.94	1	1.94	
	High School	530	1.55	EMP	1.55	1	1.55	
	Average		**1.75**		**1.75**		**1.75**	**1.75**
Service Employment	Medical Office	720	1.06			1		
	General Office	710	0.46			1		
	Single Tenant Office	715	0.51			1		
	Average		**0.68**					**0.68**
Other Employment	Office Park	750	0.39			1		
	Light Industrial	110	0.42			1		
	Manufacturing	140	0.36			1		
	Community College	540	1.2			1		
	Average		**0.59**					**0.59**
Household	Single Family	210	**1.01**					
	Apartment	220	0.65					
			0.76				0.76	**0.76**

External Distribution – Plots from 2002 Travel Demand Model

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 100

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 23:06
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 100

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 23:12
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

<~<

14-08-14 00:04
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 50

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400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

<~<

14-08-14 00:01
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 100

200
400
600
800
1000

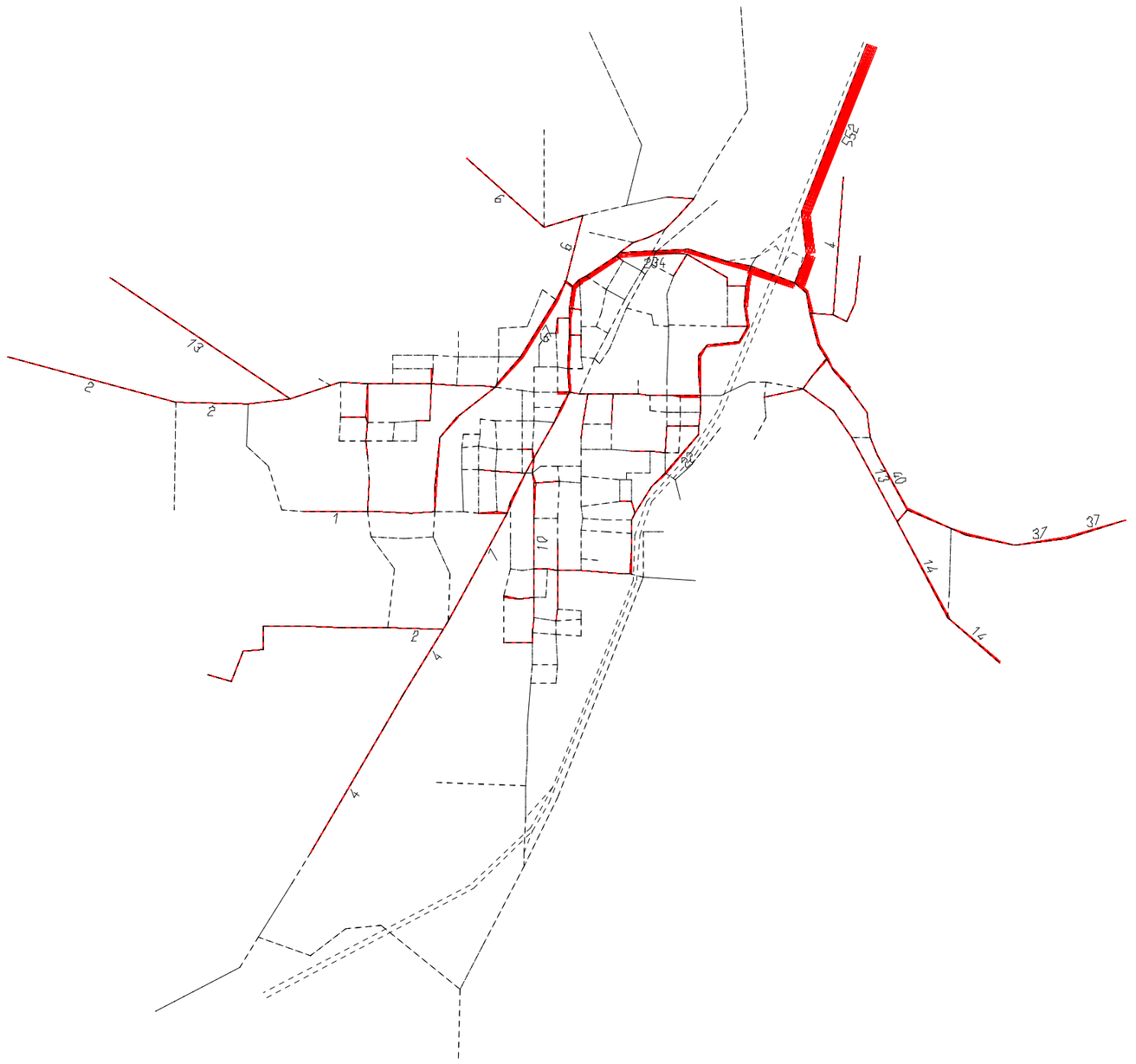
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 23:22
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



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& type=1,8

SCALE: 100

200
400
600
800
1000

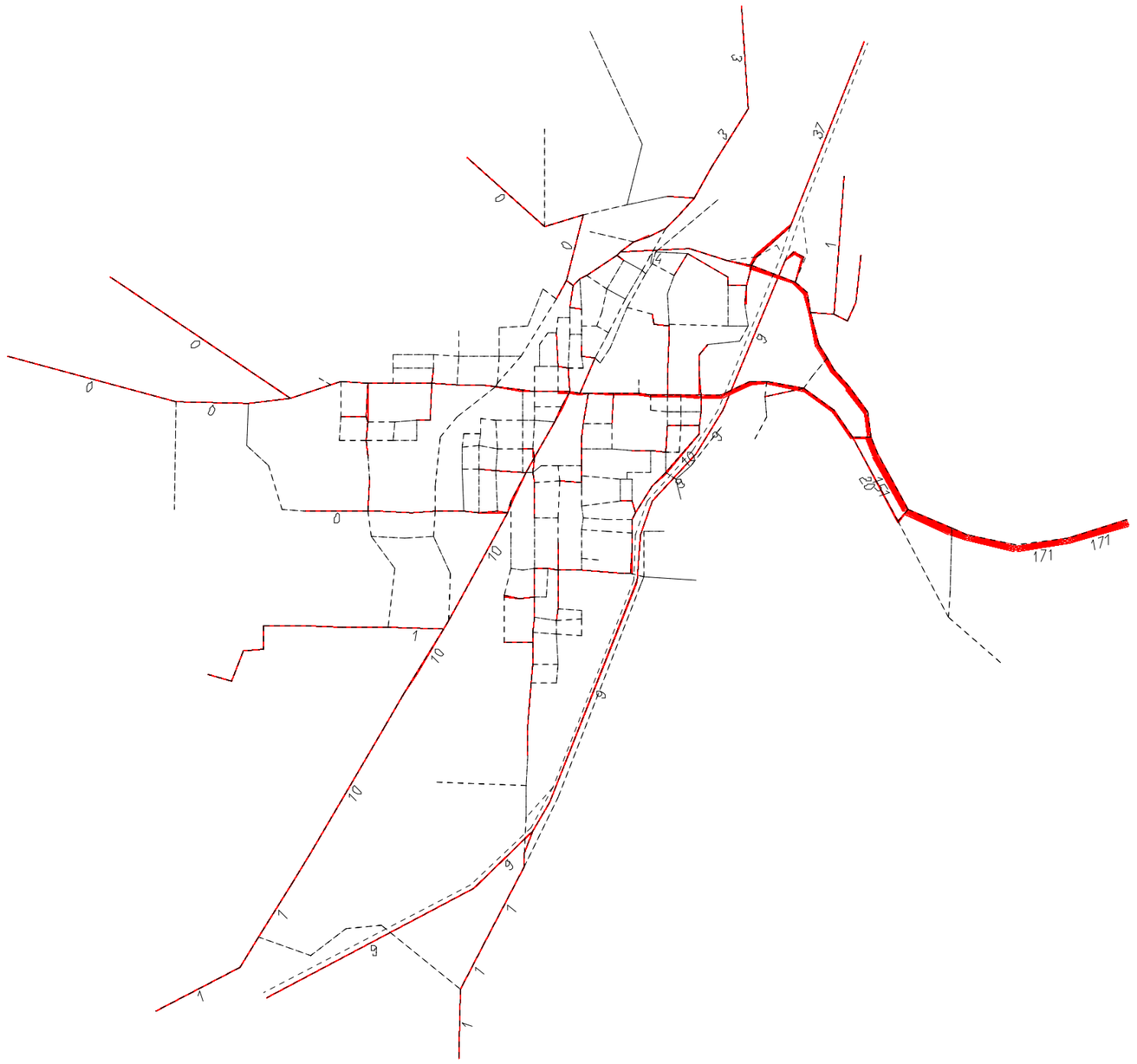
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 23:17
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT ~>
SCENARIO 104: New Select Link Assignment

14-08-13 23:34
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
| type=1,8

SCALE: 50

200
400
600
800
1000

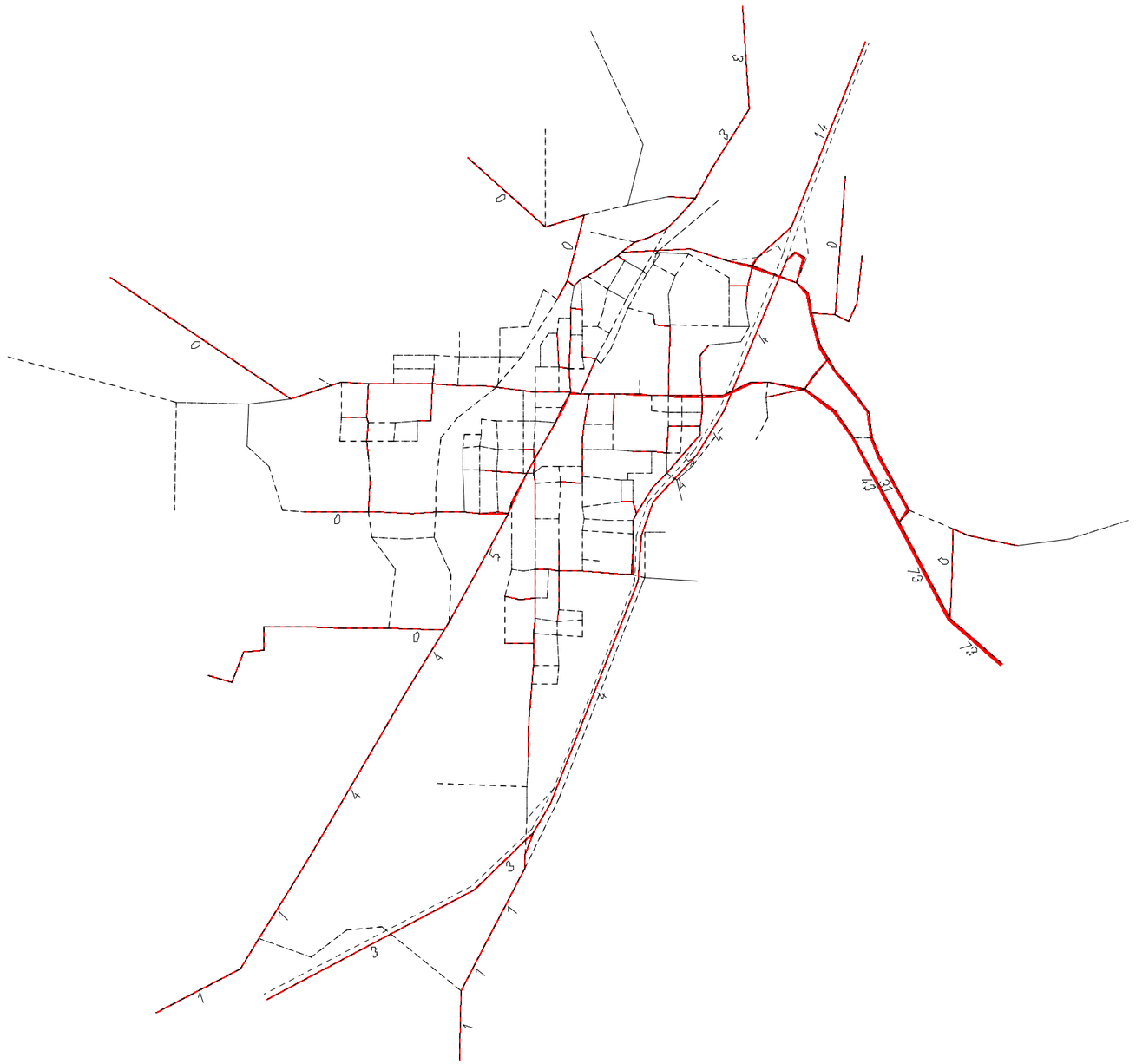
WINDOW:
800.82/145.984
807.24/150.801

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 23:28
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

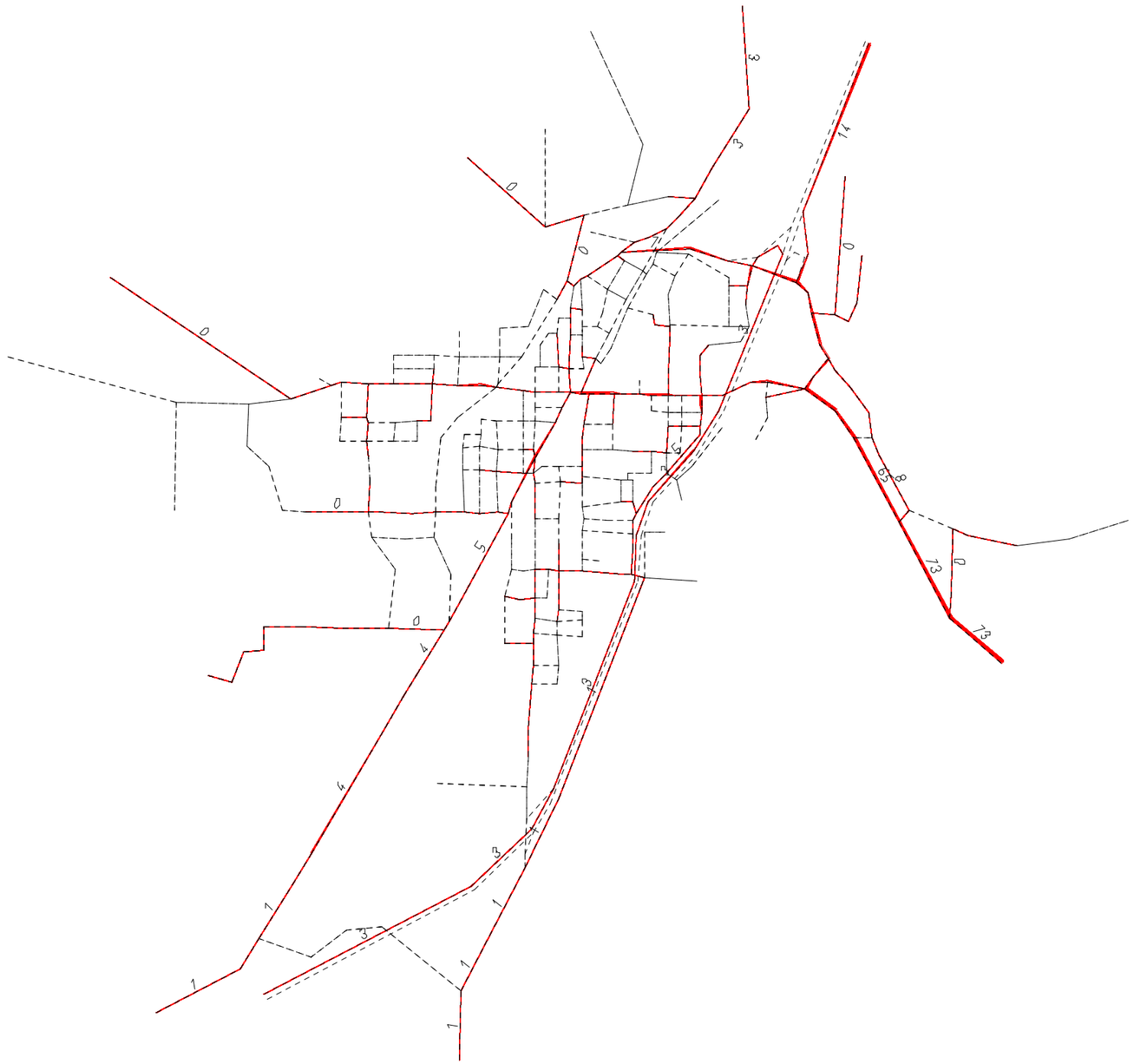
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 22:50
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=a
& type=1,8

SCALE: 50

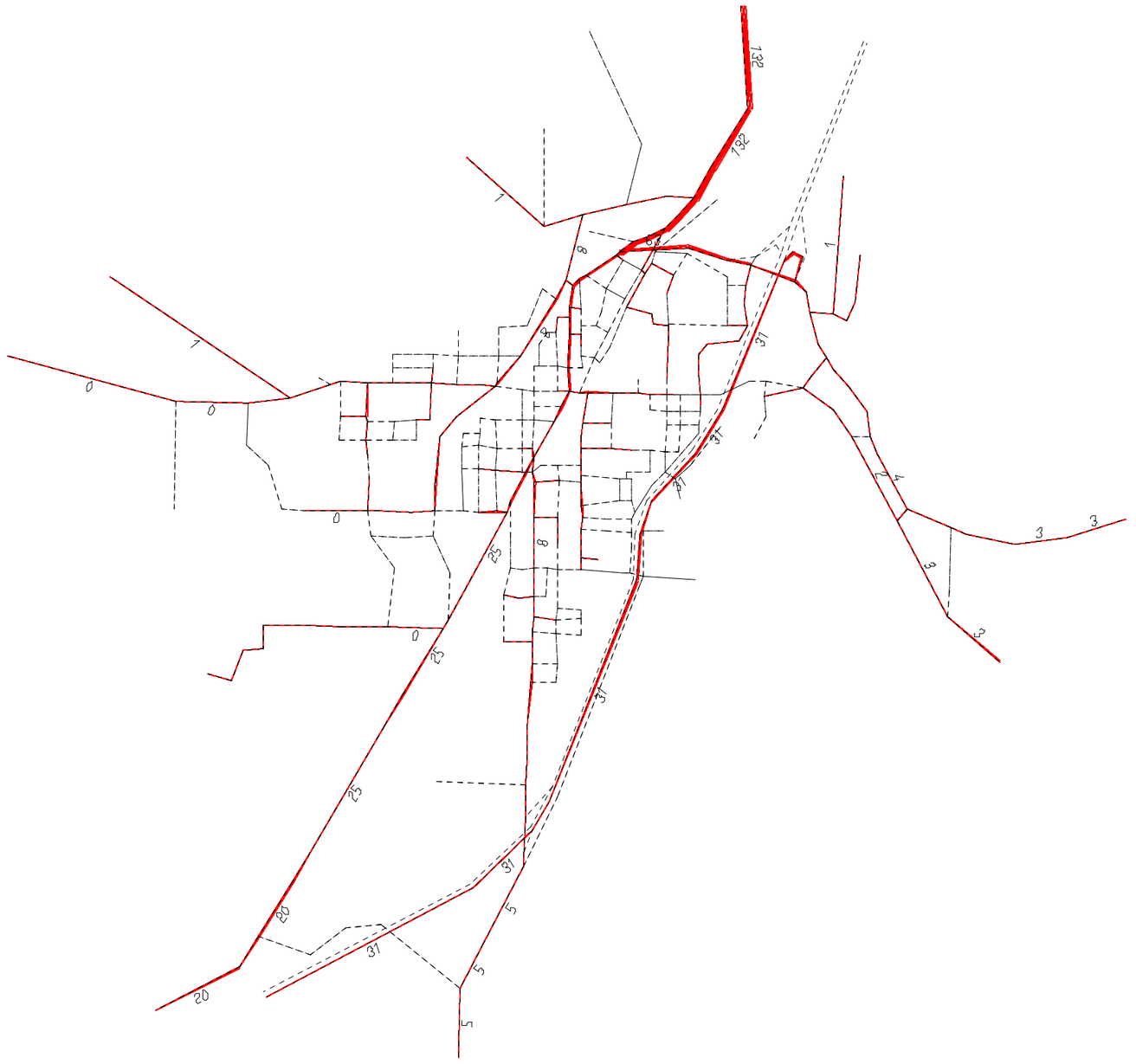
200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 22:38
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 22:25
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
type=1,8

SCALE: 50

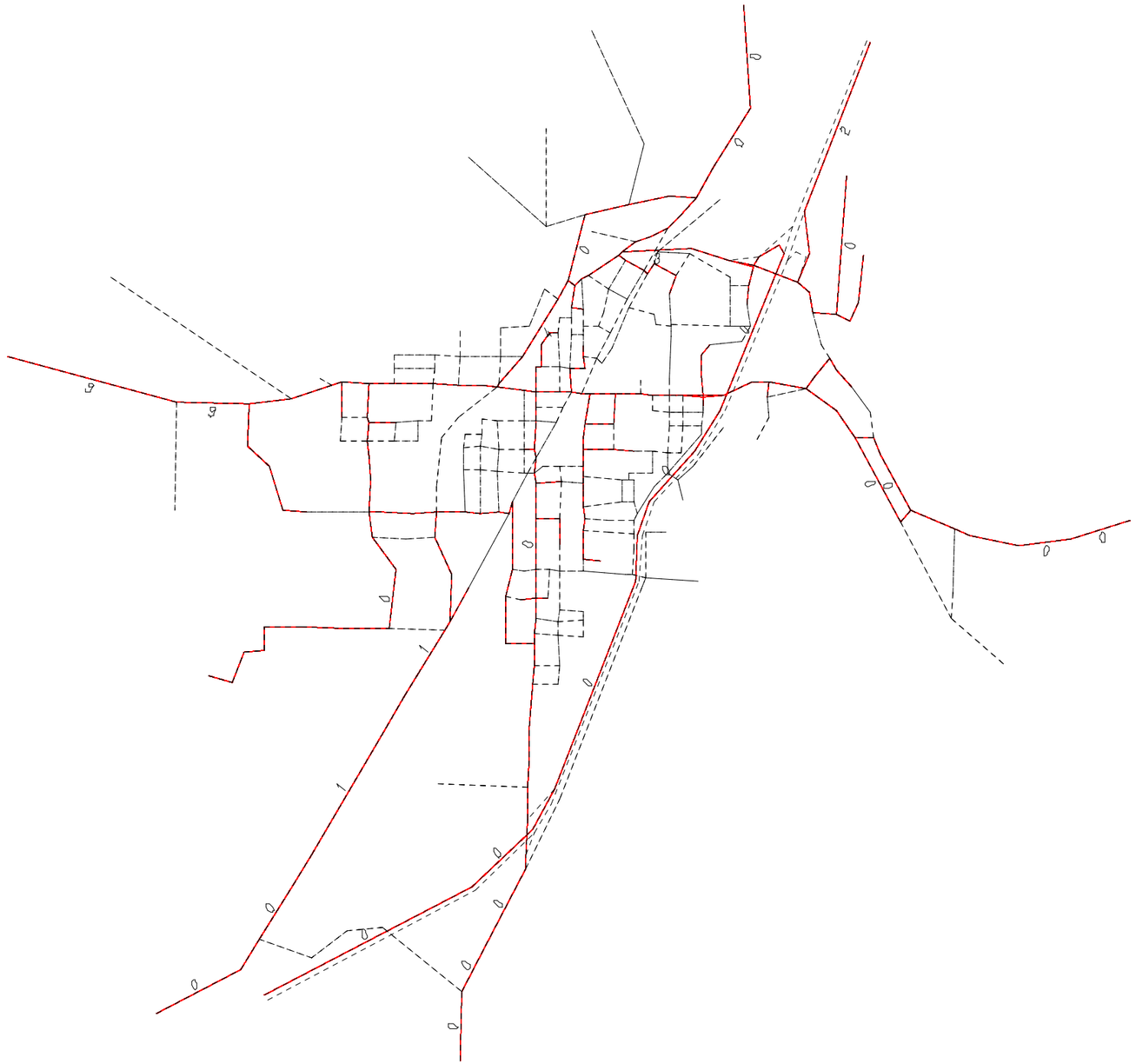
200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

14-08-13 21:38
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK



LINKS:
mod=a
& type=1,8

SCALE: 50

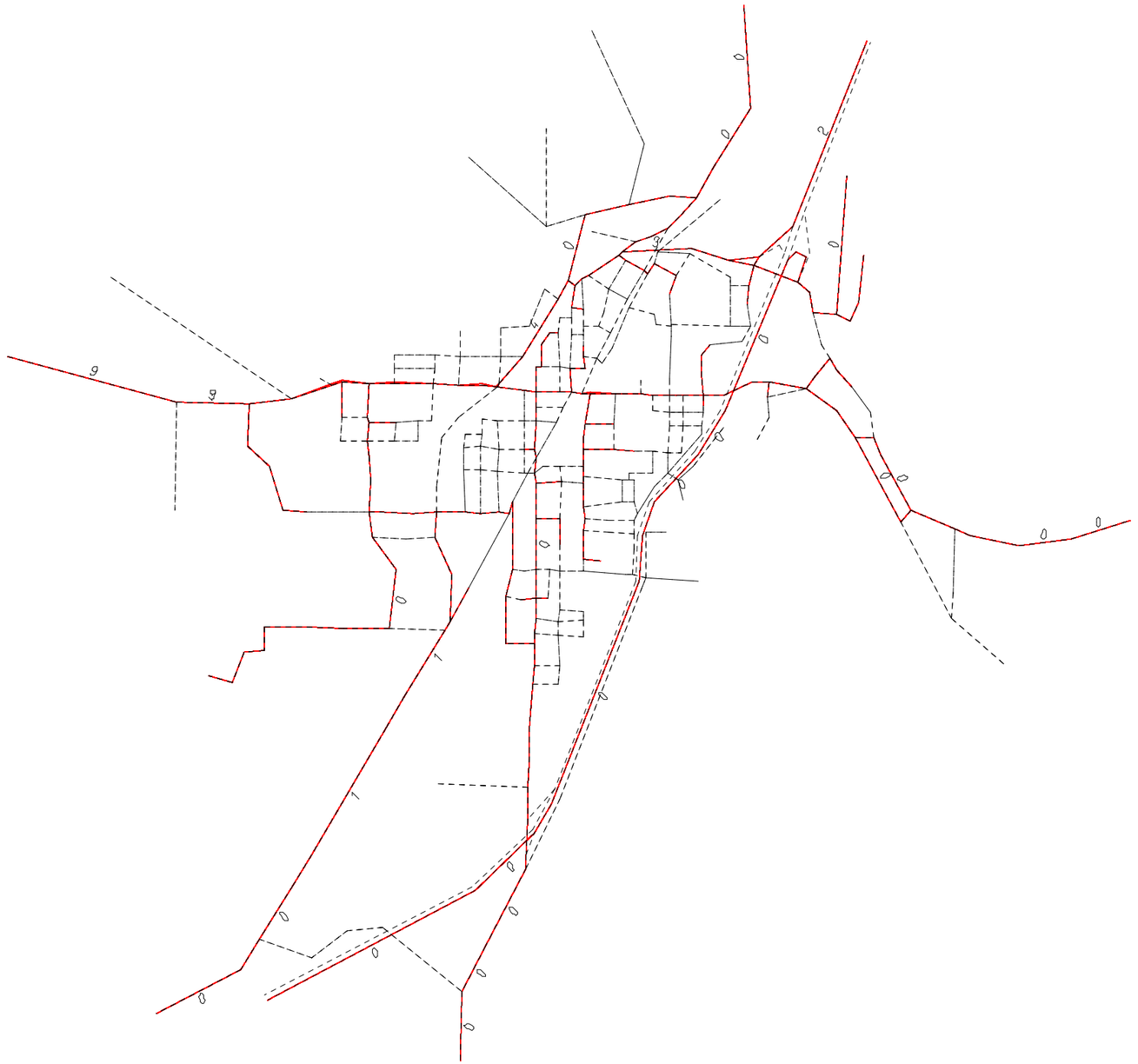
200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT <~<
SCENARIO 104: New Select Link Assignment

14-08-13 23:38
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

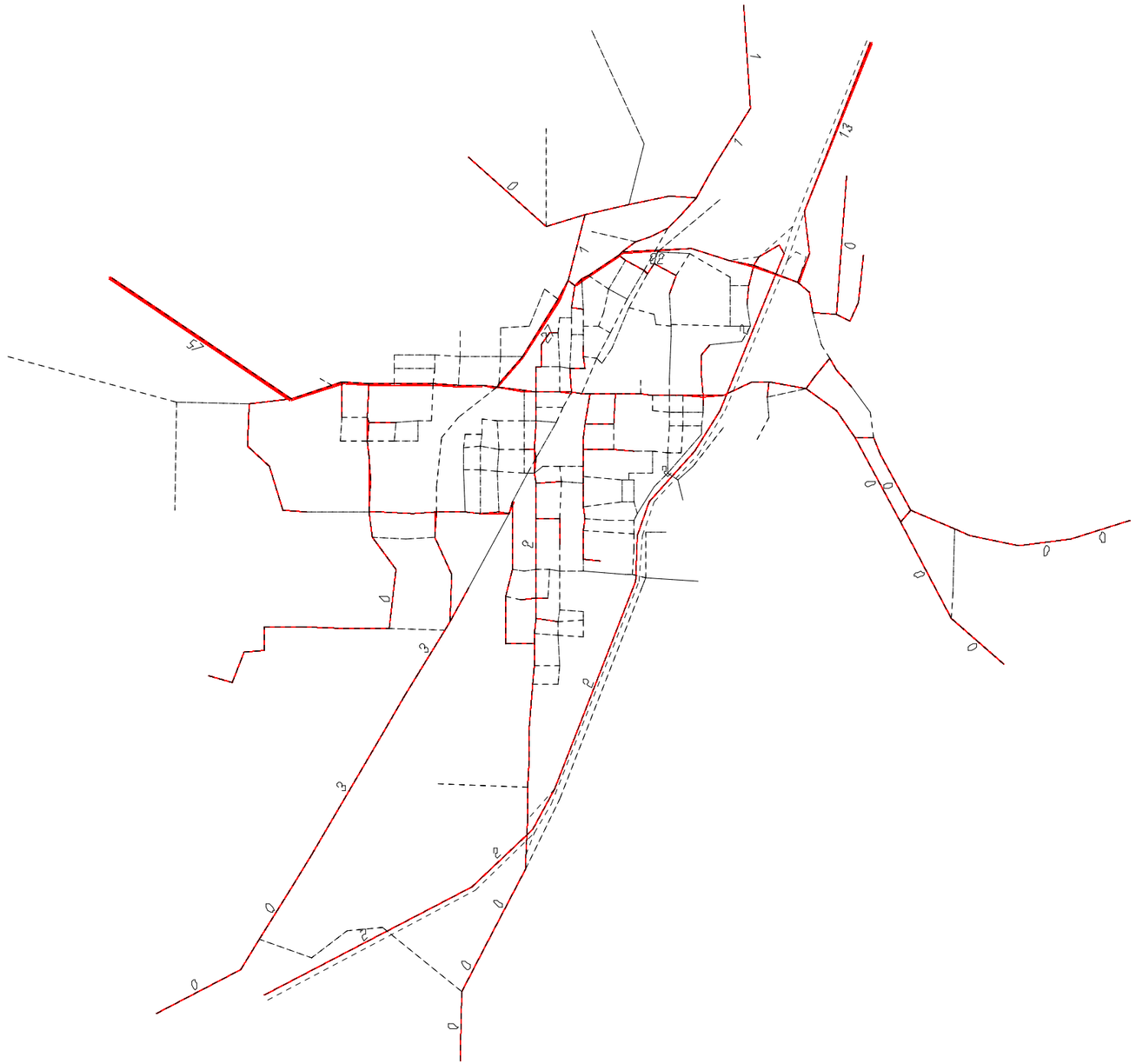
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT <~<
SCENARIO 104: New Select Link Assignment

14-08-13 23:41
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

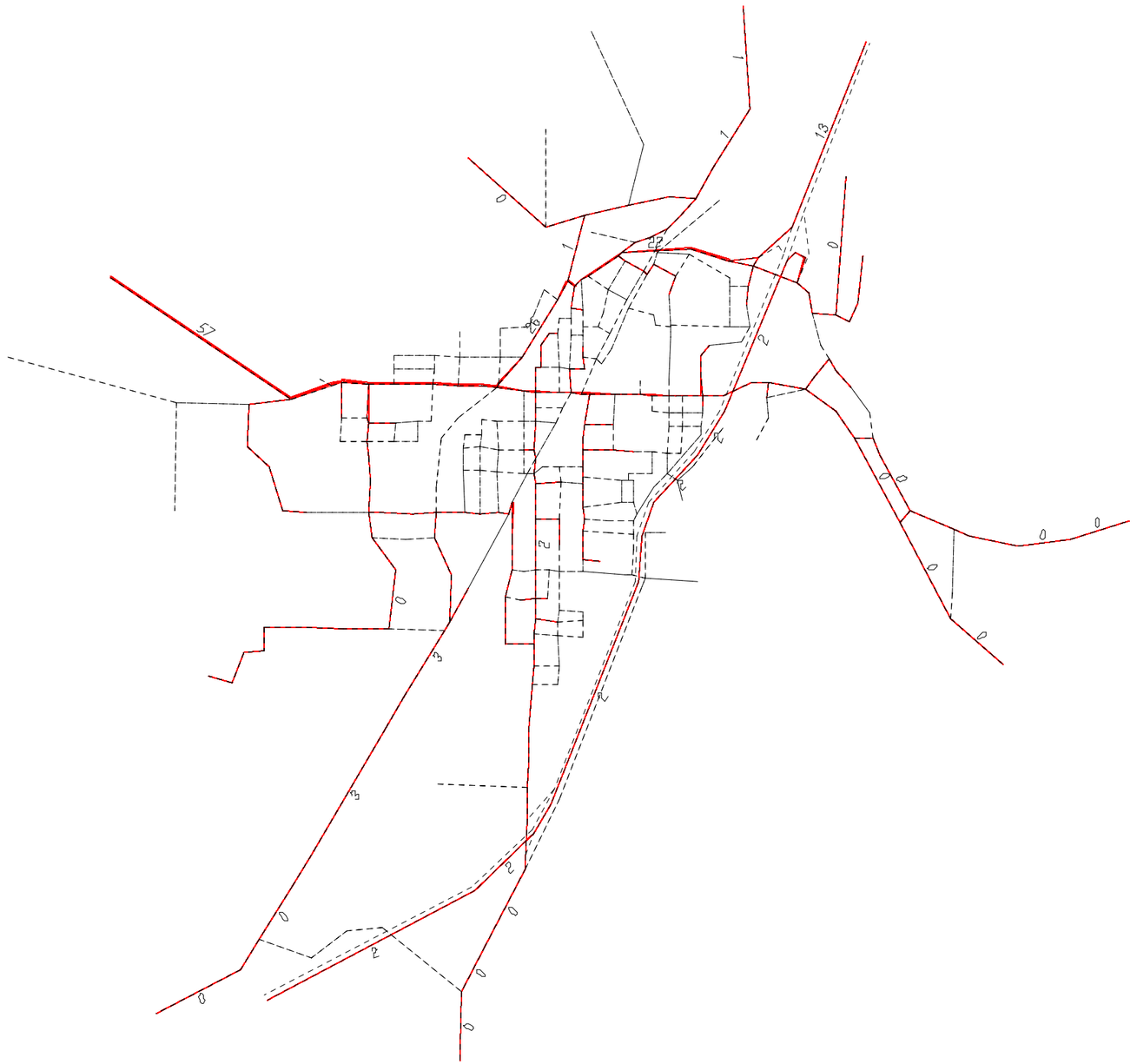
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

<~<

14-08-13 23:43
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK



LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT <~<
SCENARIO 104: New Select Link Assignment

14-08-13 23:47
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

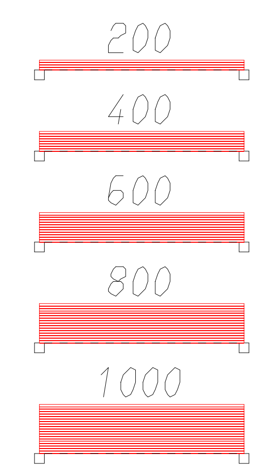
<~<

14-08-13 23:52
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

LINKS:
mod=a
& type=1,8

SCALE: 50



WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104 : New Select Link Assignment

<~<

14-08-13 23:54
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT
SCENARIO 104: New Select Link Assignment

<~<

14-08-13 23:57
MODULE: 6.12
DKS2000....adb

ADDITIONAL VOLUMES ON AUTO NETWORK

emme/2

LINKS:
mod=a
& type=1,8

SCALE: 50

200
400
600
800
1000

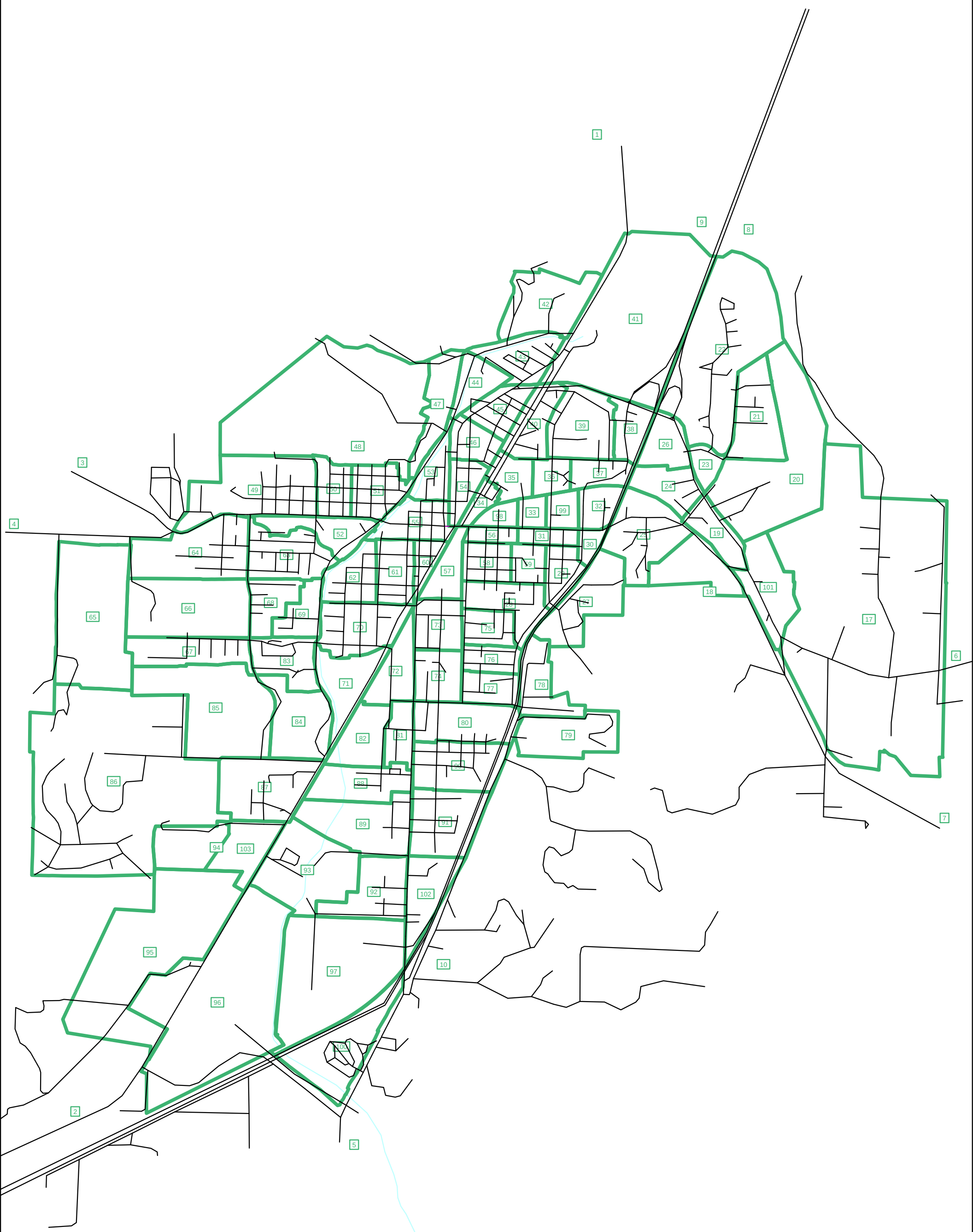
WINDOW:
801.02/146.156
807.14/150.745

EMME/2 PROJECT: SMALL URBAN MODEL NETWORK DEVELOPMENT <~<
SCENARIO 104: New Select Link Assignment

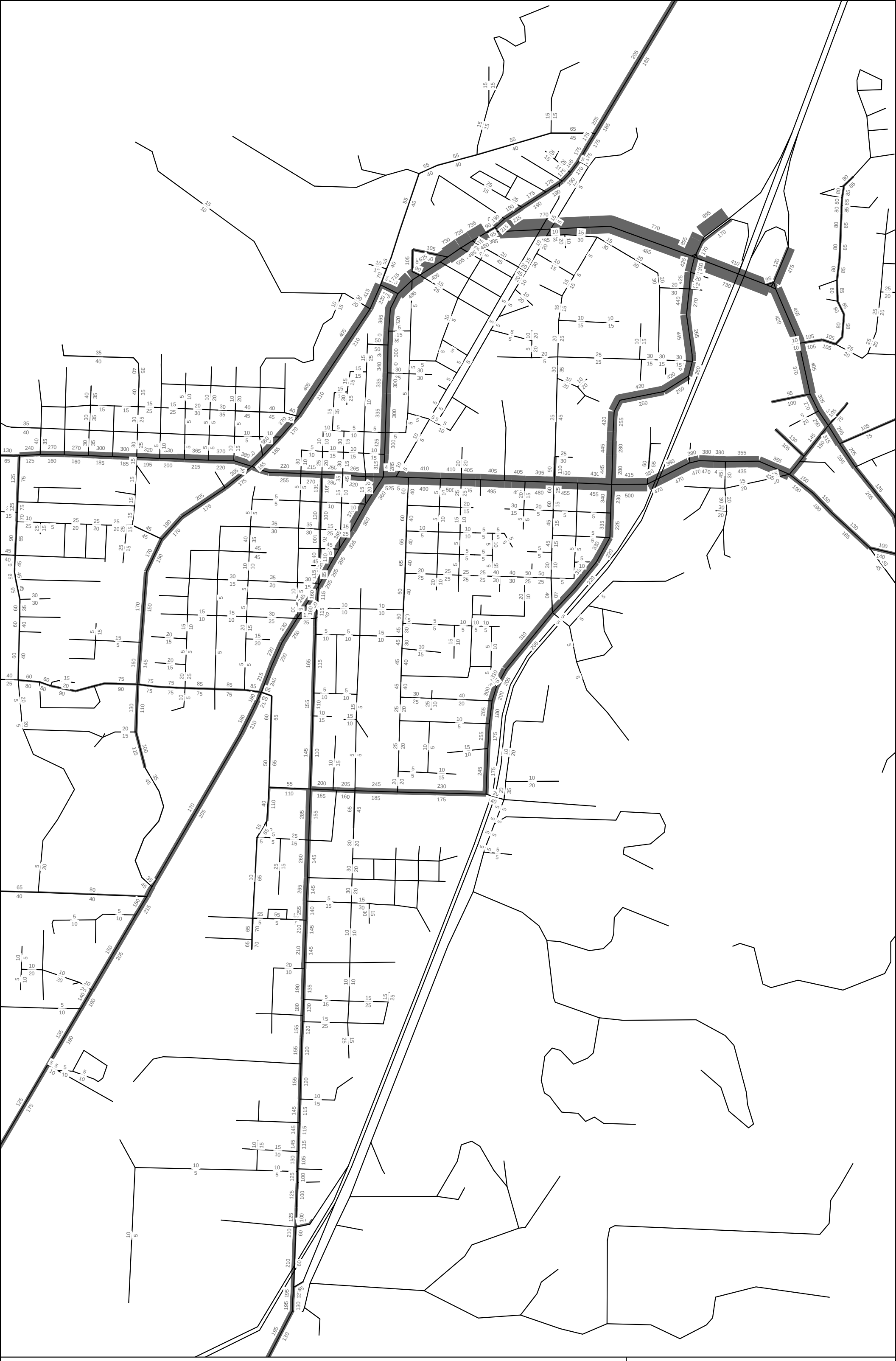
14-08-13 23:59
MODULE: 6.12
DKS2000....adb

Visum Plots:

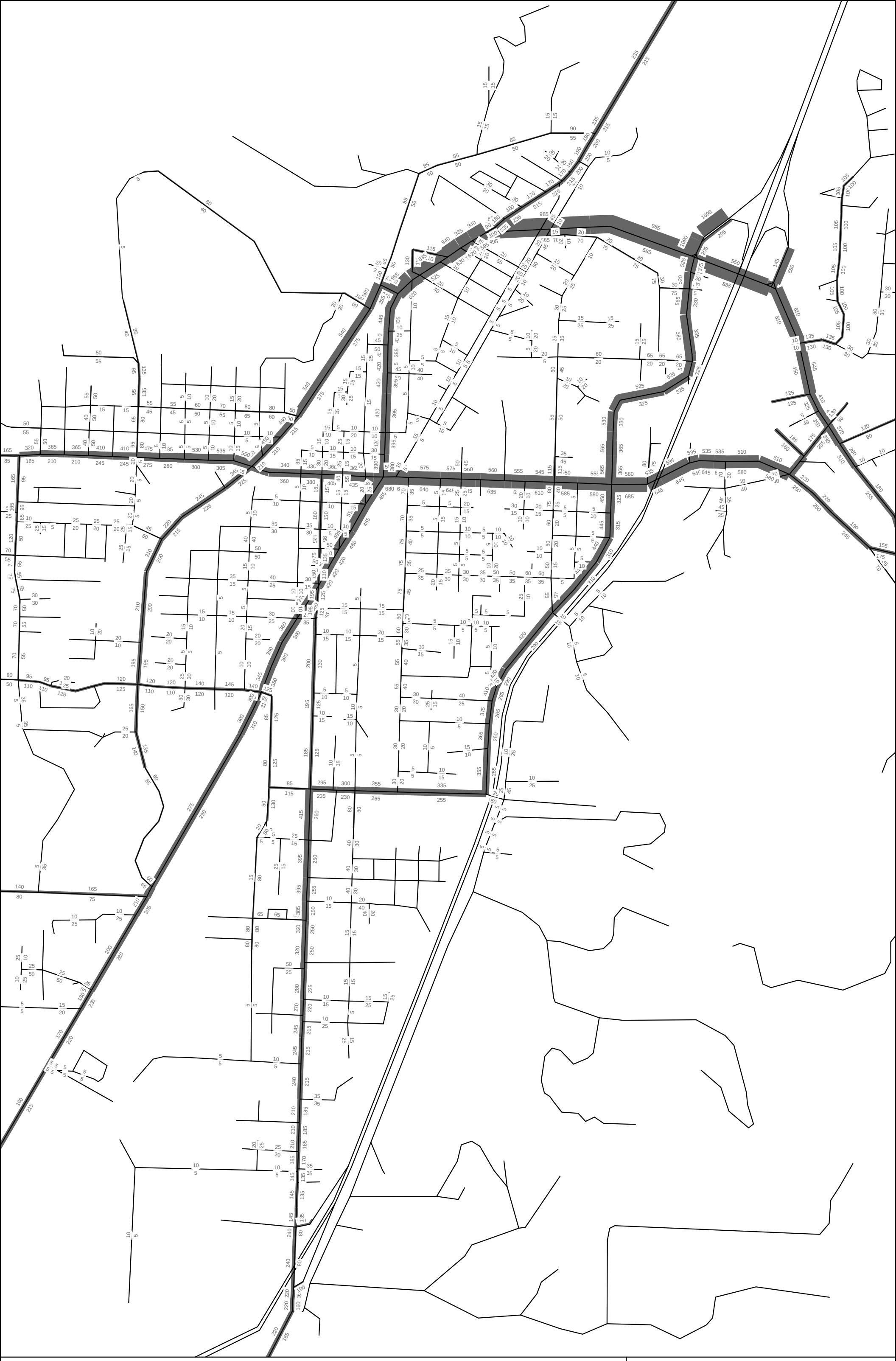
- TAZ and Rodway Network
- 2014 Volume
- 2035 Volume
- 2035-2014 Volume Difference



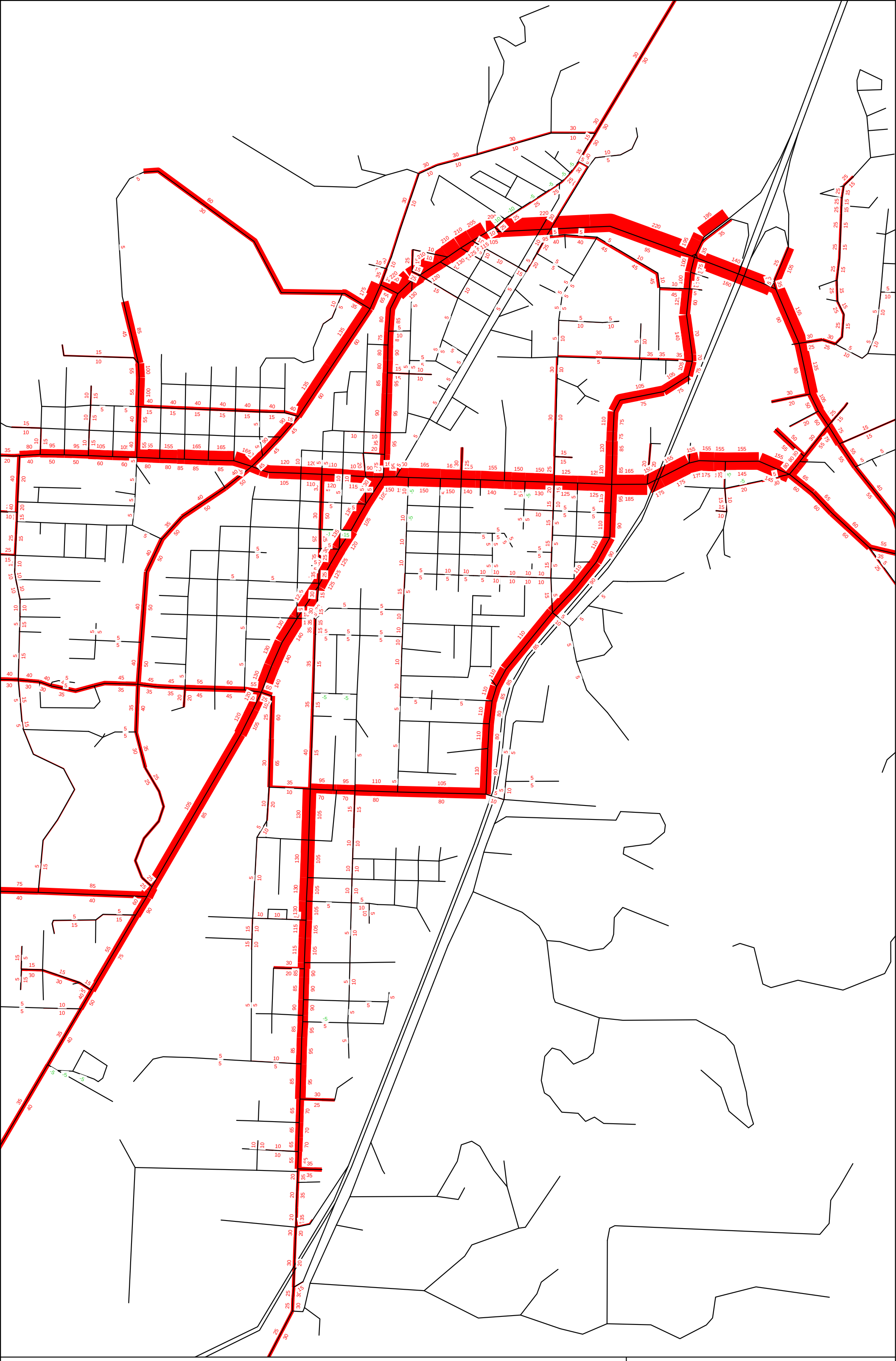
Cottage Grove TSP Model - PM Peak Hour	CG_TSP-2014.ver
TAZs & Roadways	Created on: 20.08.2014



Cottage Grove TSP Model - PM Peak Hour	CG_TSP-2014.ver
Link Volumes	Created on: 20.08.2014



Cottage Grove TSP Model - PM Peak Hour	CG_TSP-2035_baseline.ver
Link Volumes	Created on: 20.08.2014



Cottage Grove TSP Model - PM Peak Hour	CG_TSP-2035_baseline.ver
Link Volume Differences (Future - Base)	Created on: 20.08.2014

Post-Processing Worksheets

		2014 (30 HV Balanced)											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector	75	100	245	180	400	305	10	225	75	140	145	60
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd	0	0	0	55	0	65	310	340	0	0	280	165
6th St	I-5 Off Ramp	0	85	0	0	135	0	0	0	0	80	0	45
6th St	I-5 On Ramp	0	85	50	35	180	0	0	0	0	0	0	0
OR 99	E Cottage Grove Connector	0	125	270	40	165	0	0	0	0	445	0	80
OR 99	Woodson Pl	20	300	0	0	425	190	110	0	15	0	0	0
OR 99	Main St	15	170	195	165	255	40	55	225	10	195	210	115
OR 99	6th St	15	235	0	120	295	20	10	50	20	5	55	95
OR 99	E Harrison Ave/4th St	5	185	10	35	180	85	55	40	5	10	30	40
OR 99	S River Rd	20	185	0	0	165	10	10	0	30	0	0	0
N Gateway Blvd/18th St	Main St	15	60	70	30	90	260	175	315	15	100	280	20
River Rd	Main St	20	40	25	35	60	145	75	185	10	45	165	45
River Rd	Harrison Ave	10	40	30	20	45	30	20	50	5	35	50	15
Row River Rd	Jim Wright Way	5	370	45	50	335	10	0	0	5	55	0	75
6th St	Main St	30	20	35	10	25	10	10	225	30	30	185	10

		2014 Base PM Model (1-hour)											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector	75	38	188	192	295	408	99	347	41	91	286	34
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd	0	0	0	25	0	95	336	392	0	0	315	139
6th St	I-5 Off Ramp	0	59	0	0	124	0	0	0	0	84	0	41
6th St	I-5 On Ramp	0	59	71	14	194	0	0	0	0	0	0	0
OR 99	E Cottage Grove Connector	0	93	387	100	90	0	0	0	0	647	0	121
OR 99	Woodson Pl	10	310	0	0	357	359	176	0	10	0	0	0
OR 99	Main St	0	193	167	54	201	62	46	304	14	153	226	47
OR 99	6th St	25	225	0	100	218	2	0	61	26	0	44	70
OR 99	E Harrison Ave/4th St	6	189	14	12	159	44	38	33	3	19	34	14
OR 99	S River Rd	29	203	0	0	164	7	0	0	44	0	0	0
N Gateway Blvd/18th St	Main St	2	116	113	64	215	166	130	324	1	122	261	32
River Rd	Main St	27	83	65	19	157	182	62	157	7	41	172	19
River Rd	Harrison Ave	5	83	20	26	90	41	43	30	17	23	30	21
Row River Rd	Jim Wright Way	3	367	36	69	342	7	7	0	4	23	0	81
6th St	Main St	36	8	58	10	10	7	5	215	49	76	171	5

		2035 Base PM Model (1-hour)											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector	100	45	232	218	372	502	118	436	30	123	384	44
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd	0	0	0	31	0	115	408	478	0	0	436	172
6th St	I-5 Off Ramp	0	81	0	0	143	0	0	0	0	96	0	52
6th St	I-5 On Ramp	0	81	80	20	220	0	0	0	0	0	0	0
OR 99	E Cottage Grove Connector	0	100	493	91	91	0	0	0	0	849	0	137
OR 99	Woodson Pl	19	385	0	0	436	500	233	0	8	0	0	0
OR 99	Main St	0	240	225	69	268	54	81	383	1	228	302	59
OR 99	6th St	39	343	0	113	333	2	4	80	39	0	57	71
OR 99	E Harrison Ave/4th St	10	275	26	11	256	79	65	50	8	37	51	38
OR 99	S River Rd	50	287	0	0	266	9	1	0	67	0	0	0
N Gateway Blvd/18th St	Main St	2	154	171	101	285	180	167	413	0	166	371	42
River Rd	Main St	44	103	79	37	184	231	78	227	9	53	272	28
River Rd	Harrison Ave	8	106	34	34	106	57	59	42	25	34	55	32
Row River Rd	Jim Wright Way	3	495	45	84	418	7	7	0	4	29	0	106
6th St	Main St	56	10	86	11	11	9	6	306	66	87	268	5

		Model Growth (Future - Base)											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway Blv	E Cottage Grove Connector	25	7	44	26	77	94	19	89	-11	32	98	10
I-5 NB Ramps	E Cottage Grove Connector/Row River R	0	0	0	6	0	20	72	86	0	0	121	33
6th St	I-5 Off Ramp	0	22	0	0	19	0	0	0	0	12	0	11
6th St	I-5 On Ramp	0	22	9	6	26	0	0	0	0	0	0	0
OR 99	E Cottage Grove Connector	0	7	106	-9	1	0	0	0	0	202	0	16
OR 99	Woodson Pl	9	75	0	0	79	141	57	0	-2	0	0	0
OR 99	Main St	0	47	58	15	67	-8	35	79	-13	75	76	12
OR 99	6th St	14	118	0	13	115	0	4	19	13	0	13	1
OR 99	E Harrison Ave/4th St	4	86	12	-1	97	35	27	17	5	18	17	24
OR 99	S River Rd	21	84	0	0	102	2	1	0	23	0	0	0
N Gateway Blvd/18th St	Main St	0	38	58	37	70	14	37	89	-1	44	110	10
River Rd	Main St	17	20	14	18	27	49	16	70	2	12	100	9
River Rd	Harrison Ave	3	23	14	8	16	16	16	12	8	11	25	11
Row River Rd	Jim Wright Way	0	128	9	15	76	0	0	0	0	6	0	25
6th St	Main St	20	2	28	1	1	2	1	91	17	11	97	0

Approach Link - Model Growth (Future - Base)

South Leg Ir	North Leg O	North Leg In	South Leg O	West Leg In	East Leg Ou	East Leg In	West Leg Ou
NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
76	36	197	98	97	159	140	217
0	105	26	0	158	92	154	141
22	33	19	31	0	0	23	0
31	22	32	26	0	15	0	0
113	23	-8	203	0	97	218	0
84	132	220	77	55	0	0	150
105	94	74	129	101	152	163	68
132	123	128	128	36	32	14	27
102	137	131	120	49	28	59	56
105	85	104	125	24	0	0	23
96	85	121	113	125	184	164	124
51	45	94	41	88	102	121	166
40	50	40	35	36	34	47	44
137	153	91	82	0	24	31	0
50	3	4	29	109	120	108	119

Forecasted Link Growth - Method Comparison/Selection

Difference Method (Count + Model Growth)

N/S	E/W	#	NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
Study Intersections										
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector		496	206	1082	713	407	809	485	742
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd		0	580	146	0	808	487	599	486
6th St	I-5 Off Ramp		107	163	154	246	0	0	148	0
6th St	I-5 On Ramp		166	107	247	206	0	100	0	0
OR 99	E Cottage Grove Connector		508	228	197	813	0	407	743	0
OR 99	Woodson Pl		404	542	835	517	180	0	0	360
OR 99	Main St		485	434	534	589	391	737	683	333
OR 99	6th St		382	463	563	448	116	202	169	117
OR 99	E Harrison Ave/4th St		302	417	431	315	149	113	139	176
OR 99	S River Rd		310	280	279	320	64	0	0	53
N Gateway Blvd/18th St	Main St		241	340	501	318	630	599	564	679
River Rd	Main St		136	205	334	156	358	347	376	496
River Rd	Harrison Ave		120	125	135	120	111	134	147	134
Row River Rd	Jim Wright Way		557	598	486	477	5	119	161	15
6th St	Main St		135	43	49	114	374	390	333	344

Annual Change

NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
1%	1%	1%	1%	1%	1%	2%	2%
0%	1%	1%	0%	1%	1%	1%	2%
1%	1%	1%	1%	0%	0%	1%	0%
1%	1%	1%	1%	0%	1%	0%	0%
1%	1%	0%	1%	0%	1%	2%	0%
1%	1%	1%	1%	2%	0%	0%	3%
1%	1%	1%	1%	1%	1%	1%	1%
2%	1%	1%	2%	2%	1%	0%	1%
2%	2%	2%	2%	2%	1%	3%	2%
2%	2%	2%	2%	2%	0%	0%	3%
2%	1%	1%	2%	1%	2%	2%	1%
2%	1%	2%	1%	1%	2%	2%	2%
2%	2%	2%	2%	2%	1%	2%	2%
1%	1%	1%	1%	0%	1%	1%	0%
2%	0%	0%	1%	2%	2%	2%	2%

sample calc: =Count!X5+('Future Growth Diff'!X5)'

Growth Method (Count * Growth Ratio)

where Growth Ratio = [1+ Model Growth/Base Model]

N/S	E/W	#	South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
Study Intersections			NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector		526	206	1080	756	372	792	463	673
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd		0	580	146	0	791	482	596	464
6th St	I-5 Off Ramp		117	173	156	247	0	0	148	0
6th St	I-5 On Ramp		167	117	248	204	0	100	0	0
OR 99	E Cottage Grove Connector		488	227	196	778	0	372	674	0
OR 99	Woodson Pl		404	521	804	532	162	0	0	295
OR 99	Main St		491	452	567	621	370	754	719	328
OR 99	6th St		382	482	609	488	113	204	174	124
OR 99	E Harrison Ave/4th St		298	439	483	324	166	125	150	200
OR 99	S River Rd		298	277	281	312	62	0	0	49
N Gateway Blvd/18th St	Main St		205	333	483	274	644	567	558	715
River Rd	Main St		110	204	303	138	375	349	388	474
River Rd	Harrison Ave		110	101	119	108	105	145	164	142
Row River Rd	Jim Wright Way		562	595	481	483	5	117	169	15
6th St	Main St		127	47	52	103	372	384	321	350

Annual Change

South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
1%	1%	1%	1%	1%	1%	1%	1%
0%	1%	1%	0%	1%	1%	1%	1%
2%	1%	1%	1%	0%	0%	1%	0%
1%	2%	1%	1%	0%	1%	0%	0%
1%	0%	0%	1%	0%	1%	1%	0%
1%	1%	1%	1%	1%	0%	0%	2%
1%	1%	1%	1%	1%	1%	2%	1%
2%	2%	2%	2%	2%	1%	1%	2%
2%	2%	2%	2%	2%	2%	3%	2%
2%	2%	2%	2%	2%	0%	0%	2%
2%	1%	1%	1%	1%	2%	2%	1%
1%	1%	1%	1%	2%	2%	2%	2%
2%	1%	1%	1%	2%	2%	2%	2%
1%	1%	1%	1%	0%	1%	1%	0%
2%	1%	1%	1%	2%	2%	2%	2%

sample calc: =IF('Future Growth Diff'!X5=0,Count!X5,Count!X5(1+('Future Growth Diff'!X5/'Base Model'!X5)))'*

Method Comparison (ABS ((GM - DM) / DM))

		South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
		NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector	6%	0%	0%	6%	-9%	-2%	-5%	-9%
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd		0%	0%		-2%	-1%	-1%	-5%
6th St	I-5 Off Ramp	9%	6%	1%	0%			0%	
6th St	I-5 On Ramp	1%	9%	0%	-1%		0%		
OR 99	E Cottage Grove Connector	-4%	0%	0%	-4%		-9%	-9%	
OR 99	Woodson Pl	0%	-4%	-4%	3%	-10%			-18%
OR 99	Main St	1%	4%	6%	5%	-5%	2%	5%	-2%
OR 99	6th St	0%	4%	8%	9%	-2%	1%	3%	6%
OR 99	E Harrison Ave/4th St	-1%	5%	12%	3%	12%	11%	8%	14%
OR 99	S River Rd	-4%	-1%	1%	-2%	-3%			-7%
N Gateway Blvd/18th St	Main St	-15%	-2%	-4%	-14%	2%	-5%	-1%	5%
River Rd	Main St	-19%	-1%	-9%	-12%	5%	0%	3%	-4%
River Rd	Harrison Ave	-9%	-20%	-12%	-10%	-5%	8%	11%	6%
Row River Rd	Jim Wright Way	1%	-1%	-1%	1%	0%	-2%	5%	0%
6th St	Main St	-6%	9%	5%	-9%	0%	-1%	-3%	2%

Selected Method

South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
AVE	AVE	AVE	AVE	AVE	AVE	AVE	AVE
N/A	AVE	AVE	N/A	AVE	AVE	AVE	AVE
AVE	AVE	AVE	AVE	N/A	N/A	AVE	N/A
AVE	AVE	AVE	AVE	N/A	AVE	N/A	N/A
AVE	AVE	AVE	AVE	N/A	AVE	AVE	N/A
AVE	AVE	AVE	AVE	DM	N/A	N/A	DM
AVE	AVE	AVE	AVE	AVE	AVE	AVE	AVE
AVE	AVE	AVE	AVE	AVE	AVE	AVE	AVE
AVE	AVE	DM	AVE	DM	DM	AVE	DM
AVE	AVE	AVE	AVE	AVE	N/A	N/A	AVE
DM	AVE	AVE	DM	AVE	AVE	AVE	AVE
DM	AVE	AVE	DM	AVE	AVE	AVE	AVE
AVE	DM	DM	DM	AVE	AVE	DM	AVE
AVE	AVE	AVE	AVE	AVE	AVE	AVE	AVE
AVE	AVE	AVE	AVE	AVE	AVE	AVE	AVE

sample calc: =IF(E5=0,"",E38/E5-1)'

Selected Growth

South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
511	206	1081	735	389	801	474	708
0	580	146	0	800	485	597	475
112	168	155	247	0	0	148	0
167	112	248	205	0	100	0	0
498	228	197	796	0	389	709	0
404	532	819	525	180	0	0	360
488	443	551	605	381	746	701	330
382	472	586	468	115	203	172	121
300	428	431	320	149	113	145	176
304	278	280	316	63	0	0	51
241	336	492	318	637	583	561	697
136	204	319	156	367	348	382	485
115	125	135	120	108	139	147	138
559	596	483	480	5	118	165	15
131	45	50	109	373	387	327	347

Growth Factor Check

South Leg In	North Leg Out	North Leg In	South Leg Out	West Leg In	East Leg Out	East Leg In	West Leg Out
NB_IN	NB_OUT	SB_IN	SB_OUT	EB_IN	EB_OUT	WB_IN	WB_OUT
22%	21%	22%	19%	26%	23%	37%	35%
0%	22%	22%	0%	23%	23%	34%	38%
32%	29%	15%	15%	0%	0%	18%	0%
23%	32%	15%	14%	0%	18%	0%	0%
26%	11%	-4%	30%	0%	26%	35%	0%
26%	30%	33%	19%	44%	0%	0%	71%
28%	30%	20%	32%	31%	27%	35%	25%
53%	39%	35%	46%	43%	19%	11%	34%
50%	53%	44%	64%	49%	33%	81%	47%
48%	43%	60%	62%	57%	0%	0%	70%
66%	32%	30%	55%	26%	41%	40%	26%
60%	28%	33%	36%	36%	42%	50%	47%
44%	67%	42%	41%	44%	39%	47%	53%
33%	34%	22%	21%	0%	24%	27%	0%
54%	12%	12%	28%	41%	43%	45%	54%

		Future Initial Volumes											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway	E Cottage Grove Conr	98	118	297	219	468	397	12	284	91	182	208	78
I-5 NB Ramps	E Cottage Grove Conr	0	0	0	65	0	83	376	420	0	0	389	209
6th St	I-5 Off Ramp	0	112	0	0	154	0	0	0	0	93	0	56
6th St	I-5 On Ramp	0	110	59	41	206	0	0	0	0	0	0	0
OR 99	E Cottage Grove Conr	0	139	355	37	163	0	0	0	0	624	0	90
OR 99	Woodson Pl	33	373	0	0	503	322	159	0	20	0	0	0
OR 99	Main St	18	219	250	198	316	46	72	294	13	269	271	155
OR 99	6th St	24	355	0	138	424	29	15	66	33	6	65	104
OR 99	E Harrison Ave/4th St	7	277	14	44	283	114	84	56	9	20	53	71
OR 99	S River Rd	33	267	0	0	266	17	15	0	48	0	0	0
N Gateway Blvd/18th St	Main St	23	96	120	41	134	315	212	414	21	161	367	28
River Rd	Main St	34	58	42	47	77	196	91	260	13	66	255	59
River Rd	Harrison Ave	14	64	40	28	63	46	33	70	7	49	76	25
Row River Rd	Jim Wright Way	5	498	57	61	410	10	0	0	5	67	0	98
6th St	Main St	51	24	55	12	27	12	11	321	40	40	280	11

			Adjustments											Comment
			Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	#	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
Study Intersections														
I-5 SB Ramps/N Gateway Blvd	E Cottage Grove Connector		0	-5	-5	-5	**45**	**-45**	5	**-25**	0	-5	**-45**	10	Reroute 45 SB vehicles from I-5 SB ramps from CGC to Gateway - route is overestimated by model. Shift to SBT (underestimated in model) toward Gateway-Main.
I-5 NB Ramps	E Cottage Grove Connector/Row River Rd		0	0	0	5	0	0	-10	**-20**	0	0	**-40**	15	Reroute 40 WB vehicles from Row River-CGC-OR 99. This route is overestimated in base year model. Shift to Whitaker-Main St; underestimated in base model.
6th St	I-5 Off Ramp		0	0	0	0	0	0	0	0	0	5	0	10	
6th St	I-5 On Ramp		0	0	0	5	5	0	0	0	0	0	0	0	
OR 99	E Cottage Grove Connector		0	10	**-35**	10	**20**	0	0	0	0	**-105**	0	5	Model overestimates WB volumes on CG Connector. Adjustments at I-5 interchange (SBR and WBT) carried through Connector. Model underestimates OR 99 use. Shift additional demand to SB & NB OR 99.
OR 99	Woodson Pl		-5	-5	0	0	5	**-90**	-10	0	0	0	0	0	Model overestimates SBR onto Woodson Bridge. Carry SB OR 99 adjustment through.
OR 99	Main St		0	-5	5	0	-5	10	0	-10	5	-10	-5	**20**	WBR is underestimated in base model
OR 99	6th St		0	10	5	0	0	0	0	0	0	5	-5	0	
OR 99	E Harrison Ave/4th St		5	-5	0	0	0	0	0	0	0	0	0	0	
OR 99	S River Rd		5	-5	0	0	0	0	0	0	0	0	0	0	
N Gateway Blvd/18th St	Main St		0	0	-10	0	-10	**30**	0	0	0	-5	**25**	5	Reroute WB vehicles from overestimated Row River-CGC-OR 99 route to underestimated Whitaker-Main St and rerouted SBT vehicles from SB I-5 interchange
River Rd	Main St		0	-5	0	0	-5	-15	0	0	0	0	-10	5	SBR is overestimated in base model
River Rd	Harrison Ave		0	0	0	0	0	0	-5	5	5	0	0	0	
Row River Rd	Jim Wright Way		0	**-40**	0	0	-10	0	5	5	0	0	5	0	Reroute 40 WB vehicles from Row River-CGC-OR 99. This route is overestimated in base year model. Shift to Whitaker-Main St; underestimated in base model.
6th St	Main St		-5	5	-5	5	5	5	5	-10	0	0	-5	5	

2035 Study Intersection Forecast Volumes

		Final Future Volumes (Rounded)- 2035 PM Peak Hour [No Build]											
		Northbound			Southbound			Eastbound			Westbound		
N/S	E/W	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Study Intersections													
I-5 SB Ramps/N Gateway Blv	E Cottage Grove Connector	100	115	290	215	515	350	15	260	90	175	165	90
I-5 NB Ramps	E Cottage Grove Connector/	0	0	0	70	0	85	365	400	0	0	350	225
6th St	I-5 Off Ramp	0	110	0	0	155	0	0	0	0	100	0	65
6th St	I-5 On Ramp	0	110	60	45	210	0	0	0	0	0	0	0
OR 99	E Cottage Grove Connector	0	150	320	45	185	0	0	0	0	520	0	95
OR 99	Woodson Pl	30	370	0	0	510	230	150	0	20	0	0	0
OR 99	Main St	20	215	255	200	310	55	70	285	20	260	265	175
OR 99	6th St	25	365	5	140	425	30	15	65	35	10	60	105
OR 99	E Harrison Ave/4th St	10	270	15	45	285	115	85	55	10	20	55	70
OR 99	S River Rd	40	260	0	0	265	15	15	0	50	0	0	0
N Gateway Blvd/18th St	Main St	25	95	110	40	125	345	210	415	20	155	390	35
River Rd	Main St	35	55	40	45	70	180	90	260	15	65	245	65
River Rd	Harrison Ave	15	65	40	30	65	45	30	75	10	50	75	25
Row River Rd	Jim Wright Way	5	460	55	60	400	10	5	5	5	65	5	100
6th St	Main St	45	30	50	15	30	15	15	310	40	40	275	15

Technical Memorandum #7

DATE: October 1, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP

SUBJECT: **Cottage Grove Transportation System Plan Update**
Future Conditions Analysis

This memorandum presents the evaluation of the future transportation system in Cottage Grove. It details the transportation conditions in Cottage Grove in 2035 if no new investments are made to the existing transportation system. Included is a summary of how future transportation needs are determined, a forecast of what travel in 2035 could look like in Cottage Grove, and details of where transportation investments are needed.

How do we determine future transportation system needs?

The objective of the transportation planning process is to provide information necessary to make decisions about how and where transportation system improvements should be made. Before determining what investments are needed for the City's transportation system, we first look at the existing travel conditions and then use the latest available planning assumptions to forecast what future growth and travel trends might look like in 2035. We begin by assuming that no new investments will be made into the transportation infrastructure, beyond what is already funded and committed for construction, and consider how the system will change with expected growth.

The following sections explain where growth is expected, how the transportation system will perform, and where solutions will be needed. Solutions for addressing the transportation system needs will be explored in Technical Memorandum #9 (Solutions Evaluation and Initial Recommendation).

Estimating Future Travel

A determination of future transportation system needs in Cottage Grove requires the ability to accurately forecast travel demand. Future travel demand estimates are based

on expected population and employment growth for the City, and travel patterns that reflect decisions and preferences demonstrated by existing residents, employers and institutions in the area. A forecasting tool was developed specifically to estimate motor vehicle traffic volumes for the Cottage Grove TSP update. The forecasting process and assumptions were documented in Technical Memorandum #6 (Future Forecast Methods & Assumptions.)[1] The resulting 2035 traffic volumes are applied to determine the areas of the street network that are expected to be congested and that may need future investments to accommodate growth. Future needs for active transportation and other modes are based on the existing needs and considerations for future development.

Cottage Grove in 2035

Today, Cottage Grove is home to about 10,000 people and provides approximately 3,700 jobs. By the 2035 planning horizon, it is expected that population in the urban growth boundary (UGB) will grow by 37% while employment will grow 32%. As a result, Cottage Grove is expected to have over 13,500 people and nearly 5,000 jobs in 2035.

Table 1: Land Use Control Totals (Cottage Grove UGB Total)

Land Use Category	2014	2035	Growth
Population	9,854	13,542	3,688 (37%)
Households	3,963	5,446	1,483 (37%)
Employment	3,727	4,916	1,189 (32%)

Source: Technical Memorandum #6 - Future Forecast Methods & Assumptions, DKS

The growth is expected to be located throughout the City as shown in Figure 1 (Household Growth) and Figure 2 (Employment Growth). The location of growth reflects land use designations in the comprehensive plan and the availability of developable land. The largest employment and household growth is clustered in specific areas:

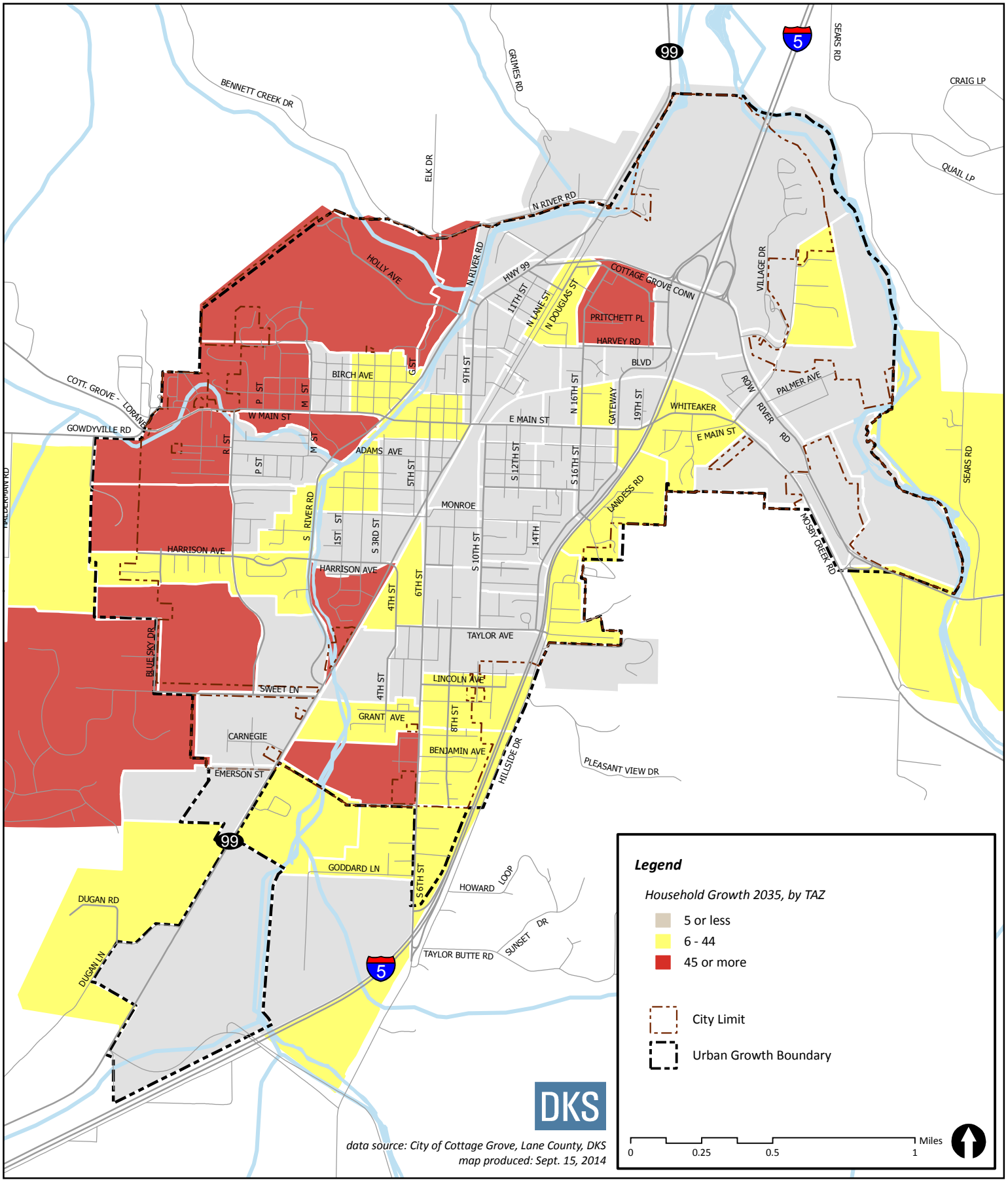
- In the southwest, along OR 99 between the UGB and Harrison Avenue, a significant percentage of job growth is expected to occur.
- In the north, significant employment increases are expected on either side of Row River Road and near the Cottage Grove Connector at OR 99.
- In the west, household growth is expect to be most significant in the areas west of R Street (south of Main Street) and west of River Road (north of Main Street).

[1] Technical Memorandum #6 – Future Forecast Methods & Assumptions, DKS, August 26, 2014

Transportation System Plan

FIGURE 1

Household Growth



Legend

Household Growth 2035, by TAZ

- 5 or less
- 6 - 44
- 45 or more

- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

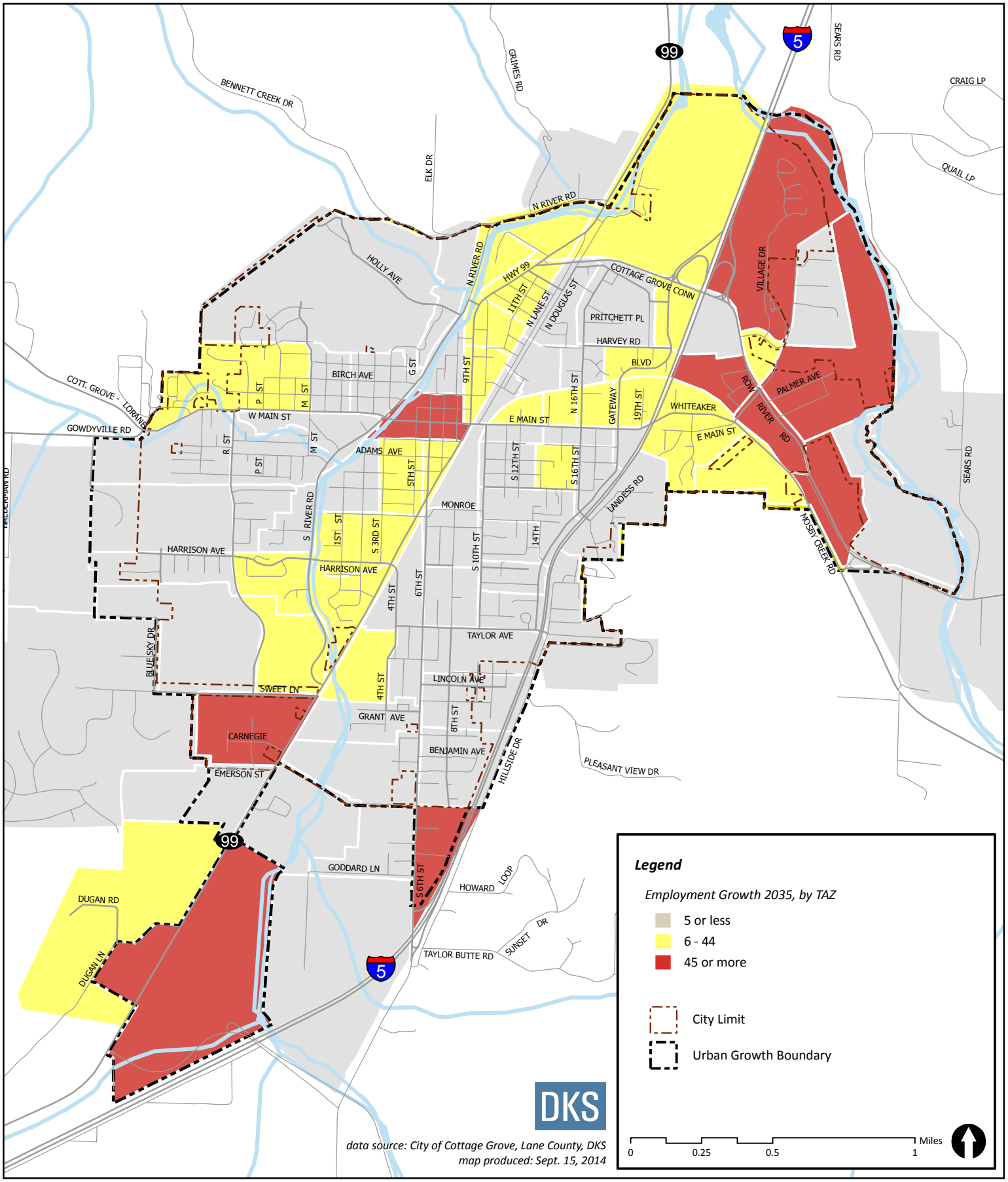
DKS

data source: City of Cottage Grove, Lane County, DKS
map produced: Sept. 15, 2014

Transportation System Plan

FIGURE 2

Employment Growth



Legend

Employment Growth 2035, by TAZ

- 5 or less
- 6 - 44
- 45 or more

City Limit

Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

data source: City of Cottage Grove, Lane County, DKS
map produced: Sept. 15, 2014

Employment growth is classified into employment types, as documented in the Technical Appendix. The largest sectors of growth are in service, retail, and industrial employment.

How will changes affect traffic congestion in Cottage Grove?

The Existing Conditions analysis showed that congestion is most significant at the City's three highest traffic intersections: OR 99 at Main Street, Gateway Boulevard at Main Street, and the I-5 SB Ramps/Gateway Boulevard at Cottage Grove Connector/Row River Road.[2] With more people and more jobs in Cottage Grove in 2035, as well as the potential for more recreational and tourist activity, the transportation network will serve increased demands.

The overall number of p.m. peak hour trips is estimated to increase by 37%,[3] reflecting the overall growth expected for households and employment shown in Table 1. The traffic growth is not expected to occur uniformly throughout the City. Some areas are already developed and others are expected to have more opportunity to add jobs or new housing, especially the UGB expansion areas.

Growth in external traffic (that has an origin and/or destination outside of the City) is also expected to affect traffic patterns. External growth estimates vary by roadway and location (ranging from 4% to 22% growth by 2035),[4] reflecting changes in regional traffic patterns. The overall growth in external traffic is expected to be smaller than growth of trips within Cottage Grove.

We found that peak hour travel conditions in Cottage Grove will have longer delays than are experienced today, however the facilities will still be able to operate within jurisdictional standards through 2035. The highest average delays of approximately 35-45 seconds on average (Level of Service D) are experienced at the same intersections that had the most congestion currently, as well as for vehicles turning from Jim Wright

[2] Technical Memorandum #5 – Existing Conditions Evaluation, DKS, July 23, 2014

[3] Table 4, Technical Memorandum #6 – Future Forecast Methods & Assumptions, DKS, August 26, 2014

[4] Table 3, Technical Memorandum #6 – Future Forecast Methods & Assumptions, DKS, August 26, 2014

Way onto Row River Road. The 2035 motor vehicle operations are shown for each of the 15 study intersections in Table 2 and detailed in the Technical Appendix.[5]

Table 2: Intersection Operations (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78	D	37
I-5 NB Ramps/Row River Road	0.85	0.59	A	8
OR 99/Woodson Place	0.95	0.56	A	9
OR 99/Main Street	0.95	0.79	D	42
OR 99/6th Street	0.95	0.49	B	10
OR 99/Harrison Avenue	0.90	0.42	B	12
Main Street/Gateway Boulevard	0.90	0.82	D	35
Main Street/River Road	0.90	0.45	B	15
Main Street/6th Street	0.90	0.40	A	6
All-Way Stop-controlled Intersections*				
Harrison Avenue/River Road	0.90	0.19	A	9
Two-Way Stop-controlled Intersections**				
I-5 SB Off Ramp/6th Street	0.85	0.27	B	12
I-5 NB On Ramp/6th Street***	0.85	0.04	A	8
OR 99/Cottage Grove Connector[6]	0.95	0.36	C	15
OR 99/S. River Road	0.90	0.12	B	12
Jim Wright Way/Row River Road	0.90	0.45	E	44

[5] Motor vehicle operations were evaluated with peak seasonal traffic volumes for the weekday p.m. peak hour (i.e. "design hour"), as described in the Existing Conditions Evaluation.

[6] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.

*V/C ratio reported for worst minor street approach at all-way stop-controlled intersection.
**V/C ratio, LOS and average delay reported for worst minor street movement at two-way stop-controlled intersections.
*** This intersection is not controlled. The V/C ratio, LOS and average delay are reported for the southbound left turn.

Where are transportation improvements needed?

After reviewing the expected growth throughout the City and considering existing gaps and deficiencies of the transportation system, areas that need improvements were identified to meet the expected travel demand. This section addresses motor vehicle, walking, biking, transit and other potential areas of transportation needs.

Motor Vehicle Needs

Safe and efficient motor vehicle transportation is critical for maintaining the economic vitality of Cottage Grove. Many employers in the area depend on convenient roadway access, especially to connect to customers outside of the City via I-5. Other employers need mobility to be maintained to efficiently meet business needs. Many residents of Cottage Grove also rely on convenient travel to reach employment opportunities inside and outside of the City.

The operational analysis results for study intersections (summarized in Table 2) indicate that all mobility standards will be met through the 2035 planning horizon. While no operational deficiencies are identified, needs related to connectivity and safety should be addressed.

Alternative Mobility Standards

Mobility targets are typically applied to 30th highest hour traffic volumes, in this case represented in the peak seasonal analysis summarized in Table 2. ODOT also provides avenues for exploring alternative mobility targets, which are typically less difficult to meet. One approach to alternative targets is to analyze operations under traffic conditions that are less intense than the 30th highest hour, such as the average weekday p.m. peak hour.

For Cottage Grove, this would mean decreasing or removing the seasonal trend adjustment that was applied to traffic counts to calculate design hour volumes. The resulting average weekday volumes would result in improved traffic operating conditions. However, because all study intersections already meet the mobility

standards, using average weekday operations to evaluate motor vehicle improvements does not appear beneficial.

Through the alternatives evaluation process for this plan, the community may desire exploring significant changes to traffic circulation, roadway function, and/or roadway design to address goals such as promoting the downtown business core or improving the pedestrian/bicycle environment. Through that evaluation there may be a need to discuss acceptable levels of congestion and mobility targets and how they balance the other desires of the community. At that time, alternate mobility standards or other state facility designations (such as a Special Transportation Area) may be part of a community-preferred solution.

Safety

The Safety Evaluation performed as part of the Existing Conditions analysis identified locations for concern. The crash rate at one study intersection, I-5 SB Ramps/Gateway Boulevard at Cottage Grove Connector/Row River Road, exceeded the identified critical crash rate. The following roadway segments were identified as high collision locations (where observed collision rates exceeded the identified critical collision rate):

- OR 99: Between the Cottage Grove Connector and the Woodson Bridge
- Row River Road: Between I-5 NB Ramps and Currin Connector
- Main Street: Between OR 99 and Gateway Boulevard

The OR 99 segment had an observed crash rate that was higher than any other measured for the City and significantly exceeded the identified critical crash rate. This segment was also the location of a fatal collision in 2013 during an attempted pedestrian crossing near the Geer Avenue crosswalk. Further safety consideration is also warranted along the Cottage Grove Connector because of the 2010 pedestrian fatality that occurred near the railroad overcrossing.

Connectivity

The ability to travel between different parts of the city conveniently and efficiently is an important part of transportation system planning. Poorly connected street networks can create out-of-direction travel, reduce access to services, increase emergency response time, discourage active transportation, and create congestion where traffic is funneled to one location. The following connectivity issues have been identified for roadways in Cottage Grove:

- Limited crossing opportunities exist along I-5, the Coast Fork Willamette River, and the Siskiyou Line railroad track that runs parallel to OR 99 for much of the City.
- Lack of east/west connections in the south part of Cottage Grove limit travel options and development potential. There are no connections from OR 99 east to 6th Street between Latham Road and Harrison Avenue/4th Street, a distance of approximately two miles on OR 99. Gateway Boulevard does not extend south of Taylor Avenue, limiting north/south connectivity in the area as well. As the southern areas of the UGB develop with new housing and or employment, the need to provide connectivity for this area will be heightened.
- Local street connectivity can be improved in several areas including neighborhoods along South 6th Street (south of Taylor Avenue) and west of River Road. This is most important where significant new development is expected to occur.
- Extended blockage of at-grade railroad crossings due to trains stopping for durations that can exceed 30 minutes have been reported by residents. When these crossings are blocked, connectivity is severely restricted and delays can be significant. Public railroad crossings may not be blocked for longer than 15 minutes between 10 p.m. and 6 a.m., with 10 minute limits between 6 a.m. and 10 p.m., except for continuously moving trains. In addition to increased enforcement by the ODOT Rail Division, additional grade-separated crossings would also mitigate the effects of blocked crossings.

Access

The amount of driveways along several stretches of OR 99 exceed the recommended number of approaches based on ODOT standards.[7] While the high number of driveways improves access, it also reduces mobility for the highway through the corridor and introduces potential conflicts that compromise safety. The segment of OR 99 between the Cottage Grove Connector and the Woodson Bridge, where a pedestrian fatality occurred in 2013, is one of the locations where access spacing standards are exceeded.

As redevelopment occurs and connectivity improvements are considered, access management strategies may be pursued to reduce driveway conflicts along OR 99, as well as other roadways throughout the City.

[7] Table 11, Technical Memorandum #5 – Existing Conditions Evaluation, DKS, July 23, 2014

Roadway Design

The transportation system plan should identify design standards to support the community vision and goals related to further development of the Downtown Historic District. Two prominent issues include the redesign of Main Street[8] and the placement of the traffic signal pole at the intersection of OR 99 and Main Street.[9]

Roadway design standards defined in the TSP and the Development Code should be consistent. This will provide clarity to support potential development opportunities and help to ensure consistency in roadway design throughout the City.

Transit Needs

The transit needs that may be addressed by South Lane Wheels and Lane Transit District include:

- Limited number of bus stops with shelters and other amenities: Given the rainy climate in western Oregon, additional sheltered bus stops and route schedules on signs would increase the comfort of existing riders and encourage others to take transit.
- Transit frequency: while current service headways are adequate for a community of the size of Cottage Grove, increased frequency may increase ridership in the community.
- Transit service in growth areas: areas of the City that are expected to develop significantly should incorporate transit amenities and ensure pedestrian and bicycle connectivity in preparation for future transit service.

Most Cottage Grove residents live within ¼ mile walking distance from a bus stop. However, transit coverage is limited in the southern part of the UGB, where significant future development is expected. While biking can increase access to transit for people living or working in locations that are further from bus stops, gaps in the existing bicycle network and a lack of bicycle parking near stops limits the attractiveness of biking to transit.

[8] The Main Street Refinement Plan will identify a preferred design for the corridor once it has been completed.

[9] During the public involvement process of the Main Street Refinement Plan concerns were raised regarding the height of the signal pole that was added during the reconstruction of the OR 99/Main Street intersection. The concerns relate to the new pole blocking the Downtown Historic District "gateway" signage from some vantage points.

The availability of safe and direct roadway crossing opportunities is another factor that could limit access to transit. Bus stops throughout the City could benefit from enhanced crossings that would increase the general pedestrian friendliness of the roadway and trail network.

Walking Needs

Cottage Grove is generally compact and walkable around downtown with many well-connected and continuous sidewalks. Trails and paths highlight some of the natural resources and historical attractions that the community has to offer and provide comfortable connections that enhance the sidewalk system. However, significant gaps in the pedestrian system exist, particularly near the UGB, and significant barriers remain to provide consistent and direct connections throughout the City.

Significant needs for the pedestrian network include:

- Limited crossing opportunities along OR 99 north of the Woodson Bridge and south of 4th Street/Harrison Avenue. These areas also tend to have higher speed traffic, making crossings more unpleasant for pedestrians.
- Reexamine the location and design of the pedestrian crossing on OR 99 near Geer Avenue due to the recent pedestrian fatality.
- Inadequate sidewalks on the Cottage Grove Connector, a key east to west route through the city, limit pedestrian travel opportunities between OR 99 and Gateway Boulevard.
- Limited crossing opportunities on Row River Road between Thornton Road/Airport Road and the I-5 NB ramps.
- Poor pedestrian facility connectivity between residential areas south of Taylor Avenue and activity generators to the north, particular near Lincoln Middle School.
- Frequent driveways along OR 99 and Main Street that lead to potential conflicts with motor vehicles.
- Poor pedestrian connectivity to the expansion areas near the southern UGB.
- Sidewalks along all collectors and arterials should be provided, where possible.

Bicycle Needs

Inconsistent facilities and barriers to travel can inhibit the attractiveness of potential bicycle trips. Significant gaps in the transportation network for traveling by bicycle include:

- Lack of consistent bike lanes across key arterial roadways such as OR 99, Main Street, Gateway Boulevard, and the Cottage Grove Connector.
- The Woodson Bridge provides a key crossing between OR 99 and River Road, but can be difficult to navigate by bike due to motor vehicle queuing and a lack of bike lanes.
- Poor bicycle system connectivity to the expansion areas near the southern UGB.

Freight Needs

The only designated freight route through Cottage Grove is I-5. However, heavy vehicle volumes were documented in the Existing Conditions analysis and concerns have been raised about their presence along OR 99 and Main Street. Strategies to identify truck routes and apply design criteria to support efficient freight movement within the City may be pursued.

Other Modes

No significant needs have been identified for rail, air, waterway and pipelines in Cottage Grove.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #7 –

Future Conditions Analysis

Contents:

- Detailed Land Use Change Summary
- Future Intersection Volumes, Geometry, & PM Peak Operations Summary
- Detailed Intersection Traffic Operations Table
- Intersection Traffic Operations Worksheets (Synchro Outputs)

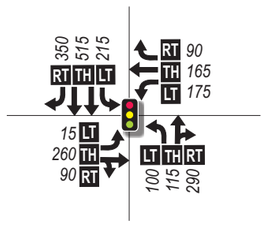
Detailed Land Use Change Summary

Detailed Land Use Change Summary Table (Cottage Grove Urban Growth Boundary)

Land Use Category	2014	2035	Growth
Population	9,854	13,542	3,688 (37%)
Households	3,963	5,446	1,483 (37%)
Employment	3,727	4,916	1,189 (32%)
Agricultural Employment	*47*	*47*	*0 (0%)*
Industrial Employment	*559*	*759*	*200 (36%)*
Retail Employment	*871*	*1209*	*338 (39%)*
Service Employment	*1800*	*2294*	*494 (27%)*
Education Employment	*166*	*202*	*36 (22%)*
Government Employment	*116*	*176*	*60 (52%)*
Other Employment	*168*	*229*	*61 (36%)*

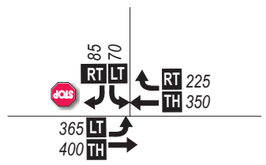
Future Intersection Volumes, Geometry, & PM Peak Operations Summary

1 Cottage Grove Connector/I-5 SB Ramps & Gateway Blvd



37 | D | 0.78

2 Cottage Grove Connector & River Rd/ I-5 NB Ramps



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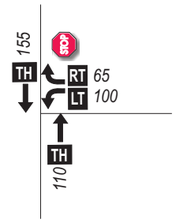
3 I-5 SB Off-Ramp/6th St



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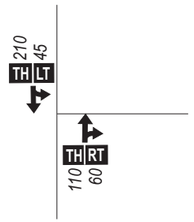
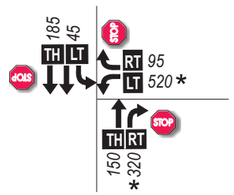
4 I-5 NB On-Ramp/6th St



N/A

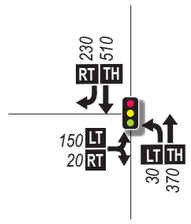
5 Cottage Grove Connector/OR 99



15 | C | 0.36

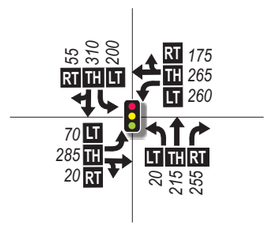
* Movement does not stop.

6 Woodson Pl/OR 99



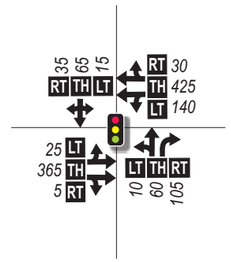
9 | A | 0.56

7 Main St/OR 99



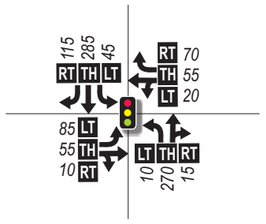
42 | D | 0.79

8 6th St/OR 99



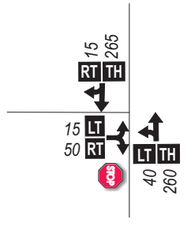
10 | B | 0.49

9 Harrison Ave/OR 99



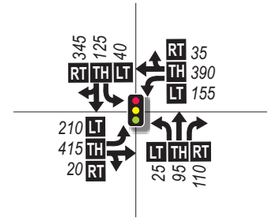
12 | B | 0.42

10 S. River Rd/OR 99



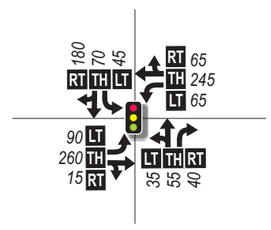
12 | B | 0.12

11 Main St/Gateway Blvd



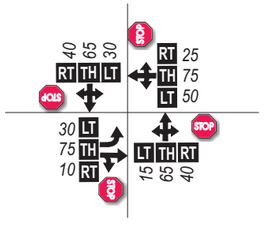
35 | D | 0.82

12 Main St/River Rd



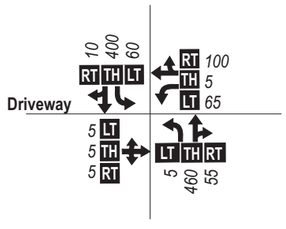
15 | B | 0.45

13 Harrison Ave/River Rd



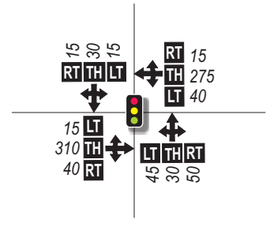
9 | A | 0.19

14 Jim Wright Way/Row River Rd



44 | E | 0.45

15 Main St/6th St

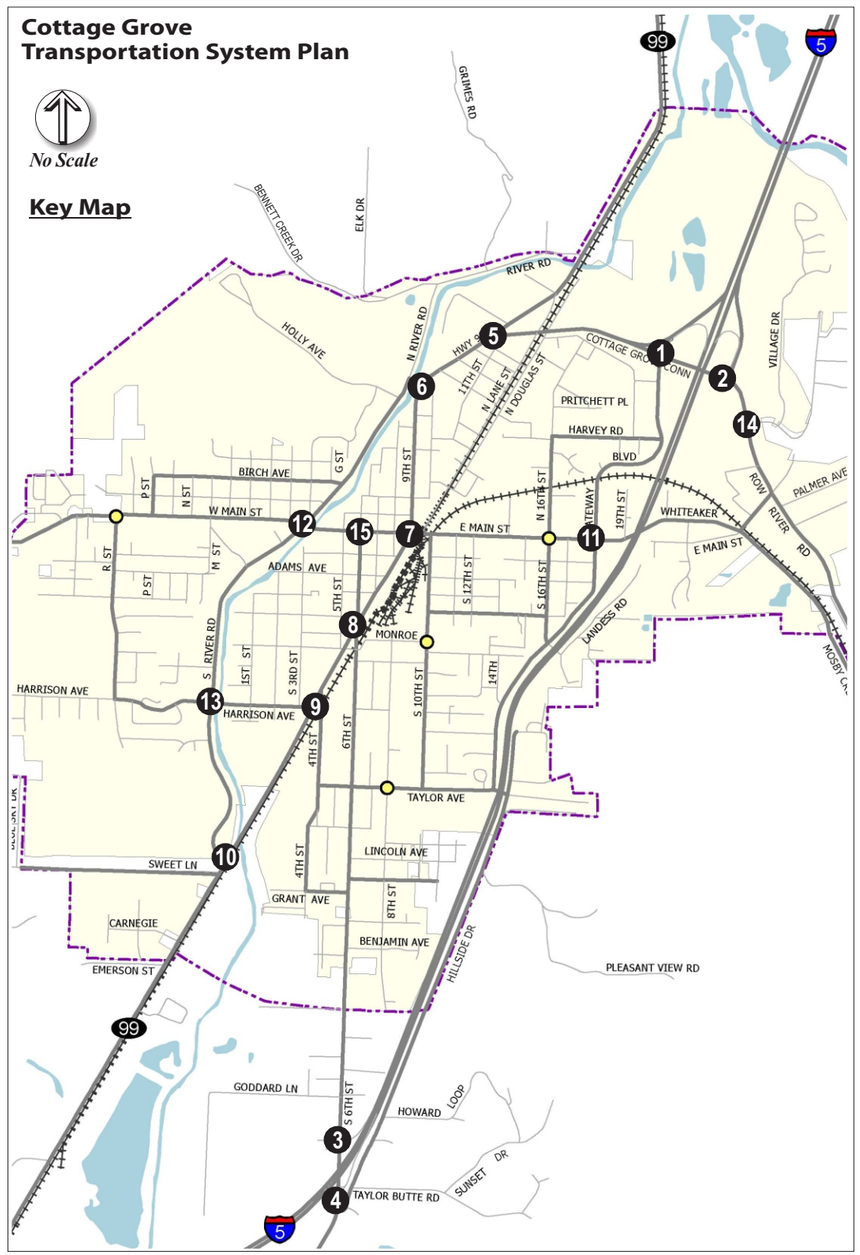


6 | A | 0.40

Cottage Grove Transportation System Plan

No Scale

Key Map



LEGEND

- 0 - Study Intersection & Number
- STOP - Stop Sign
- Traffic Signal
- ← - Lane Configuration
- *000* - PM Peak Hour Traffic Volume
  Note: All Indicated Volumes are Design Hour Volumes forecasted for 2035.
- LT TH RT (Left • Thru • Right) - Volume Turn Movement

00 | X | 0.00
Delay LOS V/C

V/C ratio reported for worst minor street lane at all-way stop-controlled intersections.
V/C ratio, LOS, and average delay reported for worst minor street lane at two-way stop-controlled intersections.

DKS

Figure **1**

NO-BUILD FUTURE 2035 PM PEAK HOUR TRAFFIC VOLUMES & OPERATIONS

Detailed Intersection Traffic Operations Table

Detailed Intersection Operations Table (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[1]	Level of Service Overall (Major/Minor)[2]	Average Delay (seconds) Overall (Major/Minor)[3]
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78 (0.86/0.74)	D (E/D)	37 (65/41)
I-5 NB Ramps/Row River Road	0.85	0.59 (0.58/0.39)	A (B/C)	8 (12/21)
OR 99/Woodson Place	0.95	0.56 (0.57/0.53)	A (A/C)	9 (10/21)
OR 99/Main Street	0.95	0.79(0.81/0.85)	D (F/E)	42 (118/78)
OR 99/6th Street	0.95	0.49 (0.67/0.23)	B (A/B)	10 (11/11)
OR 99/Harrison Avenue	0.90	0.42 (0.55/0.45)	B (C/B)	12 (27/19)
Main Street/Gateway Boulevard	0.90	0.82 (0.82/0.90)	D (D/F)	35 (40/155)
Main Street/River Road	0.90	0.45 (0.61/0.31)	B (C/B)	15 (23/14)
Main Street/6th Street	0.90	0.40 (0.42/0.35)	A (A/B)	6 (4/12)
All-Way Stop-controlled Intersections				
Harrison Avenue/River Road	0.90	(0.15/0.19)	A (A/A)	9 (9/9)
Two-Way Stop-controlled Intersections				
I-5 SB Off Ramp/6th Street	0.85	(0/0.27)	A(A/B)	4 (0/12)
I-5 NB On Ramp/6th Street[4]	0.85	(0.04/-)	(A/-)	0 (8/-)
OR 99/Cottage Grove Connector[5]	0.95	(0.15/0.36)	A (A/D)	3 (9/33)
OR 99/S. River Road	0.90	(0.04/0.12)	A (A/B)	2 (8/12)
Jim Wright Way/Row River Road	0.90	(0.07/0.45)	A (A/E)	4 (9/44)

[1] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[2] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[3] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[4] This intersection is not controlled. V/C ratio, LOS, and average delay are shown for the southbound left turn.
[5] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.

Intersection Traffic Operations Worksheets (Synchro Outputs)

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	30	75	10	0	50	75	25	0	15	65	40
Peak Hour Factor	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	1	1	1	2	5	5	5	2	1	1	1
Mvmt Flow	0	32	80	11	0	53	80	27	0	16	69	43
Number of Lanes	0	1	1	0	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	8.8	9	8.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	100%	0%	100%	0%	21%
Vol Thru, %	54%	0%	88%	0%	75%	46%
Vol Right, %	33%	0%	12%	0%	25%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	30	85	50	100	140
LT Vol	65	0	75	0	75	65
Through Vol	40	0	10	0	25	45
RT Vol	15	30	0	50	0	30
Lane Flow Rate	128	32	90	53	106	149
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.165	0.052	0.132	0.087	0.153	0.192
Departure Headway (Hd)	4.646	5.842	5.255	5.868	5.187	4.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	770	611	679	609	688	770
Service Time	2.691	3.601	3.013	3.624	2.943	2.688
HCM Lane V/C Ratio	0.166	0.052	0.133	0.087	0.154	0.194
HCM Control Delay	8.6	8.9	8.8	9.2	8.9	8.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.5	0.3	0.5	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	30	65	45
Peak Hour Factor	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	1	1	1
Mvmt Flow	0	32	69	48
Number of Lanes	0	0	1	0

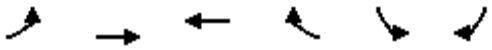
Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	8.8
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	260	90	175	165	90	100	115	290	215	515	350
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.98		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1612	1628		1583	1667	1385	1568	1451		1614	3228	1393
Flt Permitted	0.65	1.00		0.26	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1101	1628		434	1667	1385	1568	1451		1614	3228	1393
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	271	94	182	172	94	104	120	302	224	536	365
RTOR Reduction (vph)	0	11	0	0	0	59	0	78	0	0	0	234
Lane Group Flow (vph)	16	354	0	182	172	35	104	344	0	224	536	131
Confl. Peds. (#/hr)	1					1	7					7
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						4
Actuated Green, G (s)	32.7	31.0		44.8	39.1	39.1	9.5	29.4		18.1	38.0	38.0
Effective Green, g (s)	32.7	31.0		44.8	39.1	39.1	9.5	29.4		18.1	38.0	38.0
Actuated g/C Ratio	0.31	0.29		0.42	0.37	0.37	0.09	0.28		0.17	0.36	0.36
Clearance Time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	4.8		2.5	4.8	4.8	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	348	476		289	615	511	140	402		275	1158	499
v/s Ratio Prot	0.00	c0.22		c0.06	0.10		0.07	c0.24		c0.14	0.17	
v/s Ratio Perm	0.01			0.21		0.03						0.09
v/c Ratio	0.05	0.74		0.63	0.28	0.07	0.74	0.86		0.81	0.46	0.26
Uniform Delay, d1	25.6	33.9		21.9	23.5	21.6	47.0	36.2		42.3	26.1	24.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	7.3		3.7	0.5	0.1	18.1	16.0		16.3	0.2	0.2
Delay (s)	25.6	41.1		25.6	24.0	21.7	65.1	52.2		58.6	26.3	24.2
Level of Service	C	D		C	C	C	E	D		E	C	C
Approach Delay (s)		40.5			24.2			54.8			32.1	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.9	Sum of lost time (s)	17.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

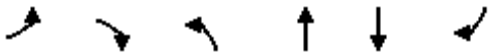
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	365	400	350	225	70	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.5	4.5	4.5	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1599	1683	1699	1444	1511	1352
Flt Permitted	0.39	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	660	1683	1699	1444	1511	1352
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	380	417	365	234	73	89
RTOR Reduction (vph)	0	0	0	131	0	78
Lane Group Flow (vph)	380	417	365	103	73	11
Heavy Vehicles (%)	4%	4%	3%	3%	10%	10%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		8	
Permitted Phases	6			2		8
Actuated Green, G (s)	34.8	34.8	20.6	20.6	6.2	6.2
Effective Green, g (s)	34.8	34.8	20.6	20.6	6.2	6.2
Actuated g/C Ratio	0.70	0.70	0.42	0.42	0.13	0.13
Clearance Time (s)	4.0	4.5	4.5	4.5	4.0	4.0
Vehicle Extension (s)	2.5	4.8	4.8	4.8	2.5	2.5
Lane Grp Cap (vph)	657	1183	707	600	189	169
v/s Ratio Prot	c0.12	0.25	0.21		c0.05	
v/s Ratio Perm	c0.29			0.07		0.01
v/c Ratio	0.58	0.35	0.52	0.17	0.39	0.07
Uniform Delay, d1	3.7	2.9	10.7	9.1	19.9	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.4	1.2	0.3	1.0	0.1
Delay (s)	4.7	3.3	11.9	9.3	20.9	19.2
Level of Service	A	A	B	A	C	B
Approach Delay (s)		3.9	10.9		20.0	
Approach LOS		A	B		B	

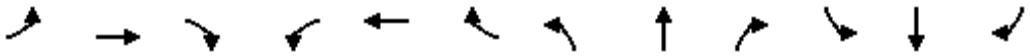
Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	12.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



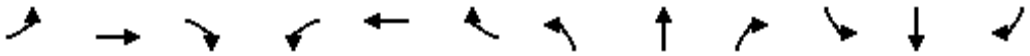
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	30	370	510	230
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601		1614	1699	1716	1427
Flt Permitted	0.96		0.32	1.00	1.00	1.00
Satd. Flow (perm)	1601		548	1699	1716	1427
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	21	31	385	531	240
RTOR Reduction (vph)	6	0	0	0	0	109
Lane Group Flow (vph)	171	0	31	385	531	131
Confl. Peds. (#/hr)			1			1
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases			6			2
Actuated Green, G (s)	11.0		35.6	35.6	29.7	29.7
Effective Green, g (s)	11.0		35.6	35.6	29.7	29.7
Actuated g/C Ratio	0.20		0.65	0.65	0.54	0.54
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5		2.5	6.0	6.0	6.0
Lane Grp Cap (vph)	322		394	1107	933	776
v/s Ratio Prot	c0.11		0.00	c0.23	c0.31	
v/s Ratio Perm			0.05			0.09
v/c Ratio	0.53		0.08	0.35	0.57	0.17
Uniform Delay, d1	19.5		4.4	4.3	8.2	6.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		0.1	0.5	1.7	0.3
Delay (s)	20.7		4.5	4.8	9.9	6.5
Level of Service	C		A	A	A	A
Approach Delay (s)	20.7			4.8	8.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	285	20	260	265	175	20	215	255	200	310	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1646	1715		1630	1597		1630	1716	1427	1630	1677	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1646	1715		1630	1597		1630	1716	1427	1630	1677	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	306	22	280	285	188	22	231	274	215	333	59
RTOR Reduction (vph)	0	2	0	0	22	0	0	0	215	0	6	0
Lane Group Flow (vph)	75	326	0	280	451	0	22	231	59	215	386	0
Confl. Bikes (#/hr)						5			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases		8			4			6	6		2	
Actuated Green, G (s)	5.9	23.8		20.4	38.3		1.8	21.8	21.8	16.4	36.4	
Effective Green, g (s)	5.9	23.8		20.4	38.3		1.8	21.8	21.8	16.4	36.4	
Actuated g/C Ratio	0.06	0.24		0.20	0.38		0.02	0.22	0.22	0.16	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8	4.8	2.5	4.8	
Lane Grp Cap (vph)	96	406		331	609		29	372	309	266	607	
v/s Ratio Prot	0.05	0.19		c0.17	c0.28		0.01	0.13		c0.13	c0.23	
v/s Ratio Perm									0.04			
v/c Ratio	0.78	0.80		0.85	0.74		0.76	0.62	0.19	0.81	0.64	
Uniform Delay, d1	46.6	36.1		38.5	26.8		49.1	35.6	32.1	40.5	26.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	31.8	10.6		17.5	4.6		69.1	4.3	0.6	15.9	2.9	
Delay (s)	78.4	46.7		55.9	31.3		118.2	39.9	32.7	56.4	29.4	
Level of Service	E	D		E	C		F	D	C	E	C	
Approach Delay (s)		52.6			40.5			39.4			39.0	
Approach LOS		D			D			D			D	

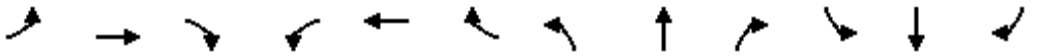
Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	65	35	10	60	105	25	365	5	140	425	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0	5.0		7.0			7.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frpb, ped/bikes		1.00			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.96			1.00	0.85		1.00			0.99	
Flt Protected		0.99			0.99	1.00		1.00			0.99	
Satd. Flow (prot)		1643			1720	1453		3210			3191	
Flt Permitted		0.96			0.95	1.00		0.88			0.75	
Satd. Flow (perm)		1582			1646	1453		2826			2423	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	17	73	39	11	67	118	28	410	6	157	478	34
RTOR Reduction (vph)	0	28	0	0	0	85	0	1	0	0	5	0
Lane Group Flow (vph)	0	101	0	0	78	33	0	443	0	0	664	0
Confl. Peds. (#/hr)	4		8	8		4	4		15	15		4
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)		11.0			11.0	11.0		16.1			16.1	
Effective Green, g (s)		11.0			11.0	11.0		16.1			16.1	
Actuated g/C Ratio		0.28			0.28	0.28		0.41			0.41	
Clearance Time (s)		5.0			5.0	5.0		7.0			7.0	
Vehicle Extension (s)		5.3			5.3	5.3		2.5			2.5	
Lane Grp Cap (vph)		445			463	408		1163			997	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.05	0.02		0.16			c0.27	
v/c Ratio		0.23			0.17	0.08		0.38			0.67	
Uniform Delay, d1		10.8			10.6	10.3		8.0			9.3	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.6			0.4	0.2		0.2			1.5	
Delay (s)		11.4			11.0	10.5		8.2			10.8	
Level of Service		B			B	B		A			B	
Approach Delay (s)		11.4			10.7			8.2			10.8	
Approach LOS		B			B			A			B	

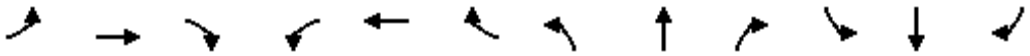
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



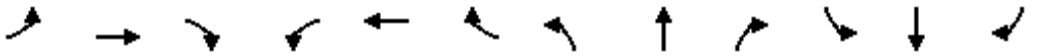
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	55	10	20	55	70	10	270	15	45	285	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0			5.0	5.0	4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1622	1672			1709	1435	1595	1670		1614	1699	1410
Flt Permitted	0.71	1.00			0.89	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1206	1672			1537	1435	1595	1670		1614	1699	1410
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	88	57	10	21	57	72	10	278	15	46	294	119
RTOR Reduction (vph)	0	6	0	0	0	60	0	2	0	0	0	62
Lane Group Flow (vph)	88	61	0	0	78	12	10	291	0	46	294	57
Confl. Peds. (#/hr)	6		2	2		6	3					3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						2
Actuated Green, G (s)	7.4	7.4			7.4	7.4	0.9	20.3		2.4	21.8	21.8
Effective Green, g (s)	7.4	7.4			7.4	7.4	0.9	20.3		2.4	21.8	21.8
Actuated g/C Ratio	0.16	0.16			0.16	0.16	0.02	0.45		0.05	0.48	0.48
Clearance Time (s)	5.0	5.0			5.0	5.0	4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	4.8		2.5	4.8	4.8
Lane Grp Cap (vph)	195	271			249	232	31	743		84	812	674
v/s Ratio Prot		0.04					0.01	c0.17		c0.03	0.17	
v/s Ratio Perm	c0.07				0.05	0.01						0.04
v/c Ratio	0.45	0.23			0.31	0.05	0.32	0.39		0.55	0.36	0.08
Uniform Delay, d1	17.3	16.6			16.9	16.1	22.0	8.5		21.1	7.5	6.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	0.3			0.5	0.1	4.4	0.7		5.7	0.5	0.1
Delay (s)	18.5	16.9			17.4	16.2	26.4	9.2		26.7	8.0	6.6
Level of Service	B	B			B	B	C	A		C	A	A
Approach Delay (s)		17.8			16.8			9.7			9.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	415	20	155	390	35	25	95	110	40	125	345
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1704		1630	1690		1646	1733	1438	1630	1527	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1630	1704		1630	1690		1646	1733	1438	1630	1527	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	223	441	21	165	415	37	27	101	117	43	133	367
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	85	0	123	0
Lane Group Flow (vph)	223	460	0	165	448	0	27	101	32	43	377	0
Confl. Peds. (#/hr)	7					7			2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	12.4	25.5		9.9	23.0		1.3	19.3	19.3	2.4	20.4	
Effective Green, g (s)	12.4	25.5		9.9	23.0		1.3	19.3	19.3	2.4	20.4	
Actuated g/C Ratio	0.17	0.36		0.14	0.32		0.02	0.27	0.27	0.03	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
Vehicle Extension (s)	2.0	4.1		2.0	3.5		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)	284	611		226	546		30	470	390	55	438	
v/s Ratio Prot	c0.14	c0.27		0.10	0.27		0.02	0.06		c0.03	c0.25	
v/s Ratio Perm									0.02			
v/c Ratio	0.79	0.75		0.73	0.82		0.90	0.21	0.08	0.78	0.86	
Uniform Delay, d1	28.1	20.0		29.3	22.1		34.8	20.0	19.3	34.1	24.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.3	5.6		10.0	9.8		120.4	0.2	0.1	47.4	15.4	
Delay (s)	40.4	25.7		39.3	32.0		155.3	20.3	19.4	81.5	39.4	
Level of Service	D	C		D	C		F	C	B	F	D	
Approach Delay (s)		30.5			33.9			34.7			42.7	
Approach LOS		C			C			C			D	

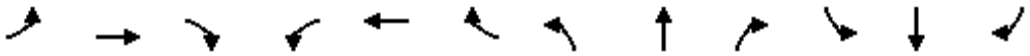
Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	260	15	65	245	65	35	55	40	45	70	180
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.97	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1614	1683		1630	1651			1700	1426	1631	1522	
Flt Permitted	0.95	1.00		0.95	1.00			0.83	1.00	0.69	1.00	
Satd. Flow (perm)	1614	1683		1630	1651			1439	1426	1193	1522	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	96	277	16	69	261	69	37	59	43	48	74	191
RTOR Reduction (vph)	0	3	0	0	10	0	0	0	30	0	127	0
Lane Group Flow (vph)	96	290	0	69	320	0	0	96	13	48	138	0
Confl. Peds. (#/hr)	10					10			9	9		
Confl. Bikes (#/hr)			3			1			1			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	3	8		7	4			6			2	
Permitted Phases		8			4		6	6	6	2	2	
Actuated Green, G (s)	6.5	17.6		4.2	15.3			14.0	14.0	14.0	14.0	
Effective Green, g (s)	6.5	17.6		4.2	15.3			14.0	14.0	14.0	14.0	
Actuated g/C Ratio	0.14	0.37		0.09	0.32			0.29	0.29	0.29	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	219	619		143	528			421	417	349	445	
v/s Ratio Prot	c0.06	0.17		0.04	c0.19						c0.09	
v/s Ratio Perm								0.07	0.01	0.04		
v/c Ratio	0.44	0.47		0.48	0.61			0.23	0.03	0.14	0.31	
Uniform Delay, d1	19.0	11.5		20.8	13.7			12.8	12.1	12.5	13.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.4		1.9	1.7			0.8	0.1	0.5	1.1	
Delay (s)	20.0	11.9		22.6	15.4			13.6	12.1	13.0	14.3	
Level of Service	B	B		C	B			B	B	B	B	
Approach Delay (s)		13.9			16.6			13.1			14.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	310	40	40	275	15	45	30	50	15	30	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			0.99			0.98			0.99	
Satd. Flow (prot)		1691			1687			1595			1649	
Flt Permitted		0.98			0.93			0.86			0.90	
Satd. Flow (perm)		1666			1581			1399			1506	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	356	46	46	316	17	52	34	57	17	34	17
RTOR Reduction (vph)	0	7	0	0	3	0	0	45	0	0	14	0
Lane Group Flow (vph)	0	412	0	0	376	0	0	98	0	0	54	0
Confl. Peds. (#/hr)	21		31	31		21	18		8	8		18
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		19.5			19.5			6.8			6.8	
Effective Green, g (s)		19.5			19.5			6.8			6.8	
Actuated g/C Ratio		0.59			0.59			0.20			0.20	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		975			925			285			307	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.24			c0.07			0.04	
v/c Ratio		0.42			0.41			0.35			0.18	
Uniform Delay, d1		3.8			3.8			11.3			10.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			0.9			0.3	
Delay (s)		3.9			3.9			12.2			11.3	
Level of Service		A			A			B			B	
Approach Delay (s)		3.9			3.9			12.2			11.3	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	33.3	Sum of lost time (s)	7.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	100	65	110	0	0	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	1	1
Mvmt Flow	120	78	133	0	0	187

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	320	133	0	0	133	0
Stage 1	133	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.11	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.209	-
Pot Cap-1 Maneuver	671	913	-	-	1458	-
Stage 1	891	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	671	913	-	-	1458	-
Mov Cap-2 Maneuver	671	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5		
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	749	1458	-
HCM Lane V/C Ratio	-	-	0.265	-	-
HCM Control Delay (s)	-	-	11.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	150	320	520	95	45	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Stop	-	None
Storage Length	1000	-	-	-	0	115
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	2	2
Mvmt Flow	156	333	542	99	47	193

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	542	0	-	0	1188	542
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	646	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1022	-	-	-	208	540
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1022	-	-	-	176	540
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	442	-

Approach	EB	WB	SB
HCM Control Delay, s			18.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1022	-	-	-	176	540
HCM Lane V/C Ratio	0.153	-	-	-	0.266	0.357
HCM Control Delay (s)	9.2	-	-	-	32.7	15.3
HCM Lane LOS	A	-	-	-	D	C
HCM 95th %tile Q(veh)	1	-	-	-	1	2

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	50	40	260	265	15
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	5	3	3	3	3
Mvmt Flow	17	56	45	292	298	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	688	311	315	0	-	0
Stage 1	306	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	408	722	1240	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	390	719	1235	-	-	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	654	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	1.1	
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1235	-	602	-	-
HCM Lane V/C Ratio	0.036	-	0.121	-	-
HCM Control Delay (s)	8	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	5	5	5	65	5	100	5	460	55
Conflicting Peds, #/hr	0	0	1	1	0	0	5	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	135	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3
Mvmt Flow	6	6	6	72	6	111	6	511	61

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	1196	1168	456	1144	1144	548	457	0	0
Stage 1	584	584	-	554	554	-	-	-	-
Stage 2	612	584	-	590	590	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.227	-	-
Pot Cap-1 Maneuver	164	195	609	177	200	536	1099	-	-
Stage 1	501	501	-	517	514	-	-	-	-
Stage 2	484	501	-	494	495	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	119	180	606	161	185	533	1094	-	-
Mov Cap-2 Maneuver	119	180	-	161	185	-	-	-	-
Stage 1	497	467	-	512	509	-	-	-	-
Stage 2	374	497	-	449	461	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	25.5	26.1	
HCM LOS	D	D	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1094	-	-	192	161	489	991	-	-
HCM Lane V/C Ratio	0.005	-	-	0.087	0.449	0.239	0.067	-	-
HCM Control Delay (s)	8.3	0	-	25.5	44.4	14.7	8.9	-	-
HCM Lane LOS	A	A	-	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2	1	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	60	400	10
Conflicting Peds, #/hr	0	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	240	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	90	90	90
Heavy Vehicles, %	3	3	3
Mvmt Flow	67	444	11

Major/Minor	Major2		
Conflicting Flow All	573	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	995	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	991	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	110	60	45	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	0	120	65	49	228

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	478	152	0	0	185	0
Stage 1	152	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	550	900	-	-	1390	-
Stage 1	881	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	531	900	-	-	1390	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	710	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0		
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1390	-
HCM Lane V/C Ratio	-	-	-	0.035	-
HCM Control Delay (s)	-	-	0	7.7	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Technical Memorandum #8

DATE: October 21, 2014

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP

SUBJECT: **Cottage Grove Transportation System Plan Update**
TSP Comparison and Determination of Needs

This memorandum presents a comparison of the identified needs and system deficiencies in the 2008 Transportation System Plan (TSP) and the current TSP update. It also includes proposed revisions to TSP goals, objectives, and policies and proposed evaluation criteria that will provide a framework for updating the TSP solutions and strategies.

What has changed since the last TSP?

The 2008 TSP[1] evaluated 2025 planning horizon conditions and provided a list of projects and strategies to address the identified needs and deficiencies. The current TSP Update includes a new Existing Conditions Evaluation (Technical Memorandum #5) and Future Conditions Analysis (Technical Memorandum #7) with a 2035 planning horizon. The following sections highlight key differences between the analysis and findings of the 2008 TSP and current TSP update.

Transportation Infrastructure

The following transportation improvements and additions have been made (or will soon be completed) in the Cottage Grove, since adoption of the TSP in 2008.

- ODOT OR 99 at 4th Street & Main Street Improvements (2014)
- Crosswalk on Row River Road near Jim Wright Way (scheduled – 2015)
- Crosswalk on 10th Street near Washington Ave (scheduled – 2015)
- Traffic signals at two nearby intersections on Row River Road at Thornton Road and Whiteaker Avenue/Mosby Creek Road at Thornton Road/Main Street (2013)

[1] *Cottage Grove Transportation System Plan*, City of Cottage Grove, 2008.

- Crosswalk on OR 99 near Geer Avenue (2008)
- Widening on South 8th Street, south of Taylor Avenue (2008)
- Signage for "Biking in the Grove" bicycle routes (2014)
- Riverwalk subdivision (2009)
- Lion Estates subdivision (2010)

Traffic Volumes

Base year traffic volumes have decreased since 2006 at 12 of the 13 study intersections. We compared the seasonally adjusted traffic volumes, not the raw traffic counts,[2] and found that the 2014 design hour traffic volumes decreased by 10 to 30 percent compared to 2006. This finding may reflect that Cottage Grove has not recovered from the pre-recession volume levels. Another contributing factor could be that the 2006 design hour data was sampled across a longer time period (2004 to 2006), which led to less accurate seasonal adjustments.

Table 1: Traffic Volume Comparison (p.m. peak hour)

Intersection	Total Entering Traffic Volume		
	2006 Design Hour Volume	2014 Design Hour Volume	Change (percent)
I-5 SB Ramps/Cottage Grove Connector/Gateway Boulevard/Row River Road	2,230	1,960	-270 (-12%)
OR 99/Main Street	2,160	1,650	-510 (-24%)
Main Street/Gateway Boulevard	1,550	1,430	-120 (-8%)
I-5 NB Ramps/Row River Road	1,520	1,215	-305 (-20%)
OR 99/Cottage Grove Connector	1,250	1,125	-125 (-10%)
OR 99/Woodson Place	1,500	1,060	-440 (-29%)
OR 99/6th Street	1,080	920	-160 (-15%)
Main Street/River Road	810	850	40 (+5%)
OR 99/4th Street	880	680	-200 (-23%)

[2] A direct comparison can not be made between the previous and current TSP traffic count volumes because of seasonal variations in traffic volumes and the differences in when the data were collected. The 2008 TSP counts were collected on various dates between January 2004 and February 2006, while the counts for the updated TSP were all collected in March 2014. Therefore, the seasonally adjusted design hour volumes are used for comparison.

Intersection	Total Entering Traffic Volume		
	2006 Design Hour Volume	2014 Design Hour Volume	Change (percent)
OR 99/S. River Road	580	420	-160 (-28%)
I-5 NB On Ramp/6th Street	460	350	-110 (-24%)
Harrison Avenue/River Road	400	350	-50 (-13%)
I-5 SB Off Ramp/6th Street	430	345	-85 (-20%)

Sources:
Appendix B, Cottage Grove Transportation System Plan, City of Cottage Grove, 2008.
Table 5, Technical Memorandum #5 – Existing Conditions Evaluation, DKS

External Traffic Growth Estimates

Growth estimates for external traffic (traffic that comes into and/or out of Cottage Grove) have decreased relative to the previous TSP. When the analysis was performed for the 2008 TSP, the external traffic growth from 2006 to 2025 was estimated to be 40% at I-5 ramps and 16% at other external roadways, including OR 99 and Cottage Grove Lorane Road.[3] The TSP update applied external traffic volume growth of 22% at the I-5 interchange with Row River Road and the Cottage Grove Connector, and growth ranging from 4 to 18 percent at other external roadways.[4,5]

External growth estimates rely on ODOT Future Volume Tables. Because these tables incorporate recent traffic volume trends, the previously discussed decreases in volume also influence estimates for growth for external traffic.

Land Use Development Assumptions

The land use totals for the Urban Growth Boundary (UGB) are based on control totals developed from the U.S. Census, Lane County coordinated population forecasts[6], and the 2009 Economic Opportunities Analysis[7] (EOA). Table 2 summarizes the estimated growth in households and employment in the UGB for both the 2008 TSP (from 2005 to

[3] Based on the ODOT 2024 Secondary Highway Future Volume Table, retrieved June 2006.

[4] Based on the ODOT 2032 Highway Future Volume Table, retrieved July 2014.

[5] Table 3, Technical Memorandum #6 – Future Forecast Methods & Assumptions, DKS, August 26, 2014

[6] *Lane County Rural Comprehensive Plan*, Updated June 2009, Lane County, Table 1.1

[7] *City of Cottage Grove Economic Opportunities Analysis*, Final Draft Report, Winterbrook Planning with ECONorthwest, March 21, 2009

2025) and the current TSP update (from 2014 to 2035). The land use assumptions were detailed in Technical Memorandum #6.[8]

Table 2: Land Use Control Totals (Cottage Grove UGB Total)

Land Use Category	2005 – 2025 Growth[9]	2014 – 2035 Growth
Households	1,600 (42%)	1,483 (37%)
Employment	2,677 (78%)	1,189 (32%)

Sources:
Table 4-1, Cottage Grove Transportation System Plan, City of Cottage Grove, 2008.
Table 1, Technical Memorandum #6 - Future Forecast Methods & Assumptions, DKS

The forecasted growth in land uses from 2014 to 2035 is smaller than the growth that was estimated from 2005 to 2025. The overall growth of households estimated for 2035 is slightly less than the previous TSP's 20-year growth. This reflects modest growth in population since 2005 and updated population forecasts. Employment growth has been scaled back significantly relative to the assumptions from the previous TSP.[10] This change reflects updated employment data and future growth projections from the 2009 EOA.

Another change from the previous TSP is the location and distribution of growth within Cottage Grove. Some development growth has occurred since the 2008 TSP was adopted and the UGB has expanded to the southwest. The UGB expansion included approximately 241 acres of primarily industrial and commercial lands on both sides of OR 99 and near the I-5 interchange at south 6th Street. These identified growth areas in the south part of Cottage Grove have a larger share of the expected employment growth than they did in the 2008 TSP. These changes in growth assumptions were incorporated into the updated travel demand forecasts for 2035.

[8] Technical Memorandum #6 - Future Forecast Methods & Assumptions, DKS, August 26, 2014

[9] The estimated growth refers to the TSP study area, which includes all of the current UGB as well as some surrounding areas outside of the current UGB. These areas outside of the UGB generally have low density land uses with few households or employees.

[10] The previous employment growth projections were based on scaling the 2001 Cottage Grove Buildable Lands Analysis projections for 2020 to 2025. The new employment growth projections are based on scaling the 2009 EOA projections from 2029 to 2035.

Forecasting Methods

A travel demand forecast tool was developed specifically for Cottage Grove to support the 2014 TSP update. This Small Community Forecast Tool enables a more comprehensive analysis of future conditions and potential TSP alternatives. The tool uses a similar motor vehicle trip generation and trip distribution methodology as was used in the 2008 TSP, but it applies the methodology to existing as well as future land uses within the City. Rather than applying traffic volume growth on top of existing traffic volumes, it uses software[11] to dynamically route existing and new trips through the transportation network. The tool uses a traffic routing procedure that is more accurate than manual assignment because it is responsive to varying levels of congestion and delay as traffic patterns change. Additional details of the forecasting tool methodology and assumptions were provided in Technical Memorandum #6.[12]

Forecasted Traffic Conditions

Traffic volume forecasts were estimated for 2035 that reflect the previously described changes to traffic volumes, growth assumptions, and forecasting methods. Based on these forecasts, future traffic conditions were analyzed for each of the TSP study intersections in 2035. A comparison of the future year operations for the previous TSP (2025 planning horizon) and the current TSP (2035 planning horizon) is shown in Table 3, for each of the common study intersections, during the p.m. peak hour.

Table 3: Comparison of Forecasts for Future Intersection Operations (p.m. peak)

Intersection	Mobility Target	2025 Volume to Capacity Ratio	2025 Level of Service	2035 Volume to Capacity Ratio	2035 Level of Service
Signalized Intersections					
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	>1	F	0.78	D
I-5 NB Ramps/Row River Road	0.85	0.95	C	0.59	A
OR 99/Woodson Place	0.95	0.92	C	0.56	A

[11] Visum is a transportation travel demand modeling software developed by PTV Vision.

[12] Technical Memorandum #6 - Future Forecast Methods & Assumptions, DKS, August 26, 2014

Intersection	Mobility Target	2025 Volume to Capacity Ratio	2025 Level of Service	2035 Volume to Capacity Ratio	2035 Level of Service
OR 99/Main Street	0.95	>1	F	0.79	D
OR 99/6th Street	0.95	0.86	C	0.49	B
OR 99/Harrison Avenue	0.90	0.74	C	0.42	B
Main Street/Gateway Boulevard	0.90	>1	F	0.82	D
Main Street/River Road	0.90	0.83	C	0.45	B
All-Way Stop-controlled Intersections*					
Harrison Avenue/River Road	0.90	>1	E	0.19	A
Two-Way Stop-controlled Intersections**					
I-5 SB Off Ramp/6th Street	0.85	0.45	B	0.27	B
OR 99/Cottage Grove Connector[13]	0.95	>1	F	0.36	C
OR 99/S. River Road	0.90	0.12	B	0.12	B

*V/C ratio reported for worst minor street approach at all-way stop-controlled intersection.

**V/C ratio, LOS and average delay reported for worst minor street movement at two-way stop-controlled intersections.

Denotes that mobility standard is not met.

Sources:

Table 4-7, Cottage Grove Transportation System Plan, City of Cottage Grove, 2008.

Table 2, Draft Technical Memorandum #7 - Future Conditions Analysis, DKS

The results of the future operations analysis show that all of the study intersections will meet mobility standards through the 2035 planning horizon. This is a significant change from the 2008 TSP, which identified six study intersections that would be deficient in meeting the mobility standards by 2025. As a result of this change in findings, the projects recommended to increase motor vehicle capacity at these study intersections will be reconsidered and may be removed from the updated TSP solutions list.

[13] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.

Safety Analysis

An updated safety analysis was preformed based on the most recent five years of available collision data (2008-2012). The safety evaluation was detailed in Technical Memorandum #5 (Existing Conditions Evaluation.)[14] The analysis identifies three roadway segments that have a high collision history:

- OR 99: Between the Cottage Grove Connector and the Woodson Bridge
- Row River Road: Between I-5 NB Ramps and Currin Connector
- Main Street: Between OR 99 and Gateway Boulevard

Further safety consideration is also warranted along the Cottage Grove Connector because of the 2010 pedestrian fatality that occurred near the railroad overcrossing. The intersection at the I-5 SB Ramps/Gateway Boulevard at Cottage Grove Connector/Row River Road also had a high critical crash rate that warrants further consideration.

Needs

Most needs identified from the 2008 TSP are retained for the current TSP Update. However, as a result of the work to date (Technical Memorandums #1-7,) the identified needs have been updated. The significant changes include:

- Removing needs that were addressed through the new transportation infrastructure
- Removing needs to address study intersection mobility deficiencies that were identified in the 2008 TSP
- Adding needs to provide connectivity to the south UGB expansion areas
- Adding needs identified through the new safety analysis.

What should be changed for this TSP update?

The following section summarizes the significant changes that should be made to the TSP, based on findings of Technical Memorandums performed to date.

Goals, Objectives, and Policies

Since the current TSP was adopted in 2008, several studies and plans have been completed including the Cottage Grove Development Code (2008), the 2037 Vision and

[14] Pages 33-38, Technical Memorandum #5 – Existing Conditions Evaluation, DKS, July 23, 2014

Action Plan (2008), and the Economic Opportunities Analysis (2009). Statewide regulations have also changed, including significant amendments to the Oregon Transportation Plan and Oregon Highway Plan. The regulatory, land use, and transportation system changes identified in Technical Memorandum #2 – Background Document Review[15] and Technical Memorandum #3 – Regulatory Review[16] should be reflected in the updated TSP,[17] including the revised goals, objectives and policies.

There are four goals, 12 objectives, and 44 policies identified in Chapter 2 of the adopted 2008 TSP (reproduced in the Technical Appendix). Goals are defined as brief guiding statements that describe a desired result. Objectives associated with the goals describe the actions needed to move the community in the direction of completing each goal. Policies are identified to assist in achieving goals and objectives. These goals, objectives and policies will be used in the development of the TSP update to develop strategies and implementing measures for each of the travel modes addressed.

Based on reviewing the key changes since the 2008 TSP, the following revisions are recommended to the TSP goals, objectives, and policies. Text recommended for deletion is shown with ~~strikethrough~~, while text recommended for addition is underlined.

Goals

- Goal 1: Enhance the Cottage Grove area's quality of life and competitive economic advantage by providing a transportation system that is:
    - Accessible,
    - Balanced,
    - Efficient,
    - Environmentally responsible,
    - Equitable
    - Financially stable,
    - Interconnected,~~ and~~
    - Safe, and~~.~~
    - Sustainable.
- Goal 2: Develop a cost-effective transportation system that meets the needs of all people and businesses ~~passengers and freight~~, and that serves the existing

[15] Technical Memorandum #2- Background Document Review, DKS and Angelo Planning Group, March 11, 2014

[16] Technical Memorandum #3- Regulatory Review, Angelo Planning Group and DKS, March 26, 2014

[17] In the case of Development Code amendments, they should be consistent with the TSP update.

and future arrangement of land uses to the consensus of all jurisdictions involved.

- Goal 3: Develop a cost-effective transportation system plan that is based on informed citizen input, professional review, and technical analysis.
- Goal 4: Develop an integrated transportation and land use system that helps implement statewide transportation goals, statewide administrative rules and the Cottage Grove Comprehensive Land Use Plan

Objectives

- Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.
- Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.
- Objective 3: Provide for efficient movement of goods and services.
- Objective 4: Provide an environmentally responsible transportation system.
- Objective 5: Provide a safe transportation system.
- Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.
- Objective 7: Make streets as "unobtrusive" to the community as possible.
- Objective 8: Require developments to address on- and off-site transportation system impacts.
- Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.
- Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.
- Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.
- Objective 12: Make full use of existing roadways by reducing motor vehicle demand during peak use periods and increasing operational efficiency.

Policies

A full list of 44 policies is included in the technical appendix. The policies where changes are proposed are shown below.

- Policy 8: Consider funding and likelihood of timely construction ~~the funding commitment or availability and ability of project to be constructed within timeframe~~ in evaluating and prioritizing transportation ~~street~~ improvement projects ~~within the existing street system~~.
- Policy 9: Consider the degree to which proposed transportation system improvements support ~~physical~~ community development plans and land use designations when evaluating projects, solutions or strategies. ~~trends (the extent to which the project complements or supports the emerging land use pattern) in evaluating and prioritizing street improvement projects within the existing street system.~~
- Policy 10: Consider economic development potential (the extent to which the project relieves congestion and provides land use access to under-utilized and undeveloped urban lands) in evaluating and prioritizing transportation system improvements. ~~street improvement projects within the existing street system.~~
- Policy 11: Consider the following primary criteria in evaluating and prioritizing transportation improvement projects – safety, connectivity, access, ~~street improvement projects within the existing street system –~~ average daily traffic, physical condition of street, street geometrics, and capacity/congestion (level of service).
- Policy 32: Include bicycle facilities such as bike lanes or dedicated bikeways in the planning, design, and construction of all new and/or reconstructed collectors and arterial roads. The Oregon Bicycle and Pedestrian Design Guide's Urban/Suburban Recommended Separation Matrix ~~Plan Bike Lane Matrix for urban and suburban settings~~ shall be used ~~as a guide~~ in making decisions regarding the need and design for appropriate bicycle facilities ~~for bike lanes~~.

Transportation Standards

As part of the TSP update the street functional classifications and cross-section standards will be reviewed for consistency with the Development Code.[18] The standards and classifications should be revised to ensure that they meet community needs and are consistent with the other plans and policies. Transportation standards will be addressed in Technical Memorandum #10 – Transportation Standards.

Other transportation standards and guidelines that will be reconsidered include:

- Roadway and access spacing standards
- Intersection mobility standards
- Bicycle facility guidelines
- Pedestrian crossing guidelines
- Trail design standards
- Intelligent Transportation System (ITS) coordination guidelines
- Traffic impact analysis guidelines
- Freight routes and restrictions
- Transit route standards

Updates to the TSP may necessitate changes to development requirements. Technical Memorandum #3 - Regulatory Review, identifies areas for potential modifications to the Development Code, including expanding the bicycle and pedestrian circulation requirements to all subdivisions and strengthening the requirements related to transit amenities and access to transit from new development. Technical Memorandum #12 – Implementing Code and Ordinance Guidance will provide recommendations to support amendments to the Comprehensive Plan and Development Code to reflect changes recommended in the updated TSP.

Strategies and Solutions

Based on the needs and deficiencies identified in the TSP update and new estimates of funding availability, the TSP will identify a new list of strategies and solutions. Total funding availability for TSP solutions was estimated to be $10.5 million through the 2035 planning horizon.[19] Technical Memorandum #9 – Solutions Evaluation and Initial

[18] If street standards are modified through the update process, Table 3.4.100.F in the Development Code should be amended to be consistent with the updated TSP.

[19] Technical Memorandum #4- Funding Review and Forecast, DKS, May 28, 2014

Recommendation will include an initial list of solutions and strategies for addressing transportation deficiencies and needs for each travel mode.

The final recommended solutions and updated transportation standards will be identified after review and discussion with the project management team, community advisory committee, stakeholders, and people attending the TSP public events and commenting via the project website.[20]

How will solutions and strategies be evaluated?

Evaluation criteria will be identified to objectively consider alternative solutions and strategies. These project-level criteria provide a point-based technical rating method that will be used to evaluate how well a proposed solution meets the effectiveness criteria. The evaluation criteria are intended to create a consistent and objective framework for updating the TSP.

Evaluation Criteria & Scoring Methodology

Table 4 lists the proposed evaluation criteria and the corresponding scoring methodology. The evaluation criteria were selected based on the TSP's objectives. The criteria reflect compliance with state and local plans and policies, engineering design requirements, and a desire to maximize positive economic, social and environmental impacts.

The scoring methodology evaluates each proposed solution based on a positive, negative, or neutral outcome for a given measure of effectiveness. The measures of effectiveness each relate to one of the 12 proposed TSP objectives. Generally, scores of +1, 0, or -1 are applied. However, in the case of solutions that have a major positive or negative effect on a measure, scores of +2 or -2, respectively, may be applied.

[20] http://cottagegrovetsp.org/

Table 4: Proposed Evaluation Criteria and Scoring

Measure of Effectiveness	Evaluation Score	
Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.		
Connectivity Improves multi-modal transportation system connections in the city	+1	Positive impact on connectivity across modes
	0	No change or neutral
	-1	Negative impact on connectivity across modes
Regional Access Improves access to the region, state and nation	+1	Improves access to regional connections
	0	No change or neutral
	-1	Degrades access to regional connections
Equitable Access Improves access for underserved or vulnerable populations	+1	Increases access to underserved or vulnerable populations
	0	No change or neutral
	-1	Decreases access to underserved or vulnerable populations
Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.		
Alternatives Supports travel choices other than driving alone (single occupant vehicle)	+1	Encourages non-SOV travel
	0	No change or neutral
	-1	Discourages non-SOV travel
Pedestrian and Bicycle Facilities Adds bikeway and walkways that fill in system gaps, improve system connectivity, and are accessible to all users	+1	Improves pedestrian or bicycle connectivity or accessibility
	0	No change
	-1	Reduces connectivity or accessibility
Transit Facilities Improves access to transit facilities. Promotes transit as a viable alternative to the single occupant vehicle	+1	Improves transit facilities
	0	No change
	-1	Negative impact on provision of services

Measure of Effectiveness	Evaluation Score	
Objective 3: Provide for efficient movement of goods and services.		
Mobility & Efficiency Reduce travel time, distance traveled, and/or travel-related costs	+1	Reduce travel time, distance traveled, or cost
	0	No change or neutral
	-1	Increases travel time, distance traveled, or cost
Freight Improves freight access/connectivity	+1	Improves freight facilities
	0	No change or neutral
	-1	Negative impact on freight facilities
Objective 4: Provide an environmentally responsible transportation system.		
Environment Minimizes impact to the natural environment	+1	Enhances the environment
	0	No change or neutral
	-1	Negative impacts on the environment
Stormwater Impact Minimizes transportation related pollution and impacts to stormwater	+1	Reduces stormwater pollution
	0	No change or neutral
	-1	Increases stormwater pollution
Objective 5: Provide a safe transportation system.		
Safety Improves safety of the transportation system	+1	Increases safety of the transportation system
	0	No change or neutral
	-1	Has potential geometric or user safety concerns
Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.		
Sustainable Development Supports integrated and mixed land uses	+1	Greater potential for mixed land uses
	0	No change or neutral
	-1	Less potential for mixed land uses
Integrated Land Use Supports the adopted comprehensive plan	+1	Supports planned land use and community development

Measure of Effectiveness	Evaluation Score	
and land use designations	0	No change or neutral
	-1	Counter to planned land use and community development
Objective 7: Make streets as "unobtrusive" to the community as possible.		
Barriers to Travel Improves roadway crossing opportunities	+1	Improves roadway crossing opportunities
	0	No change or neutral
	-1	Degrades roadway crossing opportunities
Support Neighborhoods & Resources Support historic neighborhood character and community resources	+1	Supports historic character
	0	No change or neutral
	-1	Degrades historic character
Objective 8: Require developments to address on- and off-site transportation system impacts.		
Major Public Investments Reduces need for transportation project investments funded by City, ODOT, or other public agencies	+1	Reduces need for public investment
	0	No change or neutral
	-1	Accelerates need for public investment
Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.		
Public Involvement Encourages public involvement in transportation decisions	+1	Increases public involvement opportunities
	0	No change or neutral
	-1	Decreases public involvement opportunities
Livability Responds to neighborhood and community needs	+1	Improves livability
	0	No change or neutral
	-1	Degrades livability
Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.		

Measure of Effectiveness	Evaluation Score	
Compatibility Compatible with other jurisdiction's plans and policies, (including adjacent cities, Lane County, or ODOT)	+1	Compatible with other plans and contributes to their implementation
	0	Compatible with other plans, but does not necessarily contribute to their implementation
	-1	Not compatible with other plans
Agency Standards Consistent with the standards of the City, Lane County, and ODOT	+1	Consistent with all standards
	0	May require some deviations to standards, but likely to be approved
	-1	Inconsistent with standards and not expected that deviations would be approved
Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.		
Fundability Available funding sources exist to implement projects in a timely fashion	+1	Funding sources are available
	0	Feasible costs, but no identified funding
	-1	High costs and no funding expected
Cost Effectiveness Assumed project benefits exceed project costs	+1	Cost effective solution
	0	Average cost solution
	-1	Not a cost effective solution
Objective 12: Make full use of existing roadways by reducing motor vehicle demand during peak use periods and increasing operational efficiency.		
Improved Roadway Efficiency Implements Transportation Demand Management (TDM) or other strategies to create greater mobility, reduce auto trips, make more efficient use of the roadway system	+1	Improves roadway efficiency
	0	No change
	-1	Negative impact on roadway efficiency
Corridor Reliability Implements strategies to provide stable and reliable auto and truck traffic flows on major facilities	+1	Improves roadway reliability
	0	No change
	-1	Negative impact on roadway

Measure of Effectiveness	Evaluation Score
	reliability

Note: Solutions that are considered to have a major effect may be scored as +2 or -2.

What happens next?

The next step in the TSP Update process is for the Community Advisory Committee (CAC), community members, and stakeholders to review and provide input on Technical Memorandums #1-8. These memorandums will be revised based on the input received. Following this review, the TSP needs and deficiencies will be finalized, along with the evaluation criteria that will be used to analyze alternatives.

Potential solutions will be developed and discussed with the CAC. Alternative solutions will be evaluated in Technical Memorandum #9, and an initial recommended package of solutions and strategies will be identified to address the transportation deficiencies and needs for each travel mode. Technical Memorandum #10 will address changes to transportation standards in the 2008 TSP.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #8 –

TSP Comparison and Determination of Needs

Contents:

Adopted TSP Goals, Objectives, and Policies

2. GOALS, OBJECTIVES AND POLICIES

Overview

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

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

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

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

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

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

Goals

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

- Accessible,

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

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

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

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

Objectives

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

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

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

Objective 4: Provide an environmentally responsible transportation system.

Objective 5: Provide a safe transportation system.

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

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

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

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

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

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

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

Policies

Overall

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

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

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

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

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

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

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

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

Standards

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

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

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

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

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

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

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

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

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

Multi-Modal

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

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

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

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

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

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

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

Pedestrian

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

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

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

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

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

Bicycle

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

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

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

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

Transit

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

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

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

Rail

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

Policy 38: Strengthen the retention of local rail services.

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

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

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

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

Air

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

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

Technical Memorandum #9

DATE: April 24, 2015

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP

SUBJECT: **Cottage Grove Transportation System Plan Update**
Solution Evaluation and Initial Recommendation

This memorandum presents initial recommended strategies and solutions to address the transportation needs and deficiencies identified in Cottage Grove. These solutions are intended to improve facilities and services for all modes of transportation. The solutions are evaluated using the criteria and scoring methodology identified in Technical Memorandum #8 (TSP Comparison and Determination of Needs). Planning level cost estimates are also presented, including an estimated share of funding from public agencies and private development.

The list of preferred strategies and solutions reflects all the desired improvements through the 2035 planning horizon. A prioritized subset of the list is identified based on funding availability expected through 2035. This initial list of financially constrained solutions and strategies will be refined based on input from Community Advisory Committee meetings, stakeholder interviews, and community events.

How are solutions developed?

The TSP update takes a network-wide multi-modal approach to identifying transportation system solutions. In the past, most transportation planning efforts were focused on projects that expand streets and intersections to improve motor vehicle travel time. Many of these efforts resulted in unintended consequences such as creating significant barriers to walking and biking and detracting from the livability, health, safety, and fiscal well-being of the community.

With no mobility deficiencies identified through 2035, the Cottage Grove TSP Update is oriented toward providing direct multi-modal connections and safe access for all travelers. This approach enables more cost-effective solutions to improve transportation system operations

and helps to encourage multiple travel options, increase street connectivity, and promote a more sustainable transportation system.

Many projects identified from the 2008 TSP are retained for the current TSP Update. However, as a result of the work to date (Technical Memorandums #1-8), the identified needs have been updated and some projects have been removed. The significant changes include removing projects that were completed or otherwise addressed through new transportation infrastructure, and removing projects that address mobility deficiencies (that were identified in the previous TSP.)

New solutions have been added to provide connectivity to the south UGB expansion areas and to address needs identified through the updated safety analysis. Other projects have been identified based on project team recommendations and input received from Community Advisory Committee meetings, stakeholder interviews, and community events.

How are alternatives evaluated?

Evaluation criteria are identified to objectively consider alternative solutions and strategies. These project-level criteria provide a point-based technical rating method used to evaluate how well a proposed solution meets the effectiveness criteria. The evaluation criteria are intended to create a consistent and objective framework for updating the TSP. The evaluations are not intended to be prescriptive, but are intended to help guide prioritization of solutions for the financially constrained list.

The evaluation criteria and the corresponding scoring methodology were identified in Technical Memorandum #8 (TSP Comparison and Determination of Needs) and are included in the Technical Appendix. The evaluation criteria were selected based on the TSP objectives. The criteria reflect compliance with state and local plans and policies, engineering design requirements, and a desire to maximize positive economic, social and environmental impacts.

The scoring methodology evaluates each proposed solution based on a positive, negative, or neutral outcome for a given measure of effectiveness. The measures of effectiveness each relate to one of the twelve proposed TSP objectives. Generally, scores of +1, 0, or -1 are applied. However, in the case of solutions that have a major positive or negative effect on a measure, scores of +2 or -2, respectively, may be applied. Table 1 shows an example of how the criterion is applied for TSP Objective 5.

Table 1: Evaluation Criteria and Scoring Methodology Example

Measure of Effectiveness	Evaluation Score	
Objective 5: Provide a safe transportation system.		
Safety Improves safety of the transportation system	+1	Increases safety of the transportation system
	0	No change or neutral
	-1	Has potential geometric or user safety concerns

Note: Solutions that are considered to have a major effect may be scored as +2 or -2.

A complete list of the goals, objectives, evaluation criteria, and scoring parameters are included in the Technical Appendix. Scores for projects were grouped as high, medium or low. Within some modal categories, particularly walking and biking, scores were very similar due to the nature of the evaluation criteria.

Strategies

Non-capacity adding solutions are defined as a set of transportation strategies that attempt to enhance the performance of the transportation system by developing transit, walking, biking, Transportation System Management ("TSM") and Transportation Demand Management ("TDM") improvements. These solutions are often more cost effective than expanding the roadway system for motor vehicles. Emphasis is placed on improving safety, reducing traffic conflicts, reducing drive-alone motor vehicle demand, and encouraging more efficient usage of the existing transportation system.

Transportation System Management (TSM)

Transportation System Management (TSM) focuses on low cost strategies to enhance operational performance of the transportation system. TSM strategies aim to maximize urban mobility through better management of the coordinated multi-modal transportation system. TSM strategies include traffic control improvements, traffic signal coordination, traffic calming, access management, local street connectivity and intelligent transportation systems (ITS). Typically, the most significant measures that can provide tangible benefits to the traveling public are traffic signal systems.

Coordination of railroad operations is an important TSM strategy in Cottage Grove. Due to the limited number of grade-separated railroad crossings in Cottage Grove, railroad operations can cause significant delays to travelers. City coordination with ODOT and railroad operators should be pursued to ensure that delays caused at blocked crossings are minimized.

Standards that address TSM in Cottage Grove, including roadway functional classification, access management standards, roadway cross-section standards, local street connectivity and neighborhood traffic management are addressed in Technical Memorandum #10 (Transportation Standards).

Intelligent Transportation Systems (ITS)

ITS involves the application of advanced technologies and proven management techniques to relieve congestion, enhance safety, provide services to travelers and assist transportation system operators in implementing suitable traffic management strategies. ITS focuses on increasing the efficiency of existing transportation infrastructure, thus enhancing the overall system performance and reducing the need to add motor vehicle capacity (e.g., travel lanes). Efficiency is achieved by providing services and information to travelers so they make better travel decisions and to transportation system operators so they better manage the system and improve system reliability.

ITS projects to consider in the future may include:

- Transit signal priority
- Signal coordination and optimization
- Traffic monitoring and surveillance
- Information availability
- Incident management

Although no mobility deficiencies have been identified through the planning horizon, the transportation system in Cottage Grove could benefit from ITS infrastructure as traffic volumes and congestion increase. Before future investments are made along I-5, OR 99, and the Cottage Grove Connector designs should be reviewed with City and ODOT staff to determine if communications or other ITS infrastructure should be addressed as part of the street design/construction.

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is the general term used to describe actions that remove single occupant motor vehicle trips from the roadway network during peak travel demand periods. The ability to change a user's travel behavior and provide alternative choices will help accommodate the expected growth in travel demand identified for Cottage Grove.

Generally, TDM focuses on reducing vehicle miles traveled for large employers by promoting active and shared modes of travel. Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can affect the number of

vehicle miles traveled to/from that area.[1] However, the same research indicates that in order for TDM measures to be effective, they should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc.

The more effective TDM measures include parking strategies (limiting or increasing supply in strategic locations), improved services for alternative modes of travel, and other market-based measures. However, TDM includes a wide variety of actions that are specifically tailored to the individual needs of an area. Table 2 provides a list of several strategies that could be applicable to the Cottage Grove area. Potential trip reductions listed in the table represent data from a variety of communities. Results in Cottage Grove will vary based on specific local characteristics (e.g., level of transit provided, availability of bicycle and pedestrian facilities, parking availability, etc.).

Table 2: Transportation Demand Management Strategies

Strategy	Description	Potential Trip Reduction
Telecommuting	Employees work at home or at a work center closer to home, rather than commuting from home to work. This can be full time or on selected workdays. This can require computer equipment to be most effective.	82-91% (Full Time) 14-36% (1-2 day/wk)
Compressed Work Week	Schedule in which employees work their regular scheduled number of hours in fewer days per week.	7-9% (9 day/80 hr) 16-18% (4 day/40 hr) 32-36% (3 day/36 hr)
Transit Pass Subsidy	For employees who take transit to work on a regular basis, the employer pays for all or part of the cost of a monthly transit pass.	19-32% (full subsidy, high transit service) 2-3% (half subsidy, medium transit service)
Alternative Mode Subsidy	For employees that commute to work by modes other than driving alone, the employer provides a monetary bonus to the employee.	21-34% (full subsidy of cost, high alternative modes) 2-4% (half subsidy of cost, medium alternative modes)
Bicycle Program	Provides support services to those employees that bicycle to work. Examples include: safe/secure bicycle storage, shower facilities and subsidy of commute bicycle purchase.	0-10%
On-site Rideshare	Employees who are interested in carpooling or vanpooling provide information to a transportation	1-2%

[1] *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

Strategy	Description	Potential Trip Reduction
Matching for high occupancy vehicles (HOVs)	coordinator regarding their work hours, availability of a vehicle and place of residence. The transportation coordinator then matches employees who can reasonably rideshare together.	
Provide Vanpools	Employees that live near each other are organized into a vanpool for their trip to work. The employer may subsidize the cost of operating and maintaining the van.	15-25% (company provided van with fee) 30-40% (subsidized van)
Gift/Awards for Alternative Mode Use	Employees are offered the opportunity to receive a gift or an award for using modes other than driving alone.	0-3%
Company Cars for Business Travel	Employees are allowed to use company cars for business-related travel during the day.	0-1%
Guaranteed Ride Home Program	A company owned or leased vehicle or taxi fare is provided in the case of an emergency for employees that use alternative modes.	1-3%
Time off with Pay for Alternative Mode Use	Employees are offered time off with pay as an incentive to use alternative modes.	1-2%

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

Opportunities to expand transportation demand management and other measures in Cottage Grove include:

- Developing requirements for long-term bicycle parking for significant places of employment, park and ride facilities and other major transit stops, and multi-family residential uses. Other land uses should continue to be required to provide short-term bike parking, but may be encouraged to implement the long-term options. Long-term parking options include:
    - Lockers, individual lockers for one or two bicycles
    - Racks in an enclosed, lockable room
    - Racks in an area that is monitored by security cameras or guards (within 100 feet)
    - Racks or lockers in an area always visible to employees
- Supporting alternative vehicle types by identifying potential electric vehicle plug-in stations and developing implementing code provisions.
- Encouraging/supporting rideshare/vanpool to major employers in Lane County and Eugene (e.g., University of Oregon, Downtown Eugene, etc.) for employees living in Cottage Grove.

- Improving street connectivity.
- Investing in pedestrian/bicycle facilities.
- Establishing site development standards that require pedestrian and bicycle access through sites and connections to adjacent sties and transportation facilities.
- Improving amenities and access for transit stops. Actions could include instituting site design requirements allowing redevelopment of parking areas for transit amenities; requiring safe and direct pedestrian connections to transit and; permitting transit-supportive uses outright in commercial and institutional zones.

Preferred Projects

The following section evaluates a set of potential transportation improvement projects identified through the needs analysis and public involvement process. The initial list of solutions will be refined through the public involvement process. Projects may be added to or removed from this initial preferred project list.

Individual projects are categorized by mode and evaluated using the criteria discussed previously. Detailed project criteria evaluations and planning level cost estimates are included in the Technical Appendix.

Multi-modal Roadway Projects

An initial set of roadway projects are listed below in Tables 3 through 5 and illustrated in Figure 1. Roadway projects were classified as corridor improvements (Table 3), roadway extensions (Table 4), and modernization projects (Table 5). Details of the scoring evaluation and planning level cost estimates for each project are available in the Technical Appendix.

Proposed corridor projects are intended to improve operations by consolidating accesses, converting from 4-lanes to 3-lanes with bicycle lane (including a center turn lane) or implementing a streetscape plan. Most of these projects scored high on the evaluation criteria, due in part to their expected improvements in livability, support of active modes of transportation and expected safety benefits.

Table 3: Proposed Multi-Modal Roadway Projects – Corridor Improvements

Project ID	Name	Description	Purpose	Source	Evaluation Score
R1	Gateway Blvd Conversion*	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety/Access	2008 TSP	Medium

Project ID	Name	Description	Purpose	Source	Evaluation Score
R2	OR 99 Conversion*	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety/Access	2008 TSP	High
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinement Plan	High
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	High
R14	OR 99 Access Improvements*	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)[2]	Safety	New	High

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Proposed roadway extensions are identified in Table 4 and illustrated in Figure 1. The primary purpose of these extensions is to improve connectivity throughout the City. The proposed roadway extensions will reduce out-of-direction travel and create key connections for people riding bicycles or walking. Some of the roadway extension projects are dependent on development and/or redevelopment of existing properties. Funding for new roadways (or extensions) are typically required as conditions of approval for new development along or near the proposed roadway alignment.

Proposed roadway modernizations are identified in Table 5 and illustrated in Figure 1. These projects are intended to bring existing substandard roadways up to current City, County or ODOT design standards, providing improvements for multiple modes of travel. Several of the projects on Lane County jurisdiction roadways are carried forward from the Lane County TSP.

[2] Implementation of driveway consolidations may vary by location. For multiple accesses with a common property owner, land development codes may require driveway consolidation upon site redevelopment. For multiple (adjacent) properties with different owners, a shared access agreement would be required and is more likely when both properties are redeveloping in similar timeframes. Another alternative is for the City (or other public agency with roadway jurisdiction) to lead a street improvement project where access rights are updated as part of the project.

Transportation System Plan

FIGURE 1

Proposed Roadway Improvements

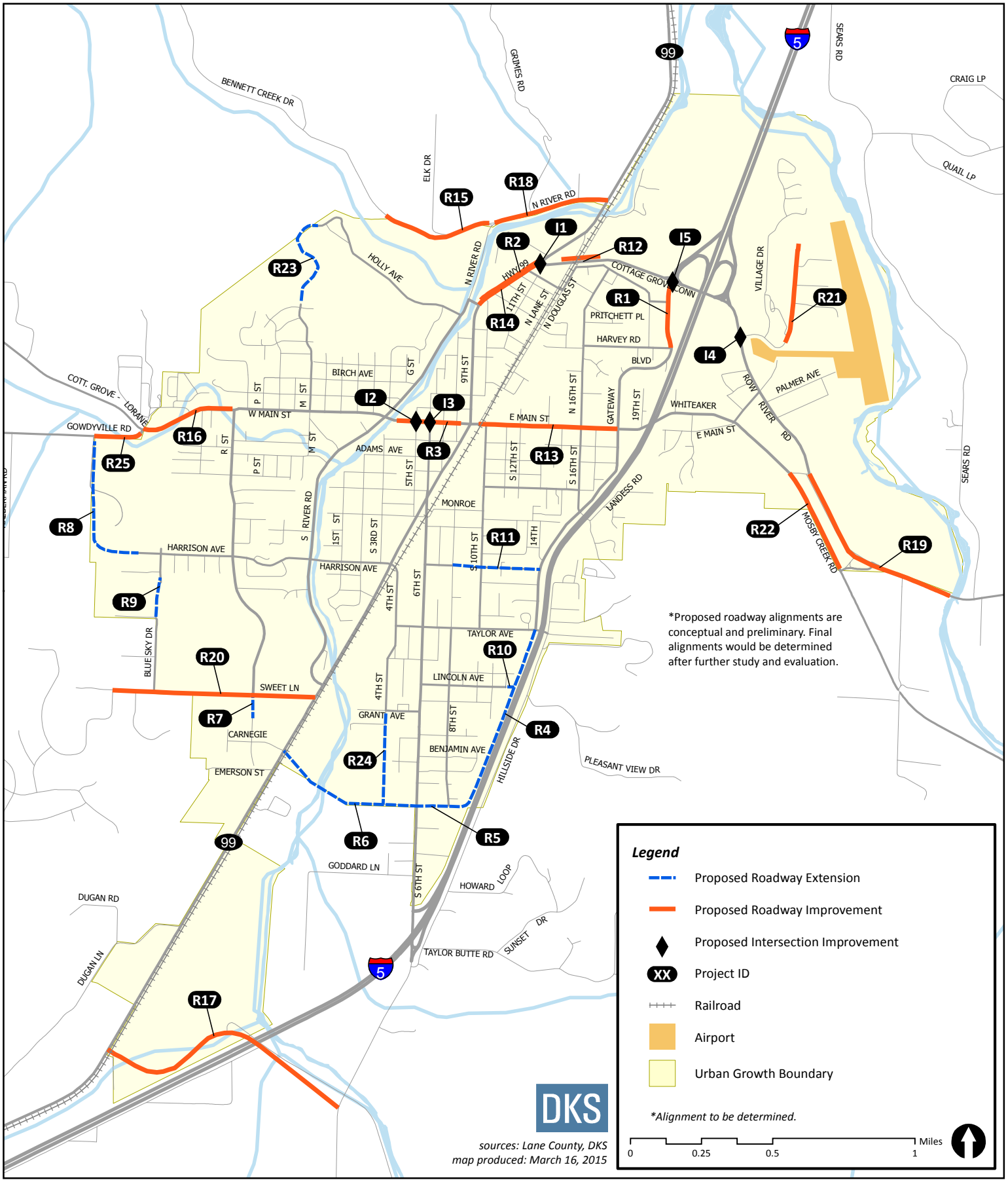


Table 4: Proposed Multi-Modal Roadway Projects – Roadway Extensions

Project ID	Name	Description	Purpose	Source	Evaluation Score
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	Medium
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	Medium
R6	Cleveland Ave Extension West*	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)[3]	Connectivity	2008 TSP	High
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	Medium
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	Medium
R11	Harrison Ave Extension**	Extensions to connect Harrison Ave from 6th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP	High
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	Medium

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location. Any proposed project that alters an at-grade railroad crossing will require coordination with ODOT Rail.

**The proposed project would be constructed in coordination with the planned redevelopment of the Harrison Elementary School site.

[3] The proposed project has higher than typical complexity due to right-of-way considerations, proximity to the current UGB and the need for a new railroad and river crossing (bridge) as well as a new access on OR 99. However, the project would create an important connection in south Cottage Grove to serve the growth areas identified in the UGB expansion and provide access to properties that are currently constrained by the adjacent railroad and river.

Table 5: Proposed Multi-Modal Roadway Projects – Modernization

Project ID	Name	Description	Purpose	Source	Evaluation Score
R12	Cottage Grove Connector Bridge Widening*	Widen to standard, include sidewalks and bicycle lanes	Safety/ Access	2008 TSP	Medium
R15	Bennett Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety/ Standards	Lane County TSP	Low
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety/ Standards	Lane County TSP	Medium
R17	Latham Road Modernization*	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety/ Standards	Lane County TSP	Low
R18	North River Road Modernization*	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety/ Standards	Lane County TSP	Low
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety/ Standards	Lane County TSP	Medium
R20	Sweet Lane Modernization*	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety/ Standards	Lane County TSP	Medium
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety/ Standards	Lane County TSP	Low
R22	Mosby Creek Road Modernization	Rural modernization for Mosby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Connectivity	Lane County TSP	Low

Project ID	Name	Description	Purpose	Source	Evaluation Score
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	Low

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Multi-modal Intersection Projects

Intersection improvements are listed in Table 6 and illustrated in Figure 1. These projects encompass a variety of intersection improvements, ranging from traffic control changes, installation of pedestrian crossings to signing and striping improvements. Where traffic signals are recommended, preliminary peak hour warrants are met. Details of the scoring evaluation and planning level cost estimates for each project are available in the Technical Appendix, as are preliminary traffic signal warrants based on forecasted 2035 traffic volumes.

Table 6: Proposed Multi-Modal Intersection Projects

Project ID	Name	Description	Purpose	Source	Evaluation Score
I1	OR 99 at Cottage Grove Connector Improvements*	Roundabout[4] (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	Low
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low
I4	Jim Wright Way at Row River Rd Improvements*	Traffic Control Conversion to Traffic Signal with crosswalks[5]	Mobility/ Access	City Staff	Low

[4] A conceptual illustration of a single-lane roundabout for project I1 is included in the Technical Appendix. ODOT agency review and engineering approval would be required prior to construction of any improvements at the intersection.

[5] Preliminary traffic signal warrants are not met at this intersection through the 2035 planning horizon. Traffic signals would not be installed unless an engineering study determines that a traffic signal would be appropriate, including the requirement that at least one traffic signal warrant is met. No traffic signal warrant can be installed at this location until traffic signal warrants are met and ODOT Traffic Roadway Engineering approval is provided.

Project ID	Name	Description	Purpose	Source	Evaluation Score
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection Improvements*	Safety Improvements (e.g., signing and striping)	Safety	New	Low

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Pedestrian Projects

Pedestrian improvements are listed below in Tables 7 through 10 and illustrated in Figure 2. These tables are grouped by project type: modernization, connection, crossing, and infill. The projects listed in Tables 7 through 10 are separated from other pedestrian improvements included as part of multimodal roadway improvement (in Table 3 through 5) because of their pedestrian focus. Pedestrian projects generally scored relatively high across the evaluation criteria. Details of the scoring evaluation and planning level cost estimates for each project are available in the Technical Appendix.

Modernization projects in Table 7 would construct sidewalks along existing roadways that to not currently provide dedicated pedestrian facilities. Pedestrian connection projects, shown in Table 8, identify new pedestrian facilities to provide better pedestrian access between key activity centers in Cottage Grove. The project locations and extents are illustrated in Figure 2.

Table 7: Proposed Pedestrian Projects - Modernizations

Project ID	Name	Description	Purpose	Source	Evaluation Score
P1	OR 99 Sidewalks North*	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP	Medium
P2	Cottage Grove Connector Sidewalks*	Construct Sidewalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)[6]	Access	2008 TSP	Low
P5	OR 99 Sidewalks South*	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New	Medium
P6	Main St	R Street to City Limits	Access	New	Medium

[6] The project would likely be constructed in coordination with improvements to the Cottage Grove Connector Bridge (Project R12),

Project ID	Name	Description	Purpose	Source	Evaluation Score
	Sidewalk				
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New	High
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New	Low
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New	Low
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New	Medium

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Table 8: Proposed Pedestrian Projects – Connections

Project ID	Name	Description	Purpose	Source	Evaluation Score
P8	Cottage Grove Connector Alternative Pedestrian Route	Way-finding to identify alternative pedestrian route	Access	2008 TSP	Medium
P27	Harrison Ave Pedestrian Connection*	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New	Low
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New	Low

*The proposed project would be constructed in coordination with the planned redevelopment of the Harrison Elementary School site.

Pedestrian projects in Table 9 include improvements in locations that may be difficult to cross due to traffic volume and/or high vehicle speeds. Two of the three crossing locations were score highly in the evaluation criteria, due in part to the significant safety benefit that is expected with implementation of these projects. The project locations and extents are illustrated in Figure 2.

Transportation System Plan

FIGURE 2

Proposed Pedestrian Improvements

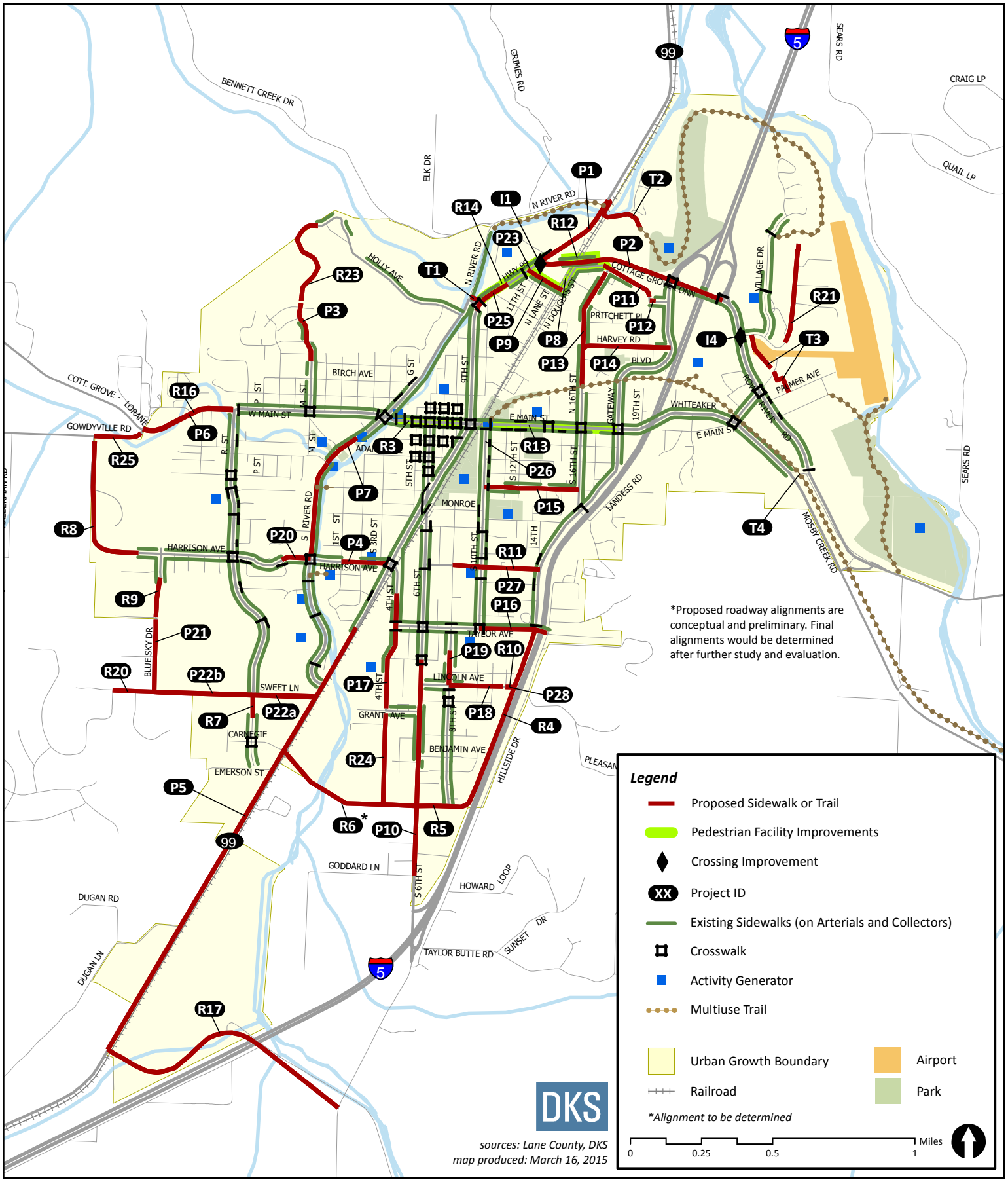


Table 9: Proposed Pedestrian Projects – Crossings

Project ID	Name	Description	Purpose	Source	Evaluation Score
P23	OR 99 Crosswalk Improvements at Geer Ave*	Improve crossing safety with changes to signing and/or pedestrian-activated warning[7]	Safety	New	High
P24	Row River Rd Crosswalk Improvements near Jim Wright Way*	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)[8]	Access	New	Medium
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	Access/Safety	New	High

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Sidewalk infill projects are summarized in Table 10 and shown in Figure 2. These projects were identified based on gaps identified in the pedestrian network. Filling in sidewalk gaps is particularly dependent on development unless the City creates a dedicated funding program to incrementally construct sidewalk infill projects. Implementation of these projects will lead to a more comprehensive and connected pedestrian network in Cottage Grove.

Table 10: Proposed Pedestrian Projects – Sidewalk Infill

Project ID	Name	Description	Purpose	Source	Evaluation Score
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP	Low
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP	Medium
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP	Medium
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New	Medium
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New	Medium

[7] Cost estimate assumes Rectangular Rapid Flash Beacon. ODOT agency review and engineering approval would be required prior to construction of any improvements at the intersection.

[8] Cost estimate assumes Pedestrian Hybrid Beacon. ODOT agency review and engineering approval would be required prior to construction of any improvements at the intersection.

Project ID	Name	Description	Purpose	Source	Evaluation Score
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New	Medium
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New	Medium
P14	Harvey Rd Sidewalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New	Medium
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New	Low
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New	Low
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave through Taylor Ave	Access	New	Medium
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New	Low
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New	Medium
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New	Low
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New	Medium

Bicycle Projects

Bicycle projects are illustrated in Figure 3 and listed below in Tables 11 and 12. Bicycle projects are divided into new bike lanes (Table 11) and enhanced connections (Table 12). Other bicycle improvements included as part of multimodal roadway improvement (in Table 3 through 5) are illustrated in Figure 3.

Most of the bicycle projects scored relatively low based on the evaluation criteria identified, especially those that require widening to implement. Projects that scored higher generally provided significant safety benefits and improved livability. Details of the scoring evaluation and planning level cost estimates for each project are available in the Technical Appendix.

Table 11 summarizes modernization projects that include dedicated bike lanes on existing roadways. The projects require either roadway widening or restriping.

Table 11: Proposed Bicycle Projects – Bike Lanes

Project ID	Name	Description	Purpose	Source	Evaluation Score
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP	Low
B2	OR 99 Bike Lanes North*	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New	Low
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New	Low
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP	Low
B6	Cottage Grove Connector Bike Lanes*	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)[9]	Access	2008 TSP	Medium
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP	Low
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP	Low
B9	OR 99 Bike Facility South*	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New	Medium

[9] The project would likely be constructed in coordination with improvements to the Cottage Grove Connector Bridge (Project R12),

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Table 12 identifies projects that enhance bicycle connectivity in Cottage Grove. These projects range from signing and striping for shared routes, way-finding signs for designated bicycle routes and bicycle parking. While potential treatments are identified in Table 12, a range of bicycle treatments are possible and specific treatments will be determined as projects are refined. Additional options for bicycle treatments are identified in Technical Memo #10.

Table 12: Proposed Bicycle Projects – Connections

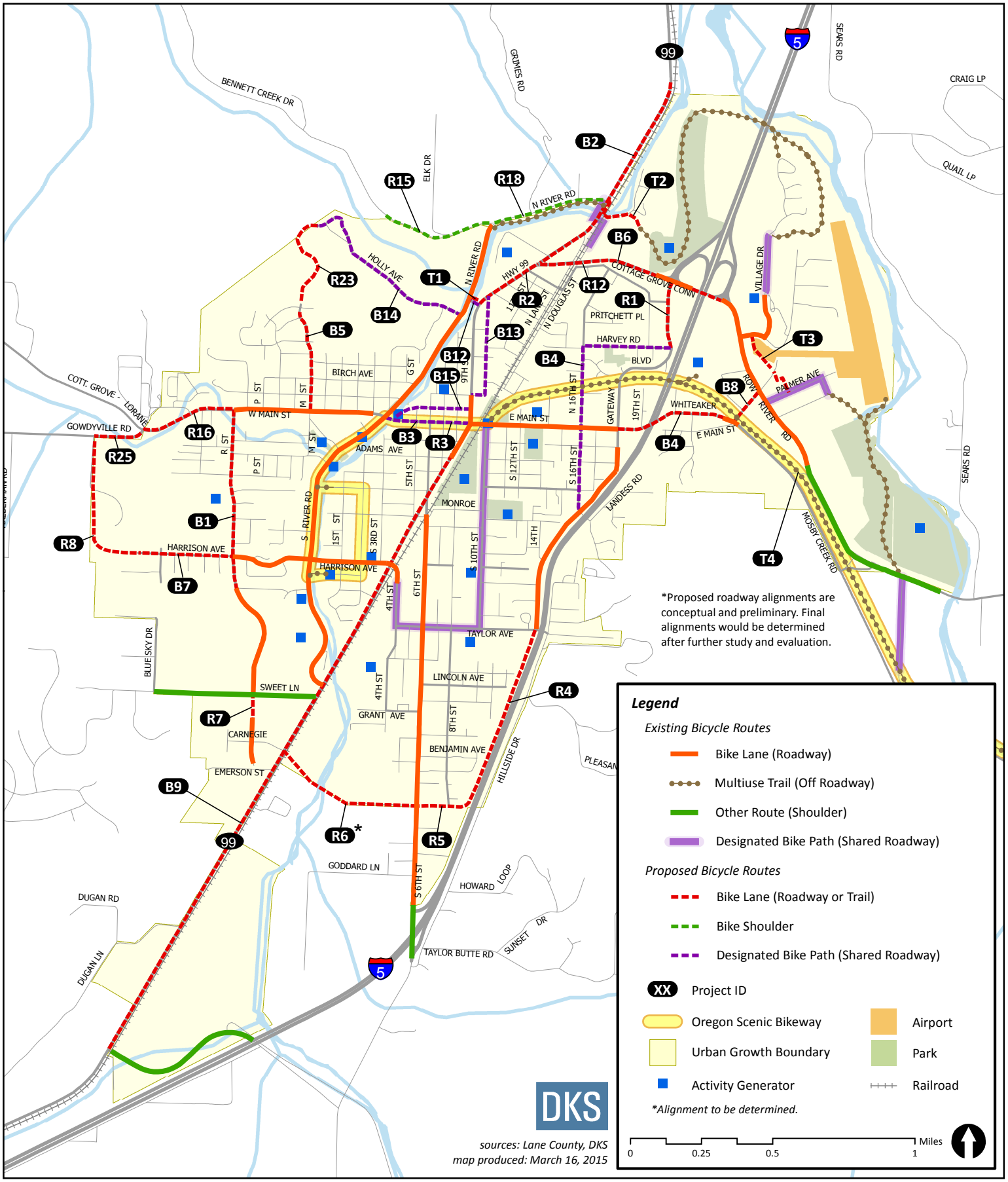
Project ID	Name	Description	Purpose	Source	Evaluation Score
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New	Low
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New	High
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access	New	Low
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New	Medium
B13	OR 99 Alternative Bicycle Route*	Add signing and striping to designate alternative bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers to optional routes off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access	New	Low
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New	Low
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New	Medium

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Transportation System Plan

FIGURE 3

Proposed Bicycle Improvements



Trail Projects

Trail projects are listed below in Table 13 and were illustrated in Figures 2 and 3. The projects providing missing links in the existing trail network in Cottage Grove or address potentially unsafe crossing locations. Details of the scoring evaluation and planning level cost estimates for each project are available in the Technical Appendix.

Table 13: Proposed Trail Projects

Project ID	Name	Description	Purpose	Source	Evaluation Score
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP	Medium
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP	Low
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	Low
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	Medium

Transit Projects

Transit use in Cottage Grove is generally either locally oriented (within Cottage Grove or nearby areas) or commuter oriented (to/from Eugene, Springfield and other parts of Lane County). There is an opportunity for increased transit ridership between Cottage Grove and Eugene-Springfield with increased transit service frequency and expanded hours of operation.

No transit-specific projects are identified as part of the TSP. Any transit project would involve coordination with Lane Transit District, South Lane Wheels, and other relevant agencies. The city will support transit through its development of pedestrian and bicycle facilities that provide access to transit.

Mobility Impacts

No mobility deficiencies were identified for TSP study intersections through the 2035 planning horizon under the baseline no-build future scenario identified in Tech Memo #7. However, some of the proposed roadway projects can potentially affect traffic operations and impact mobility in the City. To address these potential impacts, detailed traffic operations analysis results and discussion of mobility considerations for each roadway project are included in the Technical Appendix along with intersection traffic analysis worksheets.

None of the proposed roadway projects were found to significantly impact mobility in the City and all of the study intersections would continue to meet mobility standards through the 2035 planning horizon.

Funding and Cost Estimate Overview

The TSP must identify a financially constrained list of TSP solutions that falls with a reasonable funding estimate. Based on historical data of funding and expenses, the total funding availability for Cottage Grove TSP solutions is estimated to be $11.5 million through the 2035 planning horizon.[10,11]

Planning level cost estimates were identified for each project and are included in the Technical Appendix. The cost estimates also include an estimated share of funding from public agencies and private development. The total cost of the preferred solutions list is over $48 million. The public agency share of these costs is estimate to be over $29 million (or approximately 60 percent of total costs).

A subset of the full preferred solutions list is identified as the prioritized solutions list in the following section of this memorandum. This list of solutions is financially constrained because the total public agency share of costs falls within the estimate of available funding through 2035.

[10] Technical Memorandum #4 - Funding Review and Forecast, DKS, May 28, 2014

[11] Tech Memo #4 identifies at $10.5 million funding estimate. Input from ODOT Region 2 staff indicates this estimate should be increased by $1.0 million. The estimated ODOT funding available through 2035 does not constitute an obligation or commitment of funding. Rather, it is a planning level estimate based on historical revenues and costs related to operation and maintenance of the existing transportation system.

If additional funding sources are identified, the prioritized solutions list may be expanded to include more projects from the preferred solutions list. Higher than expected grant funding, development, or ODOT funding may contribute to more revenues than estimated. Conversely, lower revenues would result in fewer projects being constructed than are identified. Additional details and funding mechanisms are discussed in Tech Memo #4.

This TSP, including the project lists, does not have any legal or regulatory effect on land or transportation facilities that the City does not own. Although evaluation and proposed improvements of non-City facilities are included, the TSP does not obligate its governmental partners to take any action or construct any projects. Without additional action by the governmental entity that owns the subject facility or land (e.g., Lane County, ODOT) any project that involves a non-City facility is merely a recommendation. As in most transportation planning efforts, moving towards a well-connected network depends on the cooperation of multiple jurisdictions. The TSP is intended to facilitate discussions between the City and its governmental partners to work together to active transportation system goals and objectives. Jurisdictional transfers may be considered as part of the implementation of proposed transportation projects.

Recommended Prioritized Solutions

Table 14 identifies the initial list of prioritized solutions for Cottage Grove. The selection of priority solutions is inherently subjective, but was informed by the results of the evaluation criteria scoring and input received from Community Advisory Committee meetings, stakeholder interviews, and community events. This initial list of solutions may be refined with further community engagement.

This reflects the projects that are reasonably likely to be funded through 2035. The total cost of the public share of the projects is approximately $11 million. The timing of projects depends on growth and development with Cottage Grove. However, the projects are prioritized into categories of short-term (0-5 years), medium term (5-10 years), and long-term (10-20 years) to reflect the overall TSP prioritization.

Preferred projects not listed on the prioritized list may be constructed within the planning horizon. However, these projects are not prioritized at this time and should be considered to be planned for construction beyond the 2035 planning horizon, based on the available funding estimate identified above.

Table 14: Priority Solutions

Project ID	Name	Description	Estimated Cost to Public ($ 2015 Dollars)	Priority
R2	OR 99 Conversion*	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	$ 50,000	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	$ 3,000,000[12]	Short-term
R6	Cleveland Ave Extension West*	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	$ 3,300,000	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	**	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	$ 754,000	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	**	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	**	Long-term
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	$ 35,000	Medium-term
R14	OR 99 Access Improvements*	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	$ 20,000	Medium-term

[12] The total cost of the Main Street Refinement Plan was estimated to be between $8.0M and $9.3M. The costs for the project are expected to come partially from transportation funding and partially from other urban renewal and/or community development sources.

R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	$ 90,000	Medium-term
R23	M St Extension	Extension to Holly Avenue including sidewalks	**	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	**	Long-term
I1	OR 99 at Cottage Grove Connector Improvements*	Roundabout (or other intersection improvement) including pedestrian crossings	$ 1,300,000	Long-term
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	$ 150,000	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	$ 70,000	Medium-term
P1	OR 99 Sidewalks North*	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	$ 500,000	Long-term
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	**	Medium-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	$ 42,500	Medium-term
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	$ 180,000	Long-term
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	$ 50,000	Long-term
P10	6th St Sidewalks	Construct missing sidewalk segments from Fillmore Ave to south UGB extents	$ 400,000	Long-term

P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	$ 75,000	Long-term
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	$ 87,500	Long-term
P14	Harvey Rd Sidewalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	$ 125,000	Long-term
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave through Taylor Ave	$ 187,500	Long-term
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	$ 32,500	Long-term
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	$ 175,000	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave*	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assume Rectangular Rapid Flash Beacon)	$ 45,000	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way*	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimate assumes Pedestrian Hybrid Beacon)	$ 60,000	Short-term
P25	OR 99 Sidewalk Infill*	Construct missing sidewalk segments between Woodson Pl and Lord Ave	$ 60,000	Medium-term
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	$ 20,000	Short-term
P27	Harrison Ave Pedestrian Connection***	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	$ 160,000	Medium-term
B10	Bicycle Parking	Install bicycle parking (various locations)	$ 40,000	Medium-term
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	$ 5,000	-

B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	$ 20,000	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	$ 35,000	Medium-term
Total			**$11,069,000**	

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location. Any proposed project that alters an at-grade railroad crossing will require coordination with ODOT Rail.

**Assumed to be fully funded by private development, with no significant public agency funding contribution.

***The proposed project would be constructed in coordination with the planned redevelopment of the Harrison Elementary School site.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #9 –

Solution Evaluation and Initial Recommendation

Contents:

Evaluation Criteria & Scoring Methodology

Evaluation Criteria and Scoring

Measure of Effectiveness	Evaluation Score	
Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.		
Connectivity Improves multi-modal transportation system connections in the city	+1	Positive impact on connectivity across modes
	0	No change or neutral
	-1	Negative impact on connectivity across modes
Regional Access Improves access to the region, state and nation	+1	Improves access to regional connections
	0	No change or neutral
	-1	Degrades access to regional connections
Equitable Access Improves access for underserved or vulnerable populations	+1	Increases access to underserved or vulnerable populations
	0	No change or neutral
	-1	Decreases access to underserved or vulnerable populations
Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.		
Alternatives Supports travel choices other than driving alone (single occupant vehicle)	+1	Encourages non-SOV travel
	0	No change or neutral
	-1	Discourages non-SOV travel
Pedestrian and Bicycle Facilities Adds bikeway and walkways that fill in system gaps, improve system connectivity, and are accessible to all users	+1	Improves pedestrian or bicycle connectivity or accessibility
	0	No change
	-1	Reduces connectivity or accessibility
Transit Facilities Improves access to transit facilities. Promotes transit as a viable alternative to the single occupant vehicle	+1	Improves transit facilities
	0	No change
	-1	Negative impact on provision of services
Objective 3: Provide for efficient movement of goods and services.		
Mobility & Efficiency Reduce travel time, distance traveled, and/or travel-related costs	+1	Reduce travel time, distance traveled, or cost
	0	No change or neutral
	-1	Increases travel time, distance traveled, or cost
Freight Improves freight access/connectivity	+1	Improves freight facilities
	0	No change or neutral
	-1	Negative impact on freight facilities
Objective 4: Provide an environmentally responsible transportation system.		
Environment Minimizes impact to the natural environment	+1	Enhances the environment
	0	No change or neutral
	-1	Negative impacts on the environment
Stormwater Impact Minimizes transportation related pollution and impacts to stormwater	+1	Reduces stormwater pollution
	0	No change or neutral
	-1	Increases stormwater pollution
Objective 5: Provide a safe transportation system.		
Safety Improves safety of the transportation system	+1	Increases safety of the transportation system
	0	No change or neutral
	-1	Has potential geometric or user safety concerns
Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.		
Sustainable Development Supports integrated and mixed land uses	+1	Greater potential for mixed land uses
	0	No change or neutral
	-1	Less potential for mixed land uses
Integrated Land Use Supports the adopted comprehensive plan and land use designations	+1	Supports planned land use and community development
	0	No change or neutral
	-1	Counter to planned land use and community development

Measure of Effectiveness	Evaluation Score	
Objective 7: Make streets as "unobtrusive" to the community as possible.		
Barriers to Travel Improves roadway crossing opportunities	+1	Improves roadway crossing opportunities
	0	No change or neutral
	-1	Degrades roadway crossing opportunities
Support Neighborhoods & Resources Support historic neighborhood character and community resources	+1	Supports historic character
	0	No change or neutral
	-1	Degrades historic character
Objective 8: Require developments to address on- and off-site transportation system impacts.		
Major Public Investments Reduces need for transportation project investments funded by City, ODOT, or other public agencies	+1	Reduces need for public investment
	0	No change or neutral
	-1	Accelerates need for public investment
Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.		
Public Involvement Encourages public involvement in transportation decisions	+1	Increases public involvement opportunities
	0	No change or neutral
	-1	Decreases public involvement opportunities
Livability Responds to neighborhood and community needs	+1	Improves livability
	0	No change or neutral
	-1	Degrades livability
Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.		
Compatibility Compatible with other jurisdiction's plans and policies, (including adjacent cities, Lane County, or ODOT)	+1	Compatible with other plans and contributes to their implementation
	0	Compatible with other plans, but does not necessarily contribute to their implementation
	-1	Not compatible with other plans
Agency Standards Consistent with the standards of the City, Lane County, and ODOT	+1	Consistent with all standards
	0	May require some deviations to standards, but likely to be approved
	-1	Inconsistent with standards and not expected that deviations would be approved
Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.		
Fundability Available funding sources exist to implement projects in a timely fashion	+1	Funding sources are available
	0	Feasible costs, but no identified funding
	-1	High costs and no funding expected
Cost Effectiveness Assumed project benefits exceed project costs	+1	Cost effective solution
	0	Average cost solution
	-1	Not a cost effective solution
Objective 12: Make full use of existing roadways by reducing motor vehicle demand during peak use periods and increasing operational efficiency.		
Improved Roadway Efficiency Implements Transportation Demand Management (TDM) or other strategies to create greater mobility, reduce auto trips, make more efficient use of the roadway system	+1	Improves roadway efficiency
	0	No change
	-1	Negative impact on roadway efficiency
Corridor Reliability Implements strategies to provide stable and reliable auto and truck traffic flows on major facilities	+1	Improves roadway reliability
	0	No change
	-1	Negative impact on roadway reliability

Note: Solutions that are considered to have a major effect may be scored as +2 or -2.

Project Evaluations

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation																																					
Project #	Project Name	Project Description	Project Purpose	Source	Objective 1 (Connected)	Connectivity	Regional Access	Equitable Access	Objective 2 (Balanced)	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	Objective 3(Economic)	Mobility & Efficiency	Freight	Objective 4 (Environmental)	Environment	Stormwater Impact	Objective 5 (Safe)	Safety	Objective 6 (Sustainable & Integrated)	Sustainable Development	Integrated Land Use	Objective 7 (Unobtrusive)	Crossing Opportunities	Support neighborhoods & resources	Objective 8 (Affordable)	Major Public Investments	Objective 9 (Responsive)	Public Involvement	Livability	Objective 10 (Coordinated)	Compatibility	Agency Standards	Objective 11 (Viable & Stable)	Fundability	Cost Effective	Objective 12 (Efficient)	Improved Roadway Efficiency	Corridor Reliability	Total	Project Score Summary
Multi-modal Roadway Projects																																										
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		1	0		1	0	**8**	Medium
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP		1	0	1		1	2	1		0	0		0	0		2		0	0		1	1		0		0	1		0	1		1	1		1	0	**15**	High
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan		0	0	0		1	1	1		0	0		0	0		0		1	1		0	2		0		1	2		0	0		0	1		0	0	**11**	High
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	-1		1	0	**8**	Medium
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**9**	Medium
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP		2	2	1		2	2	1		2	1		0	0		0		1	1		0	0		0		0	1		0	0		-1	1		1	1	**18**	High
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	**10**	Medium
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	Medium
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	Medium
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	Medium
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP		1	0	1		1	1	1		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	**11**	High
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP		2	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		-1	0		1	0	**8**	Medium
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	**13**	High
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	**13**	High
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	1		0	0	**9**	Medium
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
R18	North River Road Modernization	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		1	1		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**10**	Medium
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**8**	Medium
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	Low
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	Low
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New		1	1	0		1	1	0		1	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**7**	Low

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation																																					
Project #	Project Name	Project Description	Project Purpose	Source	Objective 1 (Connected)	Connectivity	Regional Access	Equitable Access	Objective 2 (Balanced)	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	Objective 3(Economic)	Mobility & Efficiency	Freight	Objective 4 (Environmental)	Environment	Stormwater Impact	Objective 5 (Safe)	Safety	Objective 6 (Sustainable & Integrated)	Sustainable Development	Integrated Land Use	Objective 7 (Unobtrusive)	Crossing Opportunities	Support neighborhoods & resources	Objective 8 (Affordable)	Major Public Investments	Objective 9 (Responsive)	Public Involvement	Livability	Objective 10 (Coordinated)	Compatibility	Agency Standards	Objective 11 (Viable & Stable)	Fundability	Cost Effective	Objective 12 (Efficient)	Improved Roadway Efficiency	Corridor Reliability	Total	Project Score Summary
Multi-modal Intersection Projects																																										
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	1		0	1		-1	0		0	0	7	Low
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	0	Low
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	0	Low
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff		1	0	1		1	1	1		1	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		0	0	6	Low
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection Improvements	Safety Improvements (e.g., signing and striping)	Safety	New		0	0	0		0	0	0		0	0		0	0		1		0	0		1	0		0		0	0		0	0		0	1		0	0	3	Low
Multi-use Trail Projects																																										
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		0	0		1	1		0		0	1		0	1		-1	0		0	0	9	Medium
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	6	Low
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	6	Low
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New		1	1	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	8	Medium
Pedestrian Projects																																										
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		-1	1		0	0	10	Medium
P2	Cottage Grove Connector Sidewalks	Construct Sidwalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		-1	0		0	0	6	Low
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	6	Low
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P5	OR 99 Sidewalks South	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New		2	0	0		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		-1	0		0	0	9	Medium
P6	Main St Sidewalk	R Street to City Limits	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	8	Medium
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	1		0	0	9	Medium
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		1	0		0	0	8	Medium
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New		2	0	1		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		0	1		0	0	12	High
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	8	Medium
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	6	Low
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	7	Low
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New		1	0	1		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	9	Medium
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	6	Low

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation																																					
Project #	**Project Name**	**Project Description**	**Project Purpose**	**Source**	**Objective 1 (Connected)**	Connectivity	Regional Access	Equitable Access	**Objective 2 (Balanced)**	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	**Objective 3(Economic)**	Mobility & Efficiency	Freight	**Objective 4 (Environmental)**	Environment	Stormwater Impact	**Objective 5 (Safe)**	Safety	**Objective 6 (Sustainable & Integrated)**	Sustainable Development	Integrated Land Use	**Objective 7 (Unobtrusive)**	Crossing Opportunities	Support neighborhoods & resources	**Objective 8 (Affordable)**	Major Public Investments	**Objective 9 (Responsive)**	Public Involvement	Livability	**Objective 10 (Coordinated)**	Compatibility	Agency Standards	**Objective 11 (Viable & Stable)**	Fundability	Cost Effective	**Objective 12 (Efficient)**	Improved Roadway Efficiency	Corridor Reliability	**Total**	**Project Score Summary**
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	Low
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	Low
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New		1	0	0		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New		1	0	1		1	1	1		0	0		0	0		2		0	0		1	0		0		0	1		0	1		0	1		0	0	**11**	High
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		1	0		0		0	1		0	0		0	1		0	0	**9**	Medium
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	1		0	0	**9**	Medium
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	Access/Safety	New		1	0	0		1	1	1		0	0		0	0		1		0	1		1	1		0		0	1		0	1		0	1		0	0	**11**	High
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
Bicycle Projects																																										
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**6**	Low
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New		1	1	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**6**	Low
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	1		0	0	**7**	Low
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**2**	Low
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	0		0	0	**5**	Low
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**8**	Medium
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		1	1		0	0	**6**	Low
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**6**	Low
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New		1	1	0		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		0	0		0	0	**10**	Medium
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New		1	0	1		1	1	2		0	0		0	0		0		1	1		0	0		0		0	1		0	1		0	1		0	0	**11**	High
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access			1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**7**	Low
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	**8**	Medium
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access			1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**7**	Low
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	1		0	0	**5**	Low
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	1		0		0	1		0	1		0	1		0	0	**8**	Medium

Cottage Grove TSP - Preliminary Project List (Sorted by Project Evaluation Score)

Project Information					Evaluation																																					
Project #	Project Name	Project Description	Project Purpose	Source	Objective 1 (Connected)	Connectivity	Regional Access	Equitable Access	Objective 2 (Balanced)	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	Objective 3(Economic)	Mobility & Efficiency	Freight	Objective 4 (Environmental)	Environment	Stormwater Impact	Objective 5 (Safe)	Safety	Objective 6 (Sustainable & Integrated)	Sustainable Development	Integrated Land Use	Objective 7 (Unobtrusive)	Crossing Opportunities	Support neighborhoods & resources	Objective 8 (Affordable)	Major Public Investments	Objective 9 (Responsive)	Public Involvement	Livability	Objective 10 (Coordinated)	Compatibility	Agency Standards	Objective 11 (Viable & Stable)	Fundability	Cost Effective	Objective 12 (Efficient)	Improved Roadway Efficiency	Corridor Reliability	Total	Project Score Summary
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP		2	2	1		2	2	1		2	1		0	0		0		1	1		0	0		0		0	1		0	0		-1	1		1	1	18	High
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP		1	0	1		1	2	1		0	0		0	0		2		0	0		1	1		0		0	1		0	1		1	1		1	0	15	High
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	13	High
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	13	High
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New		2	0	1		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		0	1		0	0	12	High
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP		1	0	1		1	1	1		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	11	High
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New		1	0	1		1	1	1		0	0		0	0		2		0	0		1	0		0		0	1		0	1		0	1		0	0	11	High
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	Access/Safety	New		1	0	0		1	1	1		0	0		0	0		1		0	1		1	1		0		0	1		0	1		0	1		0	0	11	High
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New		1	0	1		1	1	2		0	0		0	0		0		1	1		0	0		0		0	1		0	1		0	1		0	0	11	High
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan		0	0	0		1	1	1		0	0		0	0		0		1	1		0	2		0		1	2		0	0		0	0		0	0	10	Medium
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	10	Medium
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		1	1		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	10	Medium
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		-1	1		0	0	10	Medium
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New		1	1	0		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		0	0		0	0	10	Medium
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	9	Medium
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	1		0	0	9	Medium
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		0	0		1	1		0		0	1		0	1		-1	0		0	0	9	Medium
P5	OR 99 Sidewalks South	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New		2	0	0		1	1	1		0	0		0	0		1		1	1		0	0		0		0	1		0	1		-1	0		0	0	9	Medium
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	1		0	0	9	Medium
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New		1	0	1		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	9	Medium
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		1	0		0		0	1		0	0		0	1		0	0	9	Medium
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	1		0	0	9	Medium
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		1	0		1	0	8	Medium
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	-1		1	0	8	Medium
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	8	Medium

Cottage Grove TSP - Preliminary Project List (Sorted by Project Evaluation Score)

Project Information					Evaluation																																					
Project #	**Project Name**	**Project Description**	**Project Purpose**	**Source**	**Objective 1 (Connected)**	Connectivity	Regional Access	Equitable Access	**Objective 2 (Balanced)**	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	**Objective 3(Economic)**	Mobility & Efficiency	Freight	**Objective 4 (Environmental)**	Environment	Stormwater Impact	**Objective 5 (Safe)**	Safety	**Objective 6 (Sustainable & Integrated)**	Sustainable Development	Integrated Land Use	**Objective 7 (Unobtrusive)**	Crossing Opportunities	Support neighborhoods & resources	**Objective 8 (Affordable)**	Major Public Investments	**Objective 9 (Responsive)**	Public Involvement	Livability	**Objective 10 (Coordinated)**	Compatibility	Agency Standards	**Objective 11 (Viable & Stable)**	Fundability	Cost Effective	**Objective 12 (Efficient)**	Improved Roadway Efficiency	Corridor Reliability	**Total**	**Project Score Summary**
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	Medium
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	Medium
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP		2	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		-1	0		1	0	**8**	Medium
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**8**	Medium
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New		1	1	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	**8**	Medium
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P6	Main St Sidewalk	R Street to City Limits	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**8**	Medium
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		1	0		0	0	**8**	Medium
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New		1	0	0		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	Medium
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	2008 TSP		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**8**	Medium
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	**8**	Medium
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	1		0		0	1		0	1		0	1		0	0	**8**	Medium
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	Low
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Lane County TSP		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	Low
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New		1	1	0		1	1	0		1	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**7**	Low
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	1		0	1		-1	0		0	0	**7**	Low
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	Low
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	Low
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	Low
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	1		0	0	**7**	Low

Cottage Grove TSP - Preliminary Project List (Sorted by Project Evaluation Score)

Project Information					Evaluation																																					
Project #	**Project Name**	**Project Description**	**Project Purpose**	**Source**	**Objective 1 (Connected)**	Connectivity	Regional Access	Equitable Access	**Objective 2 (Balanced)**	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	**Objective 3(Economic)**	Mobility & Efficiency	Freight	**Objective 4 (Environmental)**	Environment	Stormwater Impact	**Objective 5 (Safe)**	Safety	**Objective 6 (Sustainable & Integrated)**	Sustainable Development	Integrated Land Use	**Objective 7 (Unobtrusive)**	Crossing Opportunities	Support neighborhoods & resources	**Objective 8 (Affordable)**	Major Public Investments	**Objective 9 (Responsive)**	Public Involvement	Livability	**Objective 10 (Coordinated)**	Compatibility	Agency Standards	**Objective 11 (Viable & Stable)**	Fundability	Cost Effective	**Objective 12 (Efficient)**	Improved Roadway Efficiency	Corridor Reliability	**Total**	**Project Score Summary**
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access	New		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**7**	Low
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access	New		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**7**	Low
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
R18	North River Road Modernization	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety / Standards	Lane County TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	Low
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff		1	0	1		1	1	1		1	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		0	0	**6**	Low
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	**6**	Low
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	**6**	Low
P2	Cottage Grove Connector Sidewalks	Construct Sidwalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	2008 TSP		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		-1	0		0	0	**6**	Low
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	Low
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**6**	Low
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New		1	1	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**6**	Low
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		1	1		0	0	**6**	Low
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**6**	Low
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP		1	0	0		1	1	1		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	0		0	0	**5**	Low
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	1		0	0	**5**	Low
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection Improvements	Safety Improvements (e.g., signing and striping)	Safety	New		0	0	0		0	0	0		0	0		0	0		1		0	0		1	0		0		0	0		0	0		0	1		0	0	**3**	Low
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**2**	Low
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	**0**	Low
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	**0**	Low

TSP Goals & Objectives

Goals, Objectives, and Policies

Since the current TSP was adopted in 2008, several studies and plans have been completed including the Cottage Grove Development Code (2008), the 2037 Vision and Action Plan (2008), and the Economic Opportunities Analysis (2009). Statewide regulations have also changed, including significant amendments to the Oregon Transportation Plan and Oregon Highway Plan. The regulatory, land use, and transportation system changes identified in Technical Memorandum #2 – Background Document Review[1] and Technical Memorandum #3 – Regulatory Review[2] should be reflected in the updated TSP,[3] including the revised goals, objectives and policies.

There are four goals, 12 objectives, and 44 policies identified in Chapter 2 of the adopted 2008 TSP (reproduced in the Technical Appendix). Goals are defined as brief guiding statements that describe a desired result. Objectives associated with the goals describe the actions needed to move the community in the direction of completing each goal. Policies are identified to assist in achieving goals and objectives. These goals, objectives and policies will be used in the development of the TSP update to develop strategies and implementing measures for each of the travel modes addressed.

Based on reviewing the key changes since the 2008 TSP, the following revisions are recommended to the TSP goals, objectives, and policies. Text recommended for deletion is shown with ~~strikethrough~~, while text recommended for addition is underlined.

[1] Technical Memorandum #2- Background Document Review, DKS and Angelo Planning Group, March 11, 2014

[2] Technical Memorandum #3- Regulatory Review, Angelo Planning Group and DKS, March 26, 2014

[3] In the case of Development Code amendments, they should be consistent with the TSP update.

Goals

- Goal 1: Enhance the Cottage Grove area's quality of life and competitive economic advantage by providing a transportation system that is:
    - Accessible,
    - Balanced,
    - Efficient,
    - Environmentally responsible,
    - Equitable
    - Financially stable,
    - Interconnected, ~~and~~
    - Safe, and~~.~~
    - Sustainable.
- Goal 2: Develop a cost-effective transportation system that meets the needs of all people and businesses ~~passengers and freight~~, and that serves the existing and future arrangement of land uses to the consensus of all jurisdictions involved.
- Goal 3: Develop a cost-effective transportation system plan that is based on informed citizen input, professional review, and technical analysis.
- Goal 4: Develop an integrated transportation and land use system that helps implement statewide transportation goals, statewide administrative rules and the Cottage Grove Comprehensive Land Use Plan

Objectives

- Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.
- Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.
- Objective 3: Provide for efficient movement of goods and services.
- Objective 4: Provide an environmentally responsible transportation system.
- Objective 5: Provide a safe transportation system.
- Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.
- Objective 7: Make streets as "unobtrusive" to the community as possible.
- Objective 8: Require developments to address on- and off-site transportation system impacts.
- Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.
- Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.
- Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.
- Objective 12: Make full use of existing roadways by reducing motor vehicle demand during peak use periods and increasing operational efficiency.

Policies

Overall

- Policy 1: Develop a well connected transportation system across all modes and locations in the city.
- Policy 2: Consider the impact of all land use decisions on the existing and planned transportation facilities.
- Policy 3: Protect the function of existing and planned transportation systems as identified in the
- Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.
- Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.
- Policy 5: Develop a street network that accommodates the safe and efficient movement of emergency service vehicles.
- Policy 6: Consider the level of community interest and support in evaluating and prioritizing street improvement projects within the existing street system.
- Policy 7: Coordinate with ODOT and/or Lane County on roadway projects impacting land uses outside of city limits or roadways outside of City jurisdiction.
- Policy 8: Consider funding and likelihood of timely construction ~~the funding commitment or availability and ability of project to be constructed within timeframe~~ in evaluating and prioritizing transportation ~~street~~ improvement projects ~~within the existing street system~~.

Standards

- Policy 9: Consider the degree to which proposed transportation system improvements support ~~physical~~ community development plans and land use designations when evaluating projects, solutions or strategies. ~~trends (the extent to which the project complements or supports the emerging land use pattern) in evaluating and prioritizing street improvement projects within the existing street system.~~
- Policy 10: Consider economic development potential (the extent to which the project relieves congestion and provides land use access to under-utilized and undeveloped urban lands) in evaluating and prioritizing transportation system improvements. ~~street improvement projects within the existing street system.~~
- Policy 11: Consider the following primary criteria in evaluating and prioritizing transportation improvement projects – safety, connectivity, access, ~~street improvement projects within the existing street system –~~ average daily traffic, physical condition of street, street geometrics, and capacity/congestion (level of service).

- Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.
- Policy 13: Design streets that minimize impacts to topography and natural resources, such as streams, wetlands, and wildlife corridors.
- Policy 14: Consider commercial, industrial and recreational transportation needs in decisions about access management and in construction or reconstruction of roadways.
- Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.
- Policy 16: Develop a street system and infrastructure that, where appropriate, conveys and treats stormwater runoff.
- Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

Multi-Modal

- Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.
- Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.
- Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.
- Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.
- Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.
- Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.
- Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

Pedestrian

- Policy 25: Design new streets and crossings to meet the needs of pedestrians and encourage walking as a transportation mode.
- Policy 26: Develop a pedestrian network by focusing on direct, convenient, and safe pedestrian travel within and between residential areas, schools, parks, and shopping and working areas within the urban area.
- Policy 27: Install sidewalks and/or pedestrian trails of suitable surfacing on all future local streets. Reconstructed and new collectors and arterials shall include

sidewalks. Pedestrian facilities may be installed on or off-street to facilitate walking between significant activity areas.

- Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.
- Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

Bicycle

- Policy 30: Ensure consistency with the policies in the most current Bikeway Master Plan.
- Policy 31: Require adequate bicycle parking in schools, parks, churches, existing shopping and working areas, and other destination areas to encourage increased use of bicycles.
- Policy 32: Include bicycle facilities such as bike lanes or dedicated bikeways in the planning, design, and construction of all new and/or reconstructed collectors and arterial roads. The Oregon Bicycle and Pedestrian Design Guide's Urban/Suburban Recommended Separation Matrix ~~Plan Bike Lane Matrix for urban and suburban settings~~ shall be used ~~as a guide~~ in making decisions regarding the need and design for appropriate bicycle facilities ~~for bike lanes~~.
- Policy 33: Require provision of bicycle parking facilities with new commercial and industrial development and multi-family residential development.

Transit

- Policy 34: Develop a cost effective accessible transit program that meets the needs of all potential and identified users.
- Policy 35: Support provision of basic mobility services for the elderly and people with special needs.
- Policy 36: All new development shall be referred to transit service providers for review and comment to determine if new transit stops are appropriate and can reasonably be provided as part of the new development.

Rail

- Policy 37: Increase economic opportunities for the State by having a viable and competitive rail system.
- Policy 38: Strengthen the retention of local rail services.
- Policy 39: Protect abandoned rail right-of-ways for alternative or future use.
- Policy 40: Integrate rail freight considerations into land use planning process.
- Policy 41: Consider adequate rail freight access for planned and existing development in the zoning of adjacent property.
- Policy 42: Consult with freight rail service providers and the Oregon Department of Transportation Rail Division as appropriate, in the review of new development or other decisions that may impact freight rail lines or rail crossings.

Air

- Policy 43: The function of existing or planned general use airports shall be protected through the application of appropriate and compatible land use designations.
- Policy 44: Incompatible land uses shall be prohibited on the lands adjacent to the airport. Approved uses around the airport shall be required to provide an environment that will not be adversely impacted by and will be compatible with the airport and its operations.

Project Cost Estimates

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation	Estimated Costs			Funding		Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	% Funded by Development	% Funded by Public Agencies	Priority
Multi-modal Roadway Projects											
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP	Medium	$100,000	$100,000	Medium		100%	-
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP	High	$50,000	$50,000	Medium		100%	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	High	$3,000,000	$3,000,000	High		100%	Short-term
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	$4,000,000	$3,200,000	High	20%	*80%*	-
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	$1,300,000	$260,000	High	80%	20%	-
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	High	$6,600,000	$3,300,000	High	50%	50%	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	$950,000	$0	Medium	100%	0%	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	$3,770,000	$754,000	High	80%	20%	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	Medium	$900,000	$0	Medium	100%	0%	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	Medium	$200,000	$0	Medium	100%	0%	Long-term
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP	High	$1,500,000	$1,200,000	High	20%	80%	-
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP	Medium	$3,750,000	$3,750,000	High		100%	-
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	High	$70,000	$35,000	Medium	50%	50%	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New	High	$30,000	$20,000	Low	33%	67%	Medium-term
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP	Low	$270,000	$270,000	Medium		100%	-
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	Medium	$90,000	$90,000	Medium		100%	Medium-term
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP	Low	$100,000	$66,667	Medium	33%	67%	-
R18	North River Road Modernization	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety / Standards	Lane County TSP	Low	$430,000	$430,000	Medium		100%	-
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety / Standards	Lane County TSP	Medium	$900,000	$720,000	Medium	20%	80%	-

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation	Estimated Costs			Funding		Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	% Funded by Development	% Funded by Public Agencies	Priority
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP	Medium	$570,000	$456,000	Medium	20%	80%	-
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP	Low	$220,000	$176,000	Medium	20%	80%	-
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Lane County TSP	Low	$250,000	$200,000	Medium	20%	80%	-
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium	$3,750,000	$0	High	100%	0%	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	Medium	$1,550,000	$0	High	100%	0%	Long-term
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	Low	$450,000	$450,000	Medium	0%	100%	-
Multi-modal Intersection Projects											
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	Low	$1,300,000	$1,300,000	High		100%	Long-term
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low	$15,000	$15,000	Low		100%	-
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low	$15,000	$15,000	Low		100%	-
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff	Low	$300,000	$150,000	Medium	50%	50%	
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection Improvements	Safety Improvements (e.g., signing and striping)	Safety	New	Low	$60,000	$60,000	Medium		100%	-
Multi-use Trail Projects											
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP	Medium	$350,000	$350,000	Medium		100%	-
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP	Low	$700,000	$700,000	Medium		100%	-
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	Low	$150,000	$150,000	Medium		100%	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	Medium	$70,000	$70,000	Medium		100%	Medium-term
Pedestrian Projects											
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP	Medium	$500,000	$500,000	Medium		100%	Long-term
P2	Cottage Grove Connector Sidewalks	Construct Sidwalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	2008 TSP	Low	$480,000	$480,000	Medium		100%	-
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP	Low	$250,000	$0	Medium	100%	0%	Medium-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP	Medium	$85,000	$42,500	Medium	50%	50%	Medium-term

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation	Estimated Costs			Funding		Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	% Funded by Development	% Funded by Public Agencies	Priority
P5	OR 99 Sidewalks South	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New	Medium	$1,150,000	$920,000	High	20%	80%	-
P6	Main St Sidewalk	R Street to City Limits	Access	New	Medium	$450,000	$225,000	Medium	50%	50%	-
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP	Medium	$180,000	$180,000	Medium		100%	Long-term
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Access	2008 TSP	Medium	$10,000	$10,000	Low		100%	-
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New	Medium	$100,000	$50,000	Medium	50%	50%	Long-term
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New	High	$600,000	$400,000	Medium	33%	67%	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New	Medium	$150,000	$75,000	Medium	50%	50%	Long-term
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New	Medium	$25,000	$12,500	Low	50%	50%	-
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New	Medium	$175,000	$87,500	Medium	50%	50%	Long-term
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New	Medium	$250,000	$125,000	Medium	50%	50%	Long-term
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New	Low	$200,000	$100,000	Medium	50%	50%	-
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New	Low	$150,000	$75,000	Medium	50%	50%	-
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New	Medium	$375,000	$187,500	Medium	50%	50%	Long-term
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New	Low	$250,000	$125,000	Medium	50%	50%	-
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New	Medium	$65,000	$32,500	Medium	50%	50%	Long-term
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New	Low	$45,000	$22,500	Low	50%	50%	-
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New	Low	$350,000	$175,000	Medium	50%	50%	-
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New	Low	$300,000	$150,000	Medium	50%	50%	-
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New	Medium	$350,000	$175,000	Medium	50%	50%	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New	High	$45,000	$45,000	Low		100%	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New	Medium	$60,000	$60,000	Medium		100%	Short-term
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New	Medium	$90,000	$60,000	Medium	33%	67%	Medium-term
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	Access/Safety	New	High	$20,000	$20,000	Low		100%	Short-term

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation	Estimated Costs			Funding		Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	% Funded by Development	% Funded by Public Agencies	Priority
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New	Low	$200,000	$160,000	Medium	20%	80%	Medium-term
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New	Low	$200,000	$160,000	Medium	20%	80%	-
Bicycle Projects											
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP	Low	$60,000	$60,000	Medium		100%	-
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New	Low	$850,000	$850,000	Medium		100%	-
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New	Low	$25,000	$25,000	Low		100%	-
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New	Low	$400,000	$320,000	Medium	20%	80%	-
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP	Low	$30,000	$30,000	Low		100%	-
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	2008 TSP	Medium	$600,000	$600,000	Medium		100%	-
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP	Low	$25,000	$25,000	Low		100%	-
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP	Low	$150,000	$150,000	Medium		100%	-
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New	Medium	$1,500,000	$1,500,000	High		100%	-
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New	High	$40,000	$40,000	Low		100%	Medium-term
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access		Low	$35,000	$35,000	Low		100%	-
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New	Medium	$5,000	$5,000	Low		100%	-
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access		Low	$30,000	$30,000	Low		100%	-
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New	Low	$20,000	$20,000	Low		100%	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New	Medium	$35,000	$35,000	Low		100%	Medium-term
Total:						$48,670,000	$29,717,667				

Proposed Project Impact Evaluation: Mobility and Safety Considerations & Traffic Operations Analysis

Proposed Project Impact Evaluation:

Mobility and Safety Considerations & Traffic Operations Analysis

The following memo identifies significant mobility considerations for the roadway projects identified in Cottage Grove TSP Tech Memo #9 (Solutions Evaluation and Initial Recommendation). Traffic operations analysis worksheets (e.g., Synchro outputs) are attached. Future year (2035) traffic analysis results are compared against the No-Build PM peak hour scenario, as previously described in Tech Memo #7 (Future Conditions Analysis).

Project I1 – Roundabout (or other intersection improvement) at OR 99 and Cottage Grove Connector

The existing traffic control at the intersections includes free-flow traffic between the south leg (OR 99) and the east leg (Cottage Grove Connector) with a several stop-controls for minor street and turning movements including northbound and southbound through traffic on OR 99. For traffic analysis purposes, the intersection is conservatively evaluated as a two-way stop control intersection.[1] Traffic analysis results based on forecasting for the 2035 PM peak hour (as previously described in Tech Memo #7) are LOS A/D, V/C ratio of 0.15/0.36, and average delay of 9 seconds/33 seconds for major and minor street movements, respectively.

Constructing the proposed single lane roundabout at the intersection would result in estimated LOS B, V/C ratio of 0.67, and average control delay of 11.1 seconds for the east (westbound) approach from the Cottage Grove Connector. An illustration of a potential roundabout configuration overlayed on the existing intersection is attached. The roundabout could have several potential benefits including providing pedestrian crossing opportunities and mitigating the speeding issue on OR 99 along the high-crash section between Woodson Bridge and OR 99.

Both intersection traffic controls are expected to result in traffic operations that are well within the mobility target (0.95 V/C) for the intersection.

Project I2 and Project I3 – Convert Main Street Traffic Signals to Four-Way Stop Control

These proposed projects would replace the traffic signals on Main Street at 5th Street and 6th Street with four-way stop controls. The proposed four-way stop control would slow traffic on Main Street, with the intention of allowing for a more pedestrian friendly environment and improved business visibility.

PM peak hour turn counts were collected at North River Road/Main Street, 6th Street/Main Street, and 7th Street/Main Street as part of the TSP analysis. The future PM peak hour turn volumes at these three intersections were estimated based on the TSP travel demand model. The counts and estimated future

[1] As a result, the proposed roadway conversion (Project R2) would have no effect on the traffic operations identified

volumes at the three intersections were combined to estimate the existing and 2035 PM peak hour turn movements 5th Street/Main Street.

The PM peak hour turn movements for existing conditions and year 2035 conditions were used to calculate the intersection operations for 5th Street/Main Street and 6th Street/Main Street. The resulting intersection operations with traffic signal control are summarized in Table 1. Table 2 summarizes the resulting traffic operations analysis using HCM 2010 all-way stop control intersection analysis methodology.

Table 1: Existing Intersection Control Operations

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[2]	Level of Service Overall (Major/Minor)[3]	Average Delay (seconds) Overall (Major/Minor)[4]
Signalized Intersections				
Existing Main Street/5th Street	0.90	0.26 (0.24/0.36)	A (A/B)	5 (2/16)
Year 2035 Main Street/5th Street	0.90	0.37 (0.37/0.34)	A (A/B)	5 (3/13)
Existing Main Street/6th Street	0.90	0.28 (0.28/0.31)	A (A/B)	5 (3/14)
Year 2035 Main Street/6th Street	0.90	0.40 (0.42/0.35)	A (A/B)	6 (4/12)

Table 2: Proposed Intersection Control Operations

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[5]	Level of Service Overall (Major/Minor)[6]	Average Delay (seconds) Overall (Major/Minor)[7]
All-Way Stop-controlled Intersections				
Existing Main Street/5th Street	0.90	(0.36/0.12)	A (B/A)	10 (10/9)
Year 2035 Main Street/5th Street	0.90	(0.55/0.18)	B (B/B)	13 (14/10)
Existing Main Street/6th Street	0.90	(0.39/0.14)	A (B/A)	10 (10/9)
Year 2035 Main Street/6th Street	0.90	(0.59/0.24)	B (C/B)	14 (15/11)

As shown in Table 1, the delay and v/c ratios at the two intersections are well within the mobility target (0.95 V/C) during the PM peak hour both for present day conditions and estimated future conditions.

[2] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[3] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[4] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[5] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[6] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[7] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.

Likewise, the all-way stop control also functions well within mobility standards. The stop-control evaluation indicates that traffic operations and delay would not be seriously impacted at the intersections of 5th Street/Main Street and 6th Street/Main Street under existing conditions or by the year 2035.

Typically, an intersection must meet two or more signal warrants in order to justify adding signalized traffic control. Signal warrant analysis of 5th Street/Main Street and 6th Street/Main Street could indicate whether the existing signals are required for safe and efficient Main Street traffic operations. Therefore, signal warrants were analyzed for both existing and year 2035 traffic conditions at the two intersections.

An estimate of peak 4-hour and 8-hour traffic volumes entering an intersection is required to complete analysis of the first two signal warrants. A 24-hour traffic volume count recorded between 6th Street and 7th Street was used to estimate the existing and year 2035 4-hour and 8-hour entering volumes at 5th Street/Main Street and 6th Street/Main Street. All available signal warrant analysis data was entered in the ODOT signal warrant analysis calculator. The results of the signal warrant analysis are summarized in Table 3.

Table 3: Signal Warrant Analysis

Warrants	Existing	Year 2035	Existing	Year 2035
	5th Street/Main Street Warrant Met?		**6th Street/Main Street** Warrant Met?	
	Existing	Year 2035	Existing	Year 2035
1. Eight-Hour Vehicular Volume	NO	NO	NO	NO
2. Four-Hour Vehicular Volume	NO	NO	NO	NO
3. Peak Hour	NO	NO	NO	NO
4. Pedestrian Volume	N/A	N/A	N/A	N/A
5. School Crossing	N/A	N/A	N/A	N/A
6. Coordinated Signal System	N/A	N/A	N/A	N/A
7. Accident Experience	NO	NO	NO	NO
8. Roadway Network	N/A	N/A	N/A	N/A
9. Intersection Near a Grade Crossing	N/A	N/A	N/A	N/A

As indicated in Table 3, 5th Street/Main Street and 6th Street/Main Street do not meet any applicable warrants for signalization by the year 2035. As these initial findings display the operational feasibility of a signal removal project, a more in-depth traffic analysis of 5th Street/Main Street and 6th Street/Main Street is warranted to finalize the project.

Project I4 – Traffic Signal (or other intersection improvement) at Row River Road

The intersection of Row River Road/Jim Wright Way is currently a two-way stop controlled intersection with stop control on Jim Wright Way. The driveway to the Village Green Resort operates as a stop controlled fourth leg to the intersection. No protection is provided to pedestrians attempting to cross

over Row River Road. To improve vehicle and pedestrian traffic operations, this proposed project considers adding a signal to the Road River Road/Jim Wright Road intersection.

The existing and estimated future turn movements were analyzed using HCM 2000 (for signals) and HCM 2010 (for two-way stop control) methods. The existing and future PM peak hour traffic operations for Road River Road/Jim Wright Road are summarized in Table 4 for both stop (existing) control and signal (proposed) control.

Table 4: Row River Road/Jim Wright Way Intersection Operations

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[8]	Level of Service Overall (Major/Minor)[9]	Average Delay (seconds) Overall (Major/Minor)[10]
Existing Two-Way Stop Control[11]				
Existing Conditions	0.90	(0.05/0.27)	A (A/D)	3 (9/26)
Future Conditions	0.90	(0.07/0.45)	B (A/E)	5 (9/44)
Proposed Signal Control[12]				
Existing Conditions	0.90	0.42 (0.45/0.28)	A (A/B)	5 (4/12)
Future Conditions	0.90	0.51 (0.56/0.34)	A (A/B)	6 (5/14)

The existing two-way stop control at Row River Road/Jim Wright Way provides level of service D operations on Jim Wright Way under existing traffic conditions. By the year 2035, the average PM peak hour delay per vehicle on Jim Wright Way will increase by 18 seconds, resulting in level of service E operations. The proposed signal would maintain intersection operations at level of service A under both existing and future traffic conditions.

The need for adding signal control to an intersection is typically justified through meeting two or more signal warrants. Therefore, a preliminary signal warrant analysis was developed for Row River Road/Jim Wright Way, using base year PM peak hour traffic counts and estimated future traffic volumes from the Cottage Grove TSP travel demand model. The ODOT preliminary signal analysis spreadsheet was used for the analysis calculations. The results of the preliminary signal warrant analysis are summarized in Table 5.

[8] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[9] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[10] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[11] Operations analyzed using HCM 2010 methodology
[12] Operations analyzed using HCM 2000 methodology

Table 5: Row River Road/Jim Wright Way Preliminary Signal Warrants

Warrants	Existing	Year 2035
	Existing	Year 2035
Case A: Minimum Vehicular Traffic	Warrant Not Met	Warrant Not Met
Case B: Interruption of Continuous Traffic	Warrant Not Met	Warrant Not Met

As shown in Table 5, Row River Road/Jim Wright Way does not meet preliminary signal warrants for existing or future conditions. These results indicate that existing and future traffic volumes do not warrant adding a traffic signal at this intersection.[13]

Project I5 – Safety Improvements at the I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection

This intersection was reported to have a high collision rate in the Existing Conditions Analysis (Tech Memo #3). There were 22 crashes reported at this intersection based however, many occurred in close proximity to the south leg at driveways.

Potential safety improvements to consider at the intersection include:

- Revise standard crosswalk striping along SB and WB channelized right turns to continental for greater visibility
- Provide yield line pavement marking along WB right turn to indicate yield point
- A sign that is mounted back-to-back with a STOP or YIELD sign should stay within the edges of the STOP or YIELD sign. If necessary, the size of the STOP or YIELD sign should be increased so that any other sign installed back-to-back with a STOP or YIELD sign remains within the edges of the STOP or YIELD sign. Current yield signs have do not block intersection signs on back that restrict visibility and shape of yield sign.
- Maintain sight distance by ensuring that trees and other foliage are trimmed. The sight distance to the northbound signal heads may have been obstructed by the tree foliage on the east side of roadway in the past. Advance signal head could also be considered on the mast arm pole located on the SW corner.
- Provide Street name signs on mast arm for increased visibility.
- Provide reflective signal backplates for increased visibility.

[13] These results concur with the conclusions of the "Jim Wright Way Traffic Signal Warrant Analysis" study performed by Branch Engineering for the City of Cottage Grove. The Branch Engineering study concluded that signal warrants would not be met at the Row River Road/Jim Wright Way intersection until 2028, assuming a 2% adjusted annual growth rate. Growth at the intersection estimated from the Cottage Grove TSP travel demand model is less than 2% annually.

- Access management improvements including closing the KFC access on the east side of Gateway Boulevard. Combine two full access on Gateway into one shared full access opposite access on east side. Seek access easement for parcel to the south.
- Existing signal ahead signs in EB and WB directions are located approx. 800 in advance of intersection. These could be moved closer to the intersection at approximately 100-125 feet.

Project R1 - Gateway Boulevard Roadway Conversion

Gateway Boulevard includes a 4-lane cross section at the Cottage Grove Connector/Gateway Boulevard/I-5 southbound ramps intersection. The 4-lane cross section tapers to a 2-lane cross section between the Comfort Inn driveway onto Gateway Boulevard and the Harvey Road/Gateway Boulevard intersection. The existing 4-lane cross section does not contain any bike lanes.

The proposed Gateway Boulevard roadway conversion would modify the existing 4-lane cross section to a 3-lane cross section with northbound and southbound bike lanes from the Cottage Grove Connector to Harvey Road. The outside southbound through lane at the Cottage Grove Connector/Gateway Boulevard/I-5 southbound ramps intersection would be removed to maintain approach alignment. Benefits of the proposed roadway conversion include increased bicycle connectivity, a potentially enhanced pedestrian environment and likely improvement in safety. However, truck access and frequent driveways need to be carefully considered for any potential conversion.

Traffic analysis evaluating the traffic shift potential of the roadway conversion (by using the TSP travel demand forecasting tool) indicates that the potential traffic shift would not cause any operations issues at other intersections throughout the network. The conversion is estimated to cause northbound traffic on Gateway Boulevard to shift slightly, with approximately 8% (25 vehicles per hour) moved to other routes during the PM Peak Hour. Southbound traffic would shift more, both on the southbound I-5 ramp and on Gateway Boulevard. Approximately 30% (100 vehicles per hour) of the PM Peak Hour southbound through volume at the Cottage Grove Connector/Gateway Boulevard/I-5 southbound ramps intersection would shift to the southbound channelized right-turn lane. Approximately 70% of these peak hour trips are destined for 6th Street, and will shift from southbound Gateway Boulevard/14th Street and Taylor Avenue to the Cottage Grove Connector and OR99.

To better estimate the motor vehicle impacts of the proposed Gateway Boulevard roadway conversion, the intersection operations at the Cottage Grove Connector/Gateway Boulevard/I-5 southbound ramps intersection were analyzed for the proposed modified lane layout. The year 2035 PM Peak Hour post-processed traffic volumes were used in the analysis with no adjustment for traffic shift. Table 6 summarizes the HCM 2000 methodology intersection operations with and without the proposed roadway conversion.

Table 6: Cottage Grove Connector/Gateway Boulevard/I-5 Southbound Ramps Operations

Scenario	Mobility Target (Intersection v/c ratio)	Volume to Capacity Ratio Overall (Major/Minor)[14]	Level of Service Overall (Major/Minor)[15]	Average Delay (seconds) Overall (Major/Minor)[16]
Year 2035 Without Roadway Conversion	0.85	0.78 (0.86/0.74)	D (E/D)	37 (65/41)
Year 2035 With Roadway Conversion	0.85	0.82[17] (0.90/0.74)	D (E/D)	41 (59/41)

As indicated in Table 6, the Cottage Grove Connector/Gateway Boulevard/I-5 southbound ramps intersection will continue to meet the ODOT operational standards with the proposed roadway conversion. Further modifications to the existing signal phasing (such as allowing permitted northbound and southbound left turns) could further increase the efficiency of the intersection. More detailed analysis is required to determine the full traffic operations impacts of the proposed roadway conversion.

Project R2 - OR99 Roadway Conversion

The existing OR99 cross section widens to four lanes from the Cottage Grove Connector to Woodson Place. North of the Cottage Grove Connector, OR99 operates with a two lane cross section, while south of Woodson Place the highway returns to a three lane cross section. The existing speed limit is set at 25 mph on the OR99 segment between the Cottage Grove Connector and Woodson Place. No bike lanes or striped shoulders are provided along this highway segment.

The proposed roadway conversion would replace the existing OR99 4-lane cross section from a 4-lane with a 3-lane cross section that includes bike lanes in each direction. The roadway conversion would be applied to the existing 4-lane cross section segment of OR99 between the Cottage Grove Connector and Woodson Place. The existing outside southbound through lane on OR99 currently becomes a right turn lane at Woodson Place. The proposed roadway conversion would keep an exclusive right turn lane at the OR99/Woodson Place intersection to prevent westbound traffic delayed at the River Road/Woodson Place intersection from queuing onto the through travel lane on OR99. No significant impact to study intersection operations would occur as a result of the proposed roadway conversion and all study intersections would continue to easily meet mobility standards, as identified in the future conditions analysis.

[14] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[15] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[16] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[17] The intersection v/c ratio can be improved to 0.78 if northbound and southbound left turns are changed from protected to permitted and protected movements.

Decreasing vehicle through travel lanes on OR99 would lower speeds and through capacity, shifting some traffic from the highway onto other routes. To analyze the roadway conversion traffic shift, the Cottage Grove travel demand forecasting tool was re-run incorporating the proposed OR99 roadway conversion. According to the model, the roadway conversion would shift approximately 5% (25 vehicles per hour) of the northbound and 3% (25 vehicles per hour) of the southbound OR99 PM Peak Hour traffic to other routes. Overall, the traffic shift impacts of the proposed roadway conversion are very minor.

The proposed 3-lane cross section would likely decrease travel speeds along OR99, improve bicycle and pedestrian access to the Village Center retail complex and surrounding residences, and improve safety along the corridor that exhibits a high crash rate and has experienced a pedestrian crossing fatality. See Tech Memo #4 for details of the safety evaluation.

Project R6 – Cleveland Avenue Extension West

This project would provide a roadway connection between OR 99 and south 6th Street. There is a large (nearly 2 mile long) gap between potential connections/rail crossings at Latham Road and Harrison Ave/4th Street. This proposed project would provide a key multi-modal connection in the south part of Cottage Grove, where the UGB was recently expanded and significant development is expected to occur through 2035 and beyond.

The connection has the potential to pull some traffic away from the busier north I-5 interchange (at Row River Road/Gateway Boulevard/ and the Cottage Grove Connector) to the lightly used south I-5 interchange (at S. 6th Street). The extent of the traffic shift can not be estimated with the TSP travel demand forecast tool. However, given the comparative levels of delay it is possible the shift would reduce overall traffic delay in the transportation system.

Other than the 6th Street/I-5 interchanges, no other intersections are expected to have an increase in traffic volumes as a result of the proposed roadway extension.

Other Roadway Projects

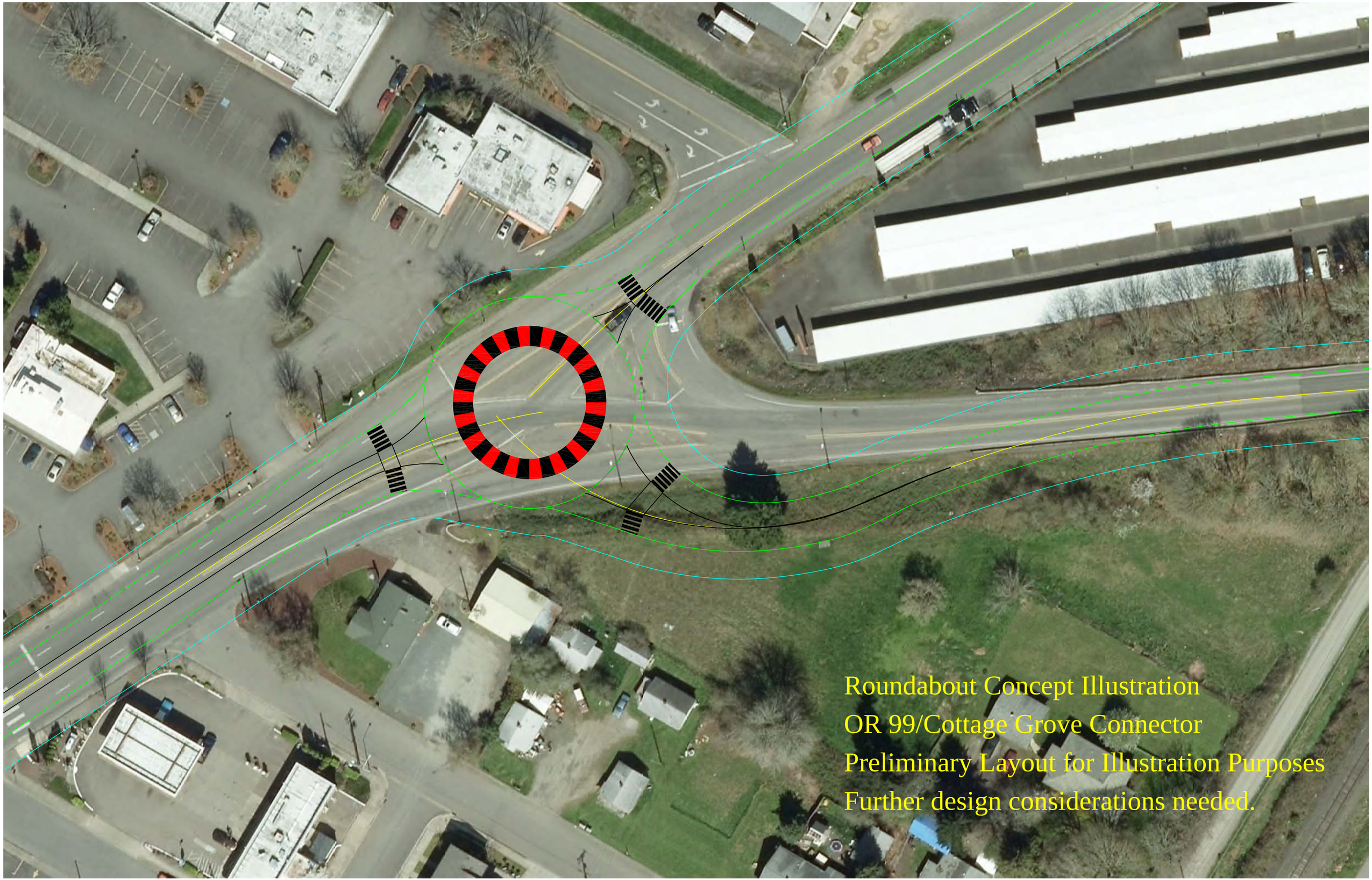
No other roadway projects are expected to significantly affect study intersection traffic operations or create any mobility issues in Cottage Grove. The proposed roadway extensions are generally considered to provide more direct travel options through improved connectivity, but not to significantly alter travel patterns within Cottage Grove such that TSP study intersections would be impacted.

Future No-Build Traffic Analysis Results (from TM 7)

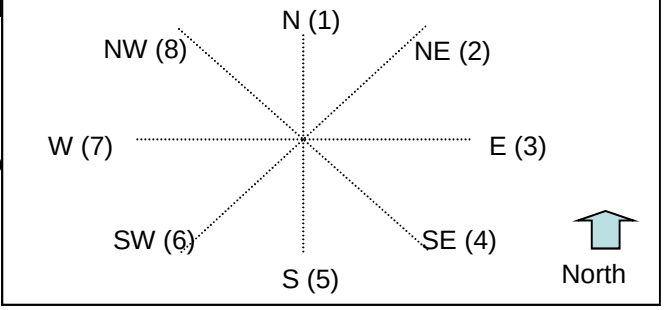
Detailed Intersection Operations Table (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio Overall (Major/Minor)[1]	Level of Service Overall (Major/Minor)[2]	Average Delay (seconds) Overall (Major/Minor)[3]
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78 (0.86/0.74)	D (E/D)	37 (65/41)
I-5 NB Ramps/Row River Road	0.85	0.59 (0.58/0.39)	A (B/C)	8 (12/21)
OR 99/Woodson Place	0.95	0.56 (0.57/0.53)	A (A/C)	9 (10/21)
OR 99/Main Street	0.95	0.79(0.81/0.85)	D (F/E)	42 (118/78)
OR 99/6th Street	0.95	0.49 (0.67/0.23)	B (A/B)	10 (11/11)
OR 99/Harrison Avenue	0.90	0.42 (0.55/0.45)	B (C/B)	12 (27/19)
Main Street/Gateway Boulevard	0.90	0.82 (0.82/0.90)	D (D/F)	35 (40/155)
Main Street/River Road	0.90	0.45 (0.61/0.31)	B (C/B)	15 (23/14)
Main Street/6th Street	0.90	0.40 (0.42/0.35)	A (A/B)	6 (4/12)
All-Way Stop-controlled Intersections				
Harrison Avenue/River Road	0.90	(0.15/0.19)	A (A/A)	9 (9/9)
Two-Way Stop-controlled Intersections				
I-5 SB Off Ramp/6th Street	0.85	(0/0.27)	A(A/B)	4 (0/12)
I-5 NB On Ramp/6th Street[4]	0.85	(0.04/-)	(A/-)	0 (8/-)
OR 99/Cottage Grove Connector[5]	0.95	(0.15/0.36)	A (A/D)	3 (9/33)
OR 99/S. River Road	0.90	(0.04/0.12)	A (A/B)	2 (8/12)
Jim Wright Way/Row River Road	0.90	(0.07/0.45)	A (A/E)	4 (9/44)

[1] Shows V/C for overall intersection (if signalized), followed by worst major/minor street movements.
[2] Shows LOS for overall intersection, followed by for worst major/minor street movements.
[3] Shows average delay (in seconds) for overall intersection, followed by for worst major/minor street movements.
[4] This intersection is not controlled. V/C ratio, LOS, and average delay are shown for the southbound left turn.
[5] The OR 99/Cottage Grove Connector intersection has an unconventional operational and geometric configuration. The operations reported represent a conservative representation of field conditions. Actual delay experienced by travelers is likely to be less than reported.


Roundabout Concept Illustration
OR 99/Cottage Grove Connector
Preliminary Layout for Illustration Purposes
Further design considerations needed.

General & Site Information	
Analyst:	JXS
Agency/Company:	DKS Associates
Date:	1/5/2015
Project Name:	Cottage Grove TSP
Intersection:	OR 99W/Cottage Grove Connecto
Analysis Time Period:	PM Peak
Jurisdiction:	ODOT
Year:	2035 No Build/Baseline



Volumes		Roundabout Approach/Entry Legs							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Input	N (1), vph			95				150	
Volumes	NE (2), vph								
to Leg #	E (3), vph	45						320	
	SE (4), vph								
	S (5), vph								
	SW (6), vph								
	W (7), vph	185		520					
	NW (8), vph								
Output	Total Vehicles	230	0	615	0	0	0	470	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Trucks	2.0	0.0	1.0	0.0	0.0	0.0	3.0	0.0
E_t	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
F_{HV}	0.980	1.000	0.990	1.000	1.000	1.000	0.971	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	100	0	0	0	161	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	48	0	0	0	0	0	343	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	0	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	197	0	547	0	0	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	244	0	647	0	0	0	504	0
Conflicting flow, pcu/h	547	808	161	552	552	552	48	791

Results	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	654	NA	962	NA	NA	NA	1077	NA
Leg v/c ratio	0.37		0.67				0.47	
Control Delay, s/pcu	8.8		11.1				6.2	
LOS	A		B				A	
95th Percentile Queue (ft)	366	0	963	0	0	0	759	0

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	150	320	520	95	45	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Stop	-	None
Storage Length	1000	-	-	-	0	115
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	2	2
Mvmt Flow	156	333	542	99	47	193

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	542	0	-	0	1188	542
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	646	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1022	-	-	-	208	540
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1022	-	-	-	176	540
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	442	-

Approach	EB	WB	SB
HCM Control Delay, s			18.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1022	-	-	-	176	540
HCM Lane V/C Ratio	0.153	-	-	-	0.266	0.357
HCM Control Delay (s)	9.2	-	-	-	32.7	15.3
HCM Lane LOS	A	-	-	-	D	C
HCM 95th %tile Q(veh)	1	-	-	-	1	2

HCM Unsignalized Intersection Capacity Analysis
14: Jim Wright Way & Row River Road

11/17/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	65	5	100	5	460	55	60	400	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	72	6	111	6	511	61	67	444	11
Pedestrians		5						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											790	
pX, platoon unblocked												
vC, conflicting volume	1255	1172	456	1140	1147	542	461			572		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1255	1172	456	1140	1147	542	461			572		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	97	99	55	97	79	99			93		
cM capacity (veh/h)	109	179	606	162	184	541	1091			996		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	17	72	117	578	67	456
Volume Left	6	72	0	6	67	0
Volume Right	6	0	111	61	0	11
cSH	183	162	495	1091	996	1700
Volume to Capacity	0.09	0.45	0.24	0.01	0.07	0.27
Queue Length 95th (ft)	7	51	23	0	5	0
Control Delay (s)	26.6	43.9	14.5	0.1	8.9	0.0
Lane LOS	D	E	B	A	A	
Approach Delay (s)	26.6	25.7		0.1	1.1	
Approach LOS	D	D				

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	63.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	5	5	65	5	100	5	460	55	60	400	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.99		1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.95		1.00	0.86			0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1632		1628	1472			1674		1614	1692	
Flt Permitted		0.87		0.75	1.00			1.00		0.48	1.00	
Satd. Flow (perm)		1448		1278	1472			1668		815	1692	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	6	6	72	6	111	6	511	61	67	444	11
RTOR Reduction (vph)	0	5	0	0	93	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	13	0	72	24	0	0	572	0	67	454	0
Confl. Peds. (#/hr)			1	1			5					5
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.9		5.9	5.9			21.9		21.9	21.9	
Effective Green, g (s)		5.9		5.9	5.9			21.9		21.9	21.9	
Actuated g/C Ratio		0.16		0.16	0.16			0.61		0.61	0.61	
Clearance Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5			2.5		2.5	2.5	
Lane Grp Cap (vph)		238		210	242			1020		498	1035	
v/s Ratio Prot					0.02						0.27	
v/s Ratio Perm		0.01		c0.06				c0.34		0.08		
v/c Ratio		0.05		0.34	0.10			0.56		0.13	0.44	
Uniform Delay, d1		12.6		13.2	12.7			4.1		2.9	3.7	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1		0.7	0.1			0.6		0.1	0.2	
Delay (s)		12.7		13.9	12.8			4.7		3.0	3.9	
Level of Service		B		B	B			A		A	A	
Approach Delay (s)		12.7			13.3			4.7			3.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	1	5	55	1	75	5	370	45	50	335	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	1	6	61	1	83	6	411	50	56	372	11
Pedestrians		5						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											790	
pX, platoon unblocked												
vC, conflicting volume	1025	966	384	938	947	436	388			461		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1025	966	384	938	947	436	388			461		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	73	100	87	100			95		
cM capacity (veh/h)	177	241	665	231	246	620	1160			1095		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	8	61	84	467	56	383
Volume Left	1	61	0	6	56	0
Volume Right	6	0	83	50	0	11
cSH	404	231	608	1160	1095	1700
Volume to Capacity	0.02	0.27	0.14	0.00	0.05	0.23
Queue Length 95th (ft)	1	26	12	0	4	0
Control Delay (s)	14.1	26.1	11.9	0.1	8.5	0.0
Lane LOS	B	D	B	A	A	
Approach Delay (s)	14.1	17.9		0.1	1.1	
Approach LOS	B	C				

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	5	55	1	75	5	370	45	50	335	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98		1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.90		1.00	0.85			0.99		1.00	1.00	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1539		1628	1461			1673		1614	1690	
Flt Permitted		0.94		0.95	1.00			1.00		0.57	1.00	
Satd. Flow (perm)		1457		1633	1461			1667		960	1690	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	6	61	1	83	6	411	50	56	372	11
RTOR Reduction (vph)	0	5	0	0	72	0	0	7	0	0	2	0
Lane Group Flow (vph)	0	3	0	61	12	0	0	460	0	56	381	0
Confl. Peds. (#/hr)			1	1			5					5
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.2		4.2	4.2			19.4		19.4	19.4	
Effective Green, g (s)		4.2		4.2	4.2			19.4		19.4	19.4	
Actuated g/C Ratio		0.13		0.13	0.13			0.61		0.61	0.61	
Clearance Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5			2.5		2.5	2.5	
Lane Grp Cap (vph)		193		217	194			1023		589	1037	
v/s Ratio Prot					0.01						0.23	
v/s Ratio Perm		0.00		c0.04				c0.28		0.06		
v/c Ratio		0.01		0.28	0.06			0.45		0.10	0.37	
Uniform Delay, d1		11.9		12.3	12.0			3.3		2.5	3.0	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0		0.5	0.1			0.2		0.1	0.2	
Delay (s)		11.9		12.9	12.1			3.5		2.6	3.2	
Level of Service		B		B	B			A		A	A	
Approach Delay (s)		11.9			12.4			3.5			3.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	31.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	15	310	40	40	275	15	45	30	50	15	30	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			0.99			0.98			0.99	
Satd. Flow (prot)		1691			1687			1595			1649	
Flt Permitted		0.98			0.93			0.86			0.90	
Satd. Flow (perm)		1666			1581			1399			1506	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	356	46	46	316	17	52	34	57	17	34	17
RTOR Reduction (vph)	0	7	0	0	3	0	0	45	0	0	14	0
Lane Group Flow (vph)	0	412	0	0	376	0	0	98	0	0	54	0
Confl. Peds. (#/hr)	21		31	31		21	18		8	8		18
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		19.5			19.5			6.8			6.8	
Effective Green, g (s)		19.5			19.5			6.8			6.8	
Actuated g/C Ratio		0.59			0.59			0.20			0.20	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		975			925			285			307	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.24			c0.07			0.04	
v/c Ratio		0.42			0.41			0.35			0.18	
Uniform Delay, d1		3.8			3.8			11.3			10.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			0.9			0.3	
Delay (s)		3.9			3.9			12.2			11.3	
Level of Service		A			A			B			B	
Approach Delay (s)		3.9			3.9			12.2			11.3	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	33.3	Sum of lost time (s)	7.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	310	40	0	40	275	15	0	45	30	50
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	1	1	1	2	2	2	2	2	0	0	0
Mvmt Flow	0	17	356	46	0	46	316	17	0	52	34	57
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	15.1	14.2	10.7
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	4%	12%	25%
Vol Thru, %	24%	85%	83%	50%
Vol Right, %	40%	11%	5%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	365	330	60
LT Vol	30	310	275	30
Through Vol	50	40	15	15
RT Vol	45	15	40	15
Lane Flow Rate	144	420	379	69
Geometry Grp	1	1	1	1
Degree of Util (X)	0.234	0.588	0.544	0.117
Departure Headway (Hd)	5.867	5.044	5.159	6.118
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	611	713	698	583
Service Time	3.918	3.079	3.196	4.178
HCM Lane V/C Ratio	0.236	0.589	0.543	0.118
HCM Control Delay	10.7	15.1	14.2	10
HCM Lane LOS	B	C	B	A
HCM 95th-tile Q	0.9	3.9	3.3	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	15	30	15
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	17	34	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	225	30	30	185	10	30	20	35	10	25	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.98			0.99	
Satd. Flow (prot)		1691			1685			1592			1662	
Flt Permitted		0.99			0.95			0.86			0.91	
Satd. Flow (perm)		1677			1607			1398			1526	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	259	34	34	213	11	34	23	40	11	29	11
RTOR Reduction (vph)	0	7	0	0	2	0	0	34	0	0	9	0
Lane Group Flow (vph)	0	297	0	0	256	0	0	63	0	0	42	0
Confl. Peds. (#/hr)	21		31	31		21	18		8	8		18
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		21.5			21.5			4.9			4.9	
Effective Green, g (s)		21.5			21.5			4.9			4.9	
Actuated g/C Ratio		0.64			0.64			0.15			0.15	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		1079			1034			205			223	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.16			c0.04			0.03	
v/c Ratio		0.28			0.25			0.31			0.19	
Uniform Delay, d1		2.6			2.5			12.7			12.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.0			1.0			0.5	
Delay (s)		2.6			2.6			13.7			13.0	
Level of Service		A			A			B			B	
Approach Delay (s)		2.6			2.6			13.7			13.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	225	30	0	30	185	10	0	30	20	35
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	1	1	1	2	2	2	2	2	0	0	0
Mvmt Flow	0	11	259	34	0	34	213	11	0	34	23	40
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.4	10	9
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	4%	13%	22%
Vol Thru, %	24%	85%	82%	56%
Vol Right, %	41%	11%	4%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	265	225	45
LT Vol	20	225	185	25
Through Vol	35	30	10	10
RT Vol	30	10	30	10
Lane Flow Rate	98	305	259	52
Geometry Grp	1	1	1	1
Degree of Util (X)	0.138	0.384	0.334	0.075
Departure Headway (Hd)	5.07	4.534	4.656	5.231
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	702	792	768	680
Service Time	3.135	2.579	2.704	3.304
HCM Lane V/C Ratio	0.14	0.385	0.337	0.076
HCM Control Delay	9	10.4	10	8.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.5	1.8	1.5	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	10	25	10
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	11	29	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.7
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	15	300	30	15	305	15	40	15	40	25	25	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.94			0.95	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		1698			1697			1580			1605	
Flt Permitted		0.98			0.98			0.83			0.90	
Satd. Flow (perm)		1672			1669			1341			1466	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	345	34	17	351	17	46	17	46	29	29	34
RTOR Reduction (vph)	0	5	0	0	3	0	0	39	0	0	29	0
Lane Group Flow (vph)	0	391	0	0	382	0	0	70	0	0	63	0
Confl. Peds. (#/hr)	20		30	30		20	20		10	10		20
Confl. Bikes (#/hr)			15			3						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		20.2			20.2			5.0			5.0	
Effective Green, g (s)		20.2			20.2			5.0			5.0	
Actuated g/C Ratio		0.63			0.63			0.16			0.16	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		1048			1047			208			227	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.23			c0.05			0.04	
v/c Ratio		0.37			0.37			0.34			0.28	
Uniform Delay, d1		2.9			2.9			12.1			12.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			1.1			0.8	
Delay (s)		3.0			3.0			13.3			12.8	
Level of Service		A			A			B			B	
Approach Delay (s)		3.0			3.0			13.3			12.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	7.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	300	30	0	15	305	15	0	40	15	40
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	1	1	1	2	2	2	2	2	0	0	0
Mvmt Flow	0	17	345	34	0	17	351	17	0	46	17	46
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	14.1	14	10.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	4%	4%	31%
Vol Thru, %	16%	87%	91%	31%
Vol Right, %	42%	9%	4%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	345	335	80
LT Vol	15	300	305	25
Through Vol	40	30	15	30
RT Vol	40	15	15	25
Lane Flow Rate	109	397	385	92
Geometry Grp	1	1	1	1
Degree of Util (X)	0.178	0.552	0.542	0.151
Departure Headway (Hd)	5.858	5.01	5.064	5.904
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	611	722	712	606
Service Time	3.907	3.043	3.096	3.956
HCM Lane V/C Ratio	0.178	0.55	0.541	0.152
HCM Control Delay	10.2	14.1	14	10
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	0.6	3.4	3.3	0.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	25	25	30
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	29	29	34
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	215	20	10	205	10	30	10	35	20	20	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.94			0.95	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		1701			1697			1568			1613	
Flt Permitted		0.99			0.99			0.85			0.88	
Satd. Flow (perm)		1687			1681			1357			1438	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	247	23	11	236	11	34	11	40	23	23	23
RTOR Reduction (vph)	0	4	0	0	2	0	0	36	0	0	21	0
Lane Group Flow (vph)	0	277	0	0	256	0	0	49	0	0	48	0
Confl. Peds. (#/hr)	20		30	30		20	20		10	10		20
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		22.3			22.3			3.3			3.3	
Effective Green, g (s)		22.3			22.3			3.3			3.3	
Actuated g/C Ratio		0.68			0.68			0.10			0.10	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Vehicle Extension (s)		0.2			0.2			3.5			3.5	
Lane Grp Cap (vph)		1153			1149			137			145	
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.15			c0.04			0.03	
v/c Ratio		0.24			0.22			0.36			0.33	
Uniform Delay, d1		1.9			1.9			13.7			13.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			1.9			1.6	
Delay (s)		2.0			2.0			15.6			15.2	
Level of Service		A			A			B			B	
Approach Delay (s)		2.0			2.0			15.6			15.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	32.6	Sum of lost time (s)	7.0
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	215	20	0	10	205	10	0	30	10	35
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	1	1	1	2	2	2	2	2	0	0	0
Mvmt Flow	0	11	247	23	0	11	236	11	0	34	11	40
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.1	10	8.8
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	4%	4%	33%
Vol Thru, %	13%	88%	91%	33%
Vol Right, %	47%	8%	4%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	245	225	60
LT Vol	10	215	205	20
Through Vol	35	20	10	20
RT Vol	30	10	10	20
Lane Flow Rate	86	282	259	69
Geometry Grp	1	1	1	1
Degree of Util (X)	0.12	0.357	0.332	0.098
Departure Headway (Hd)	5.022	4.562	4.624	5.115
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	709	786	776	696
Service Time	3.088	2.607	2.671	3.183
HCM Lane V/C Ratio	0.121	0.359	0.334	0.099
HCM Control Delay	8.8	10.1	10	8.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.4	1.6	1.5	0.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	20	20	20
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	23	23	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.7
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	260	90	175	165	90	100	115	290	215	515	350
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1612	1624		1583	1667	1385	1567	1451		1614	1699	1394
Flt Permitted	0.65	1.00		0.27	1.00	1.00	0.23	1.00		0.20	1.00	1.00
Satd. Flow (perm)	1101	1624		447	1667	1385	384	1451		340	1699	1394
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	271	94	182	172	94	104	120	302	224	536	365
RTOR Reduction (vph)	0	11	0	0	0	59	0	76	0	0	0	230
Lane Group Flow (vph)	16	354	0	182	172	35	104	346	0	224	536	135
Confl. Peds. (#/hr)	1					1	7					7
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	32.6	30.9		44.7	39.0	39.0	37.9	31.0		49.3	38.4	38.4
Effective Green, g (s)	32.6	30.9		44.7	39.0	39.0	37.9	31.0		49.3	38.4	38.4
Actuated g/C Ratio	0.31	0.30		0.43	0.38	0.38	0.37	0.30		0.48	0.37	0.37
Clearance Time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	4.8		2.5	4.8	4.8	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	354	484		300	627	521	219	434		337	629	516
v/s Ratio Prot	0.00	c0.22		c0.06	0.10		0.03	0.24		c0.09	c0.32	
v/s Ratio Perm	0.01			0.20		0.03	0.14			0.22		0.10
v/c Ratio	0.05	0.73		0.61	0.27	0.07	0.47	0.80		0.66	0.85	0.26
Uniform Delay, d1	24.6	32.6		20.8	22.5	20.7	23.6	33.4		19.5	30.0	22.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	6.7		2.9	0.5	0.1	1.2	9.5		4.4	10.7	0.2
Delay (s)	24.6	39.3		23.7	22.9	20.8	24.8	43.0		23.9	40.7	22.9
Level of Service	C	D		C	C	C	C	D		C	D	C
Approach Delay (s)		38.7			22.8			39.4			31.6	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	103.6	Sum of lost time (s)	17.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	260	90	175	165	90	100	115	290	215	515	350
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1612	1624		1583	1667	1385	1568	1451		1614	1699	1393
Flt Permitted	0.65	1.00		0.26	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1101	1624		437	1667	1385	1568	1451		1614	1699	1393
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	271	94	182	172	94	104	120	302	224	536	365
RTOR Reduction (vph)	0	11	0	0	0	59	0	78	0	0	0	237
Lane Group Flow (vph)	16	354	0	182	172	35	104	344	0	224	536	128
Confl. Peds. (#/hr)	1					1	7					7
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						4
Actuated Green, G (s)	32.8	31.1		44.8	39.1	39.1	10.1	29.2		18.1	37.2	37.2
Effective Green, g (s)	32.8	31.1		44.8	39.1	39.1	10.1	29.2		18.1	37.2	37.2
Actuated g/C Ratio	0.31	0.29		0.42	0.37	0.37	0.10	0.28		0.17	0.35	0.35
Clearance Time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	4.8		2.5	4.8	4.8	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	349	477		290	616	512	149	400		276	597	490
v/s Ratio Prot	0.00	c0.22		c0.06	0.10		0.07	0.24		c0.14	c0.32	
v/s Ratio Perm	0.01			0.21		0.03						0.09
v/c Ratio	0.05	0.74		0.63	0.28	0.07	0.70	0.86		0.81	0.90	0.26
Uniform Delay, d1	25.4	33.7		21.8	23.4	21.5	46.3	36.3		42.2	32.4	24.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	7.2		3.6	0.5	0.1	12.3	16.4		16.0	16.1	0.2
Delay (s)	25.4	40.9		25.4	23.9	21.6	58.7	52.7		58.2	48.6	24.7
Level of Service	C	D		C	C	C	E	D		E	D	C
Approach Delay (s)		40.3			24.0			53.9			42.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	17.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	260	90	175	165	90	100	115	290	215	515	350
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.98		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1612	1628		1583	1667	1385	1568	1451		1614	3228	1393
Flt Permitted	0.65	1.00		0.26	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1101	1628		434	1667	1385	1568	1451		1614	3228	1393
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	271	94	182	172	94	104	120	302	224	536	365
RTOR Reduction (vph)	0	11	0	0	0	59	0	78	0	0	0	234
Lane Group Flow (vph)	16	354	0	182	172	35	104	344	0	224	536	131
Confl. Peds. (#/hr)	1					1	7					7
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						4
Actuated Green, G (s)	32.7	31.0		44.8	39.1	39.1	9.5	29.4		18.1	38.0	38.0
Effective Green, g (s)	32.7	31.0		44.8	39.1	39.1	9.5	29.4		18.1	38.0	38.0
Actuated g/C Ratio	0.31	0.29		0.42	0.37	0.37	0.09	0.28		0.17	0.36	0.36
Clearance Time (s)	4.0	4.8		4.0	4.8	4.8	4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	4.8		2.5	4.8	4.8	2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	348	476		289	615	511	140	402		275	1158	499
v/s Ratio Prot	0.00	c0.22		c0.06	0.10		0.07	c0.24		c0.14	0.17	
v/s Ratio Perm	0.01			0.21		0.03						0.09
v/c Ratio	0.05	0.74		0.63	0.28	0.07	0.74	0.86		0.81	0.46	0.26
Uniform Delay, d1	25.6	33.9		21.9	23.5	21.6	47.0	36.2		42.3	26.1	24.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	7.3		3.7	0.5	0.1	18.1	16.0		16.3	0.2	0.2
Delay (s)	25.6	41.1		25.6	24.0	21.7	65.1	52.2		58.6	26.3	24.2
Level of Service	C	D		C	C	C	E	D		E	C	C
Approach Delay (s)		40.5			24.2			54.8			32.1	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.9	Sum of lost time (s)	17.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Technical Memorandum #10

DATE: April 6, 2015

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP, Julie Sosnovske, PE

SUBJECT: **Cottage Grove Transportation System Plan Update**
Transportation Standards

This memorandum provides an overview of the street system standards in Cottage Grove. Standards and regulations were developed so that future development is consistent with the vision of the transportation system in Cottage Grove.

Functional Classification System

Roadways are typically classified based on the level of usage and type of vehicular travel they are intended to serve (e.g., local versus through traffic). Roadways with a higher posted speeds and traffic volumes generally provide more efficient motor vehicle traffic movement (or mobility) through the city, while roadways with lower posted speeds and traffic volume provide greater access for shorter trips to local destinations. The street functional classification system recognizes that streets do not act independently of one another but instead form a network that is designed to serve local and regional travel needs.

The proposed functional classification of roadways was developed following a review of the existing Cottage Grove and Lane County functional classification systems.[1,2] The classifications proposed for Cottage Grove are interstate highway, principal and minor arterials, collectors and local streets. To the extent possible, arterials were designated at one-mile intervals and collectors at half-mile intervals.

[1] *Cottage Grove Transportation System Plan*, DKS Associates, March, 2008.

[2] *Lane County Transportation System Plan*, June, 2004.

The two major regional transportation routes through Cottage Grove are I-5 and OR 99, running approximately north-south and parallel to each other. Other key connections to the region include Main Street (via Cottage Grove –Lorane Road and Gowdyville Road), 6th Street, Mosby Creek Road, and Row River Road.

Cottage Grove roadways parallel to I-5 and OR 99 are fairly well connected and generally follow a grid pattern where it is practical. The Coast Fork Willamette River, railroad tracks, and I-5, however, limit continuous east-west routes through the city. Main Street and the Cottage Grove Connector/Row River Road are the only continuous east-west streets between OR 99 and the east side of I-5. For these reasons, it is necessary to manage the existing roadways to support efficient traffic routing throughout the Cottage Grove transportation network.

The proposed functional classification system for Cottage Grove is described below and shown in Figure 1:

- **Interstate Highways** are limited access state roadways that serve high volumes of motor vehicle traffic and are primarily utilized for longer distance regional or statewide trips. I-5 has a posted speed limit of 65 miles per hour through Cottage Grove.
- **Principal Arterials** are roadways intended to move traffic through Cottage Grove. These roadways generally experience higher traffic volumes and often connect to locations outside of the city or act as a corridors connecting many parts of the city (such as OR 99 or the Cottage Grove Connector). Posted speed limits on these roadways vary in Cottage Grove, with higher speeds posted in less urbanized areas and lower speeds in areas where there is more pedestrian activity, driveways, and intersection congestion (such as downtown).
- **Minor Arterials** are roadways intended to serve through traffic and local traffic traveling to and from principal arterial roadways. These roadways provide efficient through movement for regional or local traffic. Arterials and major collector facilities are required by state law to provide bicycle facilities.[3]
- **Collectors** are roadways that typically connect neighborhoods and major activity generators to minor arterial roadways. These roadways provide efficient through movement across town for local traffic. Posted speeds on collector roadways generally range between 25 and 35 miles per hour.

[3] Transportation Planning Rule, OAR 660-012-0045 (3)(b)(B).

- **Local Streets** provide more direct access to residences in Cottage Grove. These roadways are often lined with residences and are designed to serve lower volumes of traffic with a statutory speed limit of 20 or 25 miles per hour.

The current functional classification (adopted in the 2008 TSP) is included in the Technical Appendix for reference. The proposed changes to the functional class were developed to better reflect intended roadway usage and spacing standards. Key changes include:

- Reclassifying Gateway Boulevard (south of Main Street), River Road, R Street, and the proposed Cleveland Ave Extension from Minor Arterials to Collectors
- Adding the proposed extension of 4th Street as a Collector
- Extending the functional class for OR 99 and S 6th St south to match new Urban Growth Boundary (UGB) extents
- Adding Latham Road as a collector (was previously outside the UGB)
- Reclassifying OR 99 north of Cottage Grove Connector from a minor arterial to a principal arterial

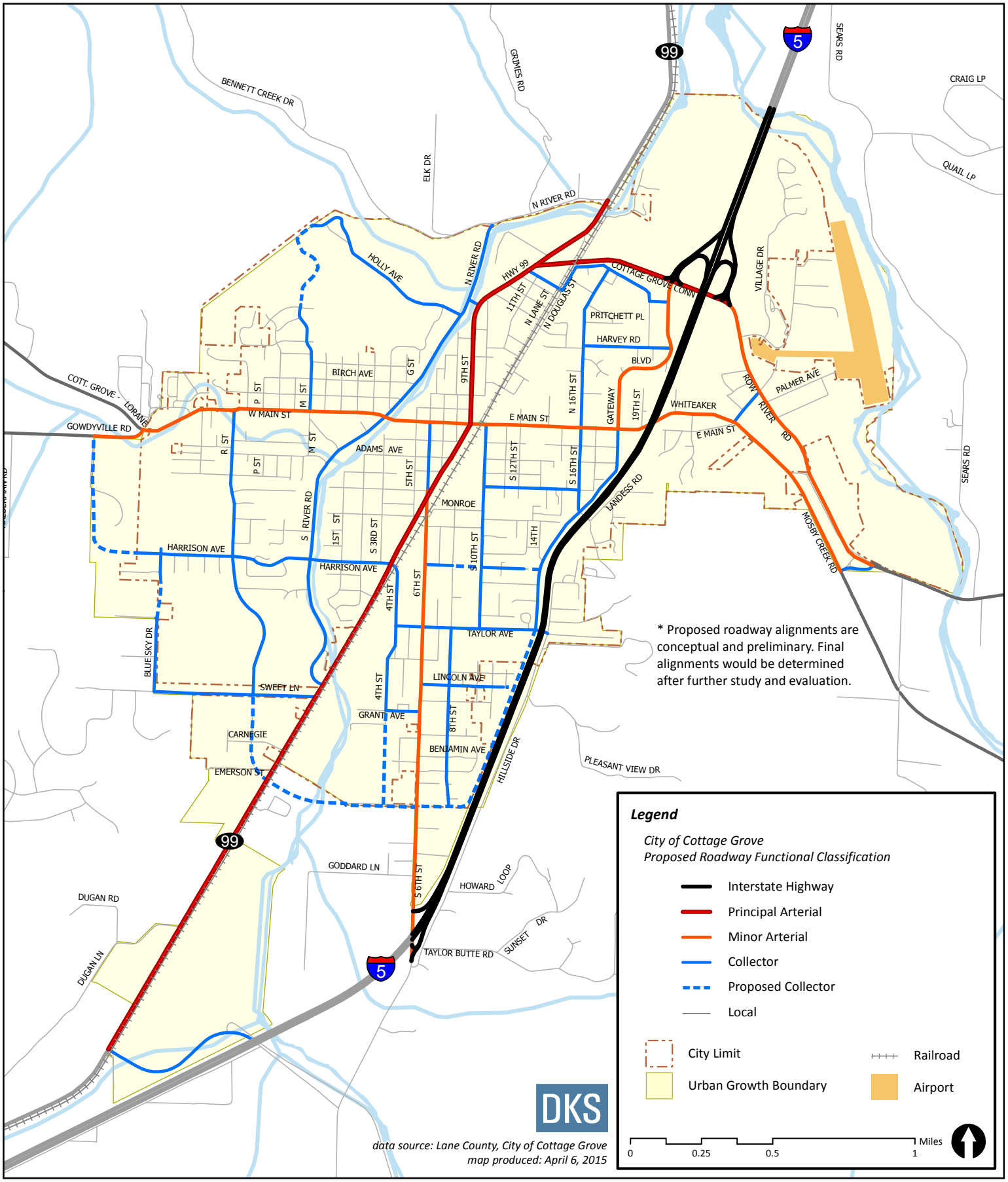
ODOT and Lane County also classify roadways in Cottage Grove under their jurisdiction**.** A map of roadway jurisdictions is included in the Technical Appendix. Roadways under ODOT jurisdiction include the roadways that the city classified as Interstate (I-5), Principal Arterial (OR 99 and the Cottage Grove Connector), and Minor Arterial (Row River Road north of Thornton Lane/Airport Road).

Lane County classifies Row River Road and the Currin Connector as urban minor arterials. The County classifies Cottage Grove-Lorane Road, Mosby Creek Road, and 6th Street as urban major collectors. Urban minor collectors include the Row River Connector and Sweet Lane. Latham Road and N. River road are classified as Rural Major Collectors by Lane County. A number of other streets under county jurisdiction and are classified as urban or rural local roadways, including Cleveland Avenue.

Transportation System Plan

FIGURE 1

Proposed Roadway Functional Classification



* Proposed roadway alignments are conceptual and preliminary. Final alignments would be determined after further study and evaluation.

Legend

City of Cottage Grove
Proposed Roadway Functional Classification

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

- City Limit
- Urban Growth Boundary
- Railroad
- Airport

0 0.25 0.5 1 Miles

DKS

data source: Lane County, City of Cottage Grove
map produced: April 6, 2015

Intersection Traffic Operations

Intersection traffic operations must meet the mobility standards identified in the City of Cottage Grove TSP.[4]

- **Signalized intersections:** Maximum volume-to-capacity (v/c) ratio of 0.90.
- **Unsignalized intersections:** Minimum level of service of "E" for worst movement on the minor street approach.

All-way stop controlled intersections and roundabouts are considered unsignalized intersections. For analysis purposes, the minimum level of service of "E" would apply to the overall intersection for all-way stop controlled intersections and to the critical approach for roundabouts.

For intersections controlled by other jurisdictions (e.g., Lane County or ODOT), the mobility standards for that jurisdiction[5] must be met in addition to the city's mobility standard. At multi-jurisdictional intersections, the more restrictive standard applies, such that all jurisdictional standards are met.

Roadway and Access Spacing Standards

Access management is a broad set of techniques that balance the need to provide efficient, safe, and timely travel with the ability to allow access to individual destinations. Proper implementation of access management techniques will improve safety, reduce congestion, and potentially lessen the need to invest in capacity-adding roadway projects.

Access management is applied in Cottage Grove through access spacing standards. The standards shown in Table 1 define minimum and maximum street intersection and minimum private access spacing standards for streets under the jurisdiction of the City. Within developed areas of the city, streets not complying with these standards could be improved with strategies that include shared access points, access restrictions (through the use of a median or channelization islands) or closed access points. New streets or redeveloping properties must comply with these standards, to the extent practical (as determined by the City). Residential access to collector streets should be provided only if alternate access is not feasible.

[4] *City of Cottage Grove TSP,* 2008, p. 3-24.

[5] See *Tech Memo #2: Background Document Review, pages 5-6*.

Table 1: Access Spacing Standards (feet) for City Roadways

	Arterial	Collector	Local Street
Maximum*	1,000	400	400
Minimum	600**	200***	-

Note: Spacing is generally measured between roadway centerlines.

* Where a street connection in conformance with the maximum block length standard is impracticable, a pedestrian/bicycle accessway shall be provided in lieu of the street connection, unless the connection is impractical due to existing development, topography, or environmental constraints.[6]

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

***Or one per residential lot, if no alternate access is feasible

Policy statements in the Lane County TSP and requirements in the Lane County Development Code[7] guide access management on County-owned arterials and collectors in urban areas. Table 2 lists the access spacing standards for County-owned arterials and collectors in urban areas, and Table 3 lists the access spacing standards for state highways.[8]

Table 2: Spacing Standards (feet) for Lane County Collector and Arterial Roadways

Posted Speed (mph)	Principal Arterial	Minor Arterial or Major Collector	Minor Collector
55 and higher	700	475	325
50	550	475	325
40-45	500	400	325
30-35	400	275	220
25 and lower	400	200	150

[6] City of Cottage Grove Development Code, 3.4.100 – Transportation Standards.

[7] Lane County Development Code Chapter 15 - Urban Arterial And Collector Standards http://www.lanecounty.org/departments/cc/lanecode/documents/codechapter15_jan12_05_rev.pdf

[8] For more information on access management on State Highways, see *Background Document Review*, page 8.

Table 3: Spacing Standards (feet) for Urban District Highways (OR 99)

Posted Speed (mph)	Annual Average Daily Traffic of 5,000 Vehicles or less	Annual Average Daily Traffic of More than 5,000 Vehicles
55 and higher	650	700
50	425	550
40-45	360	500
30-35	250	350
25 and lower	150	250

Source: 1999 Oregon Highway Plan, Appendix C (2011), Table 14.

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

Local Street Connectivity

Poorly connected street networks can result in out-of-direction travel for motorists, longer public safety response times, and traffic volume imbalances that impact residents. Mitigations often recommended as solutions for these issues include costly projects to widen roads and construct traffic signals and turn lanes. By providing connectivity between neighborhoods, the need for these kinds of projects can lessened and out-of-direction travel can be reduced. Improving roadway network connectivity can enhance accessibility for various travel modes and balance traffic levels on among existing roadways streets by better dispersing traffic.

Much of the local street network in Cottage Grove is fairly well connected in a grid network. However, there are a number of locations where roadways are not well connected, especially where limited by barriers such as rivers, railroad tracks, or incomplete development. Topography, environmental conditions, and other barriers (e.g. interstate freeway, railroad tracks) limit the level of potential connectivity in several areas of Cottage Grove.

Figure 2 shows the conceptual Local Street Connectivity Plan for Cottage Grove. The arrows shown in the figures represent conceptual connections that illustrate the general direction for the placement of future connections. The identified alignments are not specific and will be determined upon development review. These proposed connections are aimed at improving connectivity for all modes of transportation and reducing potential neighborhood traffic impacts by better balancing traffic flows on existing streets.

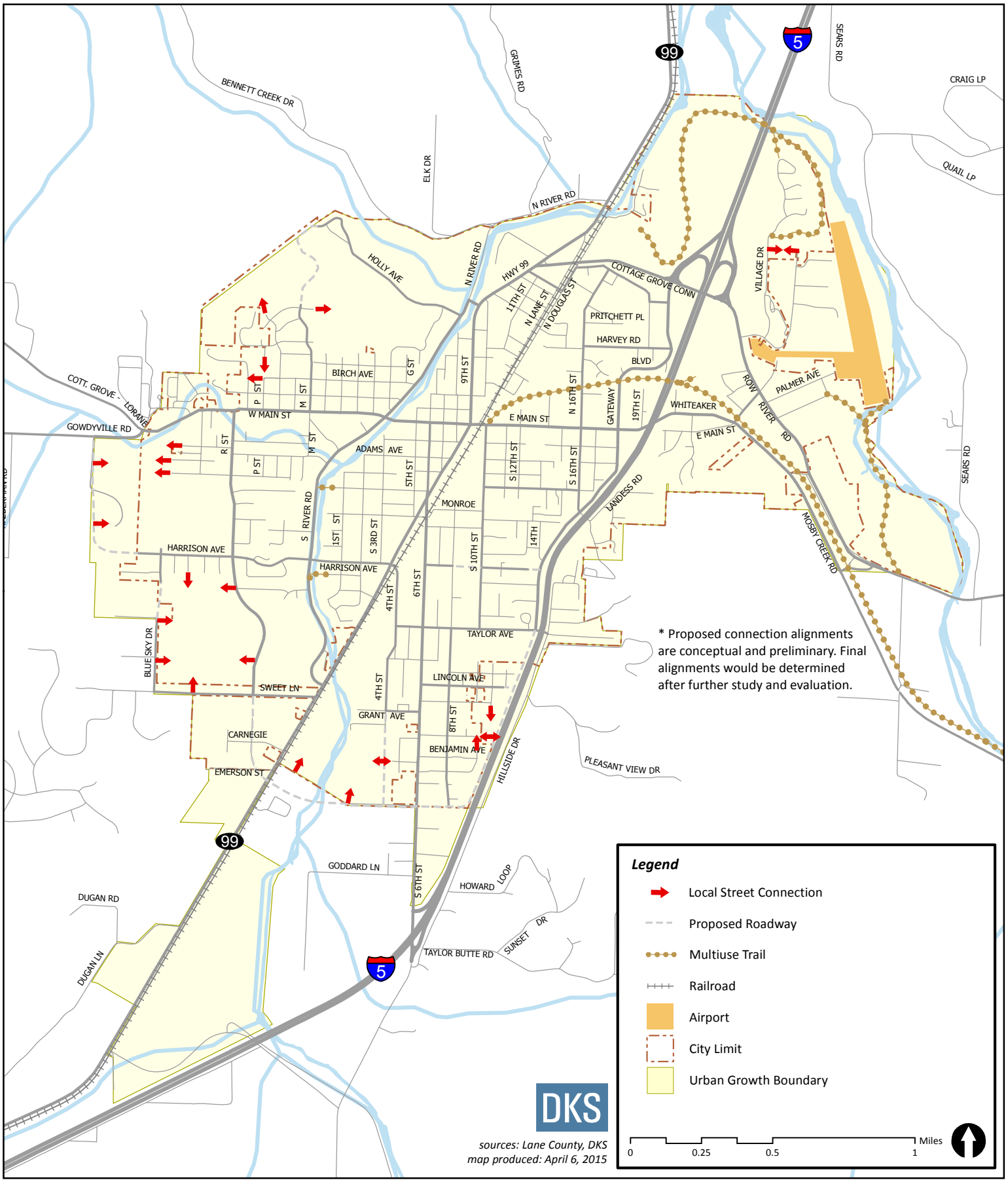
To protect existing neighborhoods from potential traffic impacts of extending stub end streets, connector roadways should incorporate neighborhood traffic management into their design and construction. All stub streets should have signs indicating the potential for future connectivity. Additionally,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

- Provides full street connections with spacing of no more than 400 feet between connections except where prevented by barriers such as topography, other environmental conditions, existing development, or existing legal arrangements
- Space local street connections at least 200 feet apart except where intersections are designed to support public spaces such as parks or other neighborhood amenities.
- Provides bike and pedestrian access ways in lieu of streets where maximum block length standards are not feasible
- Limits use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections
- Cul-de-sacs shall not exceed a length of 400 feet
- Includes pedestrian connections from the end of any stub end street that results in a cul-de-sac

Transportation System Plan

FIGURE 2

Local Street Connections



* Proposed connection alignments are conceptual and preliminary. Final alignments would be determined after further study and evaluation.

Legend

- Local Street Connection
- Proposed Roadway
- Multiuse Trail
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: April 6, 2015

Roadway Cross Sections

The design characteristics of existing city streets in Cottage Grove were developed to meet the function and demand for each facility over time. The design of a roadway can vary from segment to segment depending on adjacent land uses and demand. The objective of the proposed design standards is to define a standardized system that provides consistency in roadway characteristics. The roadway design standards should be implemented as redevelopment occurs and transportation improvements are implemented. The characteristics are intended to support the intended uses outlined in the functional classification system.

Current street design standards identified in the Cottage Grove Development Code and the Cottage Grove TSP include inconsistencies in classification types. The proposed roadway design standards are intended to correspond with the proposed functional classification system. The proposed standards will provide clear guidance for future development while also allowing for a degree of flexibility to fit with surrounding land uses and practical constraints.

Table 4 and Figures 3, 4, and 5 illustrate the recommended cross-sections for city minor arterials, collectors and local streets in Cottage Grove. The Cottage Grove Development Code (Section 3.4.100) provides planning and design standards for transportation facilities and gives several design typologies of arterials, collectors, and local streets. This section also includes required right-of-way width, lanes, parking, sidewalks, and planting strip widths. The Technical Appendix reproduces the city street standards from Table 3.4.100.F and illustrations of roadway sections from Figures 3.4.100.F(1)-F(6). Significant changes to the roadway cross-sections proposed in Table 4 include:

- Removing the Boulevard and Avenue distinction of Arterials and renaming these roadways as Minor Arterials for consistency with the Proposed TSP Functional Classification
- Removing the Arterial 5-Lane Boulevard sections standards, as no 5-lane roadways exist or are planned to be constructed.
- Removing the commercial/residential designations of Collectors
- Adding special case for local streets that serve exclusively commercial or industrial uses
- Removing standards that include angled parking
- Updating bike lane widths to be 6 feet
- Updated widths for consistency with illustrated cross-sections

The relevant sections of the Development Code will be updated to incorporate the proposed changes to roadway standards, consistent with final updated TSP recommendations. Requirements for construction of elements that are optional or have varying widths will depend on the context of surrounding land uses and will require the approval of the City Engineer.

No cross-section is provided for principal arterials because OR 99 and the Cottage Grove Connector are the only roadways with that proposed functional classification. Since these roadways are under Oregon Department of Transportation (ODOT) jurisdiction, they are subject to design standards in ODOT's Highway Design Manual.

City street standards and classifications are not consistent with Lane County standards. For roadway construction projects on county facilities within the City's UGB, where proposed cross-section standards vary from the Lane County Road Design Standards, a Deviation or a Variance will be required. [9] All or portions of several significant roadways within the Cottage Grove Urban Growth Boundary are under Lane County jurisdiction, as shown in the Roadway Jurisdiction Map included in the Technical Appendix.

[9] Lane Code, Chapter 15, Road Design Standards, Lane County. Accessed February 5, 2015.

Table 4: Proposed City Street Design Standards

Functional Classification	Street Type	Right-of-Way	Paved Width (Curb-to-Curb)	Travel Lane	Median/ Center Turn Lane*	Bike Lane	Parking	Planter Strip	Sidewalks
Minor Arterial	3-Lane	72’ – 110’	46’ – 62’	11’	12’	6’	8’ (Optional)	7’ – 12’	6’ – 12’
	2-Lane	60’ – 98’	34’ – 50’	11’	None	6’	8’ (Optional)	7’ – 12’	6’ – 12’
Collector	Parking Both Sides	62’ – 88’	48’	10’	None	6’**	8’	7’ – 8’	6’ – 12’
	Parking One Side	54’ – 80’	40’	10’	None	6’**	8’	7’ – 8’	6’ – 12’
	No Parking	48’ – 74’	34’	11’	None	6’**	None	7’ – 8’	6’ – 12’
Local* **	Parking Both Sides	52’ – 72’	32’	18’	None	None	7’	4’ – 12’	6’ – 8’
	Parking One Side	48’ – 68’	28’	20’	None	None	8’	4’ – 12’	6’ – 8’
	No Parking	40’ – 60’	20’	20’	None	None	None	4’ – 12’	6’ – 8’

*Turn pockets may be provided at intersections, as warranted for safety or traffic demand.

**Bike lane may be excluded from Collector roadway cross-section in low-volume and low-speed environments, upon approval of the City Engineer.

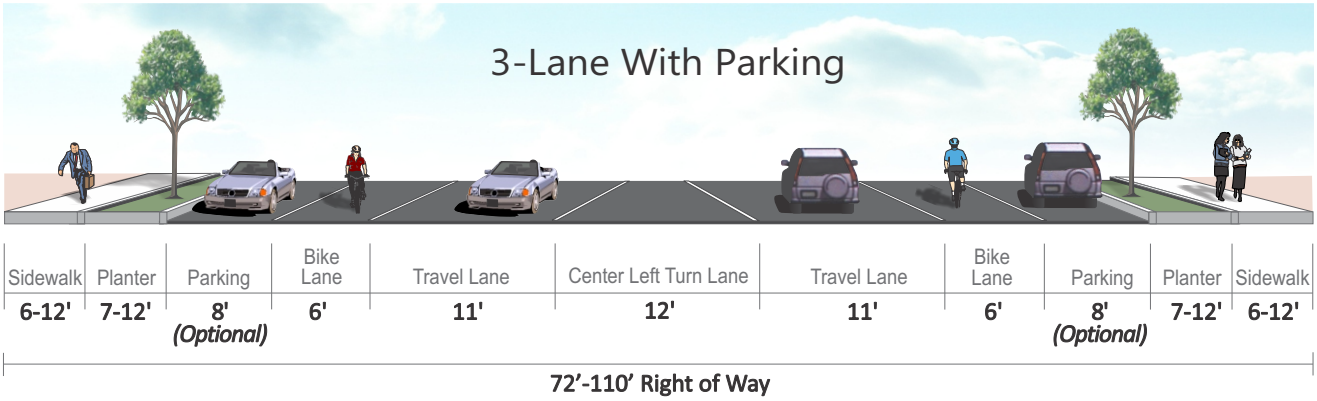
**Collector standard may apply for local roadways that serve exclusively commercial or industrial zones, upon approval of the City Engineer.

Note: For Lane County urban arterial and urban collector facilities, the sidewalk width required is 5-feet, the planter strip width required is 6-feet and the bike lane width required is 5.5 feet. Any change from these standards would require approval of a Deviation or a Variance, per Chapter 15 of the Lane Code.

Principal Arterials

The City does not have jurisdiction over any roadways classified as Principal Arterial. Therefore, ODOT's design standards would apply to OR99 and the Cottage Grove Connector. See the ODOT Highway Design Manual, 2012.

Minor Arterials



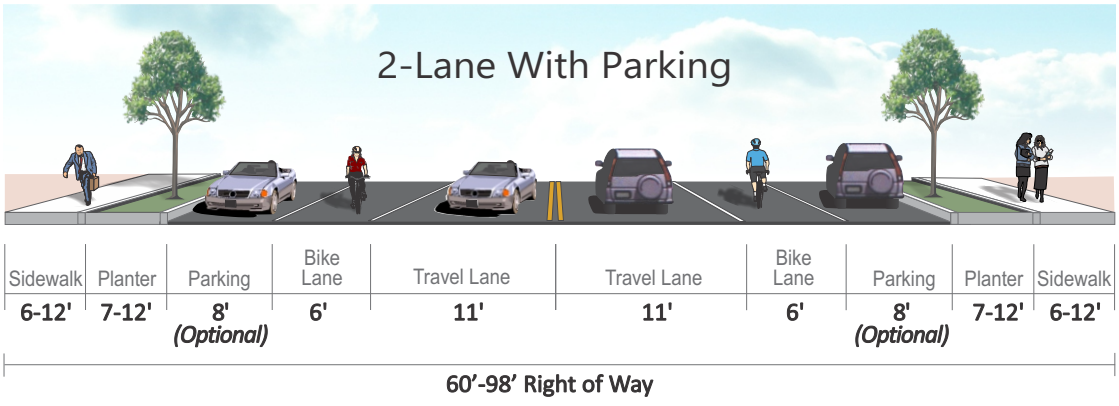


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Figure 3

Roadway Cross-Sections
Arterials

Collectors

Sidewalk	Planter	Parking	Bike Lane	Travel Lane	Travel Lane	Bike Lane	Parking	Planter	Sidewalk
6-12'	7-8'	8'	6' *	10'	10'	6' *	8'	7-8'	6-12'

62'-88' Right of Way

Sidewalk	Planter	Parking	Bike Lane	Travel Lane	Travel Lane	Bike Lane	Planter	Sidewalk
6-12'	7-8'	8'	6' *	10'	10'	6' *	7-8'	6-12'

54'-80' Right of Way

Sidewalk	Planter	Bike Lane	Travel Lane	Travel Lane	Bike Lane	Planter	Sidewalk
6-12'	7-8'	6' *	11'	11'	6' *	7-8'	6-12'

48'-74' Right of Way

* May be excluded in low-volume and low-speed environments upon approval of the City Engineer.

DKS

Figure 4

Roadway Cross-Sections
Collectors

Local Streets

Sidewalk	Planter	Travel Way & Parking	Planter	Sidewalk
6-8'	4-12'	32'	4-12'	6-8'

52-72' Right of Way

Sidewalk	Planter	Travel Way & Parking	Planter	Sidewalk
6-8′	4-12'	28'	4-12'	6-8'

48-68' Right of Way

Sidewalk	Planter	Travel Way	Planter	Sidewalk
6-8′	4-12'	20'	4-12'	6-8′

40-60' Right of Way

DKS

Figure 5

Roadway Cross-Sections
Local Streets

Walking and Biking Treatment Guidelines

A network of walking and biking facilities is envisioned to connect major destinations and neighborhoods in Cottage Grove. While sidewalks and dedicated bike lanes are the most common pedestrian and bicycle facilities, a number of options are available to enhance the pedestrian and bicycle experience. Table 5 and Table 6 summarize potential treatments for bicycle and pedestrian facilities, respectively. Additional design details are included in the Technical Appendix for reference

Table 5: Bicycle Facilities and Enhancements

Bicycle Facilities	Comfort Level*	Design Guidance
Shared Lane Markings /Sharrows	◊	• Streets with motor vehicle volumes < 3,000 ADT • Streets with posted speeds ≤ 30 mph
Shoulder Bikeways	◊◊	• 6 foot shoulder recommended • Minimum 4 foot shoulder allowed when curb, guardrail or roadside barrier is not present • Otherwise, 5 foot minimum shoulder acceptable • Edge line designated by 4 inch stripe
Standard Bike Lane	◊◊	• Streets with motor vehicle volumes ≥ 3,000 ADT • Streets with posted speeds ≥ 25 mph • 6 foot width is recommended • Minimum 4 foot on open shoulders • Minimum 5 foot from face of curb, guardrail or parked car • Use 8 inch stripe to designate bike lane • Bike lanes should not be wider than 7 feet so drivers do not mistake the lane for parking
Bike Boulevard	◊◊	• Streets with motor vehicle volumes < 3,000 ADT • Streets with posted speeds ≤ 30 mph
Buffered Bike Lane	◊◊◊	• Same as standard bike lane (5’ to 6’) with an additional 2’ to 4’ striped buffer • Streets with posted speeds ≥ 25 mph • Locations where standard bike lanes are being considered and additional space for buffering is desired to increase cyclist comfort

Bicycle Facilities	Comfort Level*	Design Guidance
Shared Use Path / Multi-use Trail	◊◊◊◊	• Commonly 10 feet wide for two-way traffic in rural areas, but should be 12 feet or wider • Minimum width is 8 feet to be used at pinch points or for low volume sections • Proper sight distance should be maintained
Bicycle Routes (Wayfinding)		Signage communicates cyclists preferred routes based on: • Lower automobile volume • Shorter routes • Flatter routes • Presence of bike facilities • A bicycle specific destination • Alternate to busy bicycle unfriendly route
Bicycle Parking		Design bicycle parking racks for safe and secure storage • Protected from motor vehicles • Accessible location (near streets and bikeways) • Not an obstruction to pedestrians • Allow securing frame and both bike wheels • Allow U-shaped bike locks Locations where long-term bicycle parking is intended should be covered or otherwise protected from weather Bicycle parking is required for new multi-family, retail, office and institutional developments, as well as bus transit centers. The Development Code (Section 3.3.400) addresses bicycle parking requirements including minimum required bicycle parking spaces by land use.

* Comfort level: ◊ - least comfortable for bicyclists to ◊◊◊◊ - most comfortable for bicyclists.

Table 6: Pedestrian Facilities and Enhancements

Pedestrian Facilities	General Use	Design Guidance
Marked Crosswalk at Uncontrolled Location	• Should be located at all school crossings (that are uncontrolled) • Raised speed table can double as crosswalks • Pedestrian islands and median refuges allow pedestrians to find gaps in traffic in one direction at a time	• General: o Crossing opportunities consolidated at a single point o Curb ramps should be within the extent/width of the crosswalk o Should be 300+ feet from nearest crossing • Medians and geometry o Cut-throughs (at least 5 feet wide) preferred over ramps o Curb extensions increase visibility, yielding, traffic calming and opportunity for street furniture o Crosswalks should be at least 10 feet wide or width of approaching sidewalk if greater than 10 feet • Low traffic volumes and moderate-to-high pedestrian volumes
Active When Present Crossing	• Used in combination with an "active when present" device • More effective than a simple crosswalk • Reminds automobile drivers of pedestrian right-of-way at uncontrolled locations • Provides added safety and convenience for pedestrians	• Medians and geometry o Cut-throughs (at least 5 feet wide) preferred over ramps o Curb extensions increase visibility, yielding, traffic calming and opportunity for street furniture o Crosswalks should be at least 10 feet wide or width of approaching sidewalk if greater than 10 feet • Moderate traffic volumes and moderate-to-high pedestrian volumes

Pedestrian Facilities	General Use	Design Guidance
Signalized Pedestrian Crossing	• More effective than a simple crosswalk • Provides added safety and convenience for pedestrians • Adds motor vehicle delay	• Medians and geometry o Cut-throughs (at least 5 feet wide) preferred over ramps o Curb extensions increase visibility, yielding, traffic calming and opportunity for street furniture o Crosswalks should be at least 10 feet wide or width of approaching sidewalk if greater than 10 feet • Moderate-to-high traffic volumes, traffic speeds and pedestrian volumes • Must meet pedestrian signal warrants
Widened Shoulder – Path or Trail		• Provide path or trail for short distances to fill gaps for continuous connectivity until sidewalks can be provided • Minimize disturbance to natural vegetation • Signage to restrict parking on path or trail
Shared Use Path	• Paths include continuous separation from motor vehicle traffic, frequent connections to land uses including schools and shopping, often have scenic qualities and should have well-designed street crossings	• Commonly 10 feet wide for two-way traffic in rural areas, but should be 12 feet or wider • Minimum width is 8 feet to be used at pinch points or for low volume sections • Proper sight distance should be maintained

Transportation System Management (TSM)/ ITS Coordination Guidelines

OR 99 is a regional roadway facility that could benefit from transportation system management (TSM) infrastructure. Before future investments are made along this roadway, the Cottage Grove Connector, or adjacent to I-5 ramps, designs should be reviewed with City and ODOT staff to determine if communications or other Intelligent Transportation System (ITS) infrastructure should be addressed as part of the street design/construction. The City should follow the Oregon Statewide ITS Plan for any projects that affect operations on state roadways.

Traffic Impact Study (TIS) Guidelines

The City or other road authority with jurisdiction may require a Traffic Impact Study (TIS) or Traffic Impact Analysis (TIA) as part of an application for development, a change in use, or a change in access. TIS requirements are established in the City's Local Development Code (4.1.900 Traffic Impact Studies).

The Local Development Code should be updated to reflect the current version of the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition (it does reference subsequent document updates). In addition, the Level of Service (LOS) standards should be updated to reflect the mobility targets recommended in this TSP update. A reference to these requirements may be added to the development code as part of this TSP update.

Neighborhood Traffic Management Tools

Neighborhood Traffic Management (NTM), or traffic calming, refers to street design techniques used to promote safe, slow streets (primarily in residential and mixed-use areas). These tools are intended to mitigate the impacts of traffic on neighborhoods and business districts where a greater balance between safety and mobility is needed. They are not intended to create significant reductions to vehicle capacity. Physical traffic calming techniques include:

- Narrowing the street by providing curb extensions or bulb-outs, or mid-block pedestrian refuge islands
- Deflecting the vehicle path vertically by installing speed humps, speed tables, or raised intersections
- Deflecting the vehicle path horizontally with roundabouts or mini-roundabouts

Traffic calming measures must balance the need to manage vehicle speeds and volumes with the need to maintain mobility, circulation, and function for service providers (e.g., emergency response). Any traffic calming project should include coordination with staff from emergency response agencies, to ensure public safety is not compromised.

Table 7 lists common traffic calming applications and suggests which devices may be appropriate along various streets in the city. Additional design details for the toolbox of potential NTM measures are included in the Technical Appendix for reference. NTM tools are generally applicable to local streets, but may also be applied in limited cases on collector streets. NTM tools are generally not applied on arterials. However, applications on Main Street may be considered to support the historic downtown.

Table 7: Traffic Calming Measures by Street Functional Classification

Traffic Calming Measure	Is Measure Appropriate and Supported?	
	Collector	Local Street
Narrowing travel lanes	Yes	Calming measures are generally supported on local streets that have typical connectivity (more than two accesses)
Placing buildings, street trees, on-street parking, and landscaping next to the street	Yes	
Curb Extensions* or Bulbouts*	Yes	
Roundabouts**	Yes	
Mini-Roundabouts	Yes	
Medians and Pedestrian Islands	Yes	
Pavement Texture***	Yes	
Speed Hump or Speed Table	No	
Raised Intersection or Crosswalk	No	
Speed Cushion (provides emergency pass-through with no vertical deflection)	No	
Choker (Curb extension located at mid-block or intersection corner adjacent to parking)*	Yes	
Traffic Circle**	No	
Diverter (with emergency vehicle pass through)	Yes	

*Only supported where poles or other obstructions do not interfere with 20 foot clearances for vehicles.
**Only supported with minimum inside radius of 28 feet.
***Only supported where texturing would not obstruct emergency medical vehicle services.
Notes:
Any traffic calming project should include coordination with staff from emergency response agencies, to ensure public safety is not compromised. All traffic calming measures must meet applicable South Lane County Fire and Rescue guidelines and requirements.
Traffic calming is generally not applied on principal or minor arterials.

Freight Routes and Restrictions

Within Cottage Grove, I-5 is classified as a NHS Federal Truck Route and an Oregon Freight Route. It is also on the National Highway System (NHS). These classifications indicate that truck/freight traffic is a priority on this route.

OR 99 is classified by ODOT as a District Highway and it is also on the National Highway System (NHS). However, it is not classified as a freight or truck route. No truck routes are designated on city streets. Unless otherwise posted, trucks are allowed on all city streets.

Transit Standards

Transit service is provided in Cottage Grove by the Lane Transit District (LTD) and South Lane Wheels (SLW). Each of these operators has their own guidelines for transit stops and amenities. The City of Cottage Grove will support transit use through roadway design standards that require bicycle and pedestrian facilities. As roadway project and land development occurs, pedestrian and bicycle facilities will provide improved access to transit.

Technical Appendix

Cottage Grove TSP Update

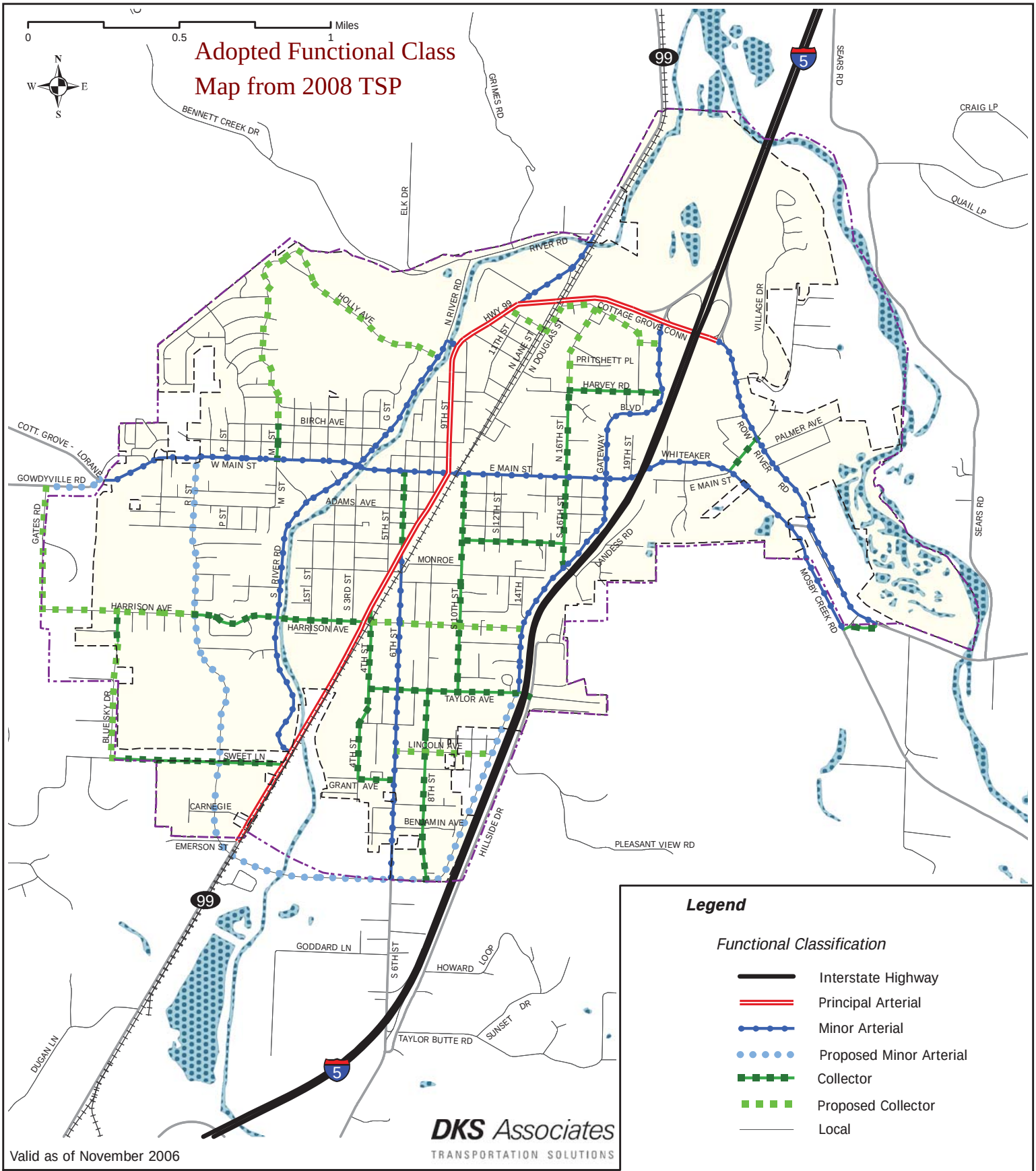
Technical Memorandum #10 –

Transportation Standards

Contents:

- Adopted Functional Class Map (From 2008 TSP)
- Roadway Jurisdiction Map
- Adopted City Street Standards (Cottage Grove Development Code)
- Bicycle and Pedestrian Design Toolbox
- Neighborhood Traffic Management Toolbox

Adopted Functional Class Map (2008 TSP)



Transportation System Plan

FIGURE 8-2

Proposed Functional Classification

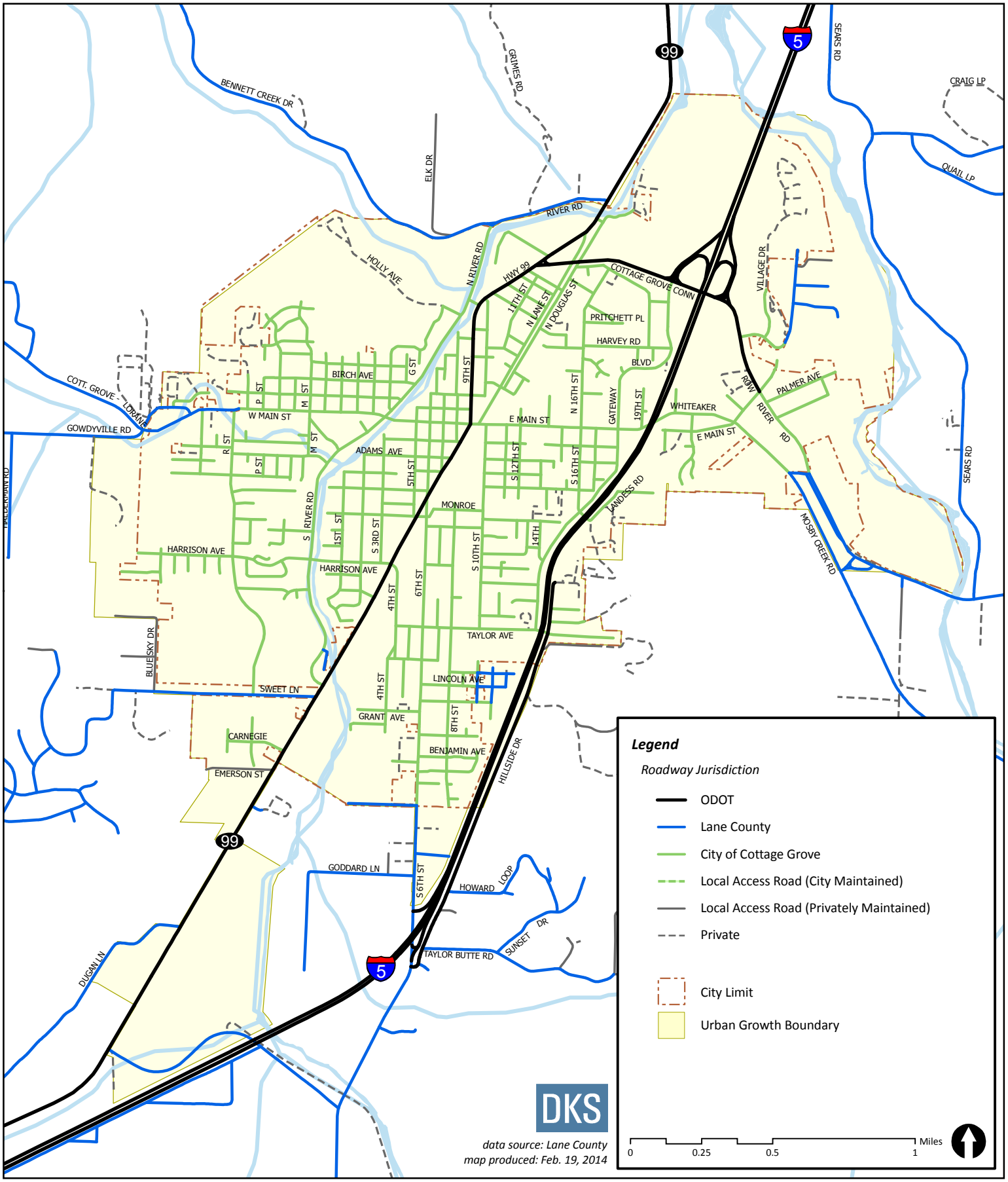
CITY OF COTTAGE GROVE OREGON

Roadway Jurisdiction Map

Transportation System Plan

FIGURE 1

Roadway Jurisdiction



Legend

Roadway Jurisdiction

- ODOT
- Lane County
- City of Cottage Grove
- Local Access Road (City Maintained)
- Local Access Road (Privately Maintained)
- Private

- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

data source: Lane County
map produced: Feb. 19, 2014

Adopted City Street Standards

Table 3.4.100.F Street Standards

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

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

Figure 3.4.100.F(1) Three-Lane Arterial-Boulevard Street Section

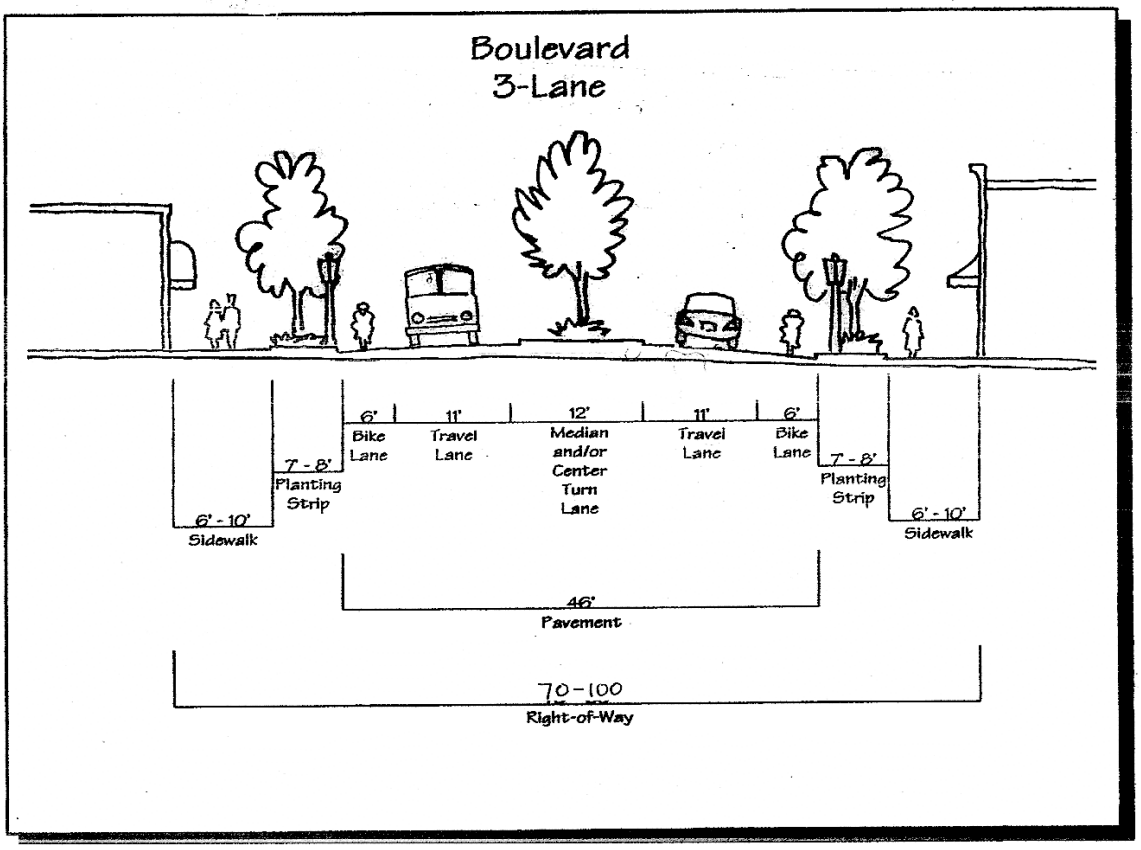
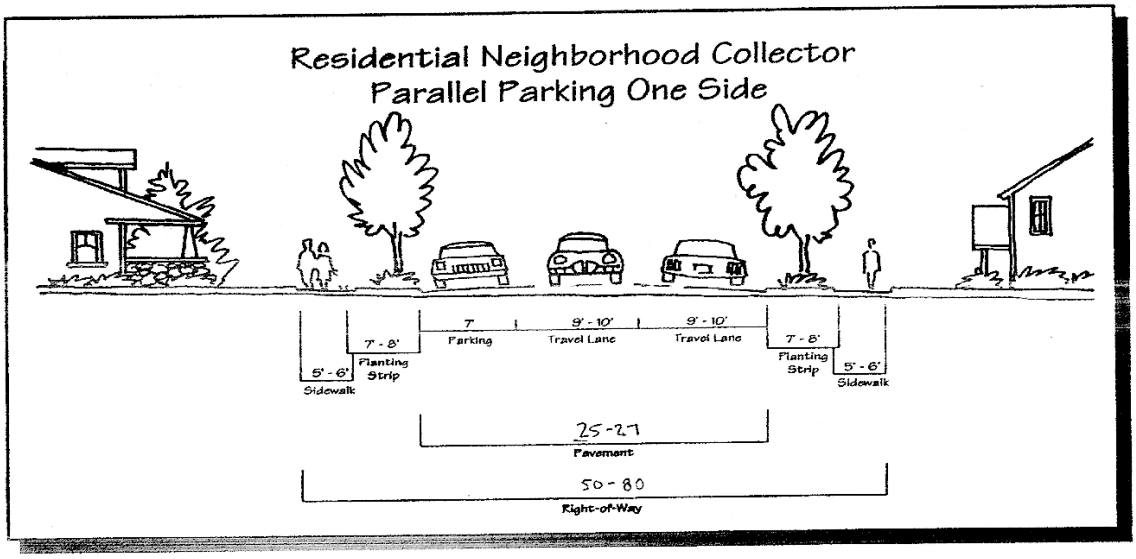


Figure 3.4.100.F(2) Residential Collector Street Sections



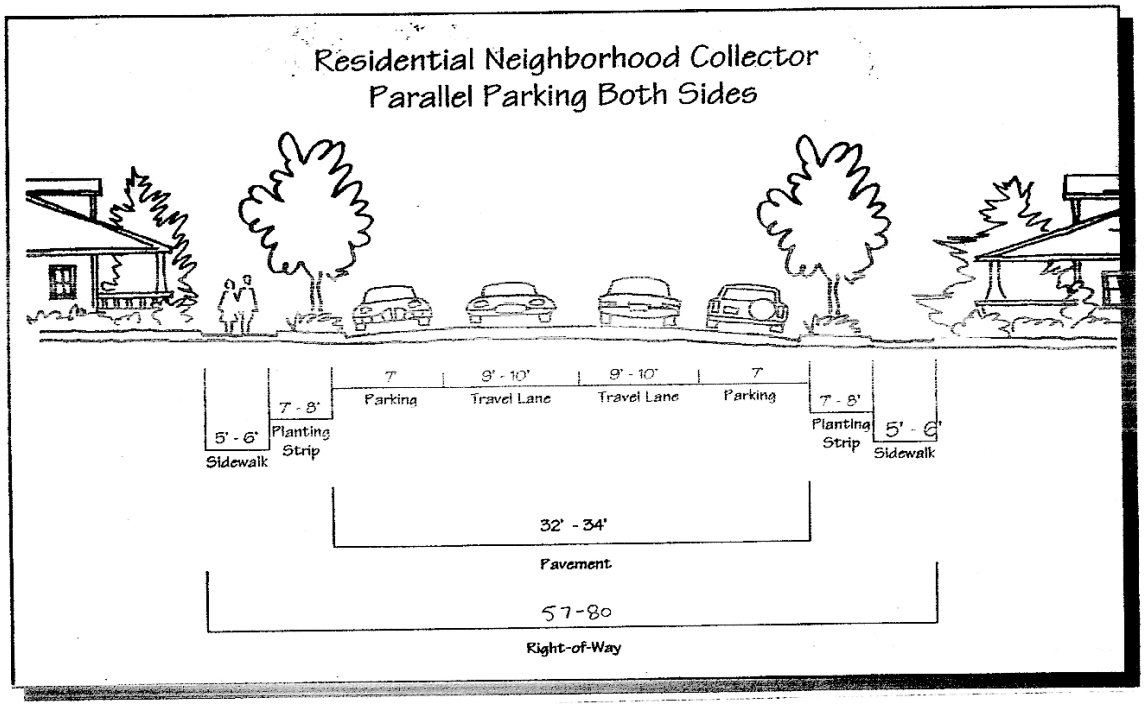
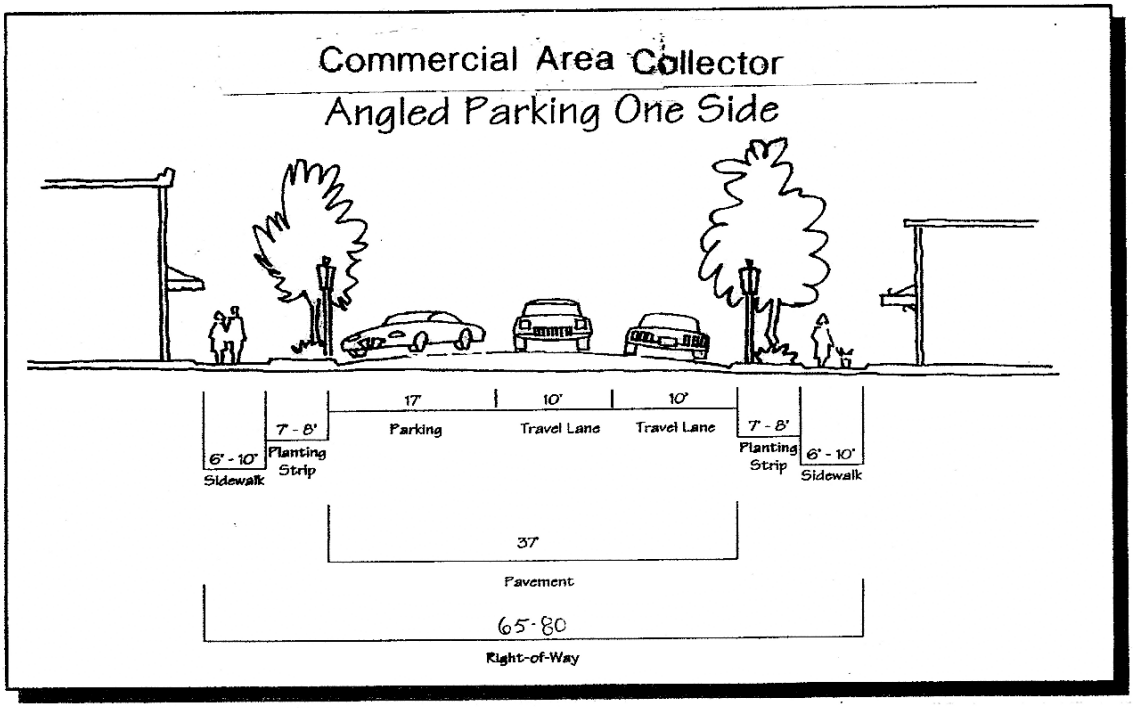


Figure 3.4.100.F(3) Commercial/Industrial Collector Street Sections (Parking One Side)



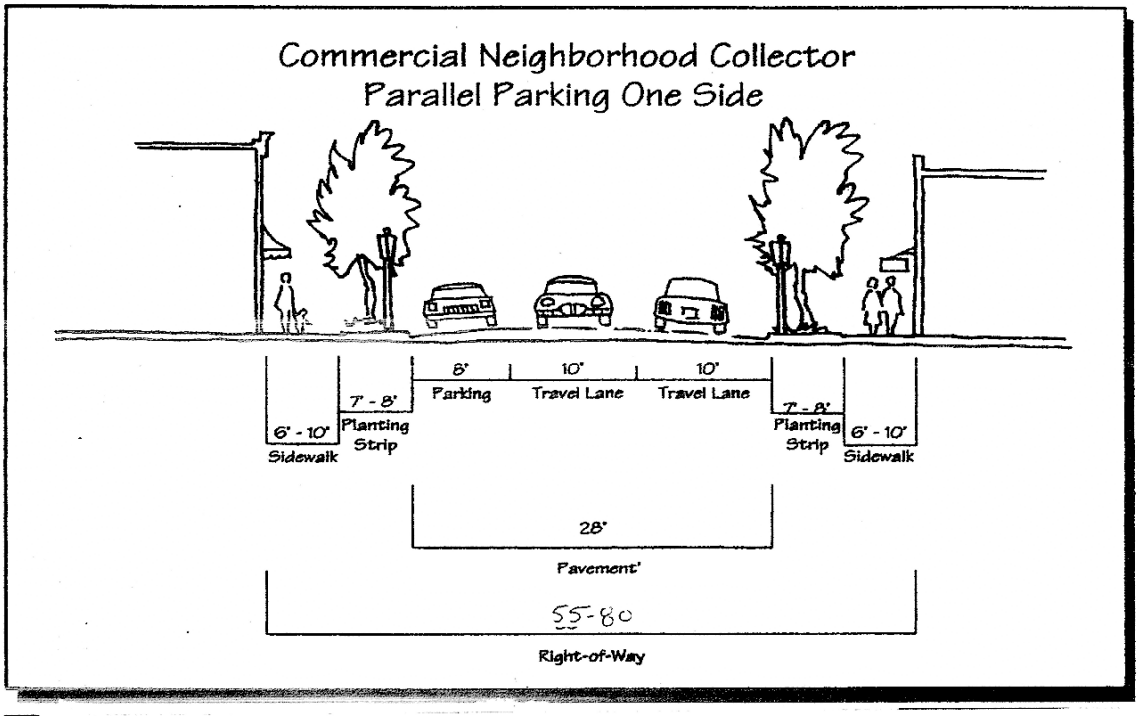
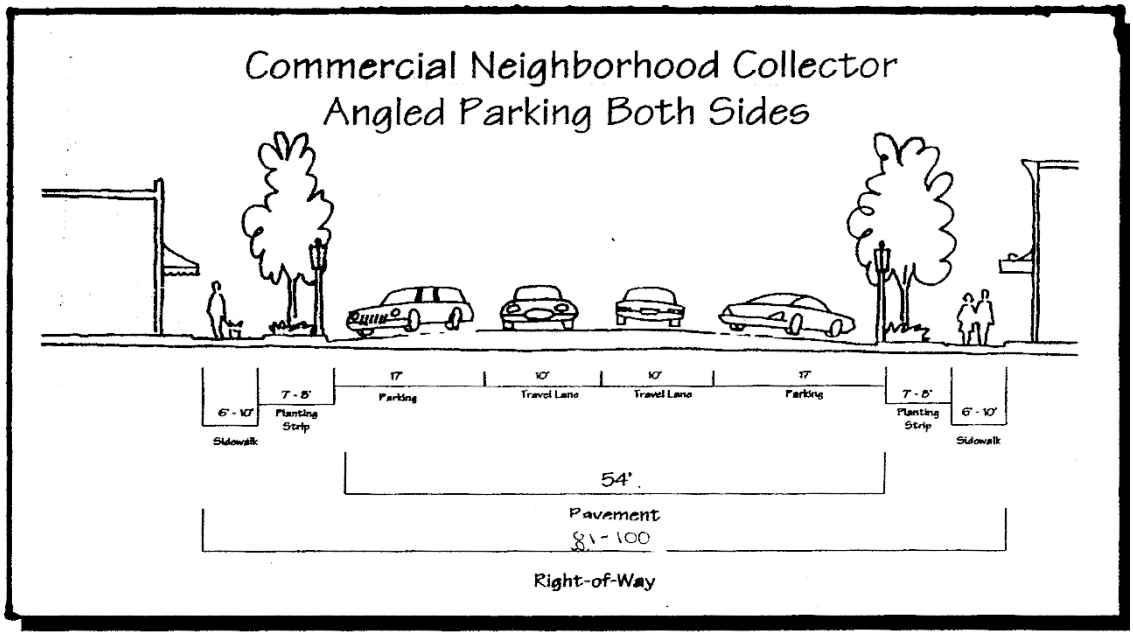


Figure 3.4.100.F(4) Commercial/Industrial Collector Street Sections (Parking Two Sides)



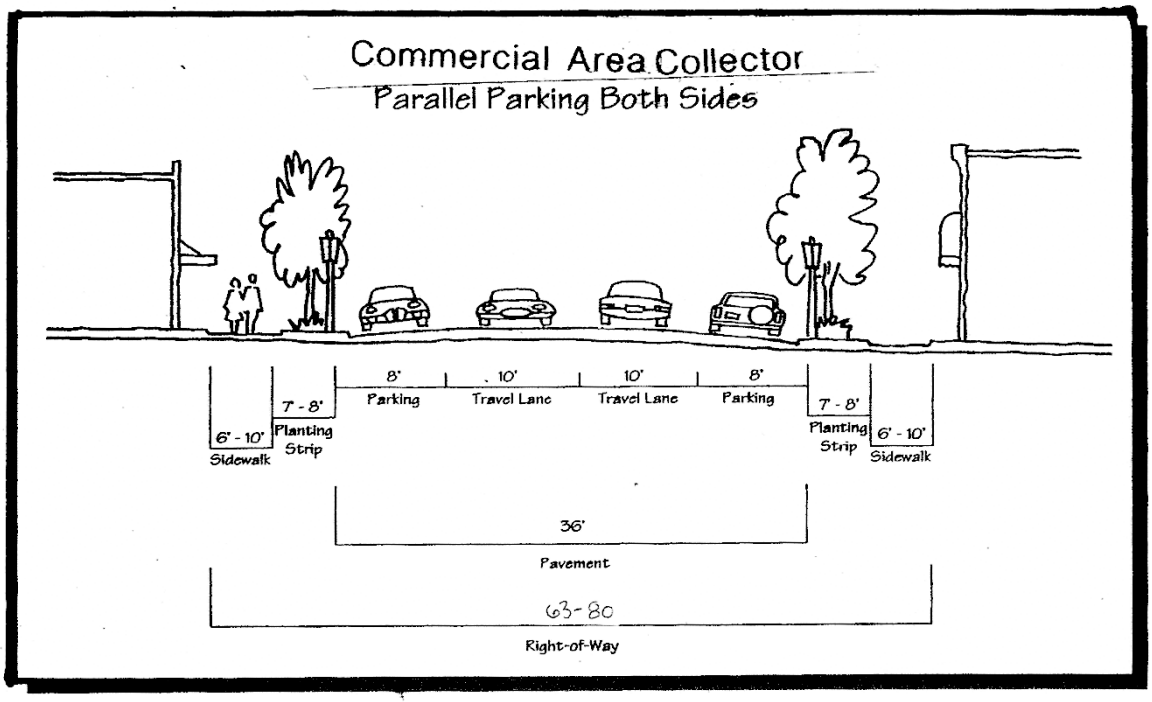
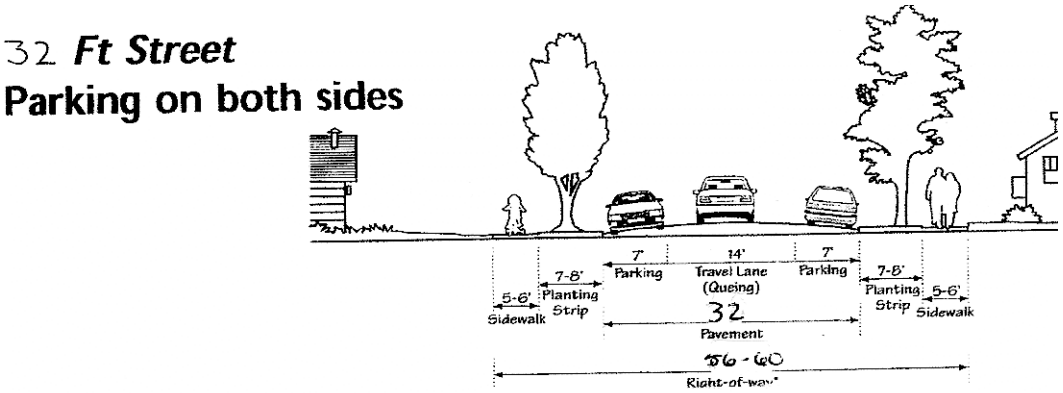
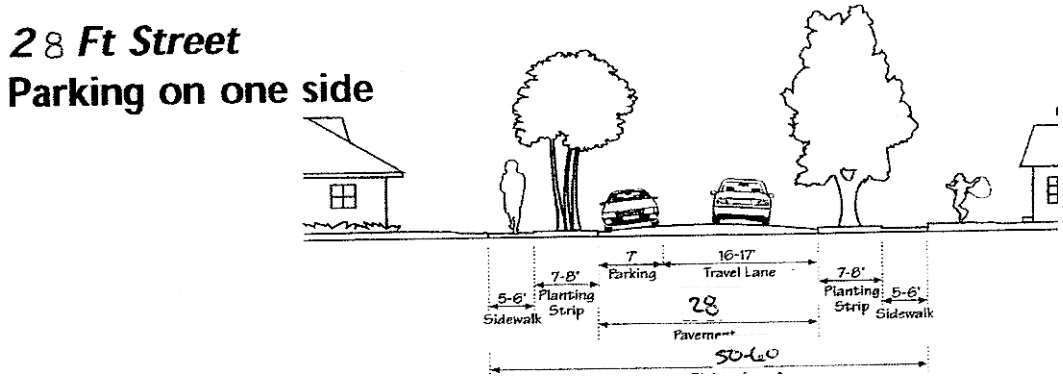


Figure 3.4.100.F(5) Local Residential Street Sections

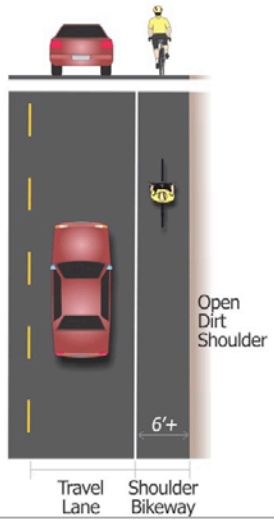




Bicycle & Pedestrian Design Toolbox

Shoulder Bikeways

Comfort Level ●●○○



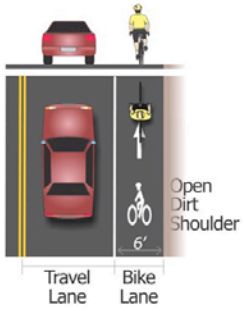
▶ A shoulder bikeway is a paved shoulder that provides space for bicycling. This designated area is denoted by an edge line, provides separation for bicyclists, reduces conflicts with faster moving motor vehicles, and is commonly found on rural roads.

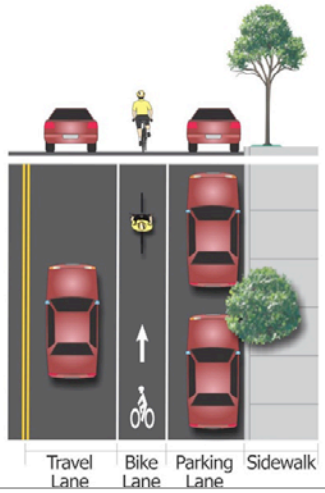
Design Guidance

- A minimum shoulder width of 6′ is recommended.
- A minimum shoulder width of 4′ may be used when a curb, guardrail, or roadside barrier is not present. Otherwise, a minimum width of 5′ is recommended.
- Edge line is designated by a 4″ stripe.

Standard Bike Lane

Comfort Level ●●○○





▶ Bike lanes are used to designate space for exclusive use by bicyclists. Bike lanes are denoted by a solid white line, bike lane symbols, and can be accompanied by signing. Most often bike lanes are intended for one-way travel in the same direction as adjacent traffic lanes, although contraflow and left side bike lanes have been used. Application of bike lanes is appropriate on arterial and collector streets with higher motor vehicle volumes and speeds.

Design Guidance

- Streets with motor vehicle volume of 3,000 vehicles per day or more.
- Streets with posted motor vehicle speed of 25 mph or higher.
- Use 8″ stripe to designate a bike lane.
- Recommended width is 6′, with a minimum of 4′ on open shoulders or 5′ from face to curb, guardrail, or parked car.
- Bike lanes should not be wider than 7′ so drivers do not mistake the lane for parking.

Shared Lane Markings/Sharrows

Comfort Level ●○○○

Signs for Shared Roadways

R4-11

W11-1

W16-1P

SLM Modification for Route Changes

▶ Shared lane markings (SLMs), also known as "sharrows", are high-visibility pavement marking symbols that indicate the appropriate position for a bicycle when sharing a lane with motor vehicles. Sharrows can be used on low-volume, low-speed roadways, where bike lanes are desirable but not possible or cost effective due to physical constraints. The marking encourages bicyclists to ride away from the door zone if adjacent on-street parking is available, and indicates to drivers where to expect cyclists. Signing can also accompany the SLMs to alert motorist that cyclists may be encountered.

Design Guidance

- Streets with motor vehicle volumes of less than 3,000 vehicles per day.
- Streets with motor vehicle posted speeds of 30 mph or lower.
- Spacing can vary from 50'-100' along busier streets, or up to 250' along low traffic routes.

Bike Boulevard

Comfort Level ●●○○

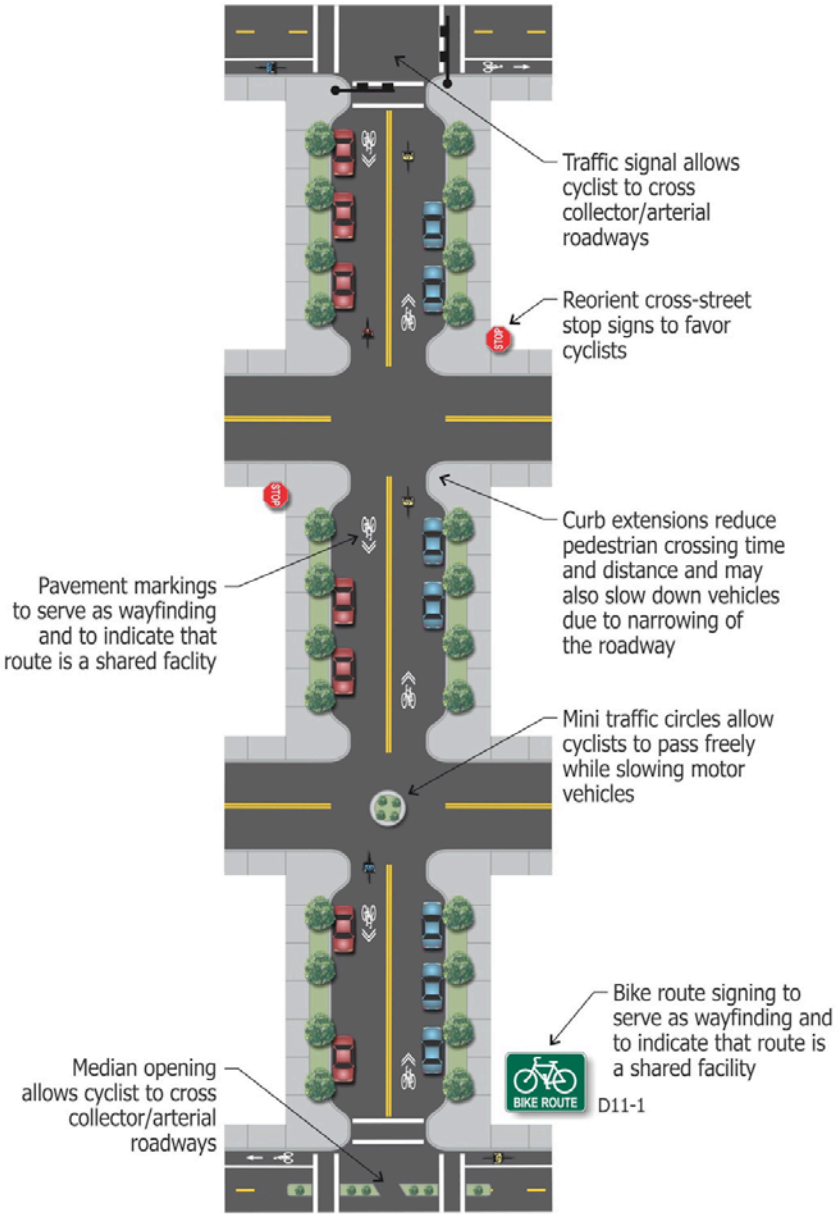


Illustration is one example of a bike boulevard. Treatments applied may vary.

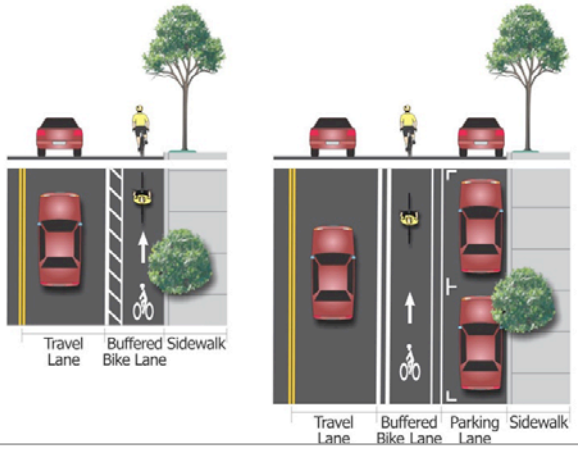
▶ A bike boulevard is a roadway with low motor vehicle speeds and volumes that has been modified to prioritize the movement of bicycles. These facilities use a variety of design treatments to discourage through trips by motor vehicles and to create a safe and comfortable environment for cyclists. Treatments include signing and pavement markings, along with traffic calming measures.

Design Guidance

- Streets with less than 3,000 motor vehicles per day.
- Streets with posted speeds of 25 mph or lower.

Buffered Bike Lane

Comfort Level ●●●○



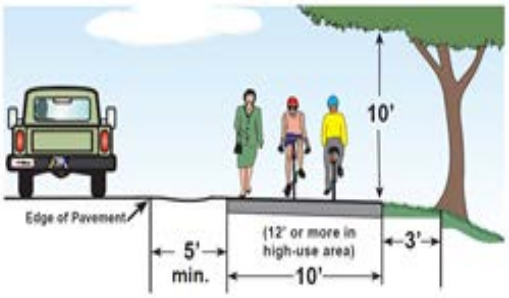
▶ A buffered bike lane is a standard bike lane paired with a delineated buffer space, which further separates the bike lane from the adjacent motor vehicle travel lane and/or parking lane, to increase bicyclist comfort. This treatment can be used on streets with excess width to provide more separation for bicyclist, or when there are high motor vehicle volumes, speed, and/or high amounts of truck traffic.

Design Guidance

- Standard bicycle bike lane (5′ to 6′) with an additional 2′ to 4′ striped buffer.
- Streets with posted speeds of 25 mph or higher.
- Locations where standard bike lanes are being considered and additional space for buffering is desired to increase cyclist comfort.

Shared Use Path

Comfort Level ●●●●



▶ Shared use paths are used by pedestrians, bicyclists, skaters, and many other community members. Paths should be designed to include:

- continuous separation from motor vehicle traffic
- provide connections to land uses including schools and shopping
- provide some security to users through illumination be in close proximity to housing or businesses
- have scenic qualities
- provide well-designed street crossings

Design Guidance

- Shared use paths are commonly 10′ wide for two-way traffic in rural areas, but should be 12′ wide or wider in urban and suburban areas.
- Minimum width for a shared use path is 8′ wide to be used at pinch points or where low volumes are expected.
- Proper sight distance should be maintained.
- Path should be illuminated for night time users.

Bicycle Parking

D4-3

▶ Bicycle parking provides a designated parking area for cyclists. This amenity is an effective way to encourage bicycle trips. Bicycle parking can range from providing storage for a few bicycles to many bicycles and can be for short term or for long term use. **A bicycle parking sign designates where bicycle parking is available and desirable.**

Design Guidance

- General bicycle parking considerations from ODOT:
  - Should be located in a highly visable area to discourage theft and encourage cycling.
  - Should be located so pedestrians are not obstructed.
  - Long term parking should be covered to protect bicycles from inclement weather.
  - Physical barriers between vehicle and bicycle parking protect bicycles from potential damage by cars.

Bike Routes

D11-1

D1-1

D1-2b

▶ Bicycle routes are used to communicate to cyclists preferred routes, which may be chosen based on lower automobile volume, shorter routes, flatter routes, the presence of a bicycle boulevard, a bicycle specific destination, or an alternate to a unfriendly bicycle route. Basic bicycle routes provide signage without pavement markings.

Design Guidance

- Bike route signs can be repeated at regular intervals using D11-1.
- To communicate a specific destination, D1-1 and D1-2 series signs can be used, though ODOT prefers Oregon supplement OBD1 signs.

Sources: MUTCD 2009, NACTO Urban Bikeway Design Guide, AASHTO Guide for Development of Bicycle Facilities, ODOT Bicycle and Pedestrian Design Guide 2011

Pedestrian Facility Alternatives — *Design Guidance*

Marked Crosswalk at Uncontrolled Location

Crosswalk signs (W11-2 and W16-7p)

Stop for pedestrians (R1-5c)

School advanced crossing assembly (S1-1 and W16-9p)

▶ A marked crosswalk at an uncontrolled location can be an effective treatment where pedestrians are expected and drivers may need extra communication to yield to pedestrians. Safe street crossings provide added comfort to pedestrians and encourages pedestrian transportation. Should be located at all school crossings and intersections on school routes when there is substantial conflict or lack of clear direction on crossing location.

Design Guidance

- General considerations:
  - Appropriate for low traffic volumes and moderate to high pedestrian volumes
  - Curb ramps should be within the extent/width of the crosswalk
  - Provide 300+ foot spacing from next nearest crossing
- Signs:
  - Signs W11-2 and W16-7pL should be located at the crosswalk
  - Stop for pedestrian (R1-5 series) or school advance crossing assembly (S1-1) and (W16-9p) should be place leading up to the crosswalk
- Refuge islands and geometry:
  - Crosswalks should be 10 feet wide, or the width of the approaching sidewalk if greater than 10 feet
  - Refuge island cut-throughs (min. 5 feet wide) are preferred over ramps, a cut through to the right (to force pedestrians and oncoming traffic to face one another) is a preferred treatment
  - Curb extensions -- benefits visibility, increased vehicle yielding, and traffic calming

Active When Present Crossing

Rectangular Rapid Flashing Beacon

▶ This type of crossing is also called an enhanced or high visibility crossing and is used in combination with an "active when present" device. The treatment highlights pedestrian right-of-way at uncontrolled locations, which reminds drivers and provides added safety and convenience for pedestrians.

Design Guidance

- General considerations:
  - Appropriate for moderate traffic volumes and moderate to high pedestrian volumes
  - Curb ramps should be within the extent/width of the crosswalk
  - Provide 300+ foot spacing from next nearest crossing
- Signs:
  - High visibility crossing sign (R1-6 series) in roadway, State law language is optional
  - Yield to pedestrian (R1-5 series) or school advance crossing assembly (S1-1) and (W16-9p) should be place leading up to the crosswalk
- Refuge islands and geometry:
  - Crosswalks should be 10 feet wide, or the width of the approaching sidewalk if greater than 10 feet
  - Refuge island cut-throughs (min. 5 feet wide) are preferred over ramps, a cut through to the right (to force pedestrians and oncoming traffic to face one another) is a preferred treatment
  - Raised medians and islands should be the first consideration for multi-lane, two-way roads; ideally they should be large and visible, with yellow curbs and landscaping

Signalized Pedestrian Crossing

HAWK Pedestrian Signal

▶ A pedestrian-activated signal facilities crossings when there is a significant crossing demand and/or if it is difficult for pedestrians to find an adequate gap. This type of control requires driver attention and communicates a clear message to stop, which provides added safety for pedestrians.

An example is a HAWK signal which creates gaps in motor vehicle traffic to let pedestrians cross without unduly adding delay. This is accomplished by using a beacon with yellow and red indicators, rather than a full green-yellow-red traffic signal.

Design Guidance

- General considerations:
  - Engineering study required to determine if treatment meets MUTCD pedestrian signal warrants and provides best option for location
  - Appropriate for high traffic and pedestrian volumes and moderate to high vehicle speeds
  - Sight-distance must be adequate to ensure that motorists will see the signal in time to stop
- Signs and Pavement Markings:
  - High visibility crossing sign (R1-6 series) in roadway
  - Advance warning signs should be installed on the approaching roadway
  - Stop bar on roadway approaches
- Refuge islands and geometry:
  - Crosswalks should be 10 feet wide, or the width of the approaching sidewalk if greater than 10 feet
  - Curb extensions and raised medians increase the effectiveness of pedestrian signals, reduce crossing times and decrease motor vehicle delay

Widen Shoulder - Path or Trail

Roadway Shoulder Pedestrian Path

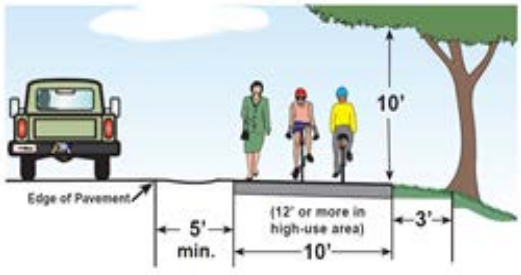
▶ Provide path or trail associated with existing street for short distances to fill gaps for continuous pedestrian connectivity. Treatment serves as a short-term improvement until sidewalks can be provided.

Design Guidance

- General considerations:
  - Appropriate for low volume and low speed roadways with available shoulder width
  - Asphalt is the preferred surface material
  - Provide a minimum width of five feet, six to eight feet wide is preferred
  - Should be placed on roadways without many driveways or accesses
- Pavement Markings and Barriers:
  - At a minimum, pavement markings should be provided between the travel lane and path
  - A barrier may be provided necessary to separate path users from the roadway
- Signs:
  Roadway signs should be used to identify the pedestrian path area and discourage bicycle use

Shared Use Path

Comfort Level ●●●●



▶ Shared use paths are used by pedestrians, bicyclists, skaters, and many other community members. Paths include continuous separation from motor vehicle traffic, frequent connection to land uses including schools and shopping, provide some security to users through illumination and proximity to housing or businesses, have scenic qualities, and well-designed street crossings.

Design Guidance

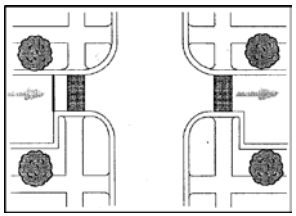
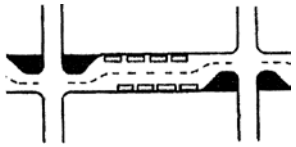
- Shared use paths are commonly 10′ wide for two-way traffic in rural areas, but should be 12′ wide or wider in urban and suburban areas.
- Minimum width for a shared use path is 8′ wide to be used at pinch points or where low volumes are expected.
- Proper sight distance should be maintained.
- Path should be illuminated for night time users.

Source: ODOT Bicycle and Pedestrian Design Guide 2011

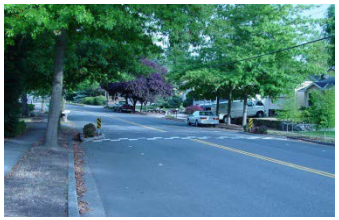
Neighborhood Traffic Management Toolbox

Neighborhood Traffic Management (NTM) Toolbox

Measure	Sample	What is it?	What does it do?	How much does it cost?
Curb Extensions/ Medians		A roadway narrowing. This could be a curb extension at an intersection (also called bulb outs) to reduce the roadway width at a selected location. This could be a median placed in the middle of the roadway. Medians can be used for pedestrian refuge and/or access control to restrict turning movements.	■ Speed reduction (3 MPH) ■ Moderate volume reduction and diversion	$5,000 to $15,000
Diverters		Channelization or islands that restrict movements at an intersection. Typically, allows right turns, not through traffic. There are full and partial diverters depending upon the number of movements restricted or diverted at an intersection.	■ Speed reduction (1 MPH) ■ High volume reduction, high diversion impact	$3,000 to $15,000
Enhanced Corridor Performance		Providing adequate capacity, spacing, and connectivity for arterials and collectors allows longer trips to stay on these facilities and not on neighborhood routes. Coordinated traffic signals can be effective in keeping through traffic on arterials.	■ Speed reduction can be moderate - mostly due to removing faster traveling vehicles by moving traffic from neighborhood routes ■ Can significantly reduce volume where congestion exists	Street improvements are expensive Typically not considered NTM projects

Measure	Sample	What is it?	What does it do?	How much does it cost?
Landscaping/ Street Trees		Provides a visual narrowing of the street and separates the sidewalk from the vehicle travel lane.	■ Speed reduction varies ■ Limited volume reduction	$10,000 to $20,000/block
One Way Street with Choker		Takes the entry to a neighborhood area and makes the access road one way (typically out). Similar in some respects to a diverter. Can be used in connection with entry treatments.	■ Speed reduction (no data) ■ Significant volume reduction and diversion	$5,000 to $30,000
Pavement Texture/Markings		Instead of smooth pavement surface, create roughness by using raised markers, pavers, or colored concrete with patterns. Can be used to emphasize pedestrian crossing location or create channelization or narrowing. May not be compatible with snow routes.	■ Limited speed reduction ■ Limited volume change ■ Increases driver awareness of changed conditions (entering a neighborhood or pedestrian zone)	$1,000 to $15,000
Parking On-street		Many streets less than 32' do not allow parking on one or both sides. By allowing parking, the traveled way is narrowed. Speeds must be slow for safe sight distance.	■ Moderate speed reduction ■ Limited volume reduction	$0 - $10,000/block

Measure	Sample	What is it?	What does it do?	How much does it cost?
Part Time Restrictions		Uses signs to limit vehicle movements during key times (typically school times or peak hours). Can be turn restrictions, truck restrictions, through traffic restrictions, etc. Difficult and expensive to enforce and can have high violation rates.	■ Moderate speed reduction (if through traffic removed) ■ Moderate volume reduction (if restrictions enforced)	$500 - $5,000
Road Closure		Uses islands or barricades to close the end of a street. Creates a cul-de-sac for vehicles; can remain open for pedestrians and bicycles. Contrary to emphasis on vehicular connectivity.	■ Speed reduction limited to site of closure ■ Significant volume reduction and diversion	$2,000 - $15,000
Shared Space "Woonerf"		A concept where there are no curbs in the roadway right-of-way. The road area is shared among various users, using bollards, chokers, and landscape elements to help define user areas.	■ Speed reduction ■ Significant volume reduction and diversion	$10,000 - $50,000
Speed Cushions		A device similar to a speed hump, but designed to allow buses or emergency vehicles with larger wheel bases to pass over without impact.	■ Speed reduction (7 MPH) ■ Low volume reduction or diversion	$1,500 - $3,000

Measure	Sample	What is it?	What does it do?	How much does it cost?
Speed Humps		Raising of pavement surface about 3" over about 10 to 20 feet. Similar to this measure are speed tables, raised pedestrian crossings, and raised intersections.	■ Speed reduction (7 MPH) ■ Low volume reduction or diversion	$3,000 to $5,000
Speed Trailer		A trailer unit with a reader board that indicates the approaching vehicle speeds. Portable and can be moved from site to site. Can be reinforced with actual police enforcement on a selective basis.	■ Speed reduction (4 MPH) however, reduction occurs only when trailer is present ■ No volume reduction	$10,000 - $25,000 purchase + labor
Speed Zone Changes		Typically, for collector and arterial streets, the 85th percentile speed is used as a guide. Past studies have proven that unrealistically low speed zones are ignored by drivers.	■ Little speed or volume change (without enforcement)	$20,000 (for signs and studies)

Measure	Sample	What is it?	What does it do?	How much does it cost?
Stop Signs		Warrants determined by MUTCD. Significant research on unwarranted stop signs and their negative impact. MUTCD specifically indicates stop signs are not to be used for speed control.	■ Mixed findings on speed reduction (some up some down) ■ Low volume reduction and diversion ■ A device for traffic control and safety, generally not NTM	$250 - $2,500 (including studies, staff time and installation)
Traffic Circles		A round island in the middle of an intersection. Operates similar to a roundabout.	■ Speed reduction (5 MPH), Low volume reduction and diversion	$10,000 to $15,000

Sources:

Traffic Calming, American Planning Association, Planning Advisory Service, Report Number 456, July 1995.

Handbook for Walkable Communities, Burden & Wallwork.

Civilised Streets: A Guide to Traffic Calming, Environmental & Transport Planning, Brighton, Great Britain, 1992.

Note: Cost Estimates are in 2010 dollars. Average construction cost inflation per year based on 10-year data is 2-3% per year.

Technical Memorandum #11

DATE: July 21, 2015

TO: Cottage Grove TSP Update Project Management Team

FROM: Mat Dolata, PE, PTP, Carl Springer, PE, PTP

SUBJECT: **Cottage Grove Transportation System Plan Update**
Final Recommended Solutions

This memorandum presents recommended transportation system improvements to address the transportation needs and deficiencies identified in Cottage Grove. These solutions have been identified to improve facilities and services for all modes of transportation. The initial list of potential solutions was identified in Technical Memorandum #9 (Solutions Evaluation and Initial Recommendations)[1] and was refined based on input from Community Advisory Committee meetings, stakeholder interviews, and community events.

The recommended transportation improvements are divided into two categories: "Financially-Constrained" or "Illustrative". The list of Financially Constrained solutions is based on the total estimated transportation funding availability through 2035. The projects on the Financially Constrained project list are considered to be reasonably likely to be funded. Illustrative solutions are other projects that were identified to address transportation needs in the community, but are not likely to be funded by 2035 unless additional transportation funding sources become available.

Planning level cost estimates reflect initial assumptions about how the estimated project cost could be shared by public agencies and private development, as appropriate. The project lists do not reflect any commitment of funding by ODOT, Lane County, or the City of Cottage Grove. Similarly, the identified share to be funded by private developers may change based on the applicable development code requirements at the time of the land development application, and the City's priorities for assisting with funding a given improvement.

[1] Technical Memorandum #9 – Solution Evaluation and Initial Recommendation, DKS, April 24, 2015

Changes to Initial Project Lists

The Financially Constrained project list was previously referred to as the "priority" list while the Illustrative projects were previously labelled as "preferred". The following changes to project lists have been identified based on input from Community Advisory Committee meetings, stakeholder interviews, and community events:

- Gateway Boulevard Conversion (R1) has been dropped from the Illustrative project list due to concerns about truck movements in the area and lack of bicycle facilities in the vicinity of the project.
- Cleveland Avenue Extension West (R6) has increased the estimated project costs to reflect feedback received from staff at ODOT Rail Division.[2]
- E. Harrison Avenue Pedestrian Connection (P27) has been shifted from the Financially Constrained to the Illustrative list due to uncertainty related to the redevelopment potential of the Harrison Elementary School site and overall costs of the Financially Constrained list.
- E. Harrison Avenue Extension (R11) has been dropped from the Illustrative project list in favor of providing a pedestrian connection (P27).
- W. Main Street Sidewalks (P6) has been removed from the Illustrative list because the project is redundant with the roadway modernization project (R16).
- S. 10th Street Crosswalk (P26) was removed from the Financially Constrained list because the project is likely to be completed before the TSP is adopted.
- Lincoln Avenue Pedestrian Connection (P28) has been removed from the Illustrative list because the project is redundant with the proposed roadway extension (R10).
- Harvey Road Sidewalks (P14) has been shifted from the Financially Constrained to the Illustrative list due to overall costs of the Financially Constrained list.
- Traffic control modifications on E. Main Street at 5th Street (I2) and 6th Street (I3) have been removed from the Illustrative list due to concerns about emergency vehicle response time and maintaining the historical character and pedestrian environment along Main Street.
- Traffic control modifications on Row River Road at Jim Wright Way (I4) were removed from the Illustrative list in favor of nearby pedestrian crossing improvements (P24) because the intersection is not projected to meet traffic signal warrants through the 2035 planning horizon.

[2] The total project cost estimate was increased from $6.6 M to $8.0 M based on feedback received via email from David R Smith (ODOT Rail & Public Transit Crossing Safety Section) on May 20, 2015.

Funding and Cost Estimate Overview

The TSP must identify a financially constrained list of TSP solutions that falls within a reasonable range of funding that is available to the City. Based on historical data of funding and expenses, the total funding availability for Cottage Grove TSP solutions is estimated to be $11.5 million through the 2035 planning horizon.[3,4]

Planning level cost estimates were identified for each recommended project and are included in the Technical Appendix. The cost estimates also include an estimated share of funding from public agencies and private development. These assumptions suggest which agency might lead project development but do not commit any agency funds to a specific project. Similarly, the identified share to be funded by private developers may change based on the applicable development code requirements at the time of the land development application, and the City's priorities for assisting with funding a given improvement.

The estimated cost to public agencies to construct the Financially Constrained solutions list matches the available funding estimate of $11.5 million. The total cost of Financially Constrained solutions is approximately $27 million, including combined public and private cost shares. The total cost of all recommended solutions included in the Illustrative and Financially Constrained lists is over $47 million. The public agency share of these costs is estimated to be over $28 million (or approximately 60 percent of total costs).

If additional funding sources are identified, the Financially Constrained solutions list may be expanded to include more projects from the Illustrative solutions list. Higher than expected grant funding, development, or ODOT funding may contribute to more revenues than estimated. Conversely, lower revenues would result in fewer projects being constructed than are identified. Additional details and funding mechanisms are discussed in Tech Memo #4.

This TSP, including the project lists, does not have any legal or regulatory effect on land or transportation facilities that the City does not own. Although evaluation and proposed

[3] Technical Memorandum #4 - Funding Review and Forecast, DKS, May 28, 2014

[4] Tech Memo #4 identifies at $10.5 million funding estimate. Input from ODOT Region 2 staff indicates this estimate should be increased by $1 million. The estimated ODOT funding available through 2035 does not constitute an obligation or commitment of funding. The State has not committed any future funding for projects in Cottage Grove. This estimate is based on assuming that Cottage Grove will receive a reasonable share of the state/federal funding projected to be available over the 20-year planning horizon and based on ODOT sustaining their current revenue structure. It is used to illustrate the degree of financial constraints faced by ODOT as of the writing of this document. Actual funding through state and federal sources may be higher or lower than the range of this is estimate. This estimate does not include projects that might be funded through the federal Highway Safety Improvement Program (HSIP). The overall funding estimate should be considered a planning level estimate based on historical revenues and costs related to construction, operation and maintenance of the existing transportation system.

improvements of non-City facilities are included, the TSP does not obligate its governmental partners to take any action or construct any projects. Without additional action by the governmental entity that owns the subject facility or land (e.g., Lane County, ODOT) any project that involves a non-City facility is merely a recommendation.

As in most transportation planning efforts, moving towards a well-connected network depends on the cooperation of multiple jurisdictions. The TSP is intended to facilitate discussions between the City and its governmental partners to work together to achieve transportation system goals and objectives. Jurisdictional transfers may be considered as part of the implementation of proposed transportation projects.

Strategies

Non-capacity adding solutions are defined as a set of transportation strategies that attempt to enhance the performance of the transportation system by developing transit, walking, biking, Transportation System Management ("TSM") and Transportation Demand Management ("TDM") improvements. These solutions can achieve significant benefits at a far lower cost than expanding the roadway system for motor vehicles. Emphasis is placed on improving safety, reducing traffic conflicts, reducing drive-alone motor vehicle demand, and encouraging more efficient usage of the existing transportation system.

The TSM and TDM strategies previously identified in Technical Memorandum #8 will be carried forward to the Draft TSP without any changes.

Financially Constrained Solutions

The recommended list of Financially Constrained solutions for Cottage Grove is identified in Table 1 and illustrated in Figure 1. The selection of Financially Constrained solutions was informed by the results of the evaluation criteria scoring and input received from Community Advisory Committee meetings, stakeholder interviews, and community events.

This list reflects the prioritized projects that are reasonably likely to be funded through 2035. The total cost of the public share of the projects is approximately $11.5 million. The timing of projects depends on growth and development with Cottage Grove. However, the projects are categorized into short-term (0-5 years), medium-term (5-10 years), and long-term (10-20 years) to reflect the overall TSP prioritization.

Other projects not listed on the Financially Constrained list may be constructed within the planning horizon. However, these projects are not prioritized at this time and should be considered to be planned for construction beyond the 2035 planning horizon, based on the available funding estimate identified above. This Illustrative list of other projects is identified later in this memorandum.

The highway, bike lane, sidewalk, crosswalk, and transit amenity design elements depicted for facilities are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any facility are subject to change, and will ultimately be determined through a preliminary and final design process. All project design elements on state facilities are subject to ODOT approval. All project design elements on City facilities are subject to approval by the Cottage Grove City Engineer.

Table 1: Financially Constrained Solutions

Project ID	Name	Description	Estimated Cost to Public ($ 2015 Dollars)	Priority
R2	OR 99 Conversion*	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	$ 60,000	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	$ 3,000,000[5]	Short-term
R6	Cleveland Ave Extension (West)**	Extension from west end to OR 99/S. R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	$ 4,000,000	Long-term
R7	S. R St Extension	Extension to complete S. R St from Sweet Ln to Cleveland Ave Extension including sidewalks and bike lanes	***	Long-term
R8	Gates Rd Extension	Extension to complete Gates Rd from Gowdyville Rd to W. Harrison Ave. including sidewalks and bike lanes	$ 754,000	Long-term
R9	Blue Sky Dr Extension	Extension from W. Harrison Ave to Sweet Ln including sidewalks	***	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd extension including sidewalks	***	Long-term
R13	E. Main St Access Improvements	Modify access from OR 99 to Gateway Blvd (e.g., consolidate driveways)	$ 35,000	Medium-term
R14	OR 99 Access Improvements*	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	$ 24,000	Medium-term
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Rd (total cost $90,000). [County Project 70]	$ 90,000	Medium-term

[5] The total cost of the Main Street Refinement Plan was estimated to be between $8.0M and $9.3M. The costs for the project are expected to come partially from transportation funding and partially from other urban renewal and/or community development sources.

R23	N. M St Extension	Extension to Holly Ave including sidewalks	***	Long-term
R24	S. 4th St Extension	Extension south to Cleveland Ave Extension including sidewalks	***	Long-term
I1	OR 99 at Cottage Grove Connector Improvements*	Roundabout (or other intersection improvement) including pedestrian crossings	$ 1,300,000	Long-term
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	$ 150,000	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Rd and Currin Connector	$ 70,000	Medium-term
P1	OR 99 Sidewalks (North)*	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Rd	$ 500,000	Long-term
P3	N. M St Sidewalks	Construct missing sidewalk segments on N. M St from Chestnut Ave to Holly Ave	***	Medium-term
P4	E. Harrison Ave Sidewalks (East)	Construct missing sidewalk segments E. Harrison Ave from OR 99 to S. 1st St	$ 42,500	Medium-term
P7	S. River Rd Sidewalks	Repair substandard sections and fill-in missing sections of sidewalk along S. River Rd between Nellis Pl and W.Harrison Ave	$ 180,000	Long-term
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	$ 50,000	Long-term
P10	S. 6th St Sidewalks	Construct missing sidewalk segments from Fillmore Ave to south UGB extents	$ 400,000	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	$ 75,000	Long-term
P13	N. 16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	$ 87,500	Long-term
P17	S. 4th St Sidewalks	Construct missing sidewalk segments from Grant Ave through Taylor Ave	$ 187,500	Long-term

P19	S. 8th St Sidewalks	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	$ 32,500	Long-term
P22b	Sweet Ln Sidewalks	Construct sidewalk from S. R St to OR 99	$ 175,000	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave*	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon) ****	$ 45,000	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way*	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimate assumes Pedestrian Hybrid Beacon) [Project location TBD]	$ 60,000	Short-term
P25	OR 99 Sidewalk Infill*	Construct missing sidewalk segments between Woodson Pl and Lord Ave	$ 60,000	Medium-term
B10	Bicycle Parking	Install bicycle parking (various locations)	$ 40,000	Medium-term
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	$ 5,000	Medium-term
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	$ 20,000	Long-term
B15	E. Whiteaker Ave Bike Route	Designate and sign E. Whiteaker Ave as a bike route from N.River Rd via Centennial Bridge to OR 99/E. Main St intersection	$ 35,000	Medium-term
Total			**$11,464,000**	

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

** Any proposed project that alters an at-grade railroad crossing will require coordination with ODOT Rail. ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location. The proposed railroad crossing would likely require closure of the existing crossing at Rachel Way and an access road for existing land uses near Rachel Way.

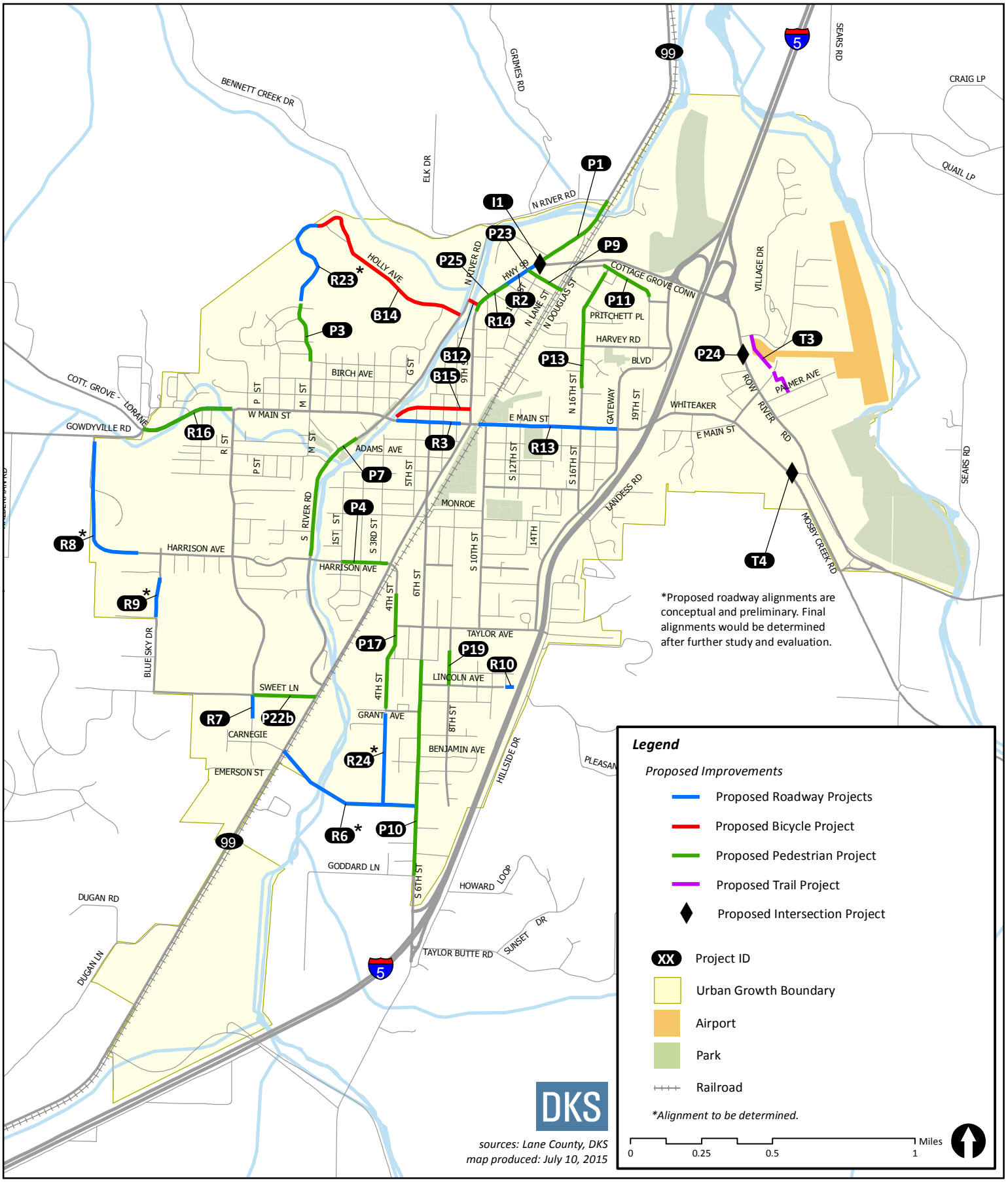
***Assumed to be fully funded by private development, with no significant public agency funding contribution.

****Appropriate crossing treatment may be dependent on roadway conversion to three motor vehicle lanes (Project R2).

Transportation System Plan

FIGURE 1

Financially Constrained Transportation Improvements



Illustrative Projects

The following section identifies the list of Illustrative transportation improvement projects that have been identified through the needs analysis and public involvement process. These projects are supported by the community but are not included in the list of Financially Constrained solutions. These projects are not likely to be funded through the 2035 planning horizon without enhanced or new transportation funding streams.

Individual projects are categorized by mode. Results of the project criteria evaluation and planning level cost estimates are included in the Technical Appendix.

Multi-modal Roadway Projects

Illustrative roadway projects are listed below in Table 2. Figure 2 shows all recommended roadway projects on the Illustrative and Financially Constrained lists. Roadway projects include roadway extensions or modernization projects. Proposed roadway modernizations are intended to bring existing substandard roadways up to current City, County or ODOT design standards, providing improvements for multiple modes of travel. Several of the projects on Lane County jurisdiction roadways are carried forward from the Lane County TSP.

The primary purpose of proposed roadway extensions is to improve connectivity throughout the City. The proposed roadway extensions will reduce out-of-direction travel and create key connections for people riding bicycles or walking. Some of the roadway extension projects are dependent on development and/or redevelopment of existing properties. Funding for new roadways (or extensions) is typically required as a condition of approval for new development along or near the proposed roadway alignment. All proposed roadway alignments illustrated in Figure 2 should be considered preliminary and conceptual.

Table 2: Proposed Multi-Modal Roadway Projects

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	$3,200,000
R5	Cleveland Ave Extension (East)	Extension from Gateway Blvd. Extension to S. 6th St including sidewalks and bike lanes	Connectivity	$260,000
R12	Cottage Grove Connector Bridge Widening*	Widen to standard, include sidewalks and bicycle lanes	Safety/ Access	$3,750,000

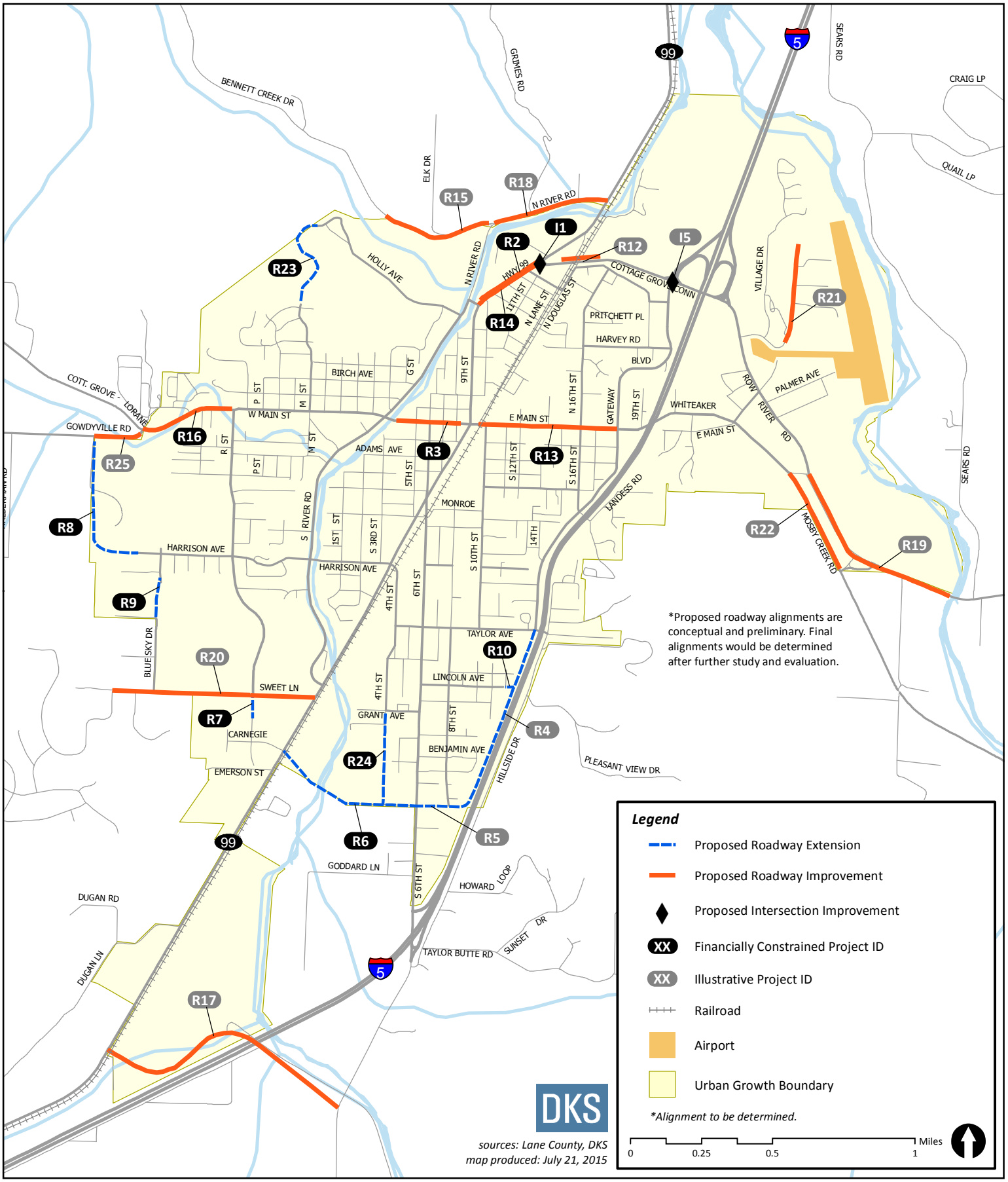
Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
R15	Bennett Creek Rd Modernization	Widening and guardrail upgrade on Bennett Creek Road between N. River Rd and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety/ Standards	$270,000
R17	Latham Rd Modernization*	Bicycle and pedestrian facilities on Latham Rd between OR 99 and London Rd. (total cost $100,000). [County Project 69]	Safety/ Standards	$66,667
R18	N. River Rd Modernization*	Upgrade on N. River Rd between OR 99 and Bennett Creek Rd (total cost $430,000). [County Project 68]	Safety/ Standards	$430,000
R19	Row River Rd Modernization	Upgrade to a three-lane facility with bike lanes on Row River Rd between the Row River and City Limits (total cost $900,000). [County Project 67]	Safety/ Standards	$720,000
R20	Sweet Ln Modernization*	Upgrade of Sweet Ln to urban standards from OR 99 to Talemena Dr (total cost $570,000). [County Project 65]	Safety/ Standards	$456,000
R21	Thornton Rd Modernization	Addition of curb, gutter and sidewalks to Thornton Ln from Row River Rd to ECM gate (total cost $220,000). [County Project 64]	Safety/ Standards	$176,000
R22	Mosby Creek Rd Modernization	Rural modernization for Mosby Creek Rd east of the Currin Connector (total cost $250,000). [County Project 94]	Connectivity	$200,000
R25	Gowdyville Rd Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	$450,000
I5	I-5 SB Ramp/Gateway Blvd Intersection Improvements*	Safety Improvements (e.g., signing and striping) near the intersection of I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector	Safety	$60,000

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Transportation System Plan

FIGURE 2

Illustrative & Financially Constrained Roadway Improvements



Trail Projects

Illustrative trail projects are listed below in Table 3. The projects providing missing links in the existing trail network in Cottage Grove and/or address potentially unsafe crossing locations. Figures 3 and 4 show all recommended trail projects on the Illustrative and Financially Constrained lists.

Table 3: Proposed Trail Projects

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	$350,000
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	$700,000

Pedestrian Projects

Illustrative pedestrian improvements are listed below in Tables 4 and 5. Figure 3 shows all recommended pedestrian projects on the Illustrative and Financially Constrained lists. The projects listed in Tables 4 and 5 are separated from other pedestrian improvements included as part of multimodal roadway improvements (in Table 2) because of their pedestrian focus. Table 4 includes modernization projects that would construct sidewalks along existing roadways that do not currently provide dedicated pedestrian facilities. Also shown in Table 4 are pedestrian connection projects that identify new pedestrian facilities to provide better pedestrian access between key activity centers in Cottage Grove.

Table 4: Proposed Pedestrian Projects – Modernizations & Connections

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
P2	Cottage Grove Connector Sidewalks*	Construct Sidewalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)[6]	Access	$480,000
P5	OR 99 Sidewalks (South)*	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	$920,000
P8	Connector Alternative	Way-finding to identify alternative pedestrian route to Cottage Grove	Connectivity	$10,000

[6] The project would likely be constructed in coordination with improvements to the Cottage Grove Connector Bridge (Project R12),

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
	Pedestrian Route	Connector		
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	$175,000
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to S. R St	Access	$150,000
P27	E. Harrison Ave Pedestrian Connection**	Provide pedestrian facilities to connect between S. 10th Ave and Gateway Blvd	Connectivity	$160,000

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

**The proposed project would be constructed in coordination with the planned redevelopment of the Harrison Elementary School site.

Sidewalk infill projects are summarized in Table 5 and shown in Figure 3. These projects were identified based on gaps identified in the pedestrian network. Filling in sidewalk gaps is particularly dependent on development unless the City creates a dedicated funding program to incrementally construct sidewalk infill projects. Implementation of these projects will lead to a more comprehensive and connected pedestrian network in Cottage Grove.

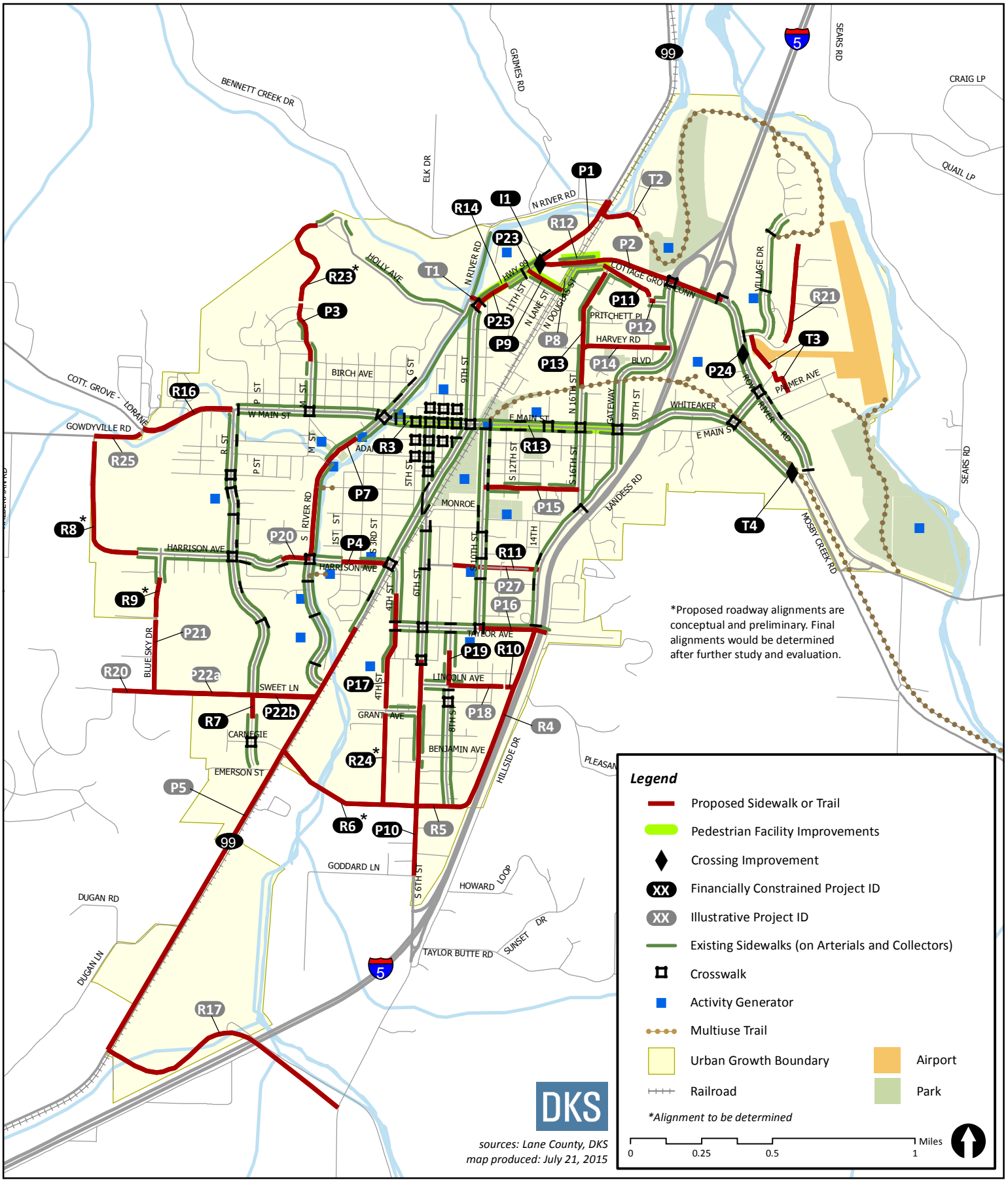
Table 5: Proposed Pedestrian Projects – Sidewalk Infill

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from N. 19th St to Gateway Blvd	Access	$12,500
P14	Harvey Rd Sidewalks	Construct missing sidewalk segments from N. 16th St to Gateway Blvd	Access	$125,000
P15	E. Madison Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to S. 16th St	Access	$100,000
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to Hillside Drive (does not include bridge replacement costs)	Access	$75,000
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from S. 8th Street to east end	Access	$125,000
P20	W. Harrison Ave Sidewalks	Construct missing sidewalk segments from Edison Ave to S. River Rd	Access	$22,500

Transportation System Plan

FIGURE 3

Illustrative & Financially Constrained Pedestrian Improvements



Bicycle Projects

Illustrative bicycle projects are listed below in Tables 6 and 7. Figure 4 shows all recommended bicycle projects on the Illustrative and Financially Constrained lists. Bicycle projects are divided into new bike lanes (Table 6) and enhanced connections (Table 7). Other bicycle improvements included as part of multimodal roadway improvement (in Table 2) are also included in Figure 4.

Table 6 summarizes modernization projects that include dedicated bike lanes on existing roadways. The projects require either roadway widening or restriping. Table 7 identifies projects that enhance bicycle connectivity in Cottage Grove. These projects range from signing and striping for shared routes, way-finding signs for designated bicycle routes and bicycle parking. While potential treatments are identified in Table 7, a range of bicycle treatments are possible and specific treatments will be determined as projects are refined. Additional options for bicycle treatments are identified in Technical Memo #10.

Table 6: Proposed Bicycle Projects – Bike Lanes

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
B1	S. R St Bike Lanes	Restripe S. R St. to include bike lanes along entire duration south of W. Main St.	Access	$60,000
B2	OR 99 Bike Lanes (North)*	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	$850,000
B4	E. Whiteaker St Bike Lanes	Widen to add bike lanes along E. Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	$320,000
B5	N. M St Bike Lanes	Stripe bike lanes on N. M Street north of W. Main Street	Access	$30,000
B6	Cottage Grove Connector Bike Lanes*	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)[7]	Access	$600,000
B7	W. Harrison Ave Bike Lanes	Restripe W. Harrison Avenue west of S. R Street to include bike lanes	Access	$25,000
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Rd between Mosby Creek Rd and Row River Rd	Access	$150,000
B9	OR 99 Bike Facility (South)*	Widen for bike lanes and/or construct multiuse trail on OR 99 from S. 8th St to south UGB	Access	$1,500,000

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

[7] The project would likely be constructed in coordination with improvements to the Cottage Grove Connector Bridge (Project R12),

Table 7: Proposed Bicycle Projects – Connections

Project ID	Name	Description	Purpose	Estimated Cost to Public ($ 2015 Dollars)
B3	E. Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on E. Main Stt between OR 99 and River Rd	Access	$25,000
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access	$35,000
B13	OR 99 Alternative Bicycle Route*	Add signing and striping to designate alternative bicycle routes between Woodson Bridge and Gibbs Ave. Signage would direct travelers to optional routes off of OR 99: northbound travelers to N. 10th St shared roadway and southbound travelers to N. River Road bike lanes.	Access	$30,000

* ODOT agency review and engineering design approval would be required prior to construction of any improvement at this location.

Transit Projects

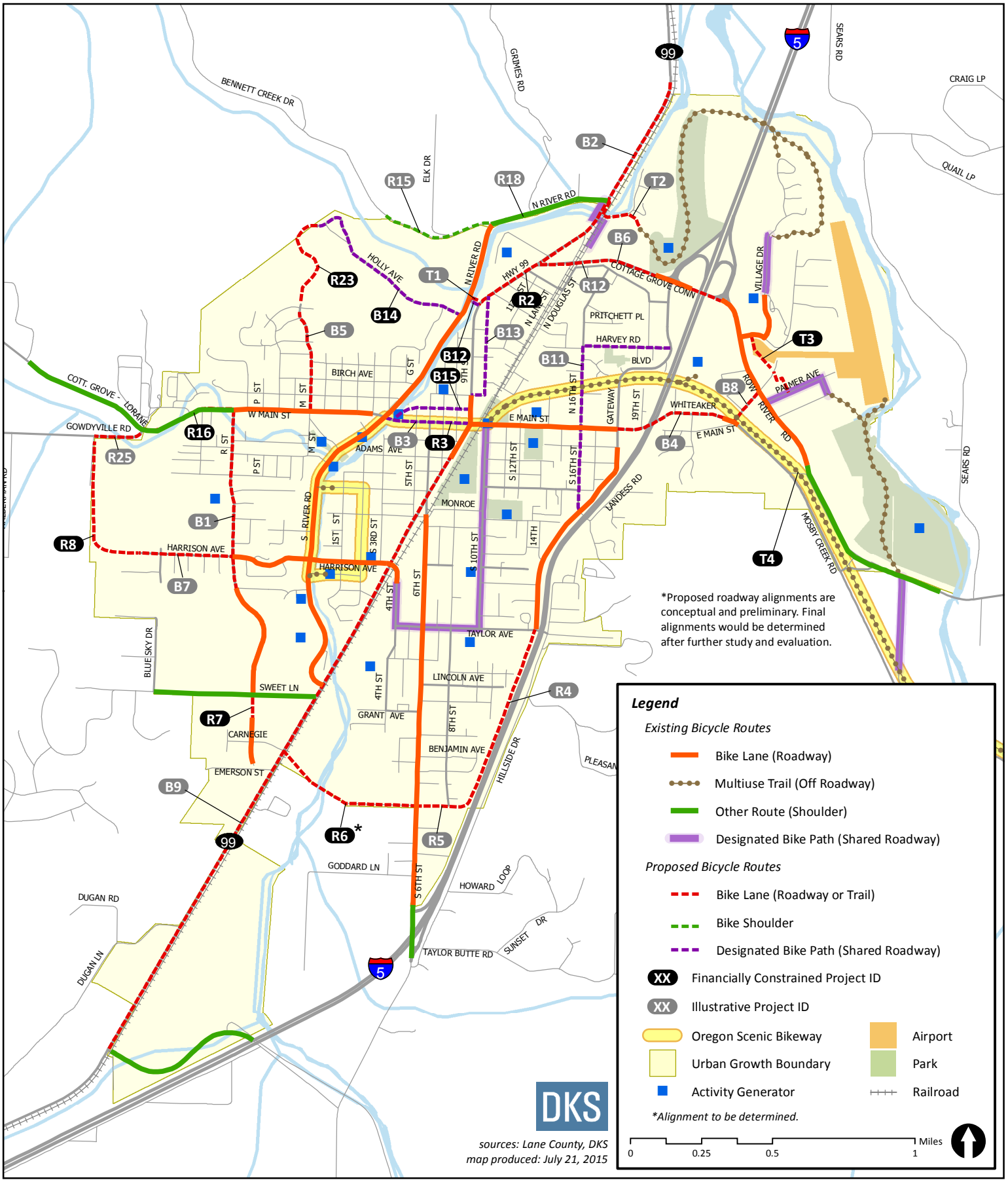
Transit use in Cottage Grove is generally either locally oriented (within Cottage Grove or nearby areas) or commuter oriented (to/from Eugene, Springfield and other parts of Lane County). There is an opportunity for increased transit ridership between Cottage Grove and Eugene-Springfield with increased transit service frequency and expanded hours of operation.

No transit-specific projects are identified as part of the TSP. Any transit project would involve coordination with Lane Transit District, South Lane Wheels, and other relevant agencies. The city will support transit through its development of pedestrian and bicycle facilities that provide access to transit.

Transportation System Plan

FIGURE 4

Illustrative & Financially Constrained Bicycle Improvements



Mobility Impacts

No mobility deficiencies were identified for TSP study intersections through the 2035 planning horizon under the baseline no-build future scenario identified in Tech Memo #7. None of the proposed roadway projects were found to significantly impact mobility in the City and all of the study intersections would continue to meet mobility standards through the 2035 planning horizon. Detailed traffic operations analysis results and discussion of mobility considerations for each roadway project are included in the Technical Memorandum 9 Technical Appendix.

Technical Appendix

Cottage Grove TSP Update

Technical Memorandum #11 –

Final Recommended Solutions

Contents:

- Financially Constrained Project List
- Illustrative Project List

Financially Constrained Project List

Cottage Grove TSP - Financially Constrained Project List

Project Information						Cost Estimate			Priority
ID	Name	Description	Primary Purpose	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
Multi-modal Roadway Projects									
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	Corridor Improvement	High	$60,000	$60,000	Medium	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Corridor Improvement	High	$3,000,000	$3,000,000	High	Short-term
R6	Cleveland Ave Extension (West)	Extension from west end to OR 99/S. R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	Roadway Extension	High	$8,000,000	$4,000,000	High	Long-term
R7	S. R St Extension	Extension to complete S. R St from Sweet Ln to Cleveland Ave Extension including sidewalks and bike lanes	Connectivity	Roadway Extension	Medium	$950,000	$0	Medium	Long-term
R8	Gates Rd Extension	Extension to complete Gates Rd from Gowdyville Rd to W. Harrison Ave including sidewalks and bike lanes	Connectivity	Roadway Extension	Medium	$3,770,000	$754,000	High	Long-term
R9	Blue Sky Dr Extension	Extension from W. Harrison Ave to Sweet Ln including sidewalks	Connectivity	Roadway Extension	Medium	$900,000	$0	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd extension including sidewalks	Connectivity	Roadway Extension	Medium	$200,000	$0	Medium	Long-term
R13	E. Main St Access Improvements	Modify access from OR 99 to Gateway Blvd (e.g., consolidate driveways)	Safety	Corridor Improvement	High	$70,000	$35,000	Medium	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	Corridor Improvement	High	$36,000	$24,000	Low	Medium-term
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Rd (total cost $90,000). [County Project 70]	Safety / Standards	Modernization	Medium	$90,000	$90,000	Medium	Medium-term
R23	N. M St Extension	Extension to Holly Ave including sidewalks	Connectivity	Roadway Extension	Medium	$3,750,000	$0	High	Long-term
R24	S. 4th St Extension	Extension south to Cleveland Ave Extension including sidewalks	Connectivity	Roadway Extension	Medium	$1,550,000	$0	High	Long-term
Multi-modal Intersection Projects									
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	Intersection	Low	$1,300,000	$1,300,000	High	Long-term
Multi-use Trail Projects									
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	Trail	Low	$150,000	$150,000	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Rd and Currin Connector	Safety	Trail	Medium	$70,000	$70,000	Medium	Medium-term
Pedestrian Projects									
P1	OR 99 Sidewalks (North)	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	Modernization	Medium	$500,000	$500,000	Medium	Long-term
P3	N. M St Sidewalks	Construct missing sidewalk segments on N. M St from Chestnut Ave to Holly Ave	Access	Sidewalk In-fill	Low	$250,000	$0	Medium	Medium-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	Sidewalk In-fill	Medium	$85,000	$42,500	Medium	Medium-term
P7	S. River Rd Sidewalks	Repair substandard sections and fill-in missing sections of sidewalk along S. River Rd between Nellis Pl and W. Harrison Ave	Access	Sidewalk In-fill	Medium	$180,000	$180,000	Medium	Long-term
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	Sidewalk In-fill	Medium	$100,000	$50,000	Medium	Long-term

Cottage Grove TSP - Financially Constrained Project List

Project Information						Cost Estimate			Priority
ID	**Name**	**Description**	Primary Purpose	Project Group	**Project Evaluation Score Summary**	Total Estimated Project Cost	Public Project Cost Share Estimate	**Project Cost Summary**	**Priority Status**
P10	S. 6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	Modernization	High	$600,000	$400,000	Medium	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	Sidewalk In-fill	Medium	$150,000	$75,000	Medium	Long-term
P13	N. 16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	Sidewalk In-fill	Medium	$175,000	$87,500	Medium	Long-term
P17	S. 4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	Sidewalk In-fill	Medium	$375,000	$187,500	Medium	Long-term
P19	S. 8th St Sidewalks	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	Sidewalk In-fill	Medium	$65,000	$32,500	Medium	Long-term
P22b	Sweet Ln Sidewalks	Construct sidewalk from S. R St to OR 99	Access	Modernization	Medium	$350,000	$175,000	Medium	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	Pedestrain Crossing	High	$45,000	$45,000	Low	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon). Specific location TBD.	Access	Pedestrain Crossing	Medium	$60,000	$60,000	Medium	Short-term
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	Sidewalk In-fill	Medium	$90,000	$60,000	Medium	Medium-term
Bicycle Projects									
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	Bicycle Connections	High	$40,000	$40,000	Low	Medium-term
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	Bicycle Connections	Medium	$5,000	$5,000	Low	Medium-term
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	Bicycle Connections	Low	$20,000	$20,000	Low	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign E. Whiteaker Ave as a bike route from N. River Rd via Centennial Bridge to OR 99/E. Main St intersection	Access	Bicycle Connections	Medium	$35,000	$35,000	Low	Medium-term

Illustrative Project List

Cottage Grove TSP - Illustrative Project List

Project Information						Cost Estimate			Priority
ID	Name	Description	Primary Purpose	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
Multi-modal Roadway Projects									
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	Roadway Extension	Medium	$4,000,000	$3,200,000	High	*N/A*
R5	Cleveland Ave Extension (East)	Extension from Gateway Blvd Extension to S. 6th St including sidewalks and bike lanes	Connectivity	Roadway Extension	Medium	$1,300,000	$260,000	High	*N/A*
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	Modernization	Medium	$3,750,000	$3,750,000	High	*N/A*
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Rd between N. River Rd and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Modernization	Low	$270,000	$270,000	Medium	*N/A*
R17	Latham Rd Modernization	Bicycle and pedestrian facilities on Latham Rd between OR 99 and London Rd. (total cost $100,000). [County Project 69]	Safety / Standards	Modernization	Low	$100,000	$66,667	Medium	*N/A*
R18	N. River Rd Modernization	Upgrade on N.River Rd between OR 99 and Bennett Creek Rd (total cost $430,000). [County Project 68]	Safety / Standards	Modernization	Low	$430,000	$430,000	Medium	*N/A*
R19	Row River Rd Modernization	Upgrade to a three-lane facility with bike lanes on Row River Rd between the Row River and City Limits (total cost $900,000). [County Project 67]	Safety / Standards	Modernization	Medium	$900,000	$720,000	Medium	*N/A*
R20	Sweet Ln Modernization	Upgrade of Sweet Ln to urban standards from OR 99 to Talemena Dr (total cost $570,000). [County Project 65]	Safety / Standards	Modernization	Medium	$570,000	$456,000	Medium	*N/A*
R21	Thornton Rd Modernization	Addition of curb, gutter and sidewalks to Thornton Ln from Row River Rd to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Modernization	Low	$220,000	$176,000	Medium	*N/A*
R22	Moseby Creek Rd Modernization	Rural modernization for Moseby Creek Rd east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Modernization	Low	$250,000	$200,000	Medium	*N/A*
R25	Gowdyville Rd Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	Modernization	Low	$450,000	$450,000	Medium	*N/A*
Multi-modal Intersection Projects									
I5	I-5 SB Ramp/Gateway at Row River Rd/Connector Improvements	Safety Improvements (e.g., signing and striping) near the intersection	Safety	Intersection	Low	$60,000	$60,000	Medium	*N/A*
Multi-use Trail Projects									
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	Trail	Medium	$350,000	$350,000	Medium	*N/A*
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	Trail	Low	$700,000	$700,000	Medium	*N/A*
Pedestrian Projects									
P2	Cottage Grove Connector Sidewalks	Construct sidewalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	Modernization	Low	$480,000	$480,000	Medium	*N/A*
P5	OR 99 Sidewalks (South)	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	Modernization	Medium	$1,150,000	$920,000	High	*N/A*
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Connectivity	Pedestrain Connection	Medium	$10,000	$10,000	Low	*N/A*
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from N. 19th St to Gateway Blvd	Access	Sidewalk In-fill	Medium	$25,000	$12,500	Low	*N/A*
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from N.16th St to Gateway Blvd	Access	Sidewalk In-fill	Medium	$250,000	$125,000	Medium	*N/A*
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to S. 16th St	Access	Sidewalk In-fill	Low	$200,000	$100,000	Medium	*N/A*

Cottage Grove TSP - Illustrative Project List

Project Information						Cost Estimate			Priority
ID	**Name**	**Description**	Primary Purpose	Project Group	**Project Evaluation Score Summary**	Total Estimated Project Cost	Public Project Cost Share Estimate	**Project Cost Summary**	**Priority Status**
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to Hillside Dr (does not include bridge replacement costs)	Access	Sidewalk In-fill	Low	$150,000	$75,000	Medium	*N/A*
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from S. 8th St to east end	Access	Sidewalk In-fill	Low	$250,000	$125,000	Medium	*N/A*
P20	W. Harrison Ave Sidewalks	Construct missing sidewalk segments from Edison Ave to S. River Rd	Access	Sidewalk In-fill	Low	$45,000	$22,500	Low	*N/A*
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	Modernization	Low	$350,000	$175,000	Medium	*N/A*
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to S. R St	Access	Modernization	Low	$300,000	$150,000	Medium	*N/A*
P27	E. Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between S. 10th Ave and Gateway Blvd	Connectivity	Pedestrain Connection	Low	$200,000	$160,000	Medium	*N/A*
Bicycle Projects									
B1	S. R St Bike Lanes	Restripe S. R St to include bike lanes along entire duration south of W. Main St	Access	Bike lanes	Low	$60,000	$60,000	Medium	*N/A*
B2	OR 99 Bike Lanes (North)	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	Modernization	Low	$850,000	$850,000	Medium	*N/A*
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on E. Main St between OR 99 and River Rd	Access	Bicycle Connections	Low	$25,000	$25,000	Low	*N/A*
B4	E. Whiteaker St Bike Lanes	Widen to add bike lanes along E. Whiteaker St from Gateway Blvd to Thornton Rd/Row River Trail	Access	Bike lanes	Low	$400,000	$320,000	Medium	*N/A*
B5	N. M St Bike Lanes	Stripe bike lanes on N. M Street north of W. Main St	Access	Bike lanes	Low	$30,000	$30,000	Low	*N/A*
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	Modernization	Medium	$600,000	$600,000	Medium	*N/A*
B7	W. Harrison Ave Bike Lanes	Restripe W. Harrison Ave west of S. R St to include bike lanes	Access	Bike lanes	Low	$25,000	$25,000	Low	*N/A*
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	Bike lanes	Low	$150,000	$150,000	Medium	*N/A*
B9	OR 99 Bike Facility (South)	Widen for bike lanes and/or construct multiuse trail on OR 99 from S. 8th St to south UGB	Access	Modernization	Medium	$1,500,000	$1,500,000	High	*N/A*
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access	Bicycle Connections	Low	$35,000	$35,000	Low	*N/A*
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibbs Ave. Signage would direct travelers off of OR 99: northbound travelers to N. 10th St shared roadway and southbound travelers to N. River Rd bike lanes.	Access	Bicycle Connections	Low	$30,000	$30,000	Low	*N/A*

Technical Memorandum #12

DATE: September 3, 2015

TO: Cottage Grove TSP Update Project Management Team

FROM: Darci Rudzinski and Andrew Parish, Angelo Planning Group

SUBJECT: **Cottage Grove Transportation System Plan Update**
Implementing Code and Ordinance Guidance

Overview

This memorandum presents draft proposed amendments to the City of Cottage Grove Development Code ("development code") to support implementation of the Transportation System Plan (TSP) Update.[1]

Proposed code amendments will be reviewed and considered for adoption in conjunction with the updated TSP; proposed amendments implement recommendations from the updated draft City Cottage Grove Transportation System Plan (TSP) and comply with state and regional transportation planning requirements.

Draft code amendments presented in this memorandum were developed in compliance with the Transportation Planning Rule (TPR), as described in Technical Memorandum #3. Informed by the TSP update process and conclusions, preliminary recommendations in Technical Memorandum #3 were reconsidered and further discussed with City of Cottage Grove staff. Table 1 summarizes the recommendations from Technical Memorandum #3 that the City intends to pursue in order to implement the updated TSP and includes corresponding TPR citations; proposed draft amendments to the development code follow the table.

[1] The Draft TSP, which will be adopted as a refinement to the Comprehensive Plan, includes updated transportation goals and policies; the proposed development code amendments are consistent with the goals and policies, as amended.

Table 1. Proposed Development Code Amendments

	Proposed Amendments	TPR Requirements
Chapter 1.4 – Use Categories **Chapter 2.3 – Commercial Land Use Districts**		
1	Update Section 2.3 – Commercial Land Use Districts to include "Transportation Facilities (operation, maintenance, preservation, and construction)" as a permitted use. *[Addition of this use category to Chapter 1.4 is also required to implement this change.]*	OAR 660-012-0045 (1) (a)
Section 3.1.300 – Pedestrian Access and Circulation		
2	The Vehicle Access and Circulation section of the code should be amended to require that new developments provide pedestrian access to existing and planned transit routes.	OAR 660-012-0045 (4) (f)
	Consider minor modifications to Section 3.1.300 to strengthen required connectivity to transit.	OAR 660-012-0045 (4) (b)
Section 3.3.300 – Automobile Parking Standards		
3	The City could also consider amending the development code to allow for reduction in the number of minimum required parking spaces if the development proposes transit-related amenities such as transit stops, pull-outs, shelters, and park and ride lots, or when the development is abutting a street with fixed-route transit service.	OAR 660-012-0045 (4) (e)
Section 3.4.100 – Transportation Standards		
4	If street standards are modified through the update process, Table 3.4.100.F should be amended to be consistent with the updated TSP. The functional classification of roadways and street types should be made consistent between the TSP and the development code.	OAR 660-012-0045 (7)

Proposed code amendment text is presented in adoption-ready format in this memorandum. New language that is proposed to be added is <u>underlined</u> and proposed deletions are ~~struck through~~. The draft amendments are numbered consistent with the structure of the City development code. *Note: In addition to the amendments proposed*

in this memorandum, the entire development code should be checked to ensure that all references to the updated TSP-related development requirements are included and associated cross-references are updated, as needed.

Proposed Development Code Amendments

1.

Other Use Categories

1.4.500 Agriculture

1.4.520 Wireless Telecommunication Facilities

1.4.530 Rail Lines and Utility Corridors

1.4.540 Transportation Facilities

…

1.4.540 Transportation Facilities

A. Characteristics. This category includes public infrastructure that is used for the purposes of traveling within or through the City. Transportation facilities include construction, operation, and maintenance of planned and existing facilities, consistent with the City Transportation System Plan. This category includes related improvements located within rights-of-ways controlled by a road authority, including landscaping and drainage facilities.

B. Examples. Examples include vehicular travel lanes, bike lanes and facilities, trails, sidewalks and transit stops.

C. Exceptions. Transportation facilities that are not consistent with the adopted City Transportation System Plan.

Section 2.3.110 Commercial Districts – Allowed Land Uses

TABLE 2.3.110 – Commercial District Land Uses

USE Categories (Examples of uses are in Chapter 1.4; definitions are in Chapter 1.3)	Central Business (C-2)	Community Commercial (C-2P)	Commercial Tourist (CT)	Commercial Tourist Limited (CT/L)
OTHER CATEGORIES				
Transportation Facilities (operation, maintenance, preservation, and construction)	P	P	P	P

2.

Section 3.1.300 Pedestrian Access and Circulation

A. Site Layout and Design. …

1. Continuous Walkway System. The pedestrian walkway system shall extend throughout the development site and connect to all future phases of development, and to existing or planned off-site adjacent trails, on-site or adjacent transit facilities, public parks, and open space areas to the greatest extent practicable.

a. The developer may ~~also~~ be required to connect or stub walkway(s) to adjacent streets and to private property with a previously reserved public access easement for this purpose, in accordance with the provisions of Section 3.1.200, Vehicular Access and Circulation, and Section 3.4.100, Transportation Standards.

b. For sites that include or are adjacent to existing or planned transit facilities, the developer shall be required to provide transit improvements, consistent with adopted plans and approved by the local transit authority. If a transit facility (e.g. bus stop) and amenities are required, the development may include a 5% reduction to the minimum motor vehicle parking requirement, pursuant to Section 3.3.300 (G) (1). Transit improvements include, but are not limited to:

1) Reasonably direct pedestrian connections between the transit facility and building entrances of the site. For the purpose of this section "reasonably direct" means a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for users.

2) A transit passenger landing pad accessible to disabled persons.

3) An easement or dedication for a passenger shelter or bench.

4) A public plaza.

5) Lighting at the transit facility.

6) Additional landscaping at the transit facility.

3.

Section 3.3.300 Automobile Parking Standards

…

G. Exceptions and Special Standards for Parking

1. Exceptions for Required Parking.

a. Seasonal outdoor seating…

b. The total number of required motor vehicle parking spaces for an industrial, commercial, or office use may be reduced by 5 percent for each of the listed activities that are provided by the owners or operators, up to a maximum 15 percent reduction in the total number of motor vehicle spaces per development.

1) …

2) …

3) …

4) Providing a transit facility (e.g. bus stop) that is approved by the local transit authority, with related amenities. Related amenities include, but are not limited to, a public plaza, pedestrian sitting areas, shelter, bus pull-outs, park and ride lots, and additional landscaping;

5) …

4.

Section 3.4.100 Transportation Standards

[City to replace Table 3.4.100.F and Figures 3.4.100.F(1) through (6) with updated figures from TSP]

TSP Meeting Summaries

Cottage Grove TSP Update

Public Involvement Meetings

Contents:

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
COMMUNITY ADVISORY COMMITTEE (CAC) MEETING #1 SUMMARY

Date: Wednesday, November 5, 2014

Time: 5:30 PM to 7:00 PM

Location: Shepherd Room, Cottage Grove Community Center
700 E Gibbs Ave, Cottage Grove, OR 97424

Purpose: The purpose of this meeting was to provide an orientation to the Transportation System Plan (TSP) project, to obtain input on the identified needs for transportation in Cottage Grove, and to generate ideas for potential solutions.

Attendees:

CAC Members	
Don Strahan	Bicycle Coalition
Ruth Linoz	South Lane Wheels
Darby Valley	Cottage Grove Planning Commission
Lindsey Haskell	Cottage Grove Planning Commission
Tom Munroe	Cottage Grove Mayor
Randy Thoms	Weyerhauser
Sasha Luftig	Lane Transit District
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	Cottage Grove City Planner
Howard Schesser	Cottage Grove Community Development Director
Other Attendees	
Dan Haga	Branch Engineering

I. Sign-in, Agenda Overview, and Introductions

Mat Dolata welcomed CAC members and asked attendees to introduce themselves. The meeting agenda was summarized.

II. TSP Process Overview

Mat Dolata presented the following to the CAC through the (attached) PowerPoint presentation:

What is a TSP and why are they important? The TSP is a long-range plan that establishes a system of transportation facilities to meet current and future needs. It is the transportation element of the comprehensive plan. The TSP is important because it provides direction for developing the city's transportation system, provides a basis for making better decisions about how to invest in the transportation system, coordinates state, county, and local planning, and makes the city more competitive for state and federal transportation funding.

What should TSPs include? The TSP must provide direction for future decisions. This is done through documented vision, goals, and policies that describe the values and priorities of the community, as well as through amendments to the city's municipal code to support action and enforcement.

The TSP must also include projects to expand and improve the existing transportation system for all modes of travel. In addition to projects that build new facilities, an array of tools should also be provided to help maximize the return on investments made in facilities you already have though better management practices (e.g., street connectivity requirements, neighborhood traffic management, street design standards, standards for mobility and access (driveway) spacing that vary with the intended function of the street). Furthermore, the TSP should include a strategic approach to planning future investments that acknowledges fiscal constraints.

Common elements of TSPs are the goals and objectives and each of the modal plans (for bikes, pedestrians, transit, motor vehicle, and other modes) as well as financing and implementing codes and guidance. The goals and objectives provide direction for each of the modal plans.

The Cottage Grove TSP development process: The TSP development process includes the following project stages:

- Review the TSP Goals and Policies
- Evaluate Existing and Future Conditions
- Develop Evaluation Criteria
- Develop Transportation Solutions
- Update Transportation Standards
- Draft Plan
- Adoption Hearings

III. Committee Role & Project Schedule

Mat Dolata presented the following to the CAC through the (attached) PowerPoint presentation:

Public Involvement: During the TSP Update process, there will be a series of CAC meetings, public open houses, and stakeholder interviews as well as hearings with city council and the planning commision. To stay informed of project progress and upcoming events, CAC members and citizens are encouraged to regularly check our project website at http://cottagegrovetsp.org.

CAC roles and responsibilities: the CAC will serve as community representatives and will help to review the materials developed by the project team. Key input from the CAC will include; identify system needs; develop solutions; and evaluate and prioritize solutions. Our goal is to have the TSP reflect Cottage Grove's interests and have the CAC willing to endorse the plan before Planning Commission and City Council.

Project Schedule: The project began in December of 2013 and is about to enter the development and evaluation of alternatives. The Draft TSP will be prepared in 2015, with adoption anticipated to occur near the end of 2015.

IV. Transportation Planning Basics

Mat Dolata presented a high level summary of transportation planning objectives and strategies to the CAC through a PowerPoint presentation. The (attached) presentation covered the following topics:

Active Transportation: types of facilities, issues, and strategies related to transit, pedestrian and bicycle travel were discussed.

Motor vehicle travel: Roadway functional class, motor vehicle mobility measures, and future forecasting methodology were outlined.

Other Key TSP considerations: The safety analysis methodology, utilizing ODOT crash data, were summarized. Management strategies including transportation system management and travel demand management were discussed, along with considerations related to transportation funding and TSP implementation.

V. Review Project Goals, Findings, and Needs

Mat Dolata presented a summary of the project team findings to date, as documented in Technical Memorandums #1-8. The (attached) PowerPoint presentation was used to illustrate the findings to the CAC.

The presentation included a summary of identified pedestrian, bicycle, and safety issues. The changes in growth assumptions for 2035 were summarized including the finding of no intersection mobility deficiencies identified through the planning horizon. Therefore, TSP roadway solutions will be focused on safety, access, and connectivity issues. The analysis of crash history data found six areas that require further attention: three roadway segments, one study intersection, and two locations where pedestrian

fatalities occurred.

Overall keys for a successful implementation of the 2015 Cottage Grove TSP include:

- Incorporating the UGB expansion areas in south Cottage Grove
- Identifying a preferred solution for the Cottage Grove Connector and interchange area between I-5 and OR 99 in north Cottage Grove
- Addressing the safety issues related to severe and high collision locations
- Reflecting reasonable travel demand and funding forecasts for the year 2035
- Providing clear and consistent standards to support planned development
- Supporting development of a complete multi-modal transportation system

VI. CAC Roundtable Discussion

Below is a summary of comments from CAC members describing their views on the key concerns and needs for the Cottage Grove transportation system and ideas for solutions.

Lindsey Haskell (Planning Commission) said that the Cottage Grove Connector area was a major issue.

Tom Monroe (City Mayor) mentioned that the Connector bridge needs to be replaced and he has talked to ODOT about that in the past.

<u>Other comments related to I-5 interchanges:</u>

Did the crash rate at the intersection of the I-5 SB Ramp/Gateway Boulevard and Cottage Grove Connector/Row River Road change after signal timing was changed to flashing yellow? --This is something to investigate.

Will the I-5/South 6th Street Interchage be modified to install a full interchange? --It is not likely to be addressed as part of this TSP update, as the demonstrated need is probably beyond the 2035 planning horizon and therefore funding would be challenging.

Sasha Luftig (Lane Transit District): mentioned that the funding landscape has change with more focus on the needs of pedestrian and bicycle users, compared to a past emphasis on motor vehicle mobility.

<u>Other comments related to funding assumptions:</u>

More funding is being oriented toward cost effective “ready to build” projects, especially those that address safety and support multi-modal and active transportation “alternatives” to motor vehicle travel.

Future development may be more or less than expected. Relying on developer-funded improvements is an uncertain path.

Ruth Linoz (South Lane Wheels): discussed the need to provide affordable housing and transportation

alternatives. She brought up the need to provide more east-west connectivity to create more of a grid roadway network.

-This would support travel for all modes and could reduce the impact of travel barriers such as the railroad and river crossings.

Don Strahan (Bicycle Coalition): raised concerns about safety at Row River Trail crossings at 16th Avenue (near Safeway) and at the Currin Connector, where stopped cars can block the trail crossings.

-A similar trail crossing issue was recently addressed at Thornton Lane, to better align the trail with the intersection.

Dan Hagga (Branch Engineering): asked if a pedestrian crossing or traffic signal would be recommended for the intersection of Jim Wright Way and Row River Road.

-Both will be considered as part of the solutions development.

Ruth Linoz (South Lane Wheels): mentioned that the intersection of 10th Street and Main Street may become more problematic as more activity comes to Bohemia Park. In general, the access on Main Street between OR 99 and Gateway Blvd is messy. Access to parks and driveways at Scarpelli's convenience store (at intersection of OR 99 and Main Street) are issues to consider.

-There is potential to improve access and circulation along this segment of Main Street and the accident data indicates there are safety concerns in the area.

VII. Next Steps

The project team will begin developing and evaluating solutions to address the identified needs and updating to the transportation standards. Community event #1 and Stakeholder Meetings #1 will be scheduled to provide community members and key stakeholders an opportunity to comment on the work completed to date (Technical Memorandum #1-8) and help identify potential solutions. The next CAC meeting #2 will cover preliminary alternatives for meeting the identified. In the meantime, please visit the project website at http://cottagegrovetsp.org.and provide comments on issues you see.

Cottage Grove TSP Update

An Introduction for Community Advisory Committee Members and Decision Makers

Oregon Department of Transportation

DKS

TSP UPDATE PROCESS

DKS

What is a TSP Update?

- What improvements are needed to **serve growth** to 2035?
- Which projects best **reflect City Goals**?
- How can we **balance the needs** of all travel modes into an equitable and efficient transportation system?

DKS

Why Adopt a TSP?

- **Required** by the Transportation Planning Rule (TPR) OAR 660-012-0015
- Serves as the transportation element of your comprehensive plan
- Provides **long range direction** for development of transportation facilities and services for all modes
- Ensures the planned systems are adequate to meet the needs of **planned land uses**
- Facilitates **cost-effective** use of public funds
- Demonstrates project need and readiness (**grant pursuit**)

What MUST a TSP Do?

- Provide public transportation services to meet basic needs
- Establish an efficient network of arterials & collectors
- Provide City roadway, sidewalk and bikeway standards (layout, spacing, and connectivity)
- Protect facilities and corridors for intended uses
- Finance program that is reasonably likely
- Compliance with Regional Plans
- Implementing code and ordinances

DKS

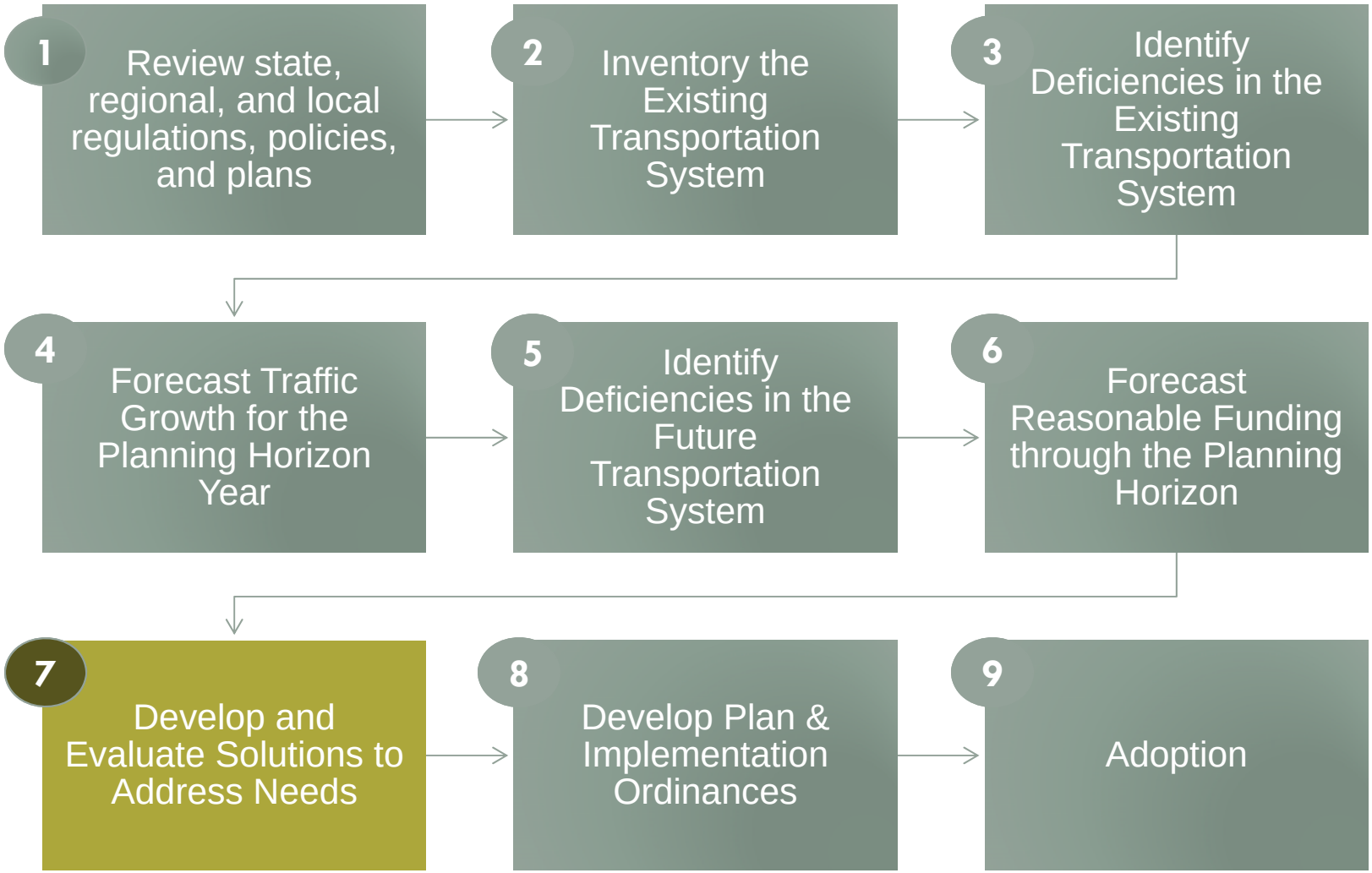
What SHOULD a TSP Do?

- Support the community vision
- Support a variety of travel choices
- Serve all people in community
- Promote safe and secure travel
- Support local and state economy
- Minimize impacts to natural and built environment

Common TSP Elements

DKS

TSP Update Technical Process



DKS

PUBLIC INVOLVEMENT & SCHEDULE

DKS

Public Involvement Process

- Community Advisory Committee Meetings (4)
- Community Events (3)
- Stakeholder Interviews (2)
- Project Website: cottagegrovetsp.org
  - Project documents and announcements
- Planning Commission / City Council Hearings (2)

CAC role

- Represent the community
- Reflect a broad cross-section of stakeholders
- Provide feedback on TSP materials
- Generate ideas for solutions
- Help to evaluate tradeoffs and prioritize solutions
- Endorse the plan

DKS

Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
- **November 2014 – April 2015**
  Develop and Evaluate Solutions
  Community Event #1 – Fall 2014 (Tentative)
  Community Event #2 – Spring 2015 (Tentative)
- **April 2015 – October 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – Summer 2015 (Tentative)
- **November 2015 – March 2016**
  Adoption Process

TRANSPORTATION PLANNING BASICS

DKS

Pedestrians

- Sidewalks & trails
- Barriers & out of direction travel
- Safe crossings
- Buffer in high-speed corridors
- Accessible facilities (ADA)
- Access to transit, parks, schools, shopping

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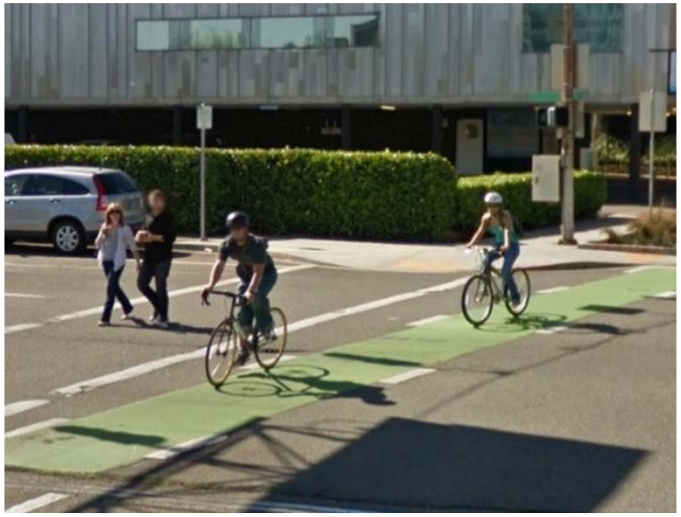
Bicycles

- Multi-use trails
- Bike lanes = 5 to 6 feet
- Shoulder bikeways = 6 feet
- Shared roads
- Separate facilities needed above 25 mph or 3,000 vehicles per day
- Provision of bike parking
- Well-defined routes



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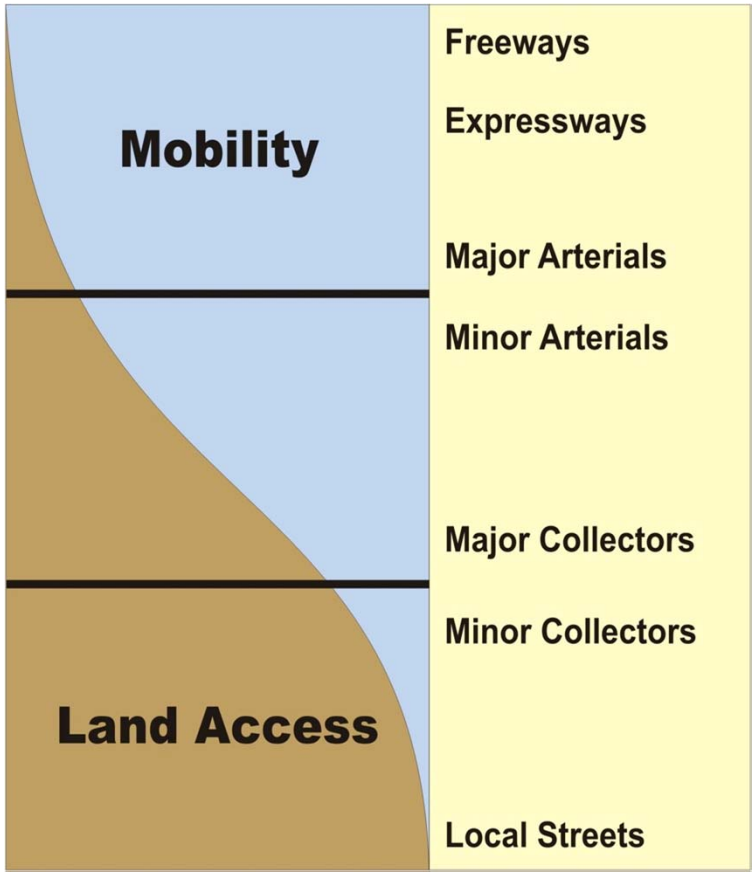
Transit

- Make transit accessible
  - ¼-mile for walking
  - ½-mile for biking
- Identify key roadway crossings
- Accommodate stop locations

DKS

Roadway Functional Classes

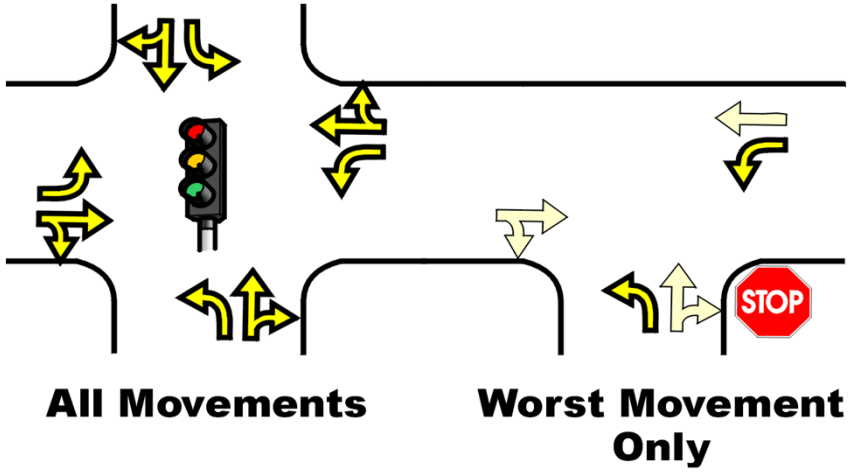
- System protects mobility and accessibility
- Types of trips
  - Local (within neighborhoods/areas)
  - Regional (to/from City)
  - Through (passing through)
- Amount and type of access
- Expected speed



DKS

Measuring Mobility

- Commonly measured by:
  - Delay (level of service)
    - Example: "This intersection is operating at LOS C."
- Percent of capacity (v/c ratio)
  - Example: "This intersection is operating at a v/c ratio of 0.80."
  - ODOT Requirement – 30th Highest Hour Design Standard



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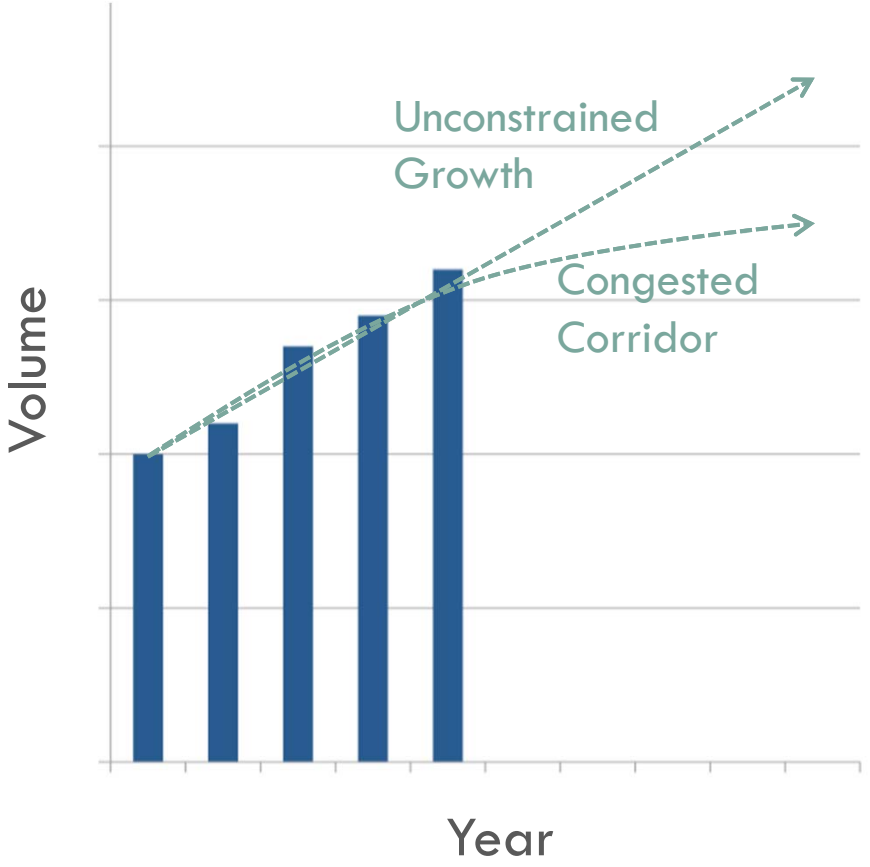
Forecasting Growth

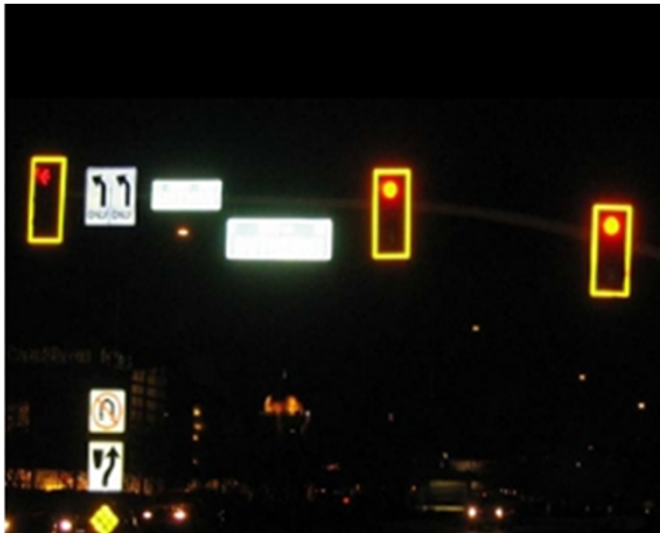
- Population (households) generate traffic
- Employment and services attract traffic
- Local development = traffic growth within Cottage Grove
- Regional growth = traffic growth to/from and through Cottage Grove (e.g., tourism, commuters)



DKS

Safety

- Crash History
  - Frequency
  - Severity
- All Travel Types
  - Motor vehicle
  - Biking
  - Walking
- Design Deficiencies
- Systematic Improvements



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Management Strategies

Transportation System Management (TSM)

- Signal Timing
- Access Management
- Traffic Calming
- Connectivity
- Functional Classification System

Transportation Demand Management (TDM)

- Employee Shift Management
- Telecommuting
- Transit
- Walking and Biking Programs
- Carpooling

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Transportation Finances

Common Funding Sources

- Gas Tax
- System Dev. Charges
- Development Exactions
- Street Utility Fees
- Grants

Expenditures

- Operations
- Maintenance
- Capital Improvements

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Implementing Development Code

- Codify the community vision
- Meet required state regulations
- Provide clear guidance for development
- Provide "teeth" for implementing transportation standards

BIG ISSUES FOR TSP UPDATE

What are your most important issues?

DKS

Potential Keys to Success for the 2015 Cottage Grove TSP?

- Incorporate UGB expansion and recent City and corridor planning efforts
- Reasonable forecasts for the year 2035
- Safety strategies for "hot spots"
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system

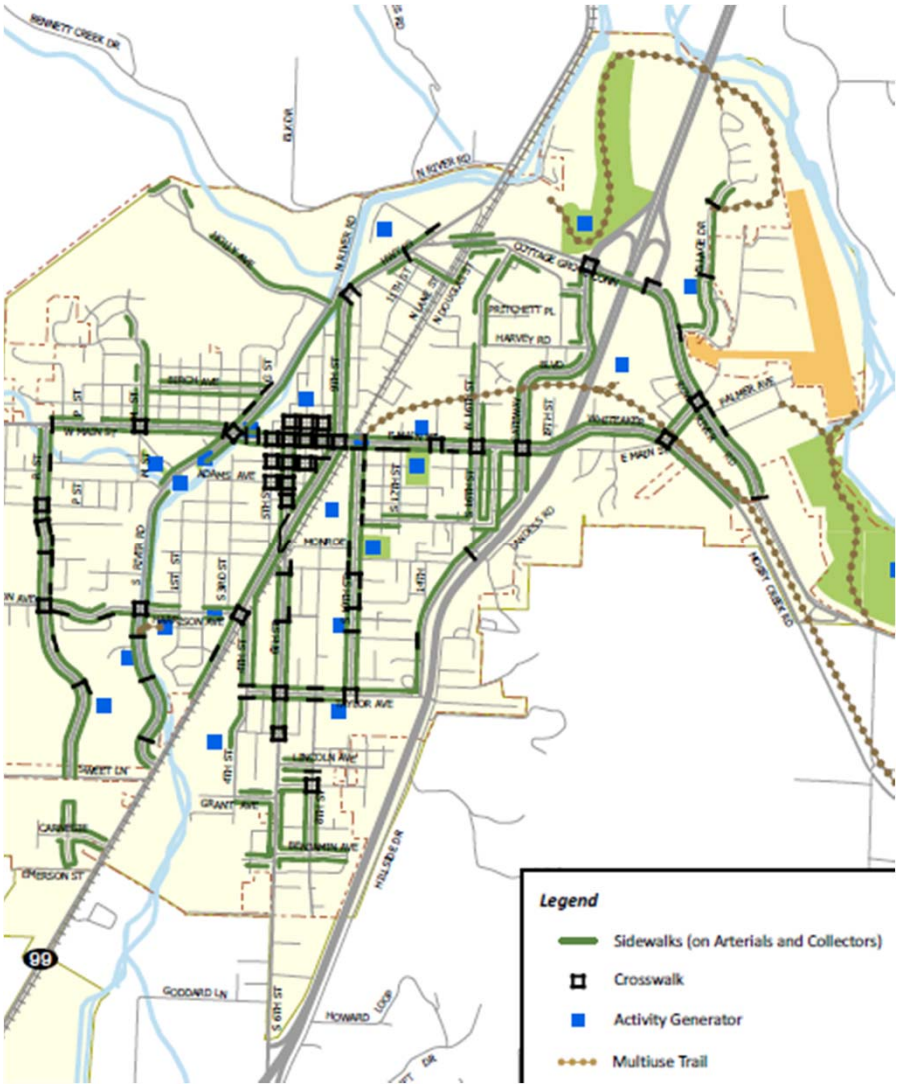
FINDINGS & NEEDS

What have we done so far?

DKS

Pedestrian Issues

- Sidewalk infill on collectors and arterials
- More crossing opportunities along barriers
  - High-speed roadways
  - Coast Fork Willamette River
  - Railroad
- Connections to south
- Highest pedestrian activity measured downtown



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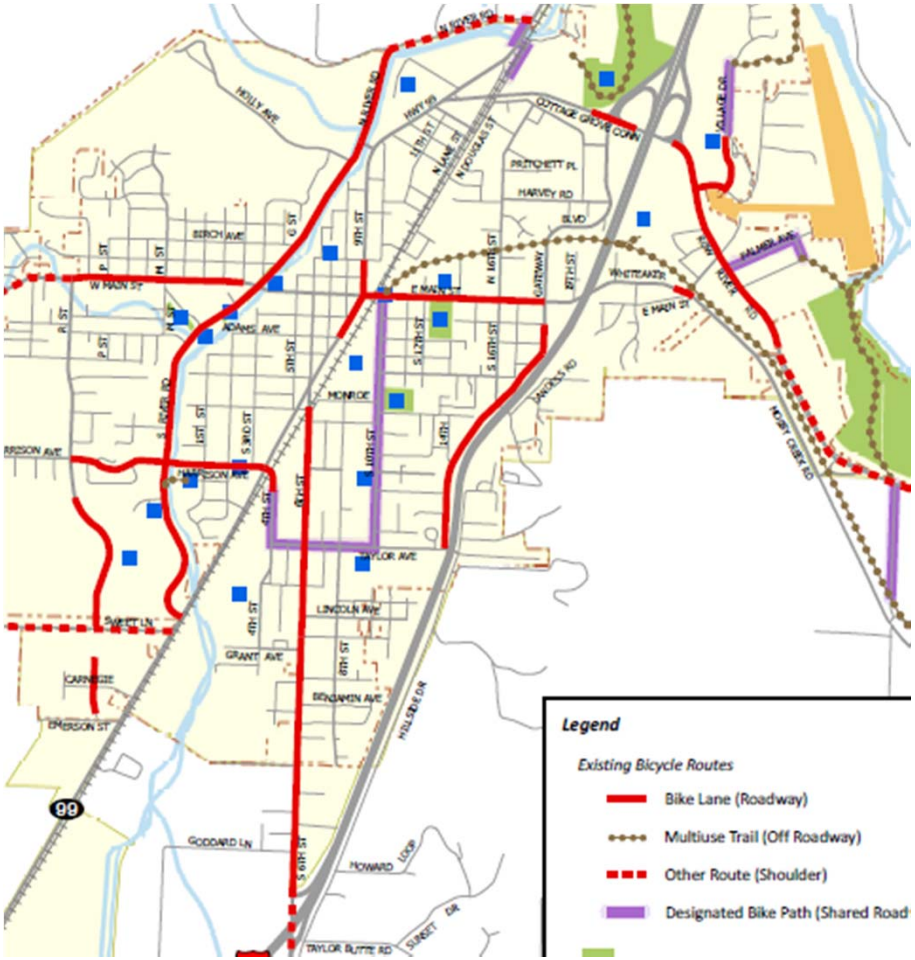
Bicycles Issues

- Bike lane continuity
- Crossings & barriers
- Connect to UGB expansion areas
- Provision of bike parking
- Support "Biking in the Grove"
- Well-defined routes



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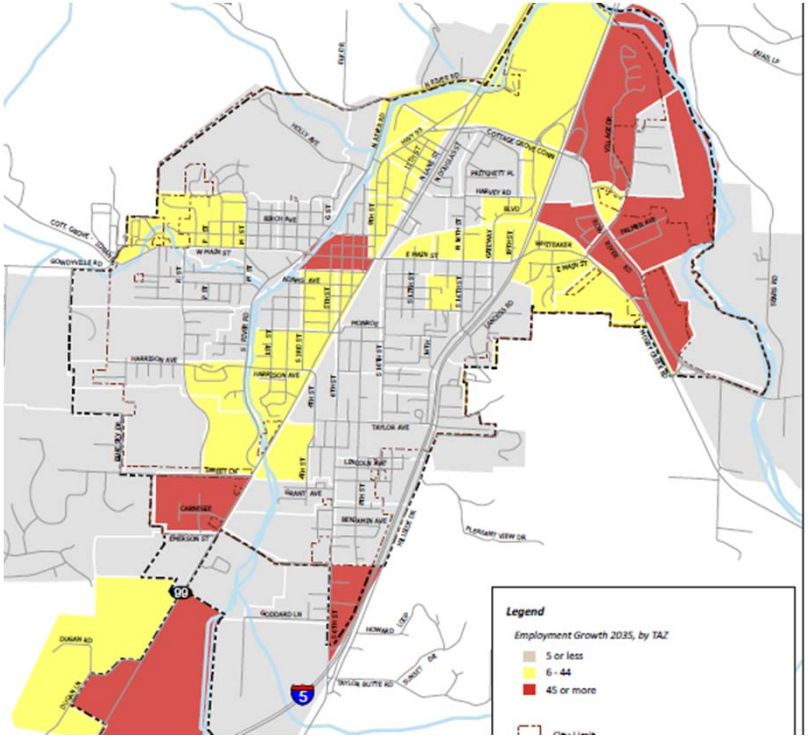
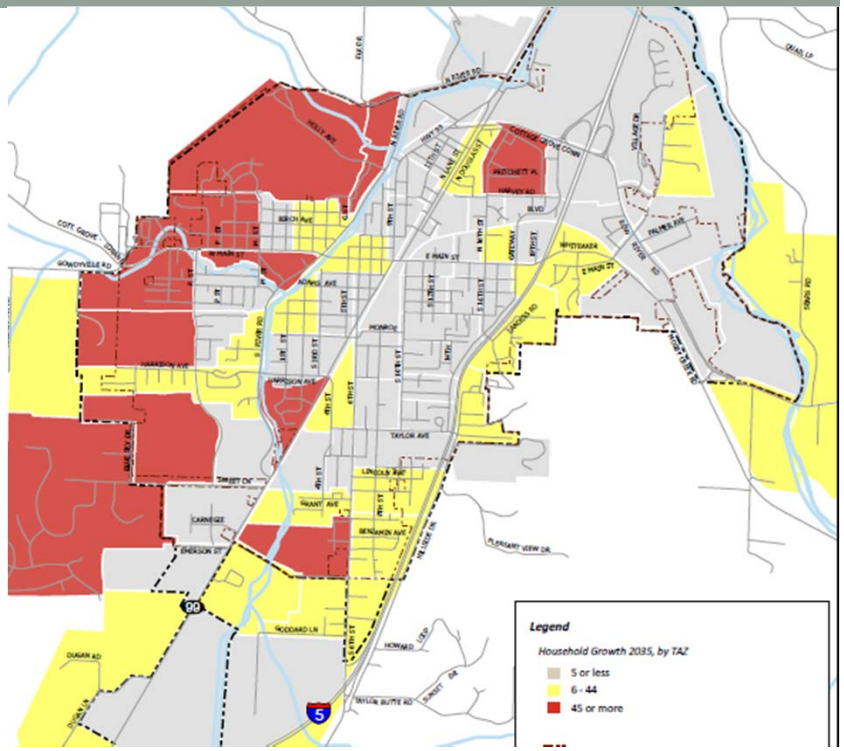
Forecasting Growth

- 2035 planning horizon
- ~1,200 new jobs
- 32% Growth





- ~3,700 more people
- ~1,500 new households
- 37% Growth

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Mobility

- No deficiencies identified for 2035 PM peak
- Busiest 15 minutes of 30th Highest Design Hour (ODOT requirement)
- Highest delay intersections:
  - OR 99/Main
  - Gateway/Main
  - I-5 SB Ramp/Row River
  - Jim Wright Way/Row River

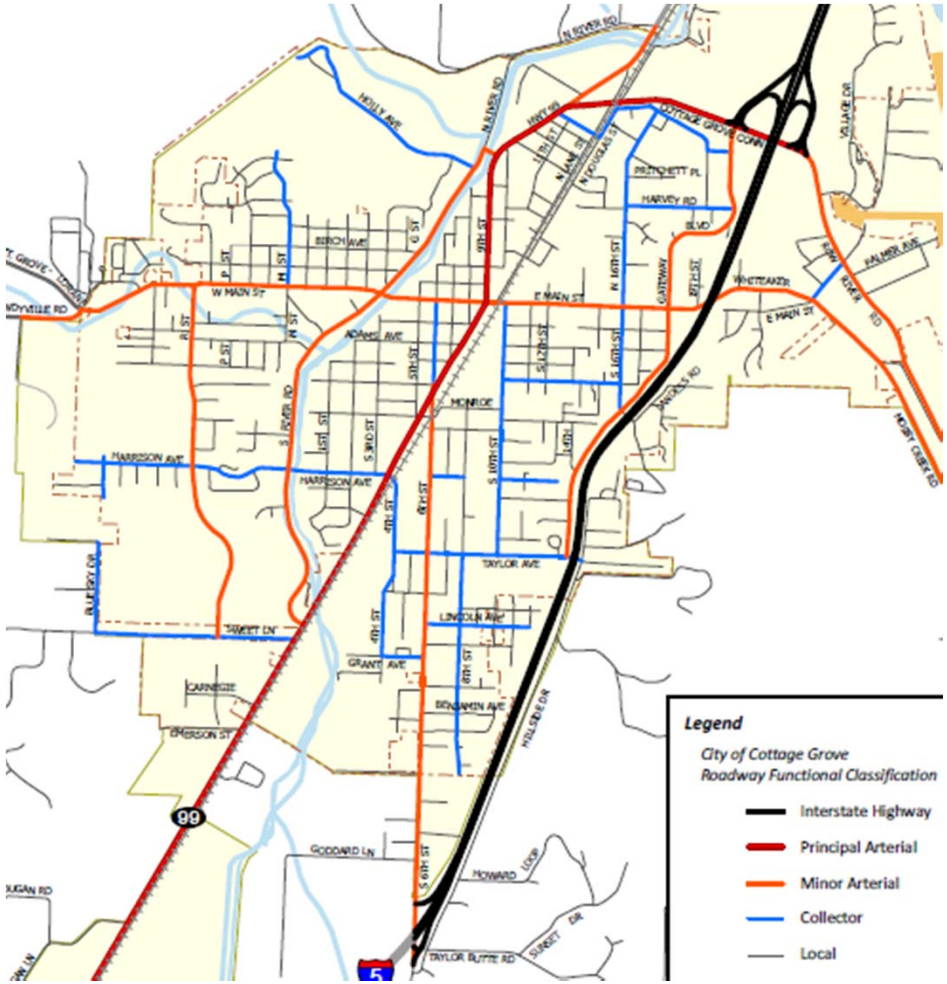
Table 2: Intersection Operations (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78	D	37
I-5 NB Ramps/Row River Road	0.85	0.59	A	8
OR 99/Woodson Place	0.95	0.56	A	9
OR 99/Main Street	0.95	0.79	D	42
OR 99/6th Street	0.95	0.49	B	10
OR 99/Harrison Avenue	0.90	0.42	B	12
Main Street/Gateway Boulevard	0.90	0.82	D	35
Main Street/River Road	0.90	0.45	B	15
Main Street/6th Street	0.90	0.40	A	6
All-Way Stop-controlled Intersections*				
Harrison Avenue/River Road	0.90	0.19	A	9
Two-Way Stop-controlled Intersections**				
I-5 SB Off Ramp/6th Street	0.85	0.27	B	12
I-5 NB On Ramp/6th Street***	0.85	0.04	A	8
OR 99/Cottage Grove Connector[6]	0.95	0.36	C	15
OR 99/S. River Road	0.90	0.12	B	12
Jim Wright Way/Row River Road	0.90	0.45	E	44

DKS

Roadway Issues

- Safety hot spots
- Update standards for consistency and clarity
- Support Main Street Refinement Plan
- Improve Connectivity
- Railroad operations



DKS

Safety Issues

- Roadway Segments
  - OR 99: CGC to Woodson Br.
  - Row River Road: I-5 to Currin Connector
  - Main Street: OR 99 to Gateway
- Intersections
  - I-5 SB Ramp/Row River
- Pedestrian Fatalities

IDEAS & SOLUTIONS

What should we do?

DKS

Moving Forward

- $10.5M funding estimate through 2035
- Address Needs
- Review Goals, Policies, and Objectives
- Use Evaluation Criteria
- Update Standards

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
Community Advisory Committee (CAC) Meeting #2 Summary

Date: Tuesday, February 10, 2015

Time: 5:30 PM to 7:00 PM

Location: Shepherd Room, Cottage Grove Community Center
700 E Gibbs Ave, Cottage Grove, OR 97424

Purpose: The purpose of this committee meeting was to review the preliminary solutions list for the Transportation System Plan (TSP), obtain input on projects, and discuss CAC priorities in developing an initial financially constrained list of solutions.

I. Attendees

CAC Members	
Don Strahan	Bicycle Coalition
Ruth Linoz	South Lane Wheels
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	Cottage Grove City Planner
David Reesor	Oregon Department of Transportation

II. Agenda & Meeting Materials

Copies of the agenda, posters, and the Powerpoint presentation are attached to this summary.

III. Summary of Discussions and Written Comments

Mat provided a project status update, review of TSP issues and needs, followed by an overview of the preliminary list of projects and solutions. Mat also summarized the results of the project evaluations and cost estimates.

Comments from the meeting attendees include:

- Don noted that there is a sewer grate on OR 99 that present a safety hazard for people biking. The grate is located near the Les Schwab near 5th Avenue where the bike lane ends. The grate has gaps that are parallel to the lane and therefore wheels can get stuck.

- It would be helpful to see a preliminary graphic of the proposed roundabout at OR 99 / Cottage Grove Connector. David recommended that if the proposed project is for a roundabout (rather than a traffic signal) we should say so, rather than using the more general "intersection improvements".
- Access management and traffic safety on east Main Street were discussed. The TSP project would likely mean consolidating driveways as redevelopment occurs. The crashes that have occurred there may be caused in part by peak period congestion.
- Pavement condition is a significant issue to the community, especially along the Cottage Grove Connector and S. 6th Street. Amanda recommends that we are explicit at the next community event that the TSP does not cover maintenance projects or priorities.
- Discussion of the Jim Wright Way/Row River Road pedestrian crossing indicates that the best solution may be a pedestrian crossing treatment at the intersection. A traffic signal does not meet traffic warrants and is not expected to through the planning horizon. ODOT staff have proposed a mid-block crossing south of the intersection, however, this does not serve the pedestrian demand between the Village Green and bowling alley very well. David raised the possibility of a pedestrian hybrid beacon. ODOT traffic engineers would likely need to investigate the appropriate crossing treatment before any project is approved. Ruth also raised the potential of restriping at the intersection to extend the two-way-left-turn lane into a left turn pocket (northbound at the Village Green driveway intersection across from Jim Wright Way).
- Amanda recommended that the bike/ped projects on Sweet Lane be split into two, on either side of R Street. The facilities are more critical in the short-term on the east-side of R Street for connecting to the high school.
- A pedestrian connection project should be included, in addition to the proposed Lincoln Ave roadway extension.
- The proposed Cleveland Avenue extension ("south connector" from OR 99 to S. 6th Street) was discussed in detail. The project scored highest on the evaluation criteria. However, there are several issues to consider including impacts to the Woodard properties (including existing structures), the development potential and share of costs, the railroad crossing, costs related to a bridge needed to make the connection, and the proper alignment. Because the project as currently shown as outside of the UGB, the alignment should be relocated to connect to Carnegie Lane instead of R Street, and the final alignment should be "to be determined".
- Meeting attendees discussed the next meeting date (tentatively scheduled for April) and strategies to encourage more attendance, including holding meetings during the day.

IV. Next Steps

The project team will develop draft technical memorandums #9 (Solutions Evaluation and Initial Recommendation) and #10 (Transportation Standards). Community Event #2 and CAC Meeting #3 will be scheduled, possibly in late April, to review the initial recommendations, project lists, and updates to transportation standards.

Cottage Grove Transportation System Plan Update

Community Advisory Committee (CAC) Meeting #2

February 10, 2015 **5:30-7:00 p.m.**

Reception Hall, Cottage Grove Community Center
700 E Gibbs Ave, Cottage Grove, OR 97424

Agenda

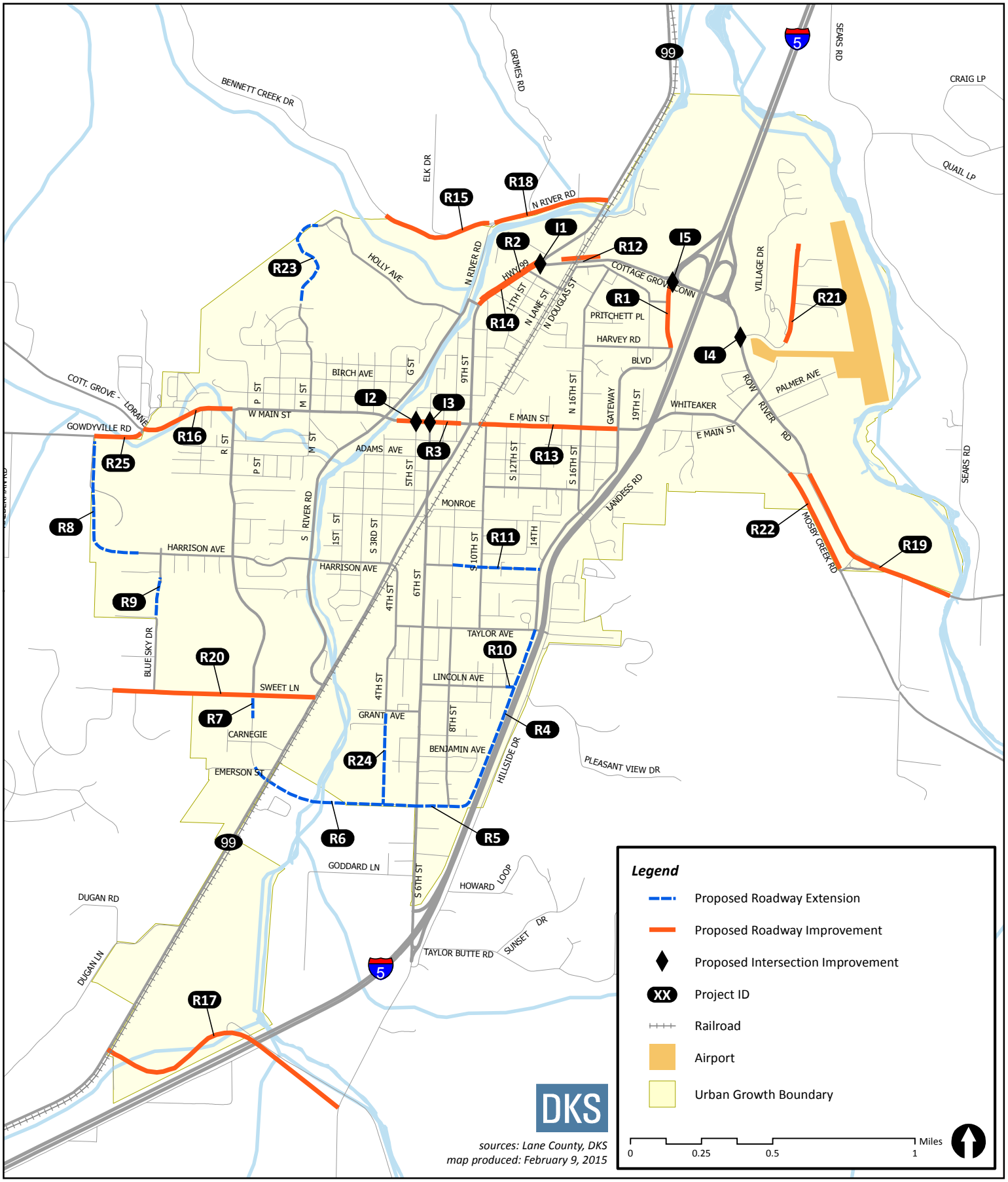
1.	Introductions	5:30 p.m.
2.	Project Status Update	5:35 p.m.
3.	Review Transportation System Needs	5:40 p.m.
4.	Proposed Projects & Solutions	5:45 p.m.
5.	Project Evaluations	6:10 p.m.
6.	Roundtable Discussion - CAC Priorities	6:20 p.m.
7.	Next Steps	6:50 p.m.

- CAC Meeting #3 (April) – Discuss Recommended Standards and Solutions for Draft TSP

Transportation System Plan

FIGURE 1

Proposed Roadway Improvements



Legend

- Proposed Roadway Extension
- Proposed Roadway Improvement
- Proposed Intersection Improvement
- XX Project ID
- Railroad
- Airport
- Urban Growth Boundary

0 0.25 0.5 1 Miles

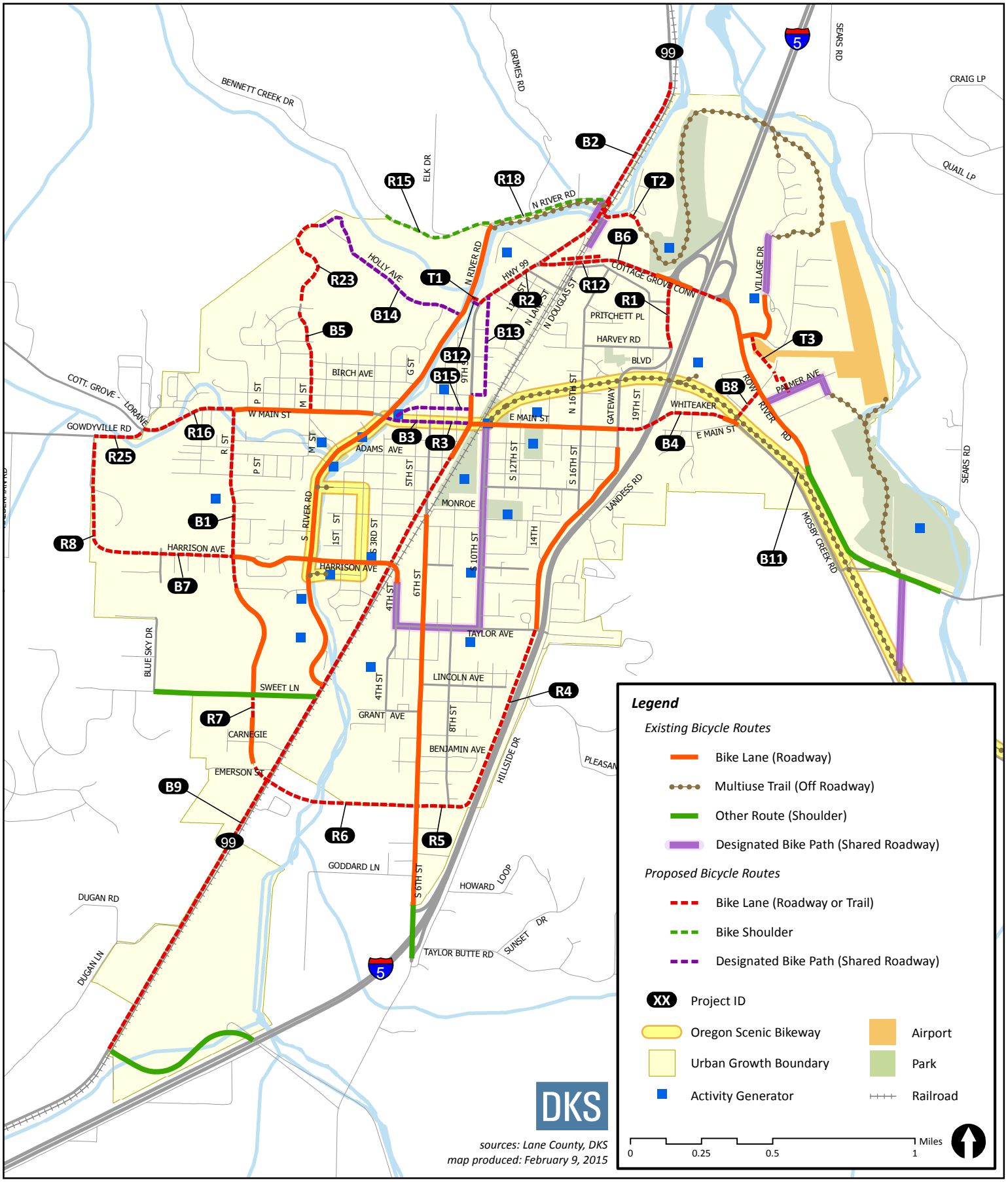
DKS

sources: Lane County, DKS
map produced: February 9, 2015

Transportation System Plan

FIGURE 2

Proposed Bicycle Improvements



Legend

Existing Bicycle Routes

- Bike Lane (Roadway)
- Multiuse Trail (Off Roadway)
- Other Route (Shoulder)
- Designated Bike Path (Shared Roadway)

Proposed Bicycle Routes

- Bike Lane (Roadway or Trail)
- Bike Shoulder
- Designated Bike Path (Shared Roadway)

- XX Project ID
- Oregon Scenic Bikeway
- Urban Growth Boundary
- Activity Generator
- Airport
- Park
- Railroad

0 0.25 0.5 1 Miles

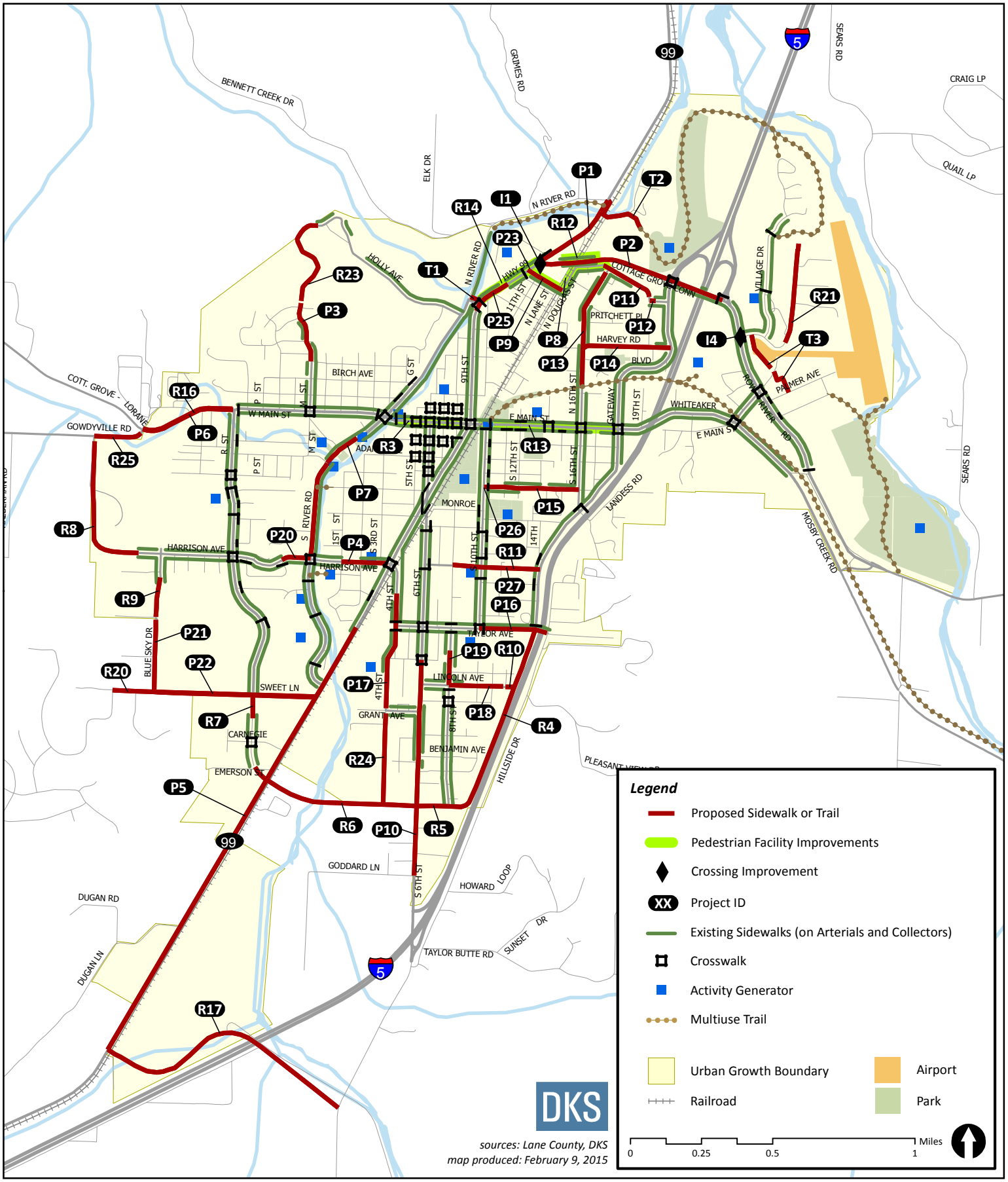
DKS

sources: Lane County, DKS
map produced: February 9, 2015

Transportation System Plan

FIGURE 3

Proposed Pedestrian Improvements



Legend

- Proposed Sidewalk or Trail
- Pedestrian Facility Improvements
- Crossing Improvement
- XX Project ID
- Existing Sidewalks (on Arterials and Collectors)
- Crosswalk
- Activity Generator
- Multiuse Trail
- Urban Growth Boundary
- Airport
- Railroad
- Park

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: February 9, 2015

Cottage Grove TSP - Preliminary Project List - DRAFT

Project Information			Evaluation																																					Estimated Costs	
Project #	**Project Name**	**Project Description**	**Objective 1 (Connected)**	Connectivity	Regional Access	Equitable Access	**Objective 2 (Balanced)**	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	**Objective 3(Economic)**	Mobility & Efficiency	Freight	**Objective 4 (Environmental)**	Environment	Stormwater Impact	**Objective 5 (Safe)**	Safety	**Objective 6 (Sustainable & Integrated)**	Sustainable Development	Integrated Land Use	**Objective 7 (Unobtrusive)**	Crossing Opportunities	Support neighborhoods & resources	**Objective 8 (Affordable)**	Major Public Investments	**Objective 9 (Responsive)**	Public Involvement	Livability	**Objective 10 (Coordinated)**	Compatibility	Agency Standards	**Objective 11 (Viable & Stable)**	Fundability	Cost Effective	**Objective 12 (Efficient)**	Improved Roadway Efficiency	Corridor Reliability	**Total**	**Estimated Project Cost - Total**	**Estimated Project Cost - City Share**
Roadway Projects																																									
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road		1	0	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		1	0		1	0	**8**	**$65,000**	**$65,000**
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge		1	0	1		1	2	1		0	0		0	0		2		0	0		1	1		0		0	1		0	1		1	1		1	0	**15**	**$25,000**	**$5,000**
R3	Main Street Refinement Plan	Streetscape Plan		0	0	0		1	1	1		0	0		0	0		0		1	1		0	2		0		1	2		0	0		0	1		0	0	**11**	**N/A**	**N/A**
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	-1		1	0	**8**	**$4,000,000**	**$3,200,000**
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**9**	**$1,300,000**	**$260,000**
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R Street		2	2	1		2	2	1		2	1		0	0		0		1	1		0	0		0		0	1		0	0		-1	1		1	1	**18**	**$5,500,000**	**$2,750,000**
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension		1	1	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	**10**	**$950,000**	**$0**
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave.		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	**$3,770,000**	**$754,000**
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	**$900,000**	**$0**
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. Extension		1	0	0		1	1	0		1	0		0	0		0		1	1		0	0		0		0	0		0	1		0	0		1	0	**8**	**$200,000**	**$0**
R11	Harrison Ave Extension	Extensions tp connect Harrison Ave from 6th St to Gateway Blvd.		1	0	1		1	1	1		1	0		0	0		0		1	1		0	0		0		0	1		0	1		0	0		1	0	**11**	**$1,500,000**	**$1,200,000**
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes		2	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		-1	0		1	0	**8**	**$3,750,000**	**$750,000**
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	**13**	**$70,000**	**$35,000**
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge		1	0	1		1	1	1		0	0		0	0		1		0	0		0	1		0		0	1		1	1		0	1		1	1	**13**	**$25,000**	**$8,333**
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	**$270,000**	**$54,000**
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	1		0	0	**9**	**$90,000**	**$18,000**
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between Highway 99 and London Road. (total cost $100,000). [County Project 69]		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	**$100,000**	**$33,333**
R18	North River Road Modernization	Upgrade on North River Road between Highway 99 and Bennett Creek Road (total cost $430,000). [County Project 68]		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**6**	**$430,000**	**$86,000**
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]		1	1	0		1	1	0		1	1		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**10**	**$900,000**	**$180,000**
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from Highway 99 to Talemena Drive (total cost $570,000). [County Project 65]		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**8**	**$570,000**	**$114,000**
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	**$220,000**	**$0**
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]		1	1	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		1	1		0	0		0	0	**7**	**$250,000**	**$0**
R23	M St Extension	Extension to Holly Avenue		1	0	0		1	1	0		1	0		0	0		0		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$3,750,000**	**$0**
R24	4th St Extension	Extension south to Cleveland Extension		1	0	0		1	1	0		1	0		0	0		0		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$1,550,000**	**$0**
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy		1	1	0		1	1	0		1	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**7**	**$450,000**	**$360,000**

Cottage Grove TSP - Preliminary Project List - DRAFT

Project Information			Evaluation																																							Estimated Costs	
Project #	Project Name	Project Description	Objective 1 (Connected)	Connectivity	Regional Access	Equitable Access	Objective 2 (Balanced)	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	Objective 3(Economic)	Mobility & Efficiency	Freight	Objective 4 (Environmental)	Environment	Stormwater Impact	Objective 5 (Safe)	Safety	Objective 6 (Sustainable & Integrated)	Sustainable Development	Integrated Land Use	Objective 7 (Unobtrusive)	Crossing Opportunities	Support neighborhoods & resources	Objective 8 (Affordable)	Major Public Investments	Objective 9 (Responsive)	Public Involvement	Livability	Objective 10 (Coordinated)	Compatibility	Agency Standards	Objective 11 (Viable & Stable)	Fundability	Cost Effective	Objective 12 (Efficient)	Improved Roadway Efficiency	Corridor Reliability	Total	Estimated Project Cost - Total	Estimated Project Cost - City Share
Intersection Projects																																											
I1	OR 99 at Cottage Grove Connector	Intersection Improvements (e.g., Roundabout, Reconfiguration)		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	1		0	1		-1	0		0	0	**7**	**$1,100,000**	**$220,000**
I2	Main St at 6th St	Traffic Control Conversion to 4-way Stop		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	**0**	**$15,000**	**$15,000**
I3	Main St at 5th St	Traffic Control Conversion to 4-way Stop		0	0	0		1	0	0		0	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		-1	0	**0**	**$15,000**	**$15,000**
I4	Jim Wright Way at Row River Rd	Traffic Control Conversion to Traffic Signal with crosswalks		1	0	1		1	1	1		1	0		0	0		0		0	0		0	0		0		0	1		0	-1		0	0		0	0	**6**	**$300,000**	**$150,000**
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd Intersection Improvements	Safety Improvements		0	0	0		0	0	0		0	0		0	0		1		0	0		1	0		0		0	0		0	0		0	1		0	0	**3**	**$60,000**	**$30,000**
Multi-use Trail Projects																																										
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge		1	0	1		1	1	1		0	0		0	0		1		0	0		1	1		0		0	1		0	1		-1	0		0	0	**9**	**$350,000**	**$350,000**
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	**6**	**$700,000**	**$700,000**
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	0		0	0	**6**	**$150,000**	**$150,000**
Pedestrian Projects																																										
P1	OR 99 Sidewalks North	Highway 99 between the Cottage Grove Connector and N. River Road		1	0	1		1	1	1		0	0		0	0		1		0	1		0	0		0		0	1		0	1		-1	1		0	0	**9**	**$450,000**	**$225,000**
P2	Cottage Grove Connector Sidewalks	Cottage Grove Connector between Highway 99 and I-5 Southbound Ramp (excluding bridge related costs)		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		-1	0		0	0	**6**	**$480,000**	**$240,000**
P3	M St Sidewalks	Complete sidewalk gaps on M Street from Main Street to Holly Avenue		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$250,000**	**$0**
P4	Harrison Ave Sidewalks East	Harrison Avenue from Highway 99 to 1st Street		1	0	0		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$85,000**	**$42,500**
P5	OR 99 Sidewalks South	Highway 99 from Taylor Place to South UGB		2	0	0		1	1	1		0	0		0	0		1		0	1		0	0		0		0	1		0	1		-1	0		0	0	**8**	**$1,150,000**	**$345,000**
P6	Main St Sidewalk	R Street to City Limits		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		1	1		0	0		0	0	**8**	**$450,000**	**$225,000**
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave		1	0	1		1	1	0		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	1		0	0	**9**	**$180,000**	**$180,000**
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		1	0		0	0	**8**	**$10,000**	**$8,000**
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments on collector from OR 99 to Douglass Ave		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$100,000**	**$50,000**
P10	6th St Sidewalks	Construct missing sidewalk segments from Fillmore Ave to south UGB extents		2	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	1		0	0	**10**	**$600,000**	**$200,000**
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments on collector from Douglass Ave to Oswald Ave		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$150,000**	**$75,000**
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments on collector from 19th St to Gateway Blvd		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$25,000**	**$12,500**
P13	16th St Sidewalks	Construct missing sidewalk segments on collector from Ostrander Ln to Row River Trail		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$175,000**	**$87,500**
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments on collector from 16th St to Gateway Blvd		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$250,000**	**$125,000**
P15	Madison Ave Sidewalks	Construct missing sidewalk segments on collector from 10th St to 16th St		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$200,000**	**$100,000**
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments on collector from 10th St to Hillside Drive (does not include bridge replacement costs)		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	**$150,000**	**$75,000**
P17	4th St Sidewalks	Construct missing sidewalk segments on collector from Grant Ave through Taylor Ave		1	0	1		1	1	1		0	0		0	0		2		0	0		0	0		0		0	1		0	1		0	0		0	0	**9**	**$375,000**	**$187,500**

Cottage Grove TSP - Preliminary Project List - DRAFT

Project Information			Evaluation																																								Estimated Costs	
Project #	Project Name	Project Description	Objective 1 (Connected)	Connectivity	Regional Access	Equitable Access	Objective 2 (Balanced)	Alternatives	Pedestrian/Bike Facilities	Transit Facilities	Objective 3(Economic)	Mobility & Efficiency	Freight	Objective 4 (Environmental)	Environment	Stormwater Impact	Objective 5 (Safe)	Safety	Objective 6 (Sustainable & Integrated)	Sustainable Development	Integrated Land Use	Objective 7 (Unobtrusive)	Crossing Opportunities	Support neighborhoods & resources	Objective 8 (Affordable)	Major Public Investments	Objective 9 (Responsive)	Public Involvement	Livability	Objective 10 (Coordinated)	Compatibility	Agency Standards	Objective 11 (Viable & Stable)	Fundability	Cost Effective	Objective 12 (Efficient)	Improved Roadway Efficiency	Corridor Reliability	Total	Estimated Project Cost - Total	Estimated Project Cost - City Share
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments on collector from 8th Street to east end		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$250,000**	**$125,000**
P19	8th St Sidewalks North	Construct missing sidewalk segments on collector from Taylor Ave to Lincoln Ave		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**8**	**$65,000**	**$32,500**
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments on collector from Edison Ave to River Rd		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	**$45,000**	**$22,500**
P21	Blue Sky Dr Sidewalks	Construct sidewalk on collector from Sweet Ln to Extension		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$350,000**	**$175,000**
P22	Sweet Ln Sidewalks	Construct sidewalk on collector from Blue Sky Dr to OR 99		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**7**	**$750,000**	**$375,000**
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning		1	0	1		1	1	1		0	0		0	0		2		0	0		1	0		0		0	1		0	1		0	1		0	0	**11**	**$45,000**	**$0**
P24	Row River Rd Crosswalk	Provide pedestrian crossing opportunity near Jim Wright Way		1	0	1		1	1	1		0	0		0	0		1		0	0		1	0		0		0	1		0	0		0	1		0	0	**9**	**$45,000**	**$45,000**
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	1		0	0	**9**	**$90,000**	**$30,000**
P26	10th St Crosswalk	Provide crosswalk at Washington Ave intersection		1	0	0		1	1	1		0	0		0	0		1		0	1		1	1		0		0	1		0	1		0	1		0	0	**11**	**$20,000**	**$20,000**
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd		1	0	0		1	1	0		0	0		0	0		1		0	0		0	0		0		0	1		0	1		0	0		0	0	**6**	**$200,000**	**$160,000**
Bicycle Projects																																											
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	1		0	0	**5**	**$60,000**	**$60,000**
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB		1	1	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**6**	**$850,000**	**$170,000**
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road		1	0	0		1	1	0		0	0		0	0		0		0	0		0	1		0		0	1		0	1		0	1		0	0	**7**	**$25,000**	**$25,000**
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		-1	-1		0	0	**2**	**$400,000**	**$320,000**
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street		1	0	0		1	1	1		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	0		0	0	**5**	**$30,000**	**$30,000**
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from Highway 99 to I-5 northbound ramps (excludes bridge related costs)		1	0	1		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**8**	**$600,000**	**$120,000**
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		1	1		0	0	**6**	**$25,000**	**$25,000**
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road		1	0	0		1	1	1		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	0		0	0	**6**	**$150,000**	**$150,000**
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB		1	1	0		1	1	1		0	0		0	0		1		0	1		0	0		0		0	1		0	1		0	0		0	0	**9**	**$1,500,000**	**$300,000**
B10	Bicycle Parking	Install bicycle parking (various locations)		1	0	1		1	1	2		0	0		0	0		0		1	0		0	0		0		0	1		0	1		0	1		0	0	**10**	**$40,000**	**$40,000**
B11	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector		1	1	0		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	**8**	**$70,000**	**$70,000**
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge		1	0	1		1	1	0		0	0		0	0		1		0	0		1	0		0		0	0		0	1		0	1		0	0	**8**	**$5,000**	**$5,000**
B13	10th St Bicycle Path	Add signing and striping to designate shared roadway bicycle route from OR99 to OR99 via Gibb Street		1	0	1		1	1	0		0	0		0	0		1		0	0		0	0		0		0	0		0	1		0	1		0	0	**7**	**$30,000**	**$24,000**
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route		1	0	0		1	1	0		0	0		0	0		0		0	0		0	0		0		0	0		0	1		0	1		0	0	**5**	**$20,000**	**$20,000**
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection		1	0	0		1	1	0		0	0		0	0		1		0	1		0	1		0		0	1		0	1		0	1		0	0	**9**	**$35,000**	**$35,000**
Other Projects																																											
O1	Railroad Coordination	Coordinate with ODOT and Railroad operations to ensure blocked crossings are minimized		1	0	0		0	1	1		1	1		0	0		0		0	0		0	0		0		0	0		1	1		1	1		1	2	**12**	**$0**	**$0**

Evaluation Criteria and Scoring

Measure of Effectiveness	Evaluation Score	
Objective 1: Provide an interconnected regional transportation system which ensures ease of transfer between modes of travel and appropriate access for all potential users to all areas of the city, region, state, and nation.		
Connectivity Improves multi-modal transportation system connections in the city	+1	Positive impact on connectivity across modes
	0	No change or neutral
	-1	Negative impact on connectivity across modes
Regional Access Improves access to the region, state and nation	+1	Improves access to regional connections
	0	No change or neutral
	-1	Degrades access to regional connections
Equitable Access Improves access for underserved or vulnerable populations	+1	Increases access to underserved or vulnerable populations
	0	No change or neutral
	-1	Decreases access to underserved or vulnerable populations
Objective 2: Provide a balanced transportation system that gives people realistic choices or options other than driving alone in an automobile.		
Alternatives Supports travel choices other than driving alone (single occupant vehicle)	+1	Encourages non-SOV travel
	0	No change or neutral
	-1	Discourages non-SOV travel
Pedestrian and Bicycle Facilities Adds bikeway and walkways that fill in system gaps, improve system connectivity, and are accessible to all users	+1	Improves pedestrian or bicycle connectivity or accessibility
	0	No change
	-1	Reduces connectivity or accessibility
Transit Facilities Improves access to transit facilities. Promotes transit as a viable alternative to the single occupant vehicle	+1	Improves transit facilities
	0	No change
	-1	Negative impact on provision of services
Objective 3: Provide for efficient movement of goods and services.		
Mobility & Efficiency Reduce travel time, distance traveled, and/or travel-related costs	+1	Reduce travel time, distance traveled, or cost
	0	No change or neutral
	-1	Increases travel time, distance traveled, or cost
Freight Improves freight access/connectivity	+1	Improves freight facilities
	0	No change or neutral
	-1	Negative impact on freight facilities
Objective 4: Provide an environmentally responsible transportation system.		
Environment Minimizes impact to the natural environment	+1	Enhances the environment
	0	No change or neutral
	-1	Negative impacts on the environment
Stormwater Impact Minimizes transportation related pollution and impacts to stormwater	+1	Reduces stormwater pollution
	0	No change or neutral
	-1	Increases stormwater pollution
Objective 5: Provide a safe transportation system.		
Safety Improves safety of the transportation system	+1	Increases safety of the transportation system
	0	No change or neutral
	-1	Has potential geometric or user safety concerns
Objective 6: Provide support for sustainable development by designing and developing a transportation and land use system that integrates residential, retail and employment land uses.		
Sustainable Development Supports integrated and mixed land uses	+1	Greater potential for mixed land uses
	0	No change or neutral
	-1	Less potential for mixed land uses
Integrated Land Use Supports the adopted comprehensive plan and land use designations	+1	Supports planned land use and community development
	0	No change or neutral
	-1	Counter to planned land use and community development

Measure of Effectiveness	Evaluation Score	
Objective 7: Make streets as "unobtrusive" to the community as possible.		
Barriers to Travel Improves roadway crossing opportunities	+1	Improves roadway crossing opportunities
	0	No change or neutral
	-1	Degrades roadway crossing opportunities
Support Neighborhoods & Resources Support historic neighborhood character and community resources	+1	Supports historic character
	0	No change or neutral
	-1	Degrades historic character
Objective 8: Require developments to address on- and off-site transportation system impacts.		
Major Public Investments Reduces need for transportation project investments funded by City, ODOT, or other public agencies	+1	Reduces need for public investment
	0	No change or neutral
	-1	Accelerates need for public investment
Objective 9: Provide opportunities for public involvement in transportation system decisions and respond to community needs and neighborhood impacts.		
Public Involvement Encourages public involvement in transportation decisions	+1	Increases public involvement opportunities
	0	No change or neutral
	-1	Decreases public involvement opportunities
Livability Responds to neighborhood and community needs	+1	Improves livability
	0	No change or neutral
	-1	Degrades livability
Objective 10: Coordinate among agencies to facilitate efficient planning, design, maintenance, and operation of the transportation system.		
Compatibility Compatible with other jurisdiction's plans and policies, (including adjacent cities, Lane County, or ODOT)	+1	Compatible with other plans and contributes to their implementation
	0	Compatible with other plans, but does not necessarily contribute to their implementation
	-1	Not compatible with other plans
Agency Standards Consistent with the standards of the City, Lane County, and ODOT	+1	Consistent with all standards
	0	May require some deviations to standards, but likely to be approved
	-1	Inconsistent with standards and not expected that deviations would be approved
Objective 11: Ensure a financially stable, economically viable, and cost-effective transportation system.		
Fundability Available funding sources exist to implement projects in a timely fashion	+1	Funding sources are available
	0	Feasible costs, but no identified funding
	-1	High costs and no funding expected
Cost Effectiveness Assumed project benefits exceed project costs	+1	Cost effective solution
	0	Average cost solution
	-1	Not a cost effective solution
Objective 12: Make full use of existing roadways by reducing motor vehicle demand during peak use periods and increasing operational efficiency.		
Improved Roadway Efficiency Implements Transportation Demand Management (TDM) or other strategies to create greater mobility, reduce auto trips, make more efficient use of the roadway system	+1	Improves roadway efficiency
	0	No change
	-1	Negative impact on roadway efficiency
Corridor Reliability Implements strategies to provide stable and reliable auto and truck traffic flows on major facilities	+1	Improves roadway reliability
	0	No change
	-1	Negative impact on roadway reliability

Note: Solutions that are considered to have a major effect may be scored as +2 or -2.

Cottage Grove TSP Update

Community Advisory Committee Meeting #2

February 10, 2015

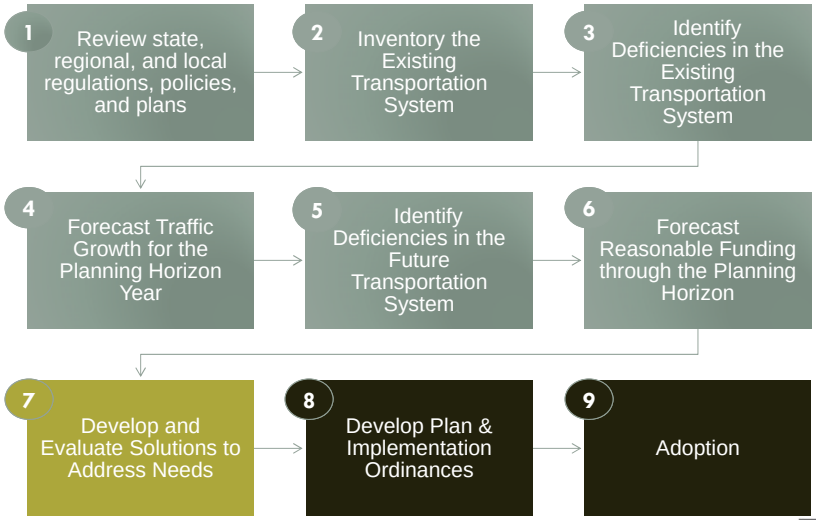
Meeting Goals

- Project update
- Present preliminary solutions list
- Add or remove projects? ← CAC Input
- Prioritize solutions ← CAC Input

PROJECT STATUS

DKS

TSP Update Technical Process



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Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
  Community Event #1 – November 2014
- **November 2014 – April 2015**
  Develop and Evaluate Solutions
  Community Event #2 – Spring 2015
- **May 2015 – September 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – Summer 2015
- **October 2015 – February 2016**
  Adoption Process

Developing and Evaluating Alternative Solutions (November – April)

1. **Review Needs & Identify Solutions**
   CAC Meeting #1
   Stakeholder Meetings #1
   Community Event #1
2. **Develop & Analyze Preliminary List of Solutions**
   CAC Meeting #2
3. **Initial Recommendations**
   Draft TM#9 – Solutions & Initial Recommendation
   Draft TM#10 – Standards
   Agency Review
4. **Review Initial Recommendations**
   Community Event #2
   CAC Meeting #3 – Review Initial Recommendations & Standards
5. **Finalize Recommended Solutions**
   Draft TM#11 – Final Recommended Solutions
   Agency Review

REVIEW ISSUES & NEEDS

Potential Keys to Success for the 2015 Cottage Grove TSP?

- Incorporate UGB expansion and recent City and corridor planning efforts
- Reasonable forecasts for the year 2035
- Safety strategies for "hot spots"
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system

Mobility

- No deficiencies identified for 2035 PM peak
- Focus on safety, access, and connectivity issues

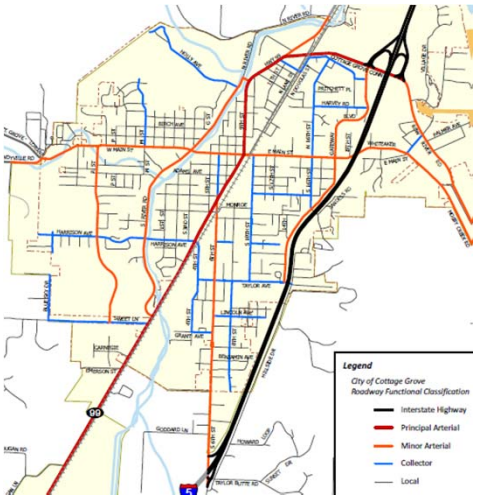
Table 2: Intersection Operations (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78	D	37
I-5 NB Ramps/Row River Road	0.85	0.59	A	8
OR 99/Woodson Place	0.95	0.56	A	9
OR 99/Main Street	0.95	0.79	D	42
OR 99/6th Street	0.95	0.49	B	10
OR 99/Harrison Avenue	0.90	0.42	B	12
Main Street/Gateway Boulevard	0.90	0.82	D	35
Main Street/River Road	0.90	0.45	B	15
Main Street/6th Street	0.90	0.40	A	6
All-Way Stop-controlled Intersections*				
Harrison Avenue/River Road	0.90	0.19	A	9
Two-Way Stop-controlled Intersections**				
I-5 SB Off Ramp/6th Street	0.85	0.27	B	12
I-5 NB On Ramp/6th Street***	0.85	0.04	A	8
OR 99/Cottage Grove Connector[6]	0.95	0.36	C	15
OR 99/S. River Road	0.90	0.12	B	12
Jim Wright Way/Row River Road	0.90	0.45	E	44

DKS

Roadway Issues

- Safety hot spots
  - OR 99 north of Woodson Br.
  - CGC @ Gateway
  - East Main St
- Improve Connectivity
- Railroad operations
- Support Main Street Refinement Plan
- Update standards for consistency and clarity



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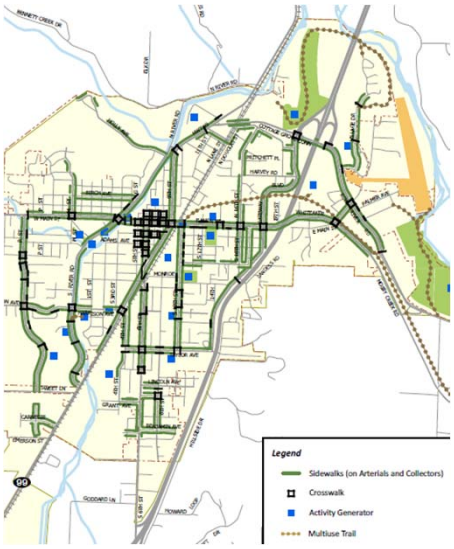
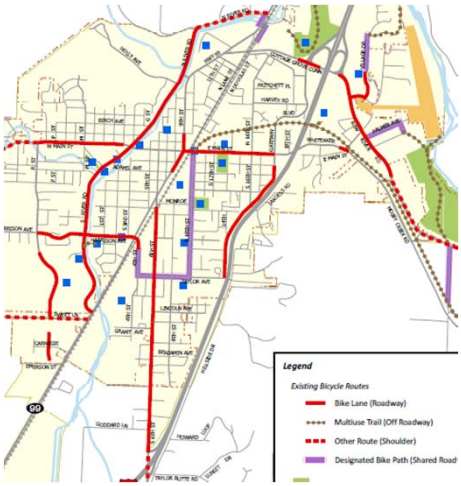
Pedestrian Issues

- Sidewalk infill
- More crossing opportunities along barriers
  - OR 99
  - Row River Road
  - Coast Fork Willamette River
  - Railroad
- Safety on OR 99 & CGC
- Support historic downtown
- Connections to south



Bicycles Issues

- Bike lane continuity
- Bike parking
- Support "Biking in the Grove"
- Well-defined routes
- Safe crossings
- Connect to UGB expansion areas



PROPOSED PROJECTS

Are we missing anything?

DKS

Project Options - Process Overview

Identify Needs → Compile Projects → Project Evaluation → Project Prioritization

- Select best solutions to address needs
- "Recommended" Solutions List

  Overall list of projects that are needed and accepted, but may not be funded by 2035
- "Financially Constrained" Solutions List

  Prioritize projects given constrained funding

  Reflect reasonable funding estimate ($10.5M) through 2035

DKS

Compiling a Preliminary Project List

- Start with 2008 TSP
- Include Lane County TSP projects
- Address outstanding needs
- List is not cost-constrained

Roadway Extensions

- Gates Rd to Harrison Ave [R8]
- Blue Sky Dr to Harrison Ave [R9]
- R St/Cleveland Ave/Gateway Blvd [R4-R7]
- Lincoln Ave to Gateway Blvd Ext. [R10]
- Harrison Ave to Gateway Blvd [R11]
- M St to Holly Ave [R23]
- 4th St to Cleveland Ext. [R24]

Interchange Area Roadway Improvements

- OR99 conversion (4 lanes to 3+) [R2]
- OR99 / Connector intersection (roundabout) [I1]
- OR99 access management (driveways) [R14]
- Gateway conversion (4 lanes to 3+) [R1]
- Intersection safety improvements at Gateway/CGC (striping, signing, reflective plates, access) [I5]
- CGC Bridge widening (ODOT) [R12]

Other Roadway Projects (City)

- Main St Refinement Plan [R3]
- Remove Main St traffic signals [I2, I3]
- Construct Jim Wright Way traffic signal [I4]
- E. Main St Access Management [R13]
- Railroad Coordination [O1]

Roadway Modernization (County)

- Mosby Creek Rd [R22] & Row River Rd [R19]
- Thornton Ln [R21]
- Bennet Creek Dr [R15] & N. River Rd [R18]
- CG-Lorane Hwy [R16]
- Gowdyville Rd [R25] **not on County TSP list*
- Sweet Ln [R20]
- Latham Rd [R17]

Roadway Modernization (ODOT)

Reconstruct to include bike/ped facilities

- South OR 99 [B9, P5]
- North OR 99 [B2, P1]
- CG Connector [B6, P2]

Multi-use Trails

- Bike/ped bridge adjacent to Woodson Br. [T1]
- Northern trail connection (River Rd to North Regional Park) [T2]
- Eastern trail connection (Jim Wright Way to Palmer Ave) [T3]

Bicycle Projects

- Designate bike paths
  - Holly Ave [B14],Whiteaker Ave [B15],10th St [B13]
- Bike lanes
  - Harrison Ave [B7], R St [B1], M St [B5], Whiteaker Ave [B4], Thornton Ln [B8]
- Other
  - Row River Trail Crossing at Currin Connector [B11]
  - Bike Parking [B10]
  - Woodson Bridge Bike Treatment [B12]
  - Main St Bike Improvements [B3]

Pedestrian Projects

- Sidewalk in-fill on collectors and arterials
- Safe routes to schools
  - Harrison Ave [P4], River Rd [P7], 4th St [P17]
- Safer Crossings
  - 10th/Washington [P26], OR99/Geer [P23], Jim Wright Way/Row River Rd [P24]
- Harrison Ave connection [P27]
- CG Connector alternative path [P8]

PROJECT EVALUATION

What projects best meet the TSP objectives?

Common TSP Elements

Evaluation Criteria

- Based on 12 TSP objectives
  - -Connected
  - -Economic
  - -Safe
  - -Unobtrusive
  - -Responsive
  - -Viable & Stable
  - -Balanced
  - -Environmental
  - -Sustainable
  - -Affordable
  - -Coordinated
  - -Efficient
- Provide guidance for discussing priorities
- Not prescriptive

Lowest Scoring Projects

- Main St Signal Removal [I2, I3]
- Whiteaker St Bike Lanes [B4]
- I-5/Connector/Gateway Safety Improvements [I5]
- M St Bike Lanes [B5]
- R St Bike Lanes [B1]

Highest Scoring Projects

- Cleveland Ave Extension (West) [R6]
- OR99 Conversion [R2]
- OR 99 Access Improvements [R14]
- E Main St Access Improvements [R13]
- Railroad Coordination [O1]

Questions about projects

1. What are we missing?
2. What solutions make the most sense for the interchange area?
3. Any concerns with roadway conversion on OR 99?
4. What projects should be dropped?

PRIORITIES

What can be built in the next 20 years?

Financially Constrained Plan

- $10.5M funding estimate through 2035
- Plan for a multi-modal system
- Community support
- Prioritize solutions ← **CAC Input**

Questions about priorities

1. Which county project is most important to you?
2. How beneficial is the south connection (extension of Cleveland Ave)?
3. What are the highest priority bike or pedestrian projects?

NEXT STEPS

Next

- Draft Technical Memos (2)
  - Initial Recommendation & Priorities
  - Updated Transportation Standards
- Community Meeting #2 / CAC Meeting #3 (Spring)
  - Review Initial Recommendation & Priorities
  - Review Transportation Standards

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
Community Advisory Committee (CAC) Meeting #3 Summary

Date: Tuesday, April 28, 2015

Time: 3:30 PM to 5:00 PM

Location: Council Chambers, Cottage Grove City Hall
400 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of this committee meeting was to review the preliminary recommended list of priority projects for the Transportation System Plan (TSP), and obtain CAC input on revisions to the priorities.

I. Attendees

CAC Members	
Darby Valley	Planning Commission/Business
Ruth Linoz	South Lane Wheels
Tom Munroe	City Council/Mayor
Ron Bradsby	Cottage Grove City Engineer
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	Cottage Grove City Planner
David Reesor	Oregon Department of Transportation
Becky Taylor	Lane County

II. Agenda & Meeting Materials

Copies of the agenda, handout, posters, and the Powerpoint presentation are attached to this summary.

III. Summary of CAC Discussions

Mat provided a project status update, review of TSP issues and needs, followed by an overview of the preliminary list of projects, funding estimate, and project evaluations and cost estimates. The presentation and discussion focused on the presenting the preliminary list of prioritized projects.

Comments (paraphrased) from the meeting attendees include:

- Tom raised concerns about allocating funding to new projects when there is a backlog of maintenance needs (e.g., 6th Street and the Cottage Grove Connector) on the existing system. He also asked if the projects include near the City Limits come at the expense of improving the currently developed areas of the City.
- Ron noted that System Development Charges (SDC) typically have to go to new facilities, where development is expected to occur. SDCs are a significant portion of expected revenues for new projects and do not apply to maintenance expenses.
- Ruth commented that some of the bicycle and pedestrian facility investments will aid in community development, supporting the retired community, visitors, and commuters who elect to live in Cottage Grove while working near Eugene.
- Amanda said that many of the projects identified are infill improvements to existing facilities.
- Tom asked if the growth projections are realistic.
- Amanda said the growth projections were a best guess based on the available information including the Economic Opportunities Analysis and coordinated population projections. Future development is expected to fund many of the improvements identified.
- David stated that the ODOT STIP Enhance program represented a potential funding opportunity. Having prioritized projects adopted in the TSP shows community support and aids in grant application readiness.
- Amanda said the City was considering submitting an application for funding for the projects in the area of OR 99/Cottage Grove Connector/ I-5.
- Ruth raised a concern about people stopping at uncontrolled intersections along Whiteaker Ave in downtown. She recommends that any proposed bike route make traffic controls more clear.
- Ron asked if it was acceptable to add projects to County facilities (e.g., Cottage Grove Lorane Rd Modernization, Sweet Lane Modernization) to the City TSP.
- Becky says it was fine to include these projects in the TSP. However, the County faces funding constraints and inclusion in the TSP does not mean that funding will be received from Lane County.
- Amanda stated that the 10th/Washington crossing project should be removed from the TSP project lists, as it is funded and likely to be installed before the TSP is adopted.
- Ron said that the Row River Road crossing project has been discussed with ODOT and will likely be located about 100 feet south of the Jim Wright Way intersections. The project may be a rectangular rapid flash beacon (RRFB).
- David noted that the project is still being analyzed and reviewed by ODOT.
- Ron noted that the Cottage Grove Connector may be repaved by the end of 2016.
- Tom recalled having conversations with ODOT regarding a potential roundabout at OR 99 and the Cottage Grove Connector.
- Amanda said the roundabout may be part of the previously mentioned grant application.
- Darby stated a preference for focusing on bicycle and pedestrian projects rather than roadway expansion projects. He also called for in-fill projects and improving existing facilities rather than constructing new projects for development.
- Ruth agreed that in-fill projects should be prioritized. Ruth also expressed general support for the projects that improve accessibility, as these also support transit services.
- Amanda and Mat discussed how some of the more costly projects are either funded by development or more likely to be grant-eligible. It can be a challenge to fund sidewalk in-fill projects without a dedicated funding program.

IV. Next Steps

The project team will develop draft technical memorandums #11 (Final Recommendation & Priorities) prior to completing a draft TSP and Implementing Code and Ordinance Guidance (technical memorandum #12). Community Event #3 and CAC Meeting #4 will be scheduled after the draft TSP has been prepared, possibly in August or September.

Cottage Grove Transportation System Plan Update

Community Advisory Committee (CAC) Meeting #3

April 28, 2015 **3:30-5:00 p.m.**

Council Chambers, Cottage Grove City Hall
400 E Main Street, Cottage Grove, OR 97424

Agenda

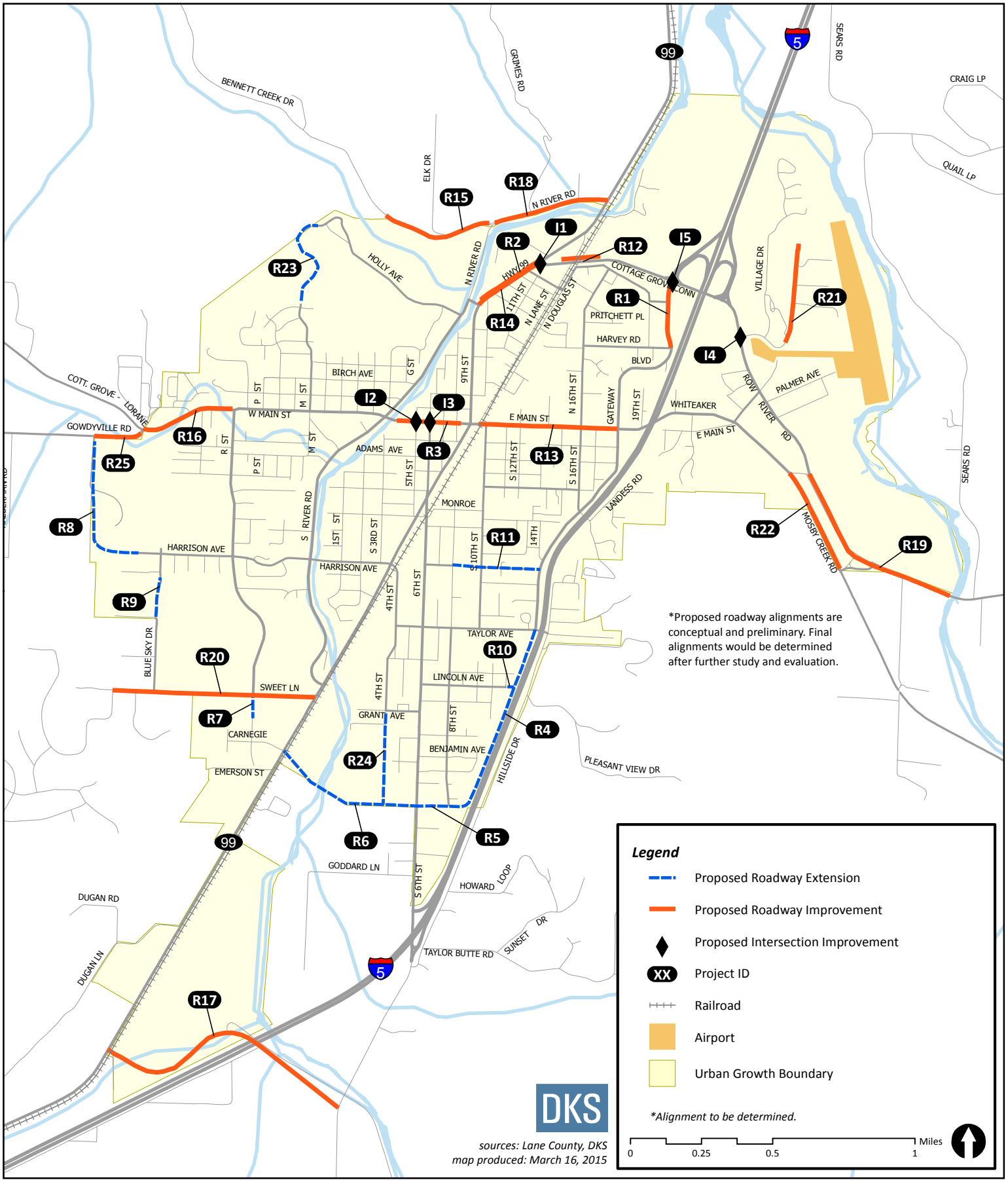
1.	Introductions	3:30 p.m.
2.	Project Status Update	3:35 p.m.
3.	Review of Proposed Projects	3:40 p.m.
4.	Funding Overview	3:50 p.m.
5.	Preliminary List of Prioritized Projects	4:00 p.m.
6.	Roundtable Discussion - CAC Priorities	4:20 p.m.
7.	Next Steps	4:50 p.m.

- CAC Meeting #4 (July/August) – Discuss Draft TSP

Transportation System Plan

FIGURE 1

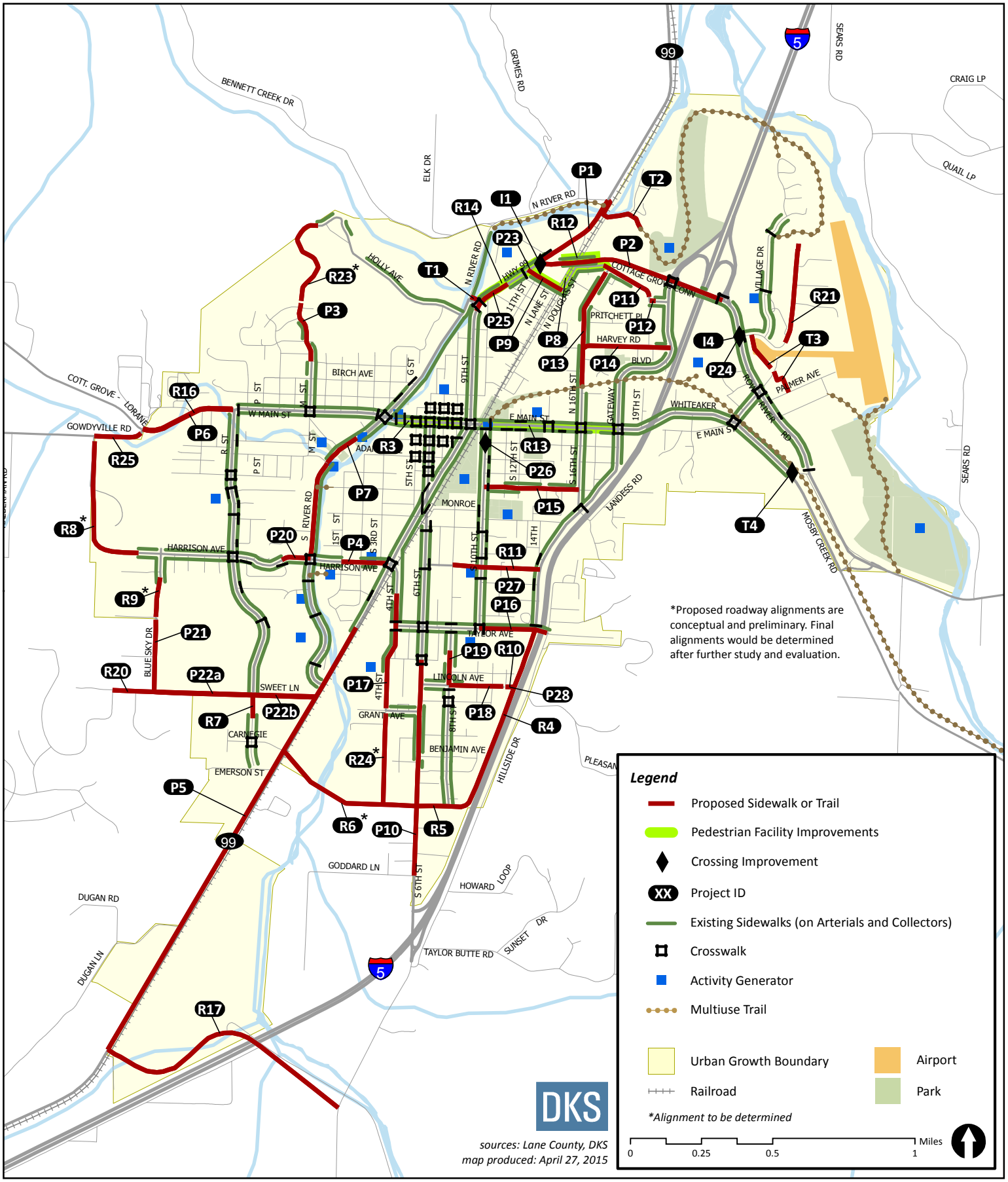
Proposed Roadway Improvements



Transportation System Plan

FIGURE 2

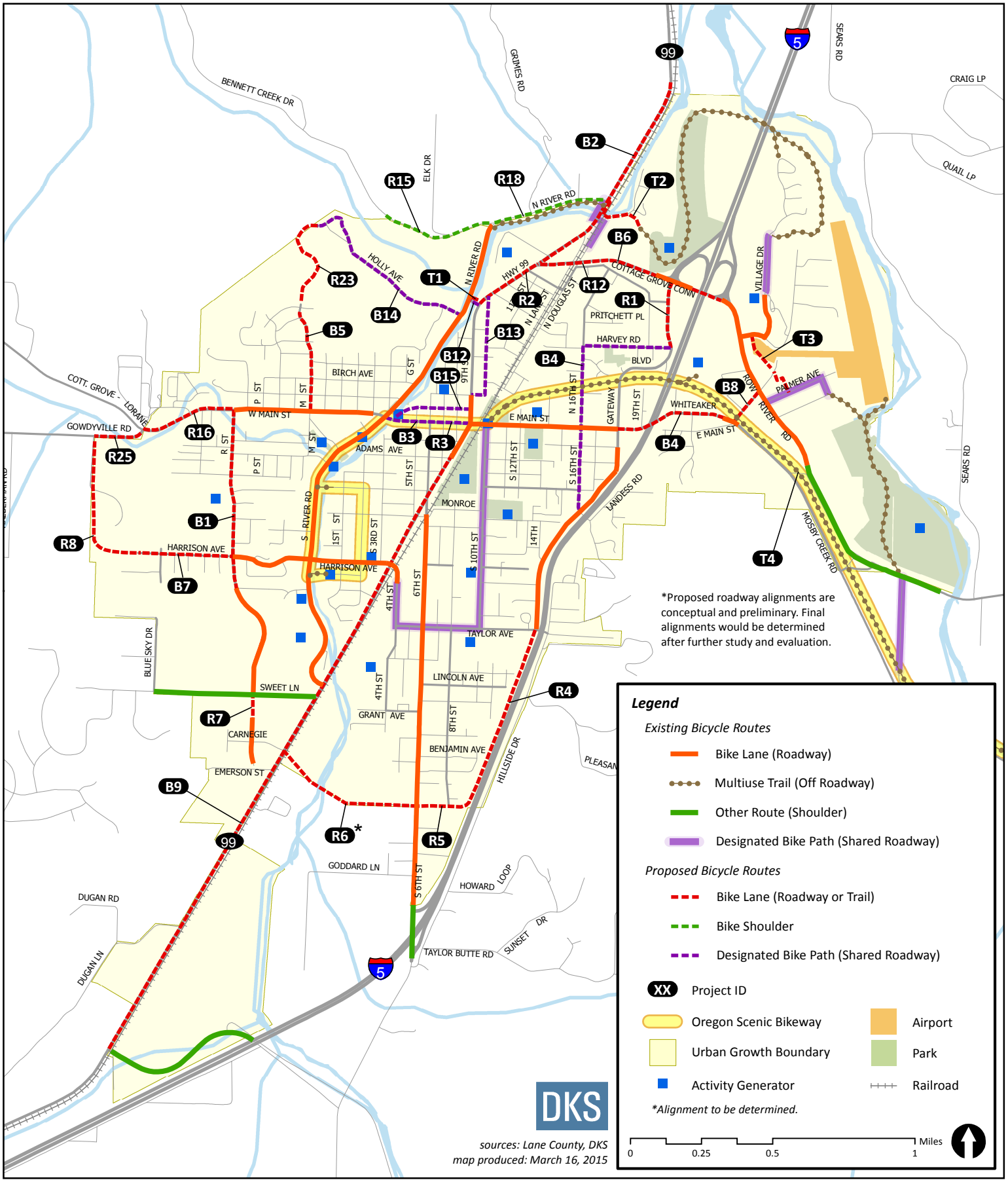
Proposed Pedestrian Improvements



Transportation System Plan

FIGURE 3

Proposed Bicycle Improvements

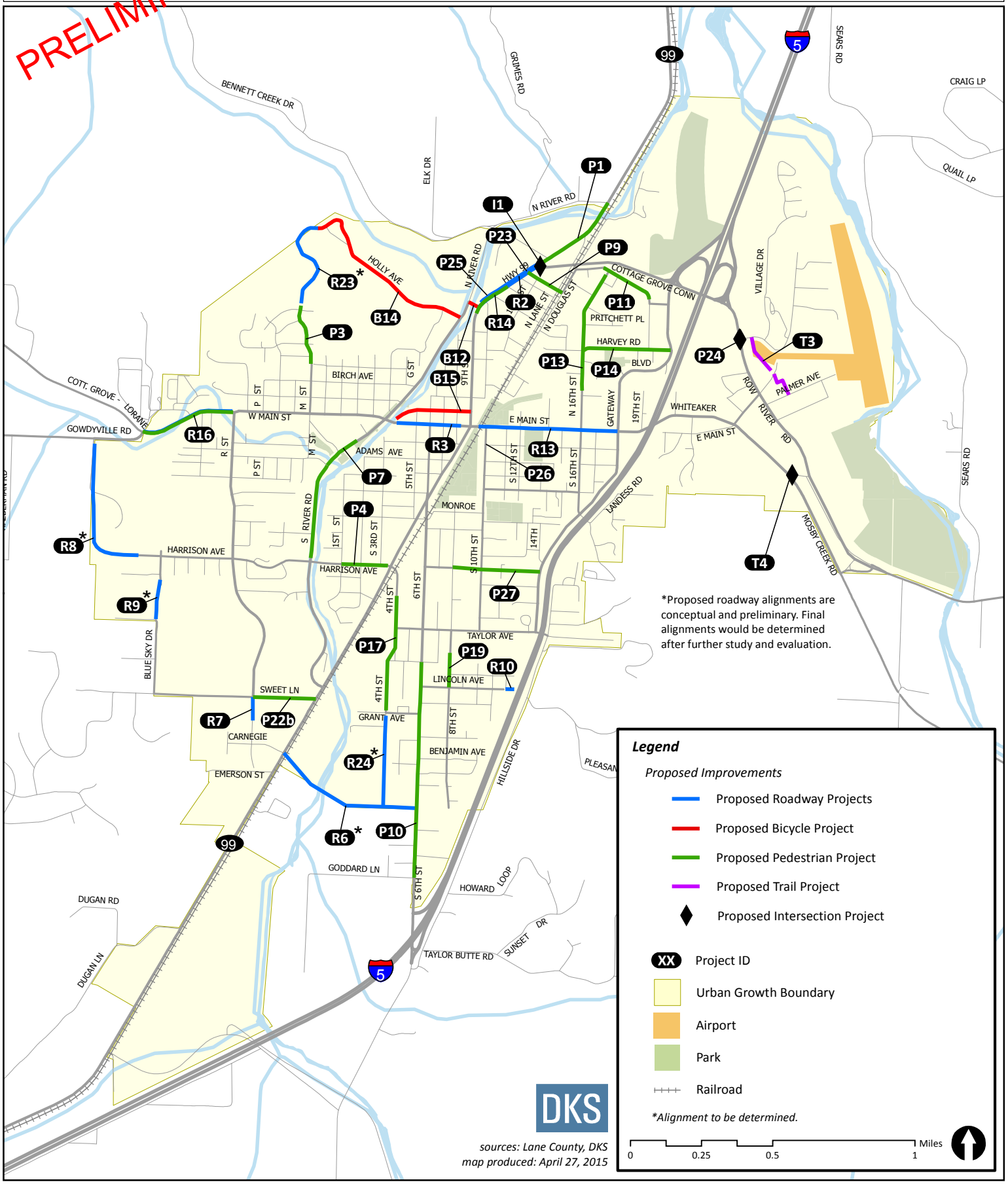


Transportation System Plan

FIGURE 4

Prioritized Transportation Improvements

PRELIMINARY



Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation		Estimated Costs			Priority
Project #	Project Name	Project Description	Project Purpose	Source	Total	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	Priority
Multi-modal Roadway Projects										
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP	**8**	Medium	$100,000	$100,000	Medium	-
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP	**15**	High	$50,000	$50,000	Medium	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	**11**	High	$3,000,000	$3,000,000	High	Short-term
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	**8**	Medium	$4,000,000	$3,200,000	High	-
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	**9**	Medium	$1,300,000	$260,000	High	-
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	**18**	High	$6,600,000	$3,300,000	High	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	**10**	Medium	$950,000	$0	Medium	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	**8**	Medium	$3,770,000	$754,000	High	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	**8**	Medium	$900,000	$0	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	**8**	Medium	$200,000	$0	Medium	Long-term
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP	**11**	High	$1,500,000	$1,200,000	High	-
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP	**8**	Medium	$3,750,000	$3,750,000	High	-
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	**13**	High	$70,000	$35,000	Medium	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New	**13**	High	$30,000	$20,000	Low	Medium-term
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP	**6**	Low	$270,000	$270,000	Medium	-
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	**9**	Medium	$90,000	$90,000	Medium	Medium-term
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP	**6**	Low	$100,000	$66,667	Medium	-
R18	North River Road Modernization	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety / Standards	Lane County TSP	**6**	Low	$430,000	$430,000	Medium	-

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation		Estimated Costs			Priority
Project #	Project Name	Project Description	Project Purpose	Source	Total	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	Priority
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety / Standards	Lane County TSP	**10**	Medium	$900,000	$720,000	Medium	-
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP	**8**	Medium	$570,000	$456,000	Medium	-
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP	**7**	Low	$220,000	$176,000	Medium	-
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Lane County TSP	**7**	Low	$250,000	$200,000	Medium	-
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	**8**	Medium	$3,750,000	$0	High	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	**8**	Medium	$1,550,000	$0	High	Long-term
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	**7**	Low	$450,000	$450,000	Medium	-
Multi-modal Intersection Projects										
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	**7**	Low	$1,300,000	$1,300,000	High	Long-term
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	**0**	Low	$15,000	$15,000	Low	-
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	**0**	Low	$15,000	$15,000	Low	-
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff	**6**	Low	$300,000	$150,000	Medium	
I5	I-5 SB Ramp/Gateway Blvd at Row River Rd/Cottage Grove Connector Intersection Improvements	Safety Improvements (e.g., signing and striping)	Safety	New	**3**	Low	$60,000	$60,000	Medium	-
Multi-use Trail Projects										
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP	**9**	Medium	$350,000	$350,000	Medium	-
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP	**6**	Low	$700,000	$700,000	Medium	-
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	**6**	Low	$150,000	$150,000	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	**8**	Medium	$70,000	$70,000	Medium	Medium-term
Pedestrian Projects										
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP	**10**	Medium	$500,000	$500,000	Medium	Long-term

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation		Estimated Costs			Priority
Project #	Project Name	Project Description	Project Purpose	Source	Total	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	Priority
P2	Cottage Grove Connector Sidewalks	Construct Sidwalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	2008 TSP	6	Low	$480,000	$480,000	Medium	-
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP	6	Low	$250,000	$0	Medium	Medium-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP	8	Medium	$85,000	$42,500	Medium	Medium-term
P5	OR 99 Sidewalks South	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New	9	Medium	$1,150,000	$920,000	High	-
P6	Main St Sidewalk	R Street to City Limits	Access	New	8	Medium	$450,000	$225,000	Medium	-
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP	9	Medium	$180,000	$180,000	Medium	Long-term
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Access	2008 TSP	8	Medium	$10,000	$10,000	Low	-
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New	8	Medium	$100,000	$50,000	Medium	Long-term
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New	12	High	$600,000	$400,000	Medium	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New	8	Medium	$150,000	$75,000	Medium	Long-term
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New	8	Medium	$25,000	$12,500	Low	-
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New	8	Medium	$175,000	$87,500	Medium	Long-term
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New	8	Medium	$250,000	$125,000	Medium	Long-term
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New	6	Low	$200,000	$100,000	Medium	-
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New	7	Low	$150,000	$75,000	Medium	-
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New	9	Medium	$375,000	$187,500	Medium	Long-term
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New	6	Low	$250,000	$125,000	Medium	-
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New	8	Medium	$65,000	$32,500	Medium	Long-term
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New	7	Low	$45,000	$22,500	Low	-
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New	6	Low	$350,000	$175,000	Medium	-
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New	7	Low	$300,000	$150,000	Medium	-
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New	8	Medium	$350,000	$175,000	Medium	Medium-term

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation		Estimated Costs			Priority
Project #	Project Name	Project Description	Project Purpose	Source	Total	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	Priority
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New	11	High	$45,000	$45,000	Low	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New	9	Medium	$60,000	$60,000	Medium	Short-term
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New	9	Medium	$90,000	$60,000	Medium	Medium-term
P26	10th St Crosswalk near Washington Ave	Provide crosswalk at Washington Ave intersection	Access/Safety	New	11	High	$20,000	$20,000	Low	Short-term
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New	6	Low	$200,000	$160,000	Medium	Medium-term
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New	6	Low	$200,000	$160,000	Medium	-
Bicycle Projects										
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP	6	Low	$60,000	$60,000	Medium	-
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New	6	Low	$850,000	$850,000	Medium	-
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New	7	Low	$25,000	$25,000	Low	-
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New	2	Low	$400,000	$320,000	Medium	-
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP	5	Low	$30,000	$30,000	Low	-
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	2008 TSP	8	Medium	$600,000	$600,000	Medium	-
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP	6	Low	$25,000	$25,000	Low	-
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP	6	Low	$150,000	$150,000	Medium	-
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New	10	Medium	$1,500,000	$1,500,000	High	-
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New	11	High	$40,000	$40,000	Low	Medium-term
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access		7	Low	$35,000	$35,000	Low	-
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New	8	Medium	$5,000	$5,000	Low	-

Cottage Grove TSP - Preliminary Project List

Project Information					Evaluation		Estimated Costs			Priority
Project #	Project Name	Project Description	Project Purpose	Source	Total	Project Score Summary	Estimated Project Cost - Total	Estimated Project Cost - Public	Project Cost Summary	Priority
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access		7	Low	$30,000	$30,000	Low	-
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New	5	Low	$20,000	$20,000	Low	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New	8	Medium	$35,000	$35,000	Low	Medium-term

Cottage Grove TSP Update

Community Advisory Committee Meeting #3

April 28, 2015

Last CAC Meeting (February):

- **Present Initial Project List**
  (Draft Tech Memo #9)

Progress Since:

- **Update Transportation Standards**
  (Tech Memo #10)
- **Revise Project List**
- **Develop initial Priorities**
  (Tech Memo #9)

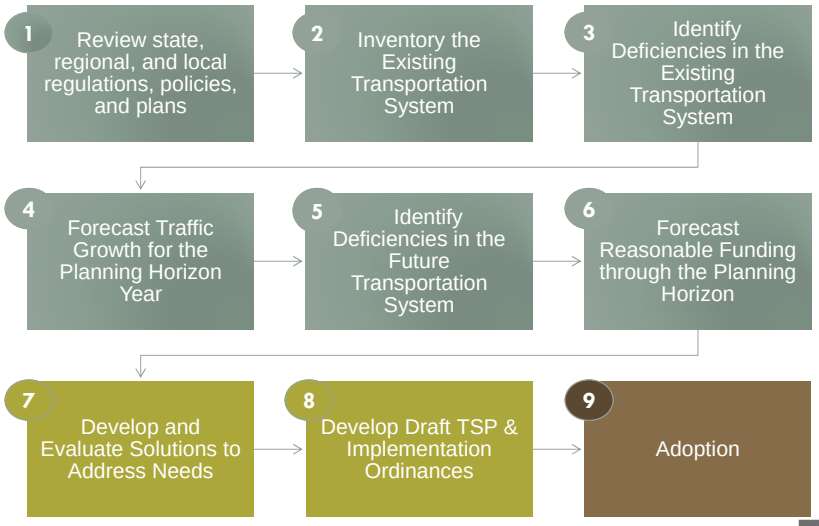
Meeting Goals

- Project status update
- Review **preferred** projects
- Funding overview
- Present **priority** projects (preliminary)
- Discuss priorities

← **CAC Input**

PROJECT STATUS

TSP Update Technical Process



Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
  Community Event #1 – December 2014
- **November 2014 – May 2015**
  Develop and Evaluate Solutions
  Community Event #2 – April 28, 2015
- **June 2015 – September 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – Summer 2015
- **October 2015 – February 2016**
  Adoption Process

Developing and Evaluating Alternative Solutions (November – May)

1. **Review Needs & Identify Solutions**
   - CAC Meeting #1
   - Stakeholder Meetings #1
   - Community Event #1
2. **Develop & Analyze Preliminary List of Solutions**
   - CAC Meeting #2
3. **Initial Recommendations**
   - Draft TM#9 – Solutions & Initial Recommendation
   - Draft TM#10 – Standards
   - Agency Review
4. **Review Initial Recommendations**
   - Community Event #2
   - CAC Meeting #3 – Review Initial Recommendations & Standards
5. **Finalize Recommended Solutions**
   - Draft TM#11 – Final Recommended Solutions
   - Agency Review

REVIEW ISSUES & NEEDS

Potential Keys to Success for the 2015 Cottage Grove TSP?

- Incorporate UGB expansion and recent City and corridor planning efforts
- Reasonable forecasts for the year 2035
- Safety strategies for "hot spots"
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system

Mobility

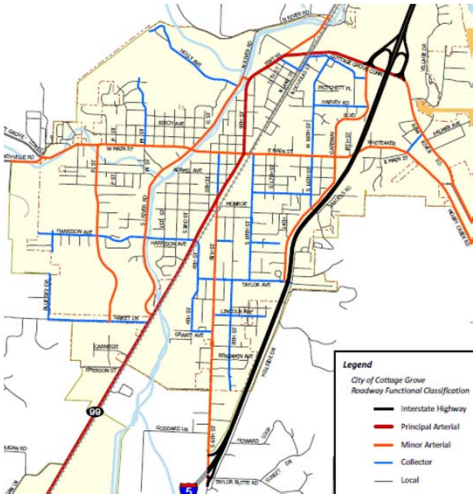
- No deficiencies identified for 2035 PM peak
- Focus on safety, access, and connectivity issues

Table 2: Intersection Operations (2035 p.m. peak)

Intersection	Mobility Target	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Signalized Intersections				
I-5 SB Ramps/Gateway Boulevard/Cottage Grove Connector/Row River Road	0.85	0.78	D	37
I-5 NB Ramps/Row River Road	0.85	0.59	A	8
OR 99/Woodson Place	0.95	0.56	A	9
OR 99/Main Street	0.95	0.79	D	42
OR 99/6th Street	0.95	0.49	B	10
OR 99/Harrison Avenue	0.90	0.42	B	12
Main Street/Gateway Boulevard	0.90	0.82	D	35
Main Street/River Road	0.90	0.45	B	15
Main Street/6th Street	0.90	0.40	A	6
All-Way Stop-controlled Intersections*				
Harrison Avenue/River Road	0.90	0.19	A	9
Two-Way Stop-controlled Intersections**				
I-5 SB Off Ramp/6th Street	0.85	0.27	B	12
I-5 NB On Ramp/6th Street***	0.85	0.04	A	8
OR 99/Cottage Grove Connector[6]	0.95	0.36	C	15
OR 99/S. River Road	0.90	0.12	B	12
Jim Wright Way/Row River Road	0.90	0.45	E	44

Roadway Issues

- **Safety** hot spots
  - OR 99 north of Woodson Br.
  - CGC @ Gateway
  - East Main St
- Improve **Connectivity**
- Railroad operations
- Support Main Street Refinement Plan
- Update **standards** for consistency and clarity

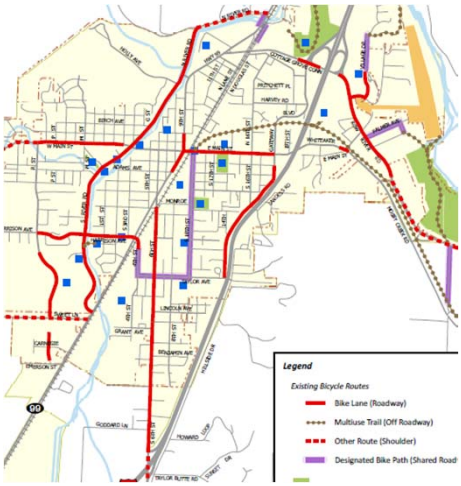


Pedestrian Issues

- **Sidewalk infill**
- More **crossings** along barriers
  - OR 99
  - Row River Road
  - Coast Fork Willamette River
  - Railroad
- **Safety** on OR 99 & CGC
- Support historic downtown
- Connections to south

Bicycles Issues

- Bike lane **continuity**
- Bike **parking**
- Support "Biking in the Grove"
- Well-defined **routes**
- Safe crossings
- Connect to UGB expansion areas



DKS

PREFERRED PROJECTS

Review solutions developed

DKS

Compiling a Preferred Project List

- List is not cost-constrained
- Start with 2008 TSP
- Include Lane County TSP projects
- Address outstanding/new needs

Project Categories

- Roadway Projects (Multi-modal)
  - Roadway Extensions / New Connections
  - Corridor Improvements / Safety
  - Modernization (Rebuild to standards)
- Intersection Improvements (Multi-modal)
- Bicycle Improvements
- Pedestrian Improvements
- Trail Improvements

Project Options - Process Overview

Identify Needs → Compile Projects → Project Evaluation → Project Prioritization

- Select best solutions to address needs
- "Preferred" Solutions List

  Overall list of projects that are needed and accepted, but may not be funded by 2035
- "Prioritized" Solutions List [Preliminary]

  Prioritize projects given constrained funding

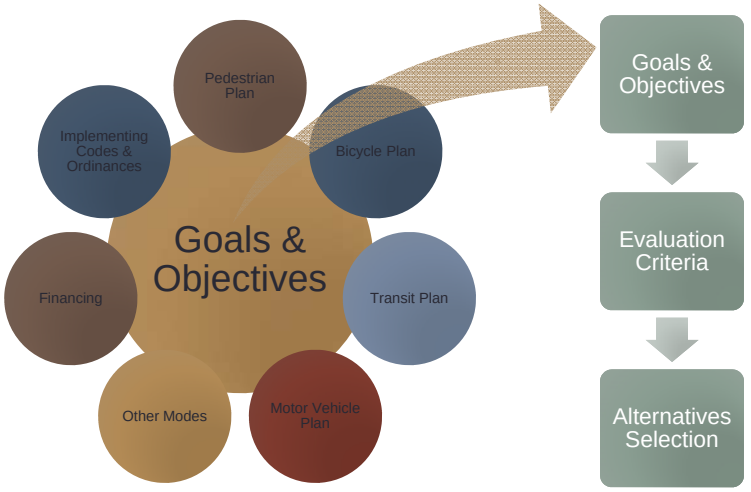
  Financially constrained project list is required

  Reflect reasonable funding estimate ($11.5M) through 2035

PROJECT EVALUATION

What projects best meet the TSP objectives?

Common TSP Elements



DKS

Evaluation Criteria

- Based on 12 TSP objectives
  - -Connected
  - -Economic
  - -Safe
  - -Unobtrusive
  - -Responsive
  - -Viable & Stable
  - -Balanced
  - -Environmental
  - -Sustainable
  - -Affordable
  - -Coordinated
  - -Efficient
- Provide guidance for discussing priorities
- Not prescriptive

DKS

Top 5 - Highest Scoring Projects

- Cleveland Ave Extension (West) [R6]
- OR99 Conversion [R2]
- OR 99 Access Improvements [R14]
- E Main St Access Improvements [R13]
- Railroad Coordination [O1]

Bottom 5 - Lowest Scoring Projects

- Main St Signal Removal [I2, I3]
- Whiteaker St Bike Lanes [B4]
- I-5/Connector/Gateway Safety Improvements [I5]
- M St Bike Lanes [B5]
- R St Bike Lanes [B1]

FUNDING OVERVIEW

How much $ is available in the next 20 years?

Funding Estimate

- $11.5M funding estimate through 2035
- Based on historical data
- Funding from gas tax (state highway fund), local gas tax, SDC, ODOT grants (estimated)
- Expenses to maintain and operate existing system
- No new revenues or increases identified

Financially Constrained Plan

- $11.5M "budget" for projects
- Plan for a multi-modal system
- Informed by evaluation
- Community support
- Prioritize solutions

← CAC Input

PRIORITY PROJECTS

What can be built in the next 20 years?

Compiling a Preliminary Priority List

- Start with Preferred List (Not cost-constrained)
- Estimate project costs to public
- Estimate total available funding "budget" ($11.5M)
- Review evaluation results
- Remove expensive and low-scoring results
- Consider community priorities and trade-offs

Priority Roadway Projects

- Main St Refinement Plan [R3]
- OR99 conversion (4 lanes to 3+) [R2]
- OR99 access management (driveways) [R14]
- OR99 / Connector intersection (roundabout) [I1]
- E. Main St Access Management [R13]
- CG-Lorane Hwy Modernization (County)[R16]

Priority Roadway Projects (Cont.)

- Cleveland Ave/R St [R6, R7]
- Gates Rd/Blue Sky Dr to Harrison Ave [R8, R9]
- Blue Sky Dr to Harrison Ave [R9]
- Lincoln Ave to Gateway Blvd Ext. [R10]
- M St to Holly Ave [R23]
- 4th St to Cleveland Ext. [R24]

Priority Pedestrian/Bike Projects

- Safer Crossings
  - OR99/Geer [P23]
  - Jim Wright Way/Row River Rd [P24]
  - 10th/Washington Crosswalk [P26]
  - Currin Connector (Row River) Trail Crossing [T4]
- Harrison Ave connection East [P27]
- Eastern trail connection (Jim Wright Way to Palmer Ave) [T3]

Priority Bicycle Projects

- Holly Ave bike path [B14]
- Whiteaker Ave bike path [B15]
- Bike Parking [B10]
- Woodson Bridge Bike Treatment [B12]

Priority Pedestrian Projects

- Sidewalk in-fill on collectors and arterials
  - OR 99 North[P1], OR 99 near Woodson Br [P25]
  - 6th St South[P10], 8th St South[P19],
  - M St [P3], Chamberlin Ave[P9],
  - Ostander[P11],16th St[P13], Harvey Rd[P14]
- Safe routes to schools
  - Harrison Ave [P4], River Rd [P7], 4th St [P17]
  - Sweet Ln East[P22b]

Questions about priorities

1. Which projects are most important to you?
2. What are the highest priority bike or pedestrian projects?
3. Which projects should be added?
4. Any project included that should NOT be a priority?

NEXT STEPS

Next

- Community Meeting #2 (Tonight)
  - Review Initial Recommendations & Priorities
- Draft Technical Memo #11
  - Final Recommendations & Priorities
- Draft TSP (Summer 2015)
  - CAC Meeting #4
  - Community Meeting #3

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
Community Advisory Committee (CAC) Meeting #4 Summary

Date: Tuesday, October 6, 2015

Time: 3:00 PM to 4:30 PM

Location: Stacy's Covered Bridge Restaurant
401 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of this committee meeting was to review the Draft Transportation System Plan (TSP) and obtain CAC input on needed revisions.

I. Attendees

CAC Members	
Ruth Linoz	South Lane Wheels
Don Strahan	Bicycle Coalition
Darby Valley	Cottage Grove Planning Commission
John Wooten	South Lane County Fire & Rescue
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	City of Cottage Grove
David Reesor	Oregon Department of Transportation
Howard Schesser	City of Cottage Grove
Becky Taylor	Lane County

II. Agenda & Meeting Materials

Copies of the agenda, posters, and the Powerpoint presentation are attached to this summary.

III. Summary of Discussions and Written Comments

Mat provided a project status update, overview of the Draft TSP, followed by a review of the Financially Constrained (priority) list of projects and solutions.

Comments from the meeting attendees include:

- Becky asked how the package of safety projects was developed to address the speeding and safety issues identified on OR 99, near the Cottage Grove Connector. The projects in the area

address multiple needs but work well together as an integrated strategy to support improved multimodal access and safety in the area.

- The PMT discussed how access management could be implemented along OR 99 and Main Street. Amanda felt that the TSP helps in implementing access improvements as redevelopment occurs.
- Darby felt that the Cleveland Avenue Extension was not a community priority. Much of the surrounding area is generally perceived to be agricultural. Darby felt that other projects, particularly those in already developed areas, should be considered higher priorities. Mat noted that the proposed project addresses many needs and supports planned development in the UGB expansion areas.
- David talked about the package of projects in the OR 99/Connector area being brought forward as a grant application for the STIP Leverage Program for the 2018-2021 funding cycle. While funding is not guaranteed, the project package is being listed on the "150 percent" list of candidate projects. David suggested it may be helpful if all the projects included in the grant application are on the Financially Constrained list of priority projects.
- The PMT agreed that the following changes should be made to the Financially Constrained and Illustrative project lists to better reflect community priorities:
    - Cleveland Avenue Extension West (R6) – Shift from Financially Constrained to Illustrative project list.
    - Cottage Grove Connector Bridge Widening (R12) – Split into two projects (R12a and R12b) to reflect design and construction as separate projects. The design component (R12a) should be shifted from the Illustrative to the Financially Constrained list.
    - OR 99 / Cottage Grove Connector Improvements (I1) – Split into two projects (I1a and I1b) to reflect design and construction as separate projects. Both projects would remain on the Financially Constrained list.
    - R Street Bike Lanes (B1) – Shift from Illustrative to Financially Constrained list.
    - Cottage Grove Connector Sidewalks (P2) – Shift from Illustrative to Financially Constrained list.
    - OR 99 Sidewalk Ramps (P28) – Shift from Illustrative to Financially Constrained list.
- Darby recommended that the TSP clearly state that it is not a document that defines maintenance priorities or strategies and that the projects in the TSP do not defer funding away from maintenance.
- Ruth asked how the Main Street Refinement Plan is affected by the TSP. The TSP will reinforce community support for the Plan and include it in the list of Financially Constrained (priority) projects.
- The PMT discussed challenges in how to coordinate City-driven projects on County facilities in urban areas as well as challenges in funding identified transportation improvements.
- Don stated his appreciation for the multi-modal projects identified in the TSP. He feels that motorists need to respect bicycles on roadways and that, in general, all travelers need to respect other modes.
- Meeting attendees discussed the potential adoption of the TSP. The adoption process may begin in November or December.

IV. Next Steps

The project team will revise the Draft TSP (based on comments received at the final CAC Meeting, Community Event and Stakeholder Meetings) and initiate the adoption process.

Cottage Grove Transportation System Plan Update

Community Advisory Committee (CAC) Meeting #4

October 6, 2015 **3:00-4:30 p.m.**

Stacy's Covered Bridge Restaurant
401 E. Main Street, Cottage Grove, OR 97424

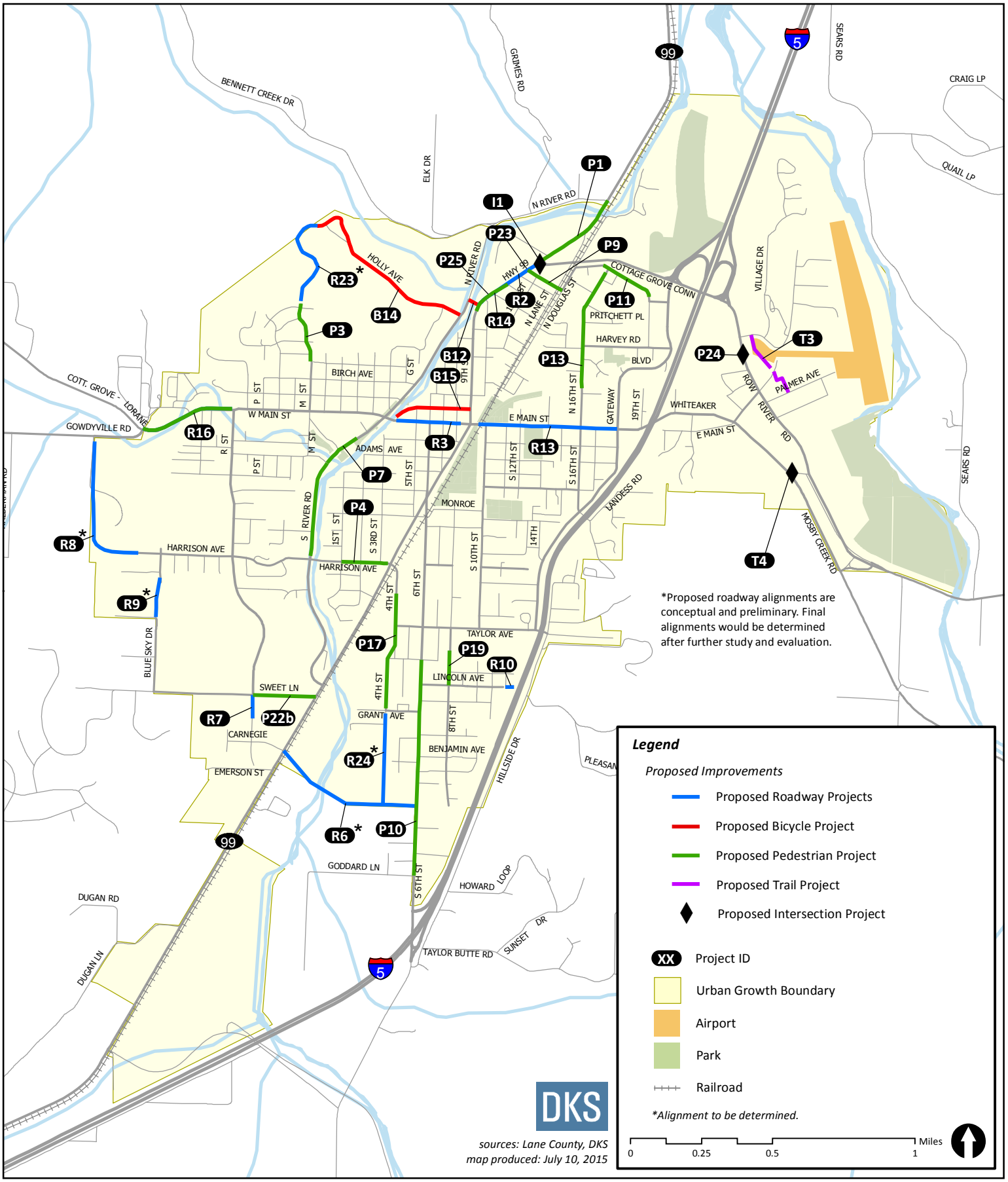
Agenda

1.	Introductions	3:00 p.m.
2.	Project Status Update	3:05 p.m.
3.	Overview of Draft TSP Report	3:15 p.m.
4.	Financially-Constrained (Priority) Project List	3:35 p.m.
5.	Roundtable Discussion - CAC Feedback	3:50 p.m.
6.	Next Steps & TSP Adoption	4:15 p.m.

Transportation System Plan

FIGURE 6

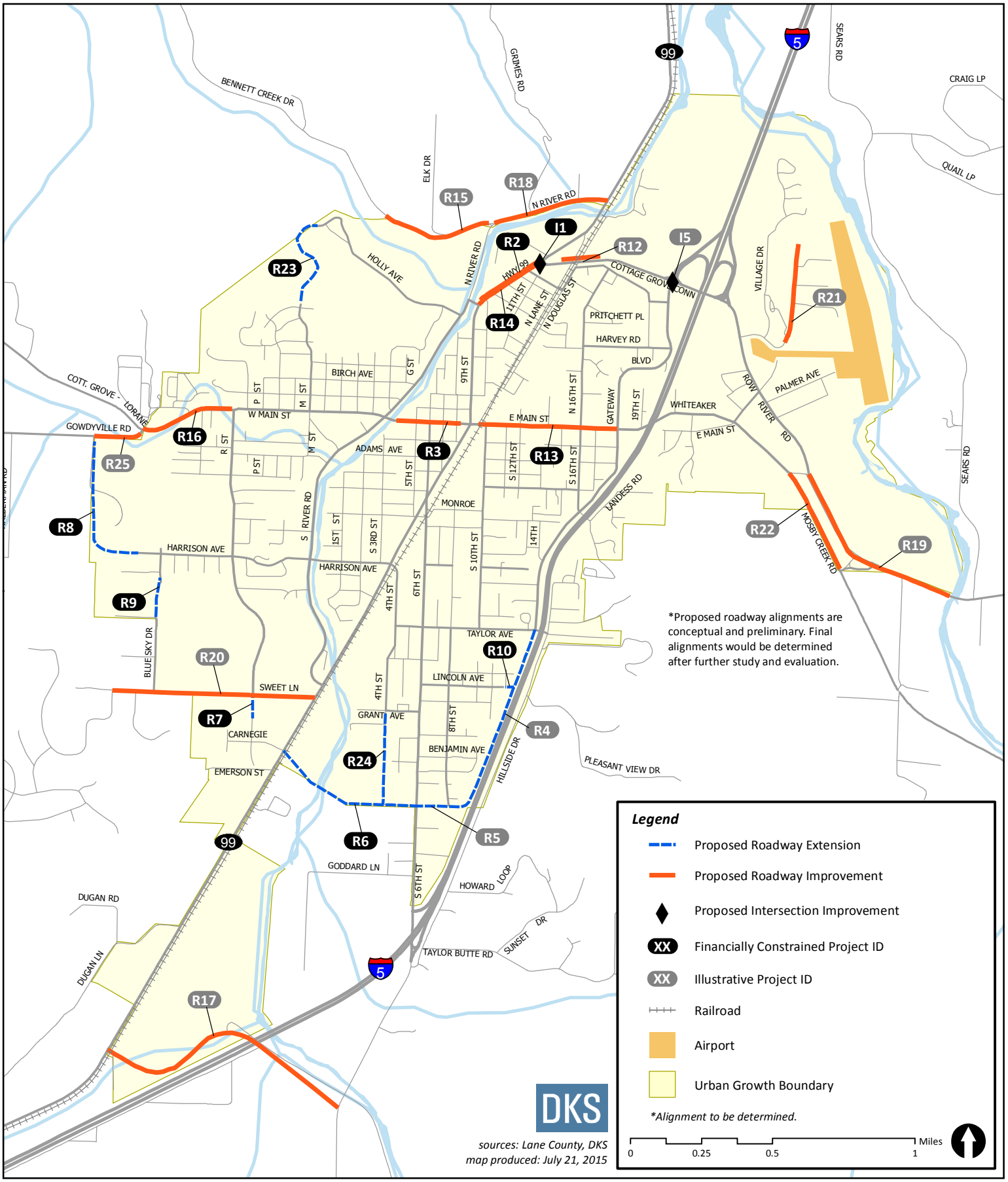
Financially Constrained Transportation Improvements



Transportation System Plan

FIGURE 7

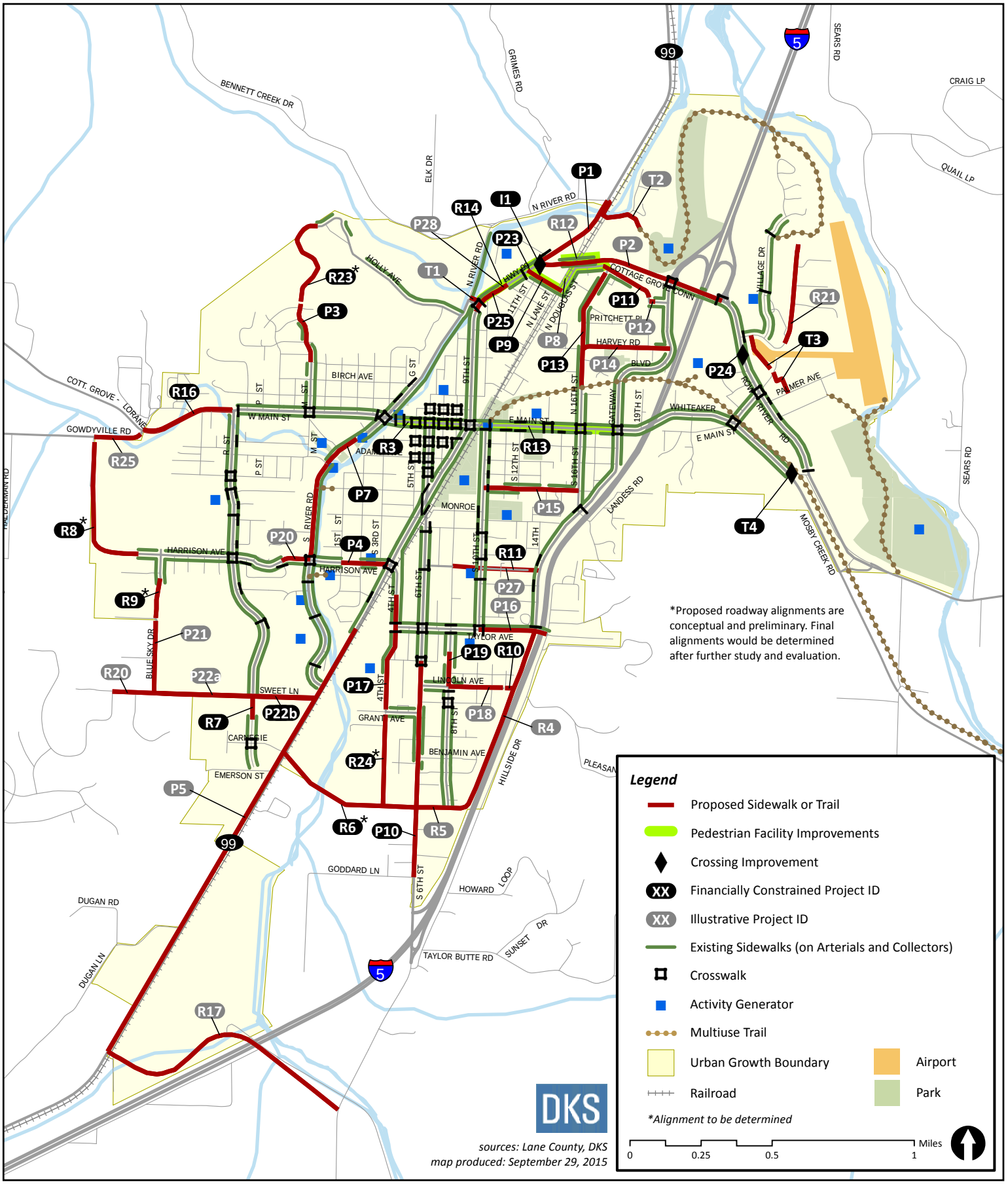
Illustrative & Financially Constrained Roadway Improvements



Transportation System Plan

FIGURE 8

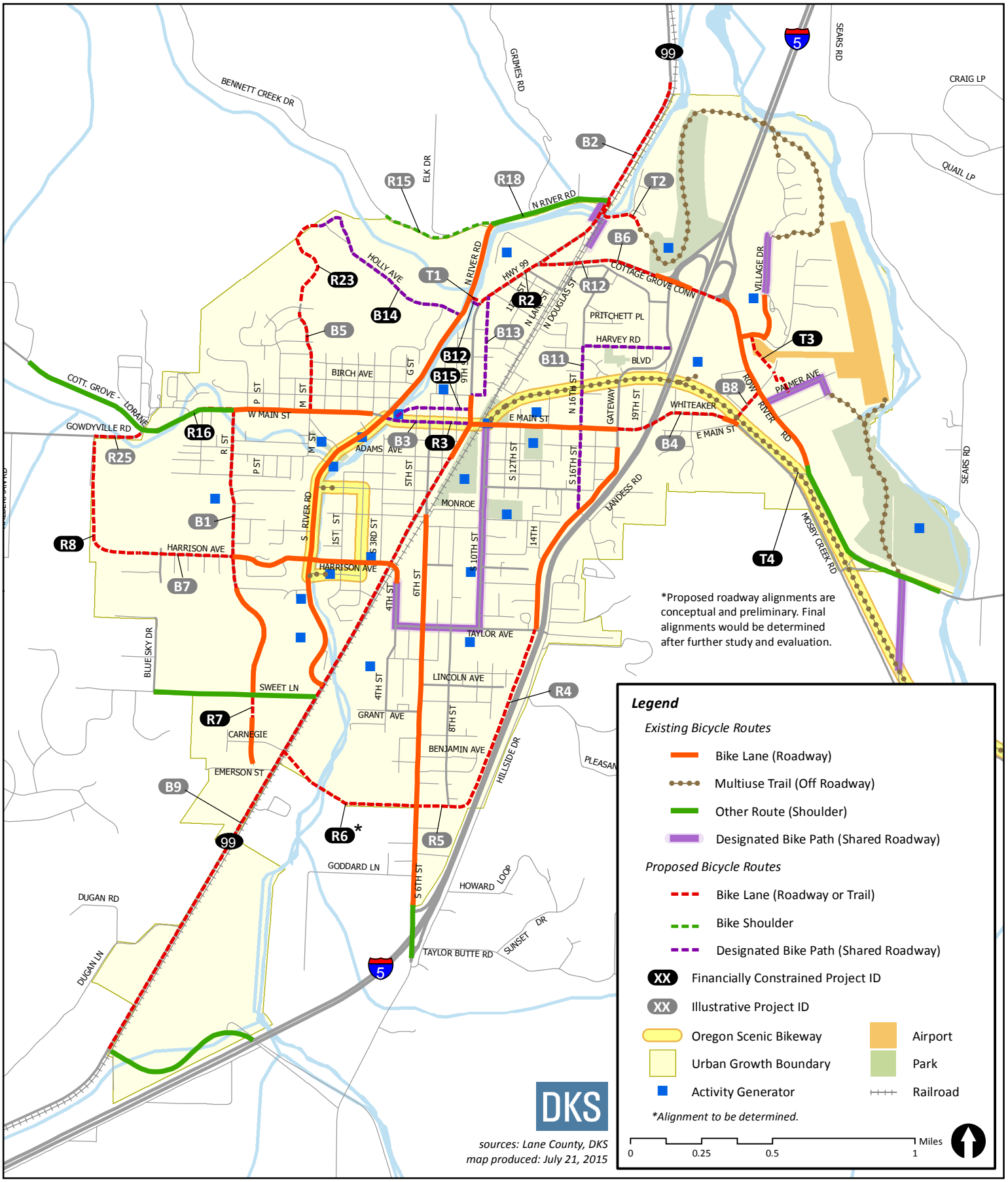
Illustrative & Financially Constrained Pedestrian Improvements



Transportation System Plan

FIGURE 9

Illustrative & Financially Constrained Bicycle Improvements



Cottage Grove TSP - Financially Constrained and lllustrative Projects

Project Information					Cost Estimate			Priority
ID	Name	Description	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
Multi-modal Roadway Projects								
R6	Cleveland Ave Extension (West)	Extension from west end to OR 99/S. R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Roadway Extension	High	$8,000,000	$4,000,000	High	Long-term
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Modernization	Medium	$3,750,000	$3,750,000	High	*N/A*
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Roadway Extension	Medium	$4,000,000	$3,200,000	High	*N/A*
R3	Main Street Refinement Plan	Streetscape Plan	Corridor Improvement	Medium	$3,000,000	$3,000,000	High	Short-term
R8	Gates Rd Extension	Extension to complete Gates Rd from Gowdyville Rd to W. Harrison Ave including sidewalks and bike lanes	Roadway Extension	Medium	$3,770,000	$754,000	High	Long-term
R19	Row River Rd Modernization	Upgrade to a three-lane facility with bike lanes on Row River Rd between the Row River and City Limits (total cost $900,000). [County Project 67]	Modernization	Medium	$900,000	$720,000	Medium	*N/A*
R20	Sweet Ln Modernization	Upgrade of Sweet Ln to urban standards from OR 99 to Talemena Dr (total cost $570,000). [County Project 65]	Modernization	Medium	$570,000	$456,000	Medium	*N/A*
R25	Gowdyville Rd Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Modernization	Low	$450,000	$450,000	Medium	*N/A*
R18	N. River Rd Modernization	Upgrade on N.River Rd between OR 99 and Bennett Creek Rd (total cost $430,000). [County Project 68]	Modernization	Low	$430,000	$430,000	Medium	*N/A*
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Rd between N. River Rd and the bridge at the UGB (total cost $270,000). [County Project 71]	Modernization	Low	$270,000	$270,000	Medium	*N/A*
R5	Cleveland Ave Extension (East)	Extension from Gateway Blvd Extension to S. 6th St including sidewalks and bike lanes	Roadway Extension	Medium	$1,300,000	$260,000	High	*N/A*
R22	Moseby Creek Rd Modernization	Rural modernization for Moseby Creek Rd east of the Currin Connector (total cost $250,000). [County Project 94]	Modernization	Low	$250,000	$200,000	Medium	*N/A*
R21	Thornton Rd Modernization	Addition of curb, gutter and sidewalks to Thornton Ln from Row River Rd to ECM gate (total cost $220,000). [County Project 64]	Modernization	Low	$220,000	$176,000	Medium	*N/A*
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Rd (total cost $90,000). [County Project 70]	Modernization	Medium	$90,000	$90,000	Medium	Medium-term
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Corridor Improvement	High	$80,000	$80,000	Medium	Short-term

Cottage Grove TSP - Financially Constrained and lllustrative Projects

Project Information					Cost Estimate			Priority
ID	Name	Description	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
R17	Latham Rd Modernization	Bicycle and pedestrian facilities on Latham Rd between OR 99 and London Rd. (total cost $100,000). [County Project 69]	Modernization	Low	$100,000	$66,667	Medium	*N/A*
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Corridor Improvement	High	$60,000	$60,000	Medium	Medium-term
R13	E. Main St Access Improvements	Modify access from OR 99 to Gateway Blvd (e.g., consolidate driveways)	Corridor Improvement	High	$70,000	$35,000	Medium	Medium-term
R7	S. R St Extension	Extension to complete S. R St from Sweet Ln to Cleveland Ave Extension including sidewalks and bike lanes	Roadway Extension	Medium	$950,000	$0	Medium	Long-term
R9	Blue Sky Dr Extension	Extension from W. Harrison Ave to Sweet Ln including sidewalks	Roadway Extension	Medium	$900,000	$0	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd extension including sidewalks	Roadway Extension	Medium	$200,000	$0	Medium	Long-term
R23	N. M St Extension	Extension to Holly Ave including sidewalks	Roadway Extension	Medium	$3,750,000	$0	High	Long-term
R24	S. 4th St Extension	Extension south to Cleveland Ave Extension including sidewalks	Roadway Extension	Medium	$1,550,000	$0	High	Long-term
Multi-modal Intersection Projects								
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Intersection	Low	$1,500,000	$1,500,000	High	Long-term
I5	I-5 SB Ramp/Gateway at Row River Rd/Connector Improvements	Safety Improvements (e.g., signing and striping) near the intersection	Intersection	Low	$60,000	$60,000	Medium	*N/A*
Multi-use Trail Projects								
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Trail	Low	$700,000	$700,000	Medium	*N/A*
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Trail	Medium	$350,000	$350,000	Medium	*N/A*
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Trail	Low	$150,000	$150,000	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Rd and Currin Connector	Trail	Medium	$70,000	$70,000	Medium	Medium-term
Pedestrian Projects								
P5	OR 99 Sidewalks (South)	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Modernization	Medium	$1,150,000	$920,000	High	*N/A*
P1	OR 99 Sidewalks (North)	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Modernization	Medium	$500,000	$500,000	Medium	Long-term
P2	Cottage Grove Connector Sidewalks	Construct sidewalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Modernization	Low	$480,000	$480,000	Medium	*N/A*
P10	S. 6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Modernization	High	$600,000	$400,000	Medium	Long-term

Project Information					Cost Estimate			Priority
ID	Name	Description	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
P17	S. 4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Sidewalk In-fill	Medium	$375,000	$187,500	Medium	Long-term
P7	S. River Rd Sidewalks	Repair substandard sections and fill-in missing sections of sidewalk along S. River Rd between Nellis Pl and W. Harrison Ave	Sidewalk In-fill	Medium	$180,000	$180,000	Medium	Long-term
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Modernization	Low	$350,000	$175,000	Medium	*N/A*
P22b	Sweet Ln Sidewalks	Construct sidewalk from S. R St to OR 99	Modernization	Medium	$350,000	$175,000	Medium	Medium-term
P27	E. Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between S. 10th Ave and Gateway Blvd	Pedestrain Connection	Low	$200,000	$160,000	Medium	*N/A*
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to S. R St	Modernization	Low	$300,000	$150,000	Medium	*N/A*
P28	OR 99 Sidewalk Ramps	Provide ADA-compliant pedestrian ramps at roadway intersection on OR 99, between the Cottage Grove Connector and the Woodson Bridge	Modernization	Low	$140,000	$140,000	Medium	*N/A*
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from N.16th St to Gateway Blvd	Sidewalk In-fill	Medium	$250,000	$125,000	Medium	*N/A*
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from S. 8th St to east end	Sidewalk In-fill	Low	$250,000	$125,000	Medium	*N/A*
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to S. 16th St	Sidewalk In-fill	Low	$200,000	$100,000	Medium	*N/A*
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Sidewalk In-fill	Medium	$125,000	$100,000	Medium	Medium-term
P13	N. 16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Sidewalk In-fill	Medium	$175,000	$87,500	Medium	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Sidewalk In-fill	Medium	$150,000	$75,000	Medium	Long-term
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to Hillside Dr (does not include bridge replacement costs)	Sidewalk In-fill	Low	$150,000	$75,000	Medium	*N/A*
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon). Specific location TBD.	Pedestrain Crossing	Medium	$60,000	$60,000	Medium	Short-term
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Sidewalk In-fill	Medium	$100,000	$50,000	Medium	Long-term
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Pedestrain Crossing	High	$45,000	$45,000	Low	Short-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Sidewalk In-fill	Medium	$85,000	$42,500	Medium	Medium-term
P19	S. 8th St Sidewalks	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Sidewalk In-fill	Medium	$65,000	$32,500	Medium	Long-term
P20	W. Harrison Ave Sidewalks	Construct missing sidewalk segments from Edison Ave to S. River Rd	Sidewalk In-fill	Low	$45,000	$22,500	Low	*N/A*

Cottage Grove TSP - Financially Constrained and lllustrative Projects

Project Information					Cost Estimate			Priority
ID	Name	Description	Project Group	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from N. 19th St to Gateway Blvd	Sidewalk In-fill	Medium	$25,000	$12,500	Low	*N/A*
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Pedestrain Connection	Medium	$10,000	$10,000	Low	*N/A*
P3	N. M St Sidewalks	Construct missing sidewalk segments on N. M St from Chestnut Ave to Holly Ave	Sidewalk In-fill	Low	$250,000	$0	Medium	Medium-term
Bicycle Projects								
B9	OR 99 Bike Facility (South)	Widen for bike lanes and/or construct multiuse trail on OR 99 from S. 8th St to south UGB	Modernization	Medium	$1,500,000	$1,500,000	High	*N/A*
B2	OR 99 Bike Lanes (North)	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Modernization	Low	$850,000	$850,000	Medium	*N/A*
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Modernization	Medium	$600,000	$600,000	Medium	*N/A*
B4	E. Whiteaker St Bike Lanes	Widen to add bike lanes along E. Whiteaker St from Gateway Blvd to Thornton Rd/Row River Trail	Bike lanes	Low	$400,000	$320,000	Medium	*N/A*
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Bike lanes	Low	$150,000	$150,000	Medium	*N/A*
B1	S. R St Bike Lanes	Restripe S. R St to include bike lanes along entire duration south of W. Main St	Bike lanes	Low	$60,000	$60,000	Medium	*N/A*
B10	Bicycle Parking	Install bicycle parking (various locations)	Bicycle Connections	High	$40,000	$40,000	Low	Medium-term
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Bicycle Connections	Low	$35,000	$35,000	Low	*N/A*
B15	Whiteaker Ave Bike Route	Designate and sign E. Whiteaker Ave as a bike route from N. River Rd via Centennial Bridge to OR 99/E. Main St intersection	Bicycle Connections	Medium	$35,000	$35,000	Low	Medium-term
B5	N. M St Bike Lanes	Stripe bike lanes on N. M Street north of W. Main St	Bike lanes	Low	$30,000	$30,000	Low	*N/A*
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibbs Ave. Signage would direct travelers off of OR 99: northbound travelers to N. 10th St shared roadway and southbound travelers to N. River Rd bike lanes.	Bicycle Connections	Low	$30,000	$30,000	Low	*N/A*
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on E. Main St between OR 99 and River Rd	Bicycle Connections	Low	$25,000	$25,000	Low	*N/A*
B7	W. Harrison Ave Bike Lanes	Restripe W. Harrison Ave west of S. R St to include bike lanes	Bike lanes	Low	$25,000	$25,000	Low	*N/A*
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Bicycle Connections	Low	$20,000	$20,000	Low	Long-term
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Bicycle Connections	Medium	$5,000	$5,000	Low	Medium-term

Cottage Grove TSP Update

Community Advisory Committee Meeting #4

October 6, 2015

Last CAC Meeting (April):

- **Review Transportation Standards**
  (Tech Memo #10)
- **Preliminary Priority Project List**
  (Tech Memo #9)
- **CAC Input on Priorities**

Progress Since

- **Update project lists**
  (revise costs, adjust priorities, remove)
- **Recommended Project Lists**
  (Financially Constrained & Illustrative)
  (Tech Memo #11)
- **Implementation Guidance**
  (Tech Memo #12)
- **Draft TSP**

Meeting Goals

- Project status update
- Draft TSP overview
- Review financially constrained projects
- Any revisions? ← **CAC Input**

PROJECT STATUS

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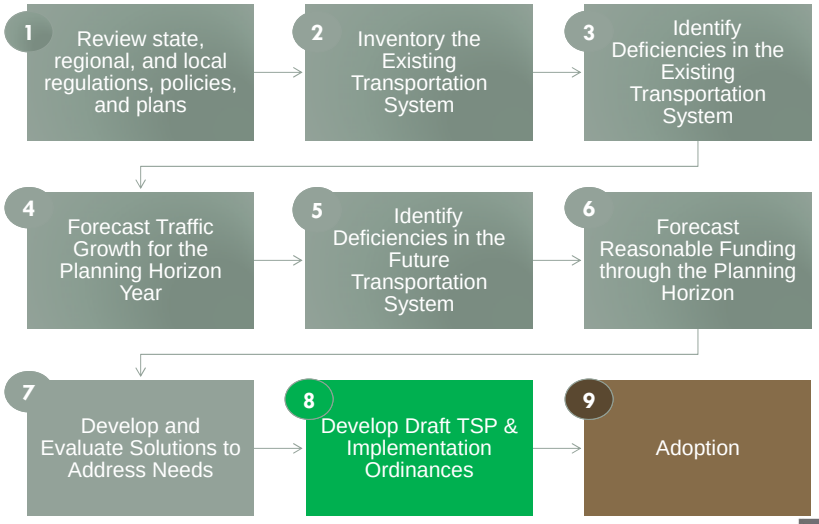
TSP Update Technical Process



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Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
  Community Event #1 – December 2014
- **November 2014 – May 2015**
  Develop and Evaluate Solutions
  Community Event #2 – April 2015
- **June 2015 – October 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – October 2015
- **November 2015 – January 2016**
  Adoption Process

Public Input

← **Identify Needs & Solutions**

← **Review Projects & Identify Priorities**

← **Review TSP**

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DRAFT TSP OVERVIEW

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Two Volumes

- **Volume 1: TSP Report**
  Documents key findings, solutions, and standards.
- **Volume 2: Technical Memoranda**
  Documents TSP development process, public involvement, technical analysis.

Volume 1 Overview

- **Context**
  Key changes since 2008, expected growth, challenges, TSP focus areas
- **Process**
  High level summary of TSP development and public involvement
- **Vision**
  TSP Goals, Objectives, Policies
- **Needs**
  Safety, Motor Vehicle, Freight, Pedestrian, Bicycle, Transit, etc.
- **Investments**
  Revenue Sources, Expenditures, Funding Estimate
- **Plan**
  Strategies, FC Projects, Illustrative Projects by mode, Local Streets
- **Standards**
  Roadway Functional Class, Design Standards, Mobility, NTM
- **Outcomes**

FINANCIALLY CONSTRAINED PROJECTS

Review solutions developed

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Project Options - Process Overview

Identify Needs → Compile Projects → Project Evaluation → Project Prioritization

- Select best solutions to address needs
- "Illustrative" Solutions List
  - Overall list of projects that are needed and accepted, but may not be funded by 2035
- "Financially Constrained" Solutions List
  - Financially constrained project list is required
  - Prioritize these projects given constrained funding
  - Reflect reasonable funding estimate through 2035
  - Reflect top community priorities

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Funding Estimate

- $11.5M funding estimate through 2035
- Based on historical revenues & expenses
- Funding from gas taxes, SDC, & ODOT grants (estimated)
- Consider costs to maintain and operate
- No new revenues or increases identified

Financially Constrained Plan

- Must support growth areas (SDC $)
- Must enhance transportation system (grant $)
- Must be multi-modal (state gas tax$)
- Assumes developer contributions
- Informed by evaluation results
- Reflects CAC & public input on community priorities

Project Evaluation

- Evaluate based on 12 TSP objectives
  - -Connected
  - -Economic
  - -Safe
  - -Unobtrusive
  - -Responsive
  - -Viable & Stable
  - -Balanced
  - -Environmental
  - -Sustainable
  - -Affordable
  - -Coordinated
  - -Efficient
- Provide guidance for discussing priorities
- Not prescriptive

Project Categories

- Roadway Projects (Multi-modal)
  - Roadway Extensions / New Connections
  - Corridor Improvements / Safety
  - Modernization (Rebuild to standards)
- Intersection Improvements (Multi-modal)
- Bicycle Improvements
- Pedestrian Improvements
- Trail Improvements

Priority Roadway Projects

- Main St Refinement Plan [R3]
- OR99 conversion (4 lanes to 3+) [R2]
- OR99 access management (driveways) [R14]
- OR99 / Connector intersection (roundabout) [I1]
- E. Main St Access Management [R13]
- CG-Lorane Hwy Modernization (County)[R16]

Priority Roadway Projects (Cont.)

- Cleveland Ave/R St [R6, R7]
- Gates Rd/Blue Sky Dr to Harrison Ave [R8, R9]
- Blue Sky Dr to Harrison Ave [R9]
- Lincoln Ave to Gateway Blvd Ext. [R10]
- M St to Holly Ave [R23]
- 4th St to Cleveland Ext. [R24]

Priority Pedestrian/Bike Projects

- Safer Crossings
  - OR99/Geer [P23]
  - Jim Wright Way/Row River Rd [P24]
  - 10th/Washington Crosswalk Removed*
  - Currin Connector (Row River) Trail Crossing [T4]
- Harrison Ave connection East P27 – Illustrative*
- Eastern trail connection (Jim Wright Way to Palmer Ave) [T3]

Priority Bicycle Projects

- Holly Ave bike path [B14]
- Whiteaker Ave bike path [B15]
- Bike Parking [B10]
- Woodson Bridge Bike Treatment [B12]

Priority Pedestrian Projects

- Sidewalk in-fill on collectors and arterials
  - OR 99 North[P1], OR 99 near Woodson Br [P25]
  - 6th St South[P10], 8th St South[P19],
  - M St [P3], Chamberlin Ave[P9],
  - Ostander[P11],16th St[P13], Harvey Rd[P14 – III*]
- Safe routes to schools
  - Harrison Ave [P4], River Rd [P7], 4th St [P17]
  - Sweet Ln East[P22b]

OUTCOMES

Keys to Success for the 2015 Cottage Grove TSP

- Incorporate UGB expansion and recent City and corridor planning efforts
- Reasonable forecasts for the year 2035
- Safety strategies for "hot spots"
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system

Outcomes

- **Improved Safety**: Several projects have been identified to reduce travel conflicts, especially along OR 99 near Connector.
- **Expanded Active Transportation Network**: A number of multi-modal connections, safer roadway crossings, and bike/ped enhancements.
- **Support Growth in the South UGB Expansion Area:** provide direct connections for all modes in the south part of the City and reduce the need for out-of-direction travel between OR 99 and S. 6th St.
- **Support Historic Downtown**: TSP supports implementation of the Main St Refinement Plan and the E. Whiteaker Ave Bike Route.
- **Enhance Recreational Opportunities**: Two new bike routes (Holly Avenue and East Whiteaker) are identified in addition to a new trail segment.

99/Connector Grant Application

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NEXT STEPS

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Next

- Community Meeting #3 (Tonight)
  - Review Draft TSP & Financially Constrained Projects
- Revise Draft TSP
  - CAC Meeting #4
  - Community Meeting #3
  - Stakeholder Meetings #2
- Adopt TSP (Targeting November-December)

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
COMMUNITY EVENT (TSP Open House) #1 SUMMARY

Date: December, November 16, 2014

Time: 5:30 PM to 7:00 PM

Location: Shepherd Room, Cottage Grove Community Center
700 E Gibbs Ave, Cottage Grove, OR 97424

Purpose: The purpose of this community meeting was to provide an orientation to the Transportation System Plan (TSP) project, obtain input on the identified needs for transportation in Cottage Grove, and to generate ideas for potential solutions.

1. Agenda/Stations

The open house followed a self-guided format with the following stations:

Station 1: TSP Update Process

- Poster - TSP purpose, schedule, and public involvement
- Poster - TSP process and key issues

Station 2: Pedestrian Issues

- Poster - Pedestrian Facilities & Key Issues
- Pens and stickers provided to add to needs

Station 3: Bicycle Issues

- Poster - Bicycle Facilities & Key Issues
- Pens and stickers provided to add to needs

Station 4: Motor Vehicle Issues

- Poster - Roadways & Key Issues
- Pens and stickers provided to add to needs

Station 5: TSP Goals and Objectives

- Poster – Proposed TSP Goals, Objectives, and Policies
- Paper for attendees to suggest changes or new ideas

Station 6: TSP Update Presentation

- Powerpoint presentation of project process and findings to date

A copy of the posters and the Powerpoint presentation is attached to this summary.

II. Attendees

Five people attended the meeting in addition to three project team attendees.

Project Team	
Mat Dolata	DKS Associates
Howard Schesser	Cottage Grove Community Development Director
Dan Fricke	Oregon Department of Transportation

III. Summary of Discussions and Written Comments

A handout was provided for attendees to give their feedback. A copy of the handout is attached. A summary of the handout comments received as well as takeaways from discussions during the event is listed below:

- Interest was expressed in maintaining ease of motor vehicle travel and pavement conditions on primary travel routes including: OR 99, 6th Street, and the Cottage Grove Connector.
- Interest was expressed in improving bike facilities on Main Street through downtown. The Main Street Refinement Plan recommendations may result in room for bike lanes or possibly striping bike sharrows.
- Main Street is part of the Oregon Scenic Bikeways trail in Cottage Grove, which should be depicted on the Bicycle Facilities map.
- Key bike connections outside of the City limits could be shown in the south, where they may affect travel within the city (e.g., Latham Road)
- There is a desire to provide another pedestrian crossing along Row River Road, preferably near the Jim Wright Way intersection. However, traffic signal warrants are not met with current traffic volumes and preliminary analysis of 2035 traffic volume forecasts would not support installation of a traffic signal either. Other pedestrian crossing treatments should be considered at or near this location.

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

What is a TSP?

- Provides long range direction for development of transportation facilities and services for all modes
- Transportation element of the Comprehensive Plan
- Includes transportation standards, future improvements and a finance program
- Facilitates cost-effective use of funds and demonstrates project need and readiness (for grant pursuits)

What must a TSP do?

- Provide consistency with state and regional plans
- Establish an efficient network of arterial/collector roadways
- Provide standards for layout, spacing, and connectivity of streets
- Protect facilities and corridors for intended uses
- Provide public transportation services to meet basic needs
- Provide a network of sidewalks and bikeways linking key destinations
- Develop a finance program that is reasonably likely to be funded

Public Involvement Opportunities

Open House #1 – Overview of project purpose, key issues identified from existing and future conditions

Open House #2 – Present evaluation of solutions and potential recommendations (Spring 2015)

Open House #3 – Overview of Draft TSP prior to adoption (Summer 2015)

Website – visit cottagegrovetsp.org to keep informed throughout the project

Project Schedule

December 2013 – March 2014	Background Plan and Policy Review
January 2014 – October 2014	Existing Conditions and Future Needs Analysis
November 2014 – April 2015	**Develop and Evaluate Solutions**
April 2015 – October 2015	Prepare Draft Transportation System Plan Update
November 2015 – March 2016	Adoption Process

Oregon Department of Transportation

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TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

What has changed since the 2008 TSP?

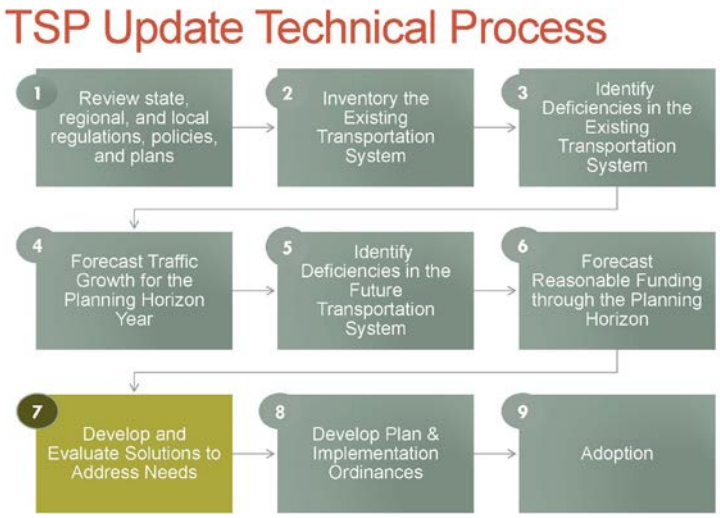
- Urban growth boundary expansion to south
- New infrastructure (e.g., Main Street/OR 99 improvements, traffic signals on Thornton)
- Traffic volumes have decreased 10% to 30% (from 2006)
- 2035 growth estimates adjusted: 37% population and 32% employment growth
- Updated forecasts show all study intersections operating within mobility standards through 2035
- Analysis of historical collision data shows 3 roadway segments and 1 study intersections with high collision rates and two locations with pedestrian fatalities
- $10.5 M funding estimate through 2035

What are the key issues for the 2015 TSP?

- Incorporate recent City planning efforts (e.g., Main Street Refinement Plan)
- Provide for UGB expansion areas
- Clear and consistent standards to support planned land uses and development
- Reasonable forecasts for 2035
- Safety strategies for collision "hot spots"
- Recommendation for OR 99 / Cottage Grove Connector / I-5 Interchange area
- Improve connectivity
- Plan for a complete multi-modal system

What happens next?

- Potential solutions will be developed and discussed with the Community Advisory Committee
- Solutions will be evaluated based on effectiveness criteria that reflect TSP Objectives
- Transportation standards will be reviewed and updated
- Initial recommendations will be presented at TSP Open House #2 (Spring 2015)



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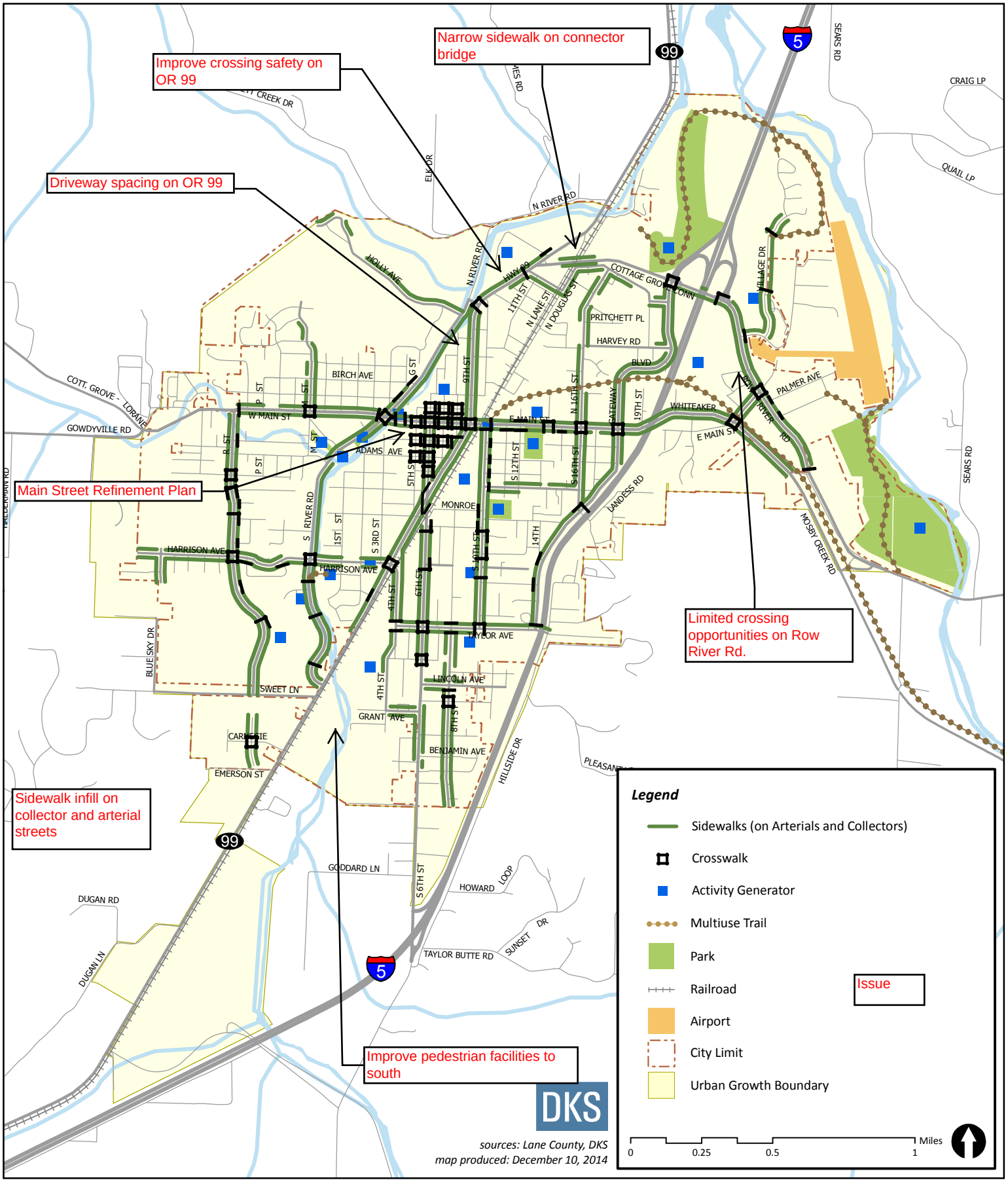
Transportation System Plan

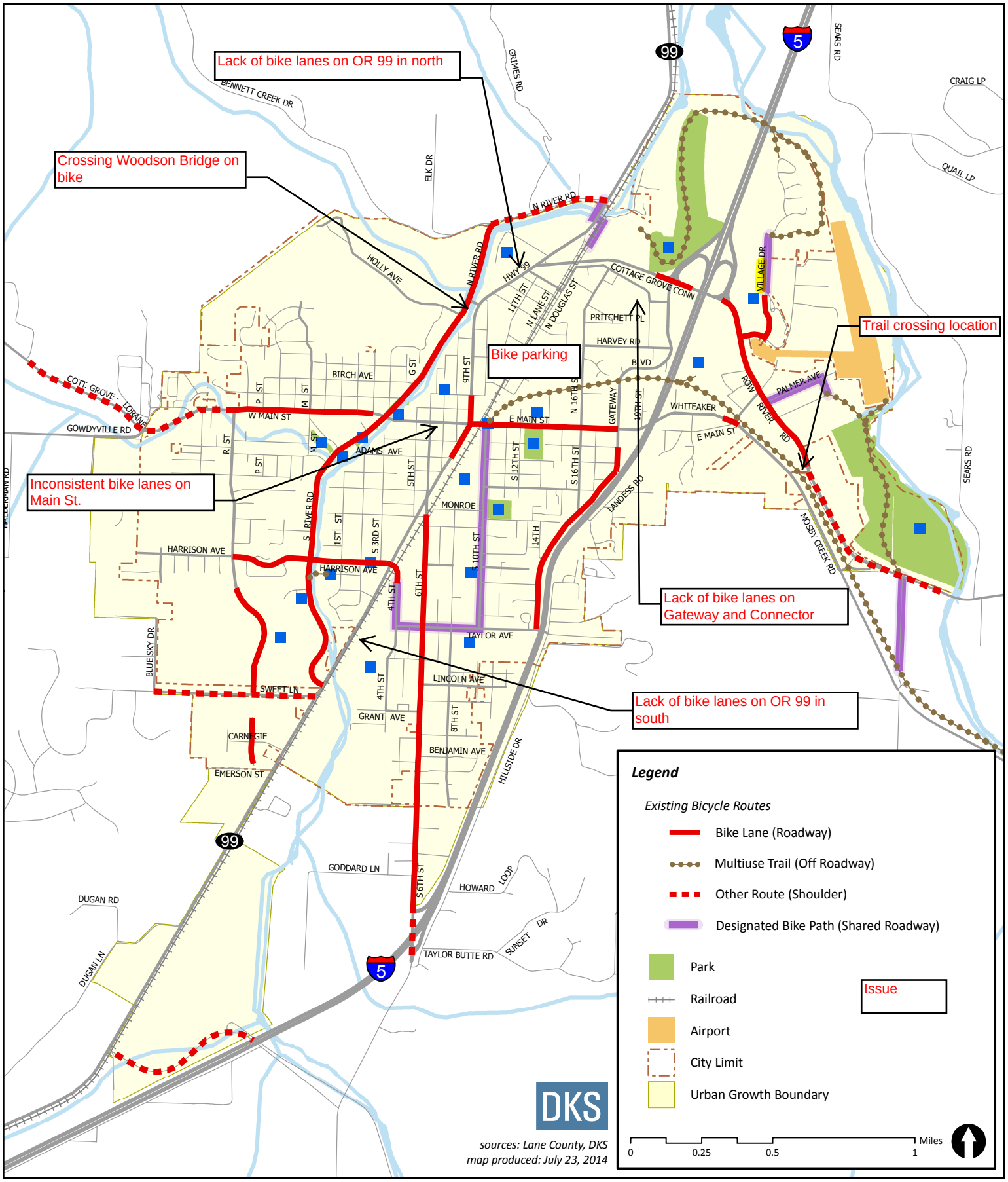
Pedestrian Facilities & Issues



sources: Lane County, DKS
map produced: December 10, 2014

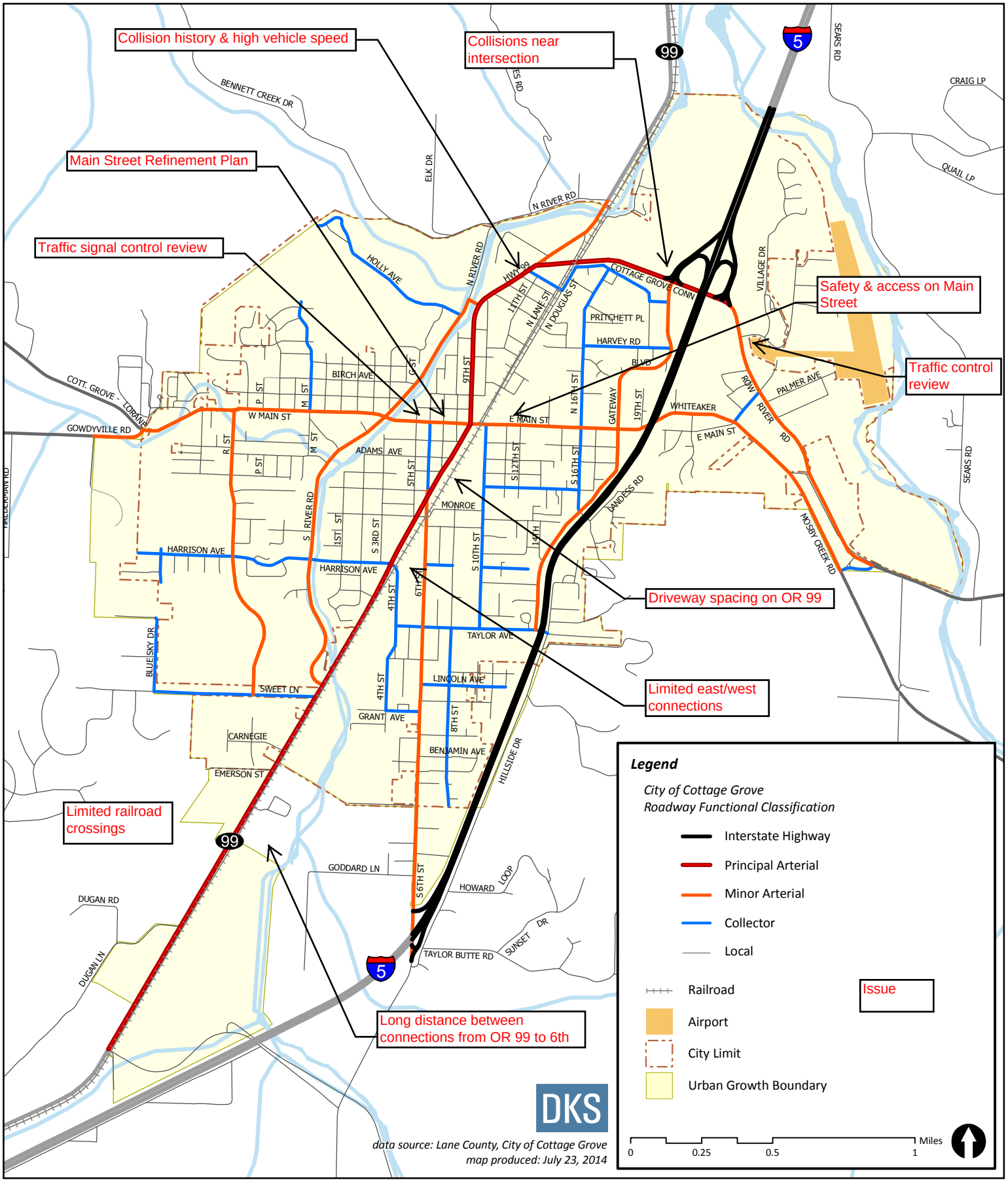
Transportation System Plan

Bicycle Facilities & Issues



Transportation System Plan

Motor Vehicle Facilities & Issues



TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

Goals

1: Enhance the Cottage Grove area's quality of life and competitive economic advantage by providing a transportation system that is: Accessible, Balanced, Efficient, Environmentally responsible, Equitable, Financially stable, Interconnected, Safe, and Sustainable.

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

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

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

Objectives

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

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

3: Provide for efficient movement of goods and services.

4: Provide an environmentally responsible transportation system.

5: Provide a safe transportation system.

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

7: Make streets as "unobtrusive" to the community as possible.

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

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

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

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

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

Policies

See printout for full list of the 44 TSP policies.

Oregon Department of Transportation

DKS

Cottage Grove TSP Update

An Introduction for Community Members

TSP UPDATE PROCESS

What is a TSP Update?

- What improvements are needed to **serve growth** to 2035?
- Which projects best **reflect City Goals**?
- How can we **balance the needs** of all travel modes into an equitable and efficient transportation system?

Why Adopt a TSP?

- **Required** by the Transportation Planning Rule (TPR) OAR 660-012-0015
- Serves as the transportation element of your comprehensive plan
- Provides **long range direction** for development of transportation facilities and services for all modes
- Ensures the planned systems are adequate to meet the needs of **planned land uses**
- Facilitates **cost-effective** use of public funds
- Demonstrates project need and readiness (**grant pursuit**)

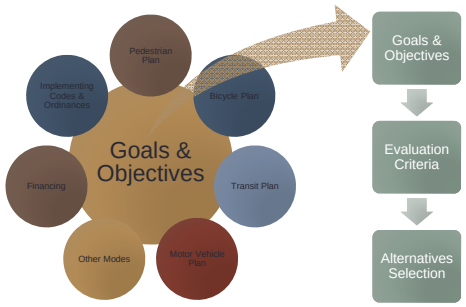
What MUST a TSP Do?

- Provide public transportation services to meet basic needs
- Establish an efficient network of arterials & collectors
- Provide City roadway, sidewalk and bikeway standards (layout, spacing, and connectivity)
- Protect facilities and corridors for intended uses
- Finance program that is reasonably likely
- Compliance with Regional Plans
- Implementing code and ordinances

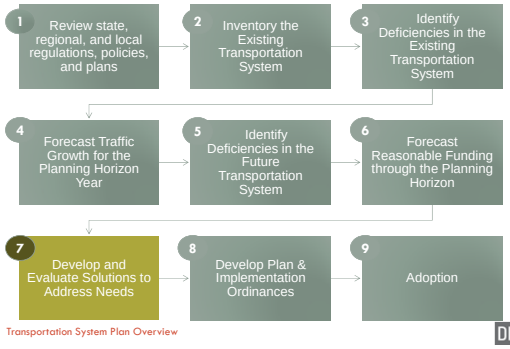
What SHOULD a TSP Do?

- Support the community vision
- Support a variety of travel choices
- Serve all people in community
- Promote safe and secure travel
- Support local and state economy
- Minimize impacts to natural and built environment

Common TSP Elements



TSP Update Technical Process



PUBLIC INVOLVEMENT & SCHEDULE

Public Involvement Process

- Community Advisory Committee Meetings (4)
- Community Events (3)
- Stakeholder Interviews (2)
- Project Website: cottagegrovetsp.org
  - Project documents and announcements
- Planning Commission / City Council Hearings (2)

Community Advisory Committee (CAC)

- Represents the community
- Reflects a broad cross-section of stakeholders
- Provides feedback on TSP materials
- Generates ideas for solutions
- Helps to evaluate tradeoffs and prioritize solutions
- Endorses the plan

Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
- **November 2014 – April 2015**
  Develop and Evaluate Solutions
  Community Event #1 – December 2014
  Community Event #2 – Spring 2015 (Tentative)
- **April 2015 – October 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – Summer 2015 (Tentative)
- **November 2015 – March 2016**
  Adoption Process

TRANSPORTATION PLANNING BASICS

Pedestrians

- Sidewalks & trails
- Barriers & out of direction travel
- Safe crossings
- Buffer in high-speed corridors
- Accessible facilities (ADA)
- Access to transit, parks, schools, shopping

Bicycles

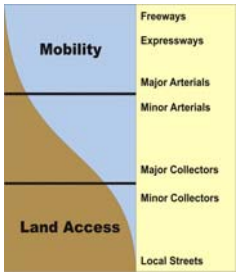
- Multi-use trails
- Bike lanes = 5 to 6 feet
- Shoulder bikeways = 6 feet
- Shared roads
- Separate facilities needed above 25 mph or 3,000 vehicles per day
- Provision of bike parking
- Well-defined routes

Transit

- Make transit accessible
  - ¼-mile for walking
  - ½-mile for biking
- Identify key roadway crossings
- Accommodate stop locations

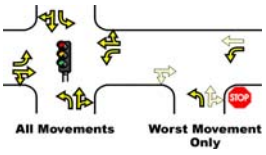
Roadway Functional Classes

- System protects mobility and accessibility
- Types of trips
  - Local (within neighborhoods/areas)
  - Regional (to/from City)
  - Through (passing through)
- Amount and type of access
- Expected speed



Measuring Mobility

- Commonly measured by:
  - Delay (level of service)
    - Example: "This intersection is operating at LOS C."



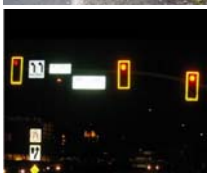
- Percent of capacity (v/c ratio)
  - Example: "This intersection is operating at a v/c ratio of 0.80."
  - ODOT Requirement – 30th Highest Hour Design Standard

Forecasting Growth

- Population (households) generate traffic
- Employment and services attract traffic
- Local development = traffic growth within Cottage Grove
- Regional growth = traffic growth to/from and through Cottage Grove (e.g., tourism, commuters)

Safety

- Crash History
  - Frequency
  - Severity
- All Travel Types
  - Motor vehicle
  - Biking
  - Walking
- Design Deficiencies
- Systematic Improvements



Management Strategies

Transportation System Management (TSM)

- Signal Timing
- Access Management
- Traffic Calming
- Connectivity
- Functional Classification System

Transportation Demand Management (TDM)

- Employee Shift Management
- Telecommuting
- Transit
- Walking and Biking Programs
- Carpooling

Transportation Finances

Common Funding Sources

- Gas Tax
- System Dev. Charges
- Development Exactions
- Street Utility Fees
- Grants

Expenditures

- Operations
- Maintenance
- Capital Improvements

Implementing Development Code

- Codify the community vision
- Meet required state regulations
- Provide clear guidance for development
- Provide "teeth" for implementing transportation standards

BIG ISSUES FOR TSP UPDATE

What are your most important issues?

Potential Keys to Success for the 2015 Cottage Grove TSP?

- Incorporate UGB expansion and recent City and corridor planning efforts
- Reasonable forecasts for the year 2035
- Safety strategies for "hot spots"
- Improve Connectivity
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system

FINDINGS & NEEDS

What have we done so far?

Pedestrian Issues

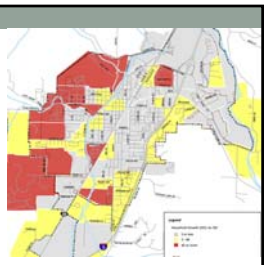
- Sidewalk infill on collectors and arterials
- More crossing opportunities along barriers
  - High-speed roadways
  - Coast Fork Willamette River
  - Railroad
- Connections to south
- Highest pedestrian activity measured downtown

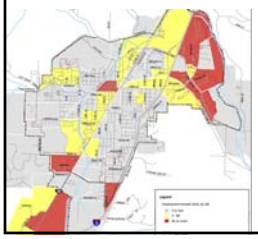
Bicycles Issues

- Bike lane continuity
- Crossings & barriers
- Connect to UGB expansion areas
- Provision of bike parking
- Support "Biking in the Grove"
- Well-defined routes

Forecasting Growth

- 2035 planning horizon
- ~1,200 new jobs
- 32% Growth





- ~3,700 more people
- ~1,500 new households
- 37% Growth

Mobility

- No deficiencies identified for 2035 PM peak
- Busiest 15 minutes of 30th Highest Design Hour (ODOT requirement)
- Highest delay intersections:
  - OR 99/Main
  - Gateway/Main
  - I-5 SB Ramp/Row River
  - Jim Wright Way/Row River

Roadway Issues

- Safety hot spots
- Update standards for consistency and clarity
- Support Main Street Refinement Plan
- Improve Connectivity
- Railroad operations

Safety Issues

- Roadway Segments
  - OR 99: CGC to Woodson Br.
  - Row River Road: I-5 to Currin Connector
  - Main Street: OR 99 to Gateway
- Intersections
  - I-5 SB Ramp/Row River
- Pedestrian Fatalities

Moving Forward

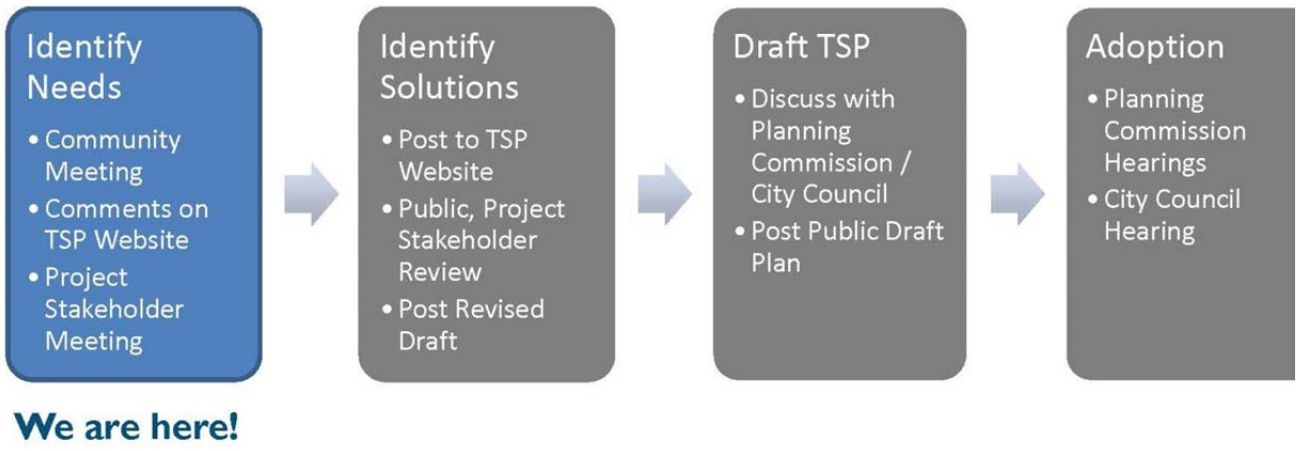
- $10.5M funding estimate through 2035
- Address Needs
- Review Goals, Policies, and Objectives
- Use Evaluation Criteria
- Update Standards

Transportation System Plan Update
Open House Event #1
December 16, 2014
5:30 – 7:00 p.m.

WELCOME to the Cottage Grove TSP Open House!

Please visit each of the displays located around the room to review the maps and key issues. You can provide your comments at the displays or complete this comment form. Help us understand what is most important for making Cottage Grove a better and safer place to walk, bike and drive!

TSP Update Process



Please complete the comment form before you leave or return it by Wednesday, December 31st to:

Amanda Ferguson
400 E. Main Street
Cottage Grove, OR 97424
(541) 942-3340
planner@cottagegrove.org

Thank You!

For more project information or to provide your feedback online visit www.cottagegrovetsp.org

Transportation Priorities

With limited funding to make improvements to the transportation system, what types of projects do you feel the city should focus on? Select the <u>three</u> issues you think are most important or add topics that are not listed.

- ☐ Increase the convenience and availability of pedestrian and bicycle modes
- ☐ Provide for efficient motor vehicle travel to and through the city
- ☐ Provide transit service and amenities that encourage a higher level of ridership
- ☐ Provide an equitable, balanced, and connected multi-modal transportation system
- ☐ Enhance the health and safety of residents
- ☐ Foster a sustainable transportation system
- ☐ Ensure the transportation system supports a prosperous and competitive economy
- ☐ Coordinate with local and state agencies and transportation plans
- ☐ _____
- ☐ _____
- ☐ _____

What do you like about traveling in Cottage Grove that should be maintained?

_____

_____

_____

_____

Do you feel unsafe driving, biking or walking anywhere in Cottage Grove?

_____

_____

_____

_____

Are there places that are too difficult to get to?

_____

_____

_____

_____

Pedestrian Issues

What keeps you from walking instead of driving?

- ☐ Streets too steep
- ☐ Bad weather
- ☐ Destinations are too far away
- ☐ Lack of sidewalks
- ☐ No safe route to my destination
- ☐ Too dark/unsafe
- ☐ Other:_____

_____

What streets and intersections need improvements to make walking and crossing the street safer (e.g., sidewalks)?

_____

_____

_____

_____

Bicycle Issues

What keeps you from riding a bike instead of driving?

- ☐ Streets too steep
- ☐ Bad weather
- ☐ Destinations are too far away
- ☐ Lack of bike lanes
- ☐ Lack of bike parking
- ☐ No safe route to my destination
- ☐ Too dark/unsafe
- ☐ Other:_____

_____

What streets (or other locations) would benefit the most from improved bicycle facilities (e.g., bike lanes)?

_____

_____

_____

_____

Driving Issues

How could driving best be improved in Cottage Grove?

- ☐ Improved traffic signal timing
- ☐ Improved roadway connectivity
- ☐ Improved alternate routes to OR 99 or Main Street
- ☐ Safety improvements
- ☐ Improved public parking
- ☐ Other:_____

_____

What streets or intersections have the greatest need for improvements to make traveling by car safer and easier?

_____

_____

_____

_____

_____

Public Transit Issues

For what purpose(s) do you use public transit?

- ☐ Commute to work
- ☐ Personal use
- ☐ I don't use public transit
- ☐ Other:_____

_____

How could public transit service best be improved?

- ☐ Add more stops in Cottage Grove
- ☐ Add more stops in Eugene
- ☐ Increase bus frequency
- ☐ Increase hours of operation
- ☐ Improve amenities at bus stops (bench, shelter, lighting, etc.)
- ☐ Improve information at bus stops (signage, schedule, fare, etc.)
- ☐ Improve sidewalk connections to bus stops
- ☐ Reduce bus fare
- ☐ Other:_____

_____

Improvement Ideas

What can be done to make traveling in Cottage Grove better?

_____

_____

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About You

How did you find out about this open house?

- ☐ City website
- ☐ Email
- ☐ Family/friend/neighbor
- ☐ Newspaper
- ☐ Poster/flyer
- ☐ Other:_____

_____

Thank You!

For more project information or to provide your feedback online: visit www.cottagegrovetsp.org

Cottage Grove
Transportation System Plan (TSP)
OPEN HOUSE

When: Tuesday, **December 16, 2014** from **5:30 p.m. to 7:00 p.m.**

Where: Cottage Grove Community Center, 700 E Gibbs Ave.

What's happening: We are updating our TSP to meet the transportation needs through 2035. We are looking for input on projects and strategies to support our community's future needs.

What you can do: Come to the Open House and give your input!

For more information: See the project website: http://cottagegrovegtsp.org/

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
COMMUNITY EVENT (TSP Open House) #2 SUMMARY

Date: April 28, 2015

Time: 5:30 PM to 7:00 PM

Location: Stacy's Covered Bridge Restaurant
401 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of this community meeting was to provide a status update to the Transportation System Plan (TSP) project, present the projects identified to address needs in Cottage Grove, and obtain input on the preliminary recommendations for priority projects.

1. Agenda/Stations

The open house followed a self-guided format with the following stations:

Station 1: Pedestrian Projects

- Poster - Pedestrian Facilities & Key Issues
- Pens and stickers provided to identify priorities

Station 2: Bicycle Projects

- Poster - Bicycle Facilities & Key Issues
- Pens and stickers provided to identify priorities

Station 3: Roadway Projects

- Poster - Roadways & Key Issues
- Pens and stickers provided to identify priorities

Station 4: Preliminary Priority Project List

- Project Evaluations, Funding, and Recommendations
- Pens and stickers provided to identify priorities

Copies of the posters and handouts are attached to this summary.

II. Attendees

Twelve people attended the meeting and signed in, in addition to five project team attendees:

Project Team	
Mat Dolata	DKS Associates
Howard Schesser	Cottage Grove Community Development Director
Dan Fricke	Oregon Department of Transportation
Amanda Ferguson	Cottage Grove City Planner
Becky Taylor	Lane County

III. Summary of Discussions and Written Comments

A handout was provided for attendees to give their feedback. A copy of the handout is attached. A summary of the handout comments received as well as takeaways from discussions during the event is listed below:

- Interest was expressed in constructing traffic circles (or mini-roundabouts) in general and specifically along Main Street through the downtown historic district.
- For the proposed Eastern Trail Connection (Project T3), it was recommended that the existing fencing be moved away from the proposed public path by approximately 3 feet.
- It was discussed that it might be clearer why projects were prioritized (or not) if the cost to the public was better illustrated (e.g., development vs. public costs). Consider sorting projects by cost to the public in future presentations.
- It was suggested that there be more promotional signage on I-5 to direct people to the downtown historic district.
- Concerns were raised about maintenance of crosswalks and poor visibility in certain weather conditions.
- Concerns were raised about high motor vehicle speeds on Gateway Boulevard and the Cottage Grove Connector. The posted speed limit changes several times when traveling between Row River Road and OR 99 via the Cottage Grove Connector.
- A suggestion was made to provide a trail between the Cottage Grove Connector/Row River Road and the Row River Trail along the west side of I-5 (east of Gateway Boulevard).

In addition to discussions at the public event, attendees were encouraged to submit feedback through the project website (http://cottagegrovetsp.org/), especially for proposed projects (https://civiclaboratories.com/dks-associates/cottage-grove/). A summary of comments received as of May 6, 2015 are summarized below:

- Support was expressed for providing access to land use in the south part of Cottage Grove through the Cleveland Street Extension (Project R6). The project may provide alternative routes that lesson traffic demand on OR 99
- Concern was expressed about the alignment of the proposed 4th Street extension and proposed impacts to redevelopment. The alignment illustrated is conceptual and preliminary, final alignments would be determined after further study and evaluation, in coordination with the City staff and property owners.

Transportation System Plan Update
Open House Event #2
April 28, 2015
5:30 – 7:00 p.m.

WELCOME to the Cottage Grove TSP Open House!

Please visit each of the displays located around the room to review the maps and proposed projects. Please provide your comments on this comment form. Help us understand what is most important for making Cottage Grove a better and safer place to walk, bike and drive!

TSP Update Process

Phase	Status
• Needs Analysis (Future and Existing Conditions)	Complete
• Funding Estimate Through 2035	Complete
• Preferred Projects List	Complete
• **Identify Community Priorities**	**WE ARE HERE!**
• Draft TSP	Summer 2015
• Adoption	Fall 2015

Please complete the comment form before you leave or return it by Wednesday, May 6th to:

Amanda Ferguson
400 E. Main Street
Cottage Grove, OR 97424
(541) 942-3340
planner@cottagegrove.org

Thank You!

For more project information or to provide your feedback online visit www.cottagegrovetsp.org

Transportation Priorities

With limited funding to make improvements to the transportation system, what types of projects do you feel the city should focus on? Select the three issues you think are most important or add topics that are not listed.

- ☐ Increase the convenience and availability of pedestrian and bicycle modes
- ☐ Provide for efficient motor vehicle travel to and through the city
- ☐ Provide transit service and amenities that encourage a higher level of ridership
- ☐ Provide an equitable, balanced, and connected multi-modal transportation system
- ☐ Enhance the health and safety of residents
- ☐ Foster a sustainable transportation system
- ☐ Ensure the transportation system supports a prosperous and competitive economy
- ☐ Coordinate with local and state agencies and transportation plans
- ☐ _____
- ☐ _____
- ☐ _____

Which of the proposed TSP projects are most important to you?

_____

_____

_____

_____

_____

_____

_____

_____

Which (if any) of the proposed TSP projects should NOT be prioritized?

_____

_____

_____

_____

_____

_____

_____

Pedestrian Priorities

What keeps you from walking instead of driving?

- ☐ Streets too steep
- ☐ Bad weather
- ☐ Destinations are too far away
- ☐ Lack of sidewalks
- ☐ No safe route to my destination
- ☐ Too dark/unsafe
- ☐ Other:_____

_____

What streets or intersections most need improvements to make walking safer (e.g., sidewalks, safe crossings)?

_____

_____

_____

_____

Bicycle Priorities

What keeps you from riding a bike instead of driving?

- ☐ Streets too steep
- ☐ Bad weather
- ☐ Destinations are too far away
- ☐ Lack of bike lanes
- ☐ Lack of bike parking
- ☐ No safe route to my destination
- ☐ Too dark/unsafe
- ☐ Other:_____

_____

What streets (or other locations) would benefit the most from improved bicycle facilities (e.g., bike lanes)?

_____

_____

_____

_____

Transportation Funding

Would you support a local fee (e.g., $5.00 per month for each household) to pay for roadway maintenance and other transportation facility improvements?

Improvement Priorities

What should be done to make traveling in Cottage Grove better?

About You

How did you find out about this open house?

- ☐ City website
- ☐ Email
- ☐ Family/friend/neighbor
- ☐ Newspaper
- ☐ Poster/flyer
- ☐ Other:

Thank You!

For more project information or to provide your feedback online: visit www.cottagegrovetsp.org

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #2

What is a TSP?

- Provides long range direction for development of transportation facilities and services for all modes
- Transportation element of the Comprehensive Plan
- Includes transportation standards, future improvements and a finance program
- Facilitates cost-effective use of funds and demonstrates project need and readiness (for grant pursuits)

What must a TSP do?

- Provide consistency with state and regional plans
- Establish an efficient network of arterial/collector roadways
- Provide standards for layout, spacing, and connectivity of streets
- Protect facilities and corridors for intended uses
- Provide public transportation services to meet basic needs
- Provide a network of sidewalks and bikeways linking key destinations
- Develop a finance program that is reasonably likely to be funded

Public Involvement Opportunities

Open House #1 – Overview of project purpose, key issues identified from existing and future conditions

Open House #2 – Present evaluation of solutions and potential recommendations (April 2015)

Open House #3 – Overview of Draft TSP prior to adoption (Summer 2015)

Website – visit cottagegrovetsp.org to keep informed throughout the project

Project Schedule

December 2013 – March 2014	Background Plan and Policy Review
January 2014 – October 2014	Existing Conditions and Future Needs Analysis
November 2014 – April 2015	**Develop and Evaluate Solutions**
April 2015 – October 2015	Prepare Draft Transportation System Plan Update
November 2015 – March 2016	Adoption Process

Oregon Department of Transportation

DKS

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #2

What has changed since the 2008 TSP?

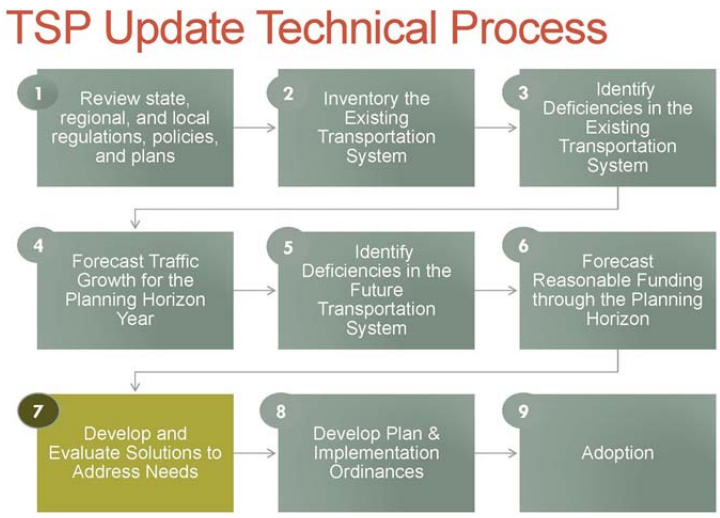
- Urban growth boundary expansion to south
- New infrastructure (e.g., Main Street/OR 99 improvements, traffic signals on Thornton)
- Traffic volumes have decreased 10% to 30% (from 2006)
- 2035 growth estimates adjusted: 37% population and 32% employment growth
- Updated forecasts show all study intersections operating within mobility standards through 2035
- Analysis of historical collision data shows 3 roadway segments and 1 study intersections with high collision rates and two locations with pedestrian fatalities
- $11.5 M funding estimate through 2035

What are the key issues for the 2015 TSP?

- Incorporate recent City planning efforts (e.g., Main Street Refinement Plan)
- Provide for UGB expansion areas
- Clear and consistent standards to support planned land uses and development
- Reasonable forecasts for 2035
- Safety strategies for collision "hot spots"
- Recommendation for OR 99 / Cottage Grove Connector / I-5 Interchange area
- Improve connectivity
- Plan for a complete multi-modal system

What is happening now?

- Potential solutions were developed and discussed with the Community Advisory Committee
- Solutions were evaluated based on effectiveness criteria that reflect TSP Objectives
- Transportation standards were reviewed and updated
- Initial recommendations for priority projects are being presented at TSP Open House #2



Oregon Department of Transportation

DKS

Transportation System Plan Update
Open House Event #2
April 28, 2015
5:30 – 7:00 p.m.

Proposed Projects & Preliminary Priorities

The TSP Open house presents proposed transportation improvements for your review:

- **Roadway** Projects
- **Pedestrian** Projects
- **Bicycle** Projects
- **Priority** Projects (Preliminary financially-constrained list of community priorities.)

Each project was evaluated based on criteria that are developed from Cottage Grove's transportation goals and objectives. This evaluation provides an initial prioritization for projects, but we are looking for your input and thoughts about specific projects or other ideas.

How to Provide Feedback

- **Stickers** – Place post-it notes on the maps to comment on projects
- **Comment Forms** – Comment forms are provided for you to leave more thorough feedback
- **Talk to Us** – We are available to answer your questions and hear your ideas.
- **Project Website** – If you think of something later that you didn't tell us tonight, you can leave feedback on the project website cottagegrovetsp.org

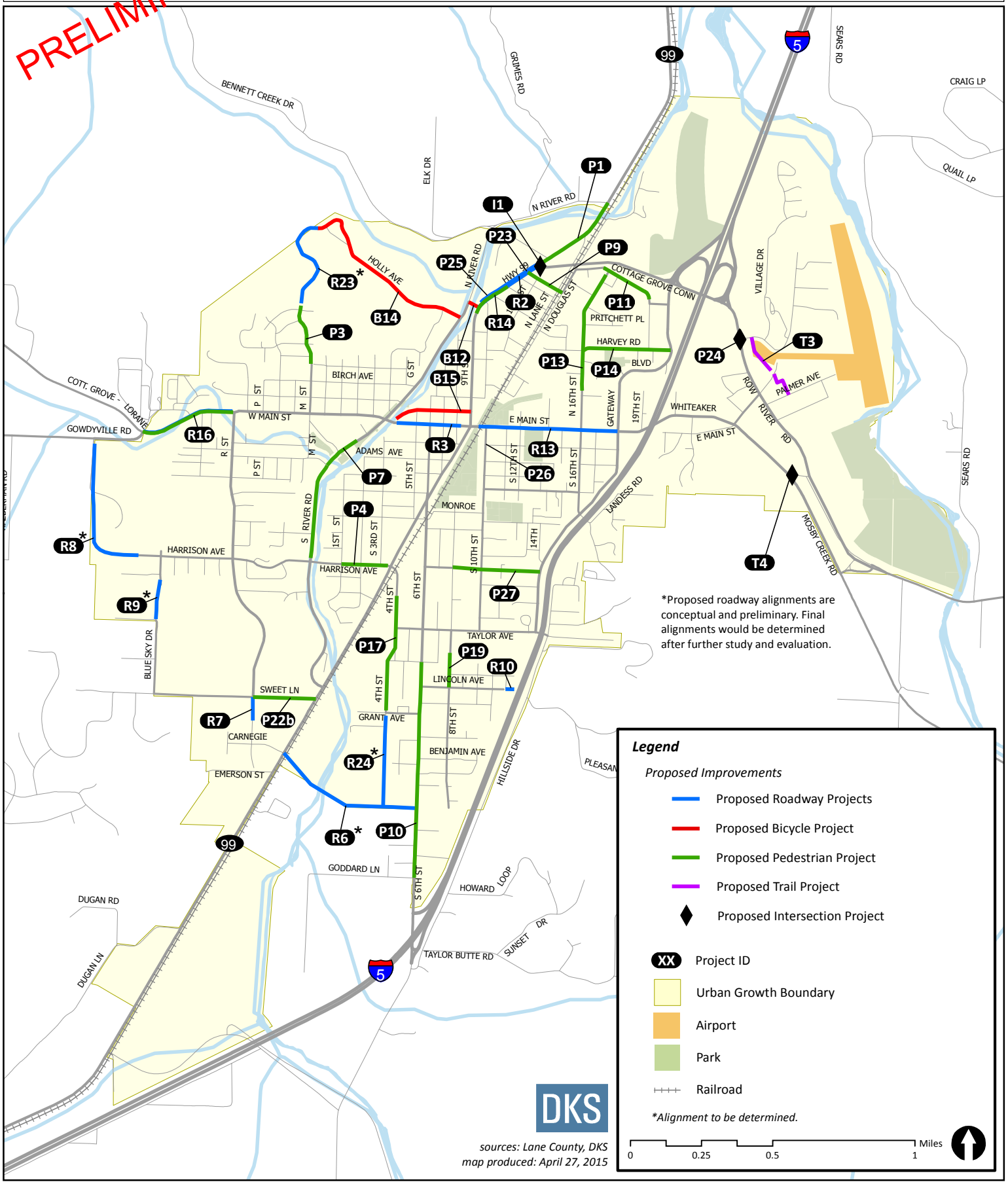
Thanks for your attendance and feedback!

Transportation System Plan

FIGURE 4

Prioritized Transportation Improvements

PRELIMINARY



Cottage Grove TSP - Preliminary Priority Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
Multi-modal Roadway Projects							
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP	High	Medium	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	High	High	Short-term
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	High	High	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	Medium	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	High	Medium	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New	High	Low	Medium-term
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	Medium	Medium	Medium-term
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium	High	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	Medium	High	Long-term
Multi-modal Intersection Projects							
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	Low	High	Long-term
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff	Low	Medium	
Multi-use Trail Projects							
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	Low	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	Medium	Medium	Medium-term
Pedestrian Projects							
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP	Medium	Medium	Long-term
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP	Low	Medium	Medium-term

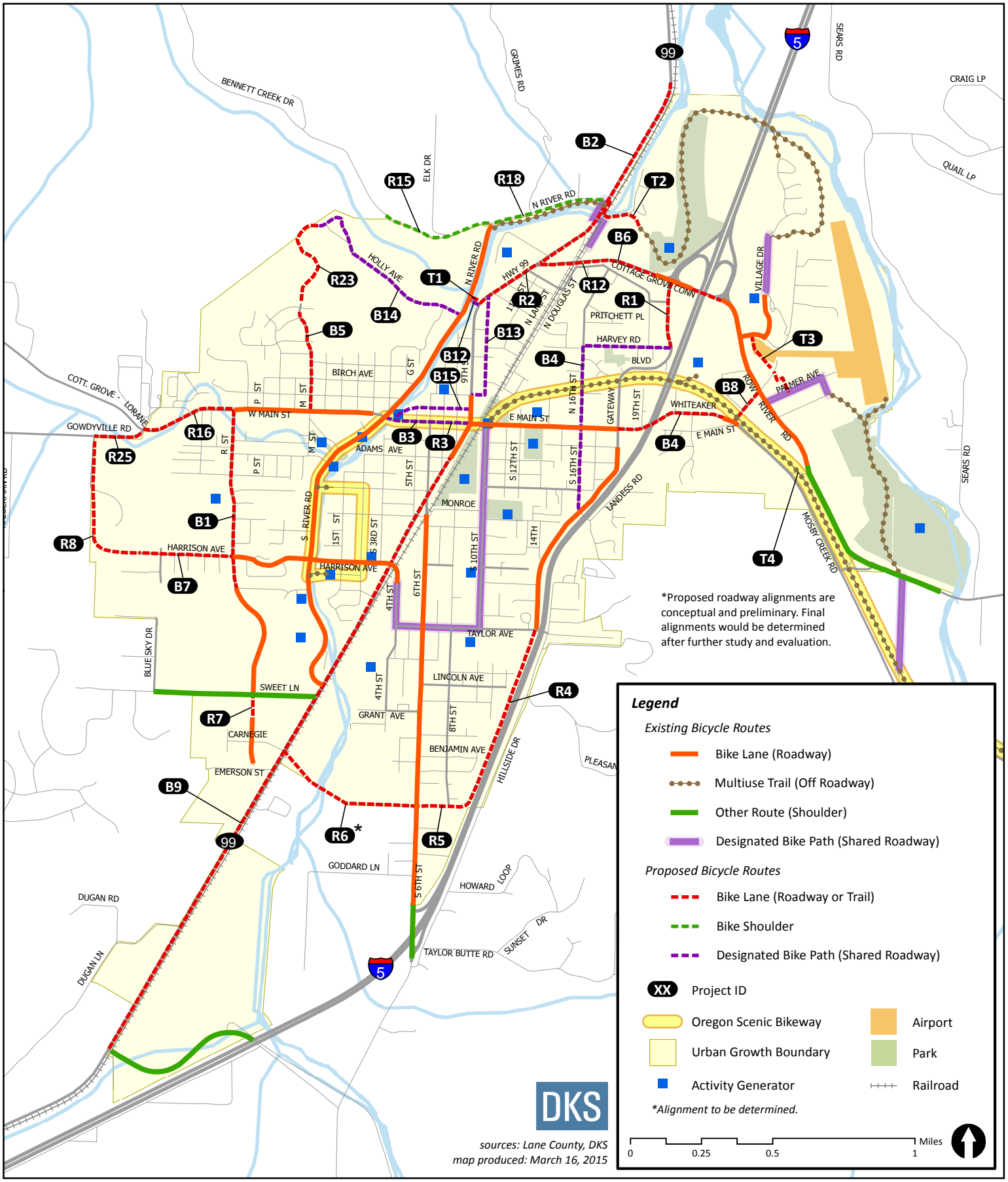
Cottage Grove TSP - Preliminary Priority Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP	Medium	Medium	Medium-term
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP	Medium	Medium	Long-term
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New	Medium	Medium	Long-term
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New	High	Medium	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New	Medium	Medium	Long-term
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New	Medium	Medium	Long-term
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New	Medium	Medium	Long-term
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New	Medium	Medium	Long-term
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New	Medium	Medium	Long-term
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New	Medium	Medium	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New	High	Low	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New	Medium	Medium	Short-term
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New	Medium	Medium	Medium-term
P26	10th St Crosswalk	Provide crosswalk at Washington Ave intersection	Access/Safety	New	High	Low	Short-term
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New	Low	Medium	Medium-term
Bicycle Projects							
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New	High	Low	Medium-term
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New	Low	Low	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New	Medium	Low	Medium-term

Transportation System Plan

FIGURE 3

Proposed Bicycle Improvements



Cottage Grove TSP - Preliminary Bicycle Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
Multi-modal Roadway Projects							
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP	Medium	Medium	-
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP	High	Medium	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	High	High	Short-term
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	High	High	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	Medium	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	Long-term
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP	Medium	High	-
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP	Low	Medium	-
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	Medium	Medium	Medium-term
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium	High	Long-term
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	Low	Medium	-
Multi-use Trail Projects							
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP	Medium	Medium	-
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP	Low	Medium	-
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	Low	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	Medium	Medium	Medium-term
Bicycle Projects							
B1	R St Bike Lanes	Restripe R St. to include bike lanes along entire duration south of Main St.	Access	2008 TSP	Low	Medium	-
B2	OR 99 Bike Lanes North	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	New	Low	Medium	-

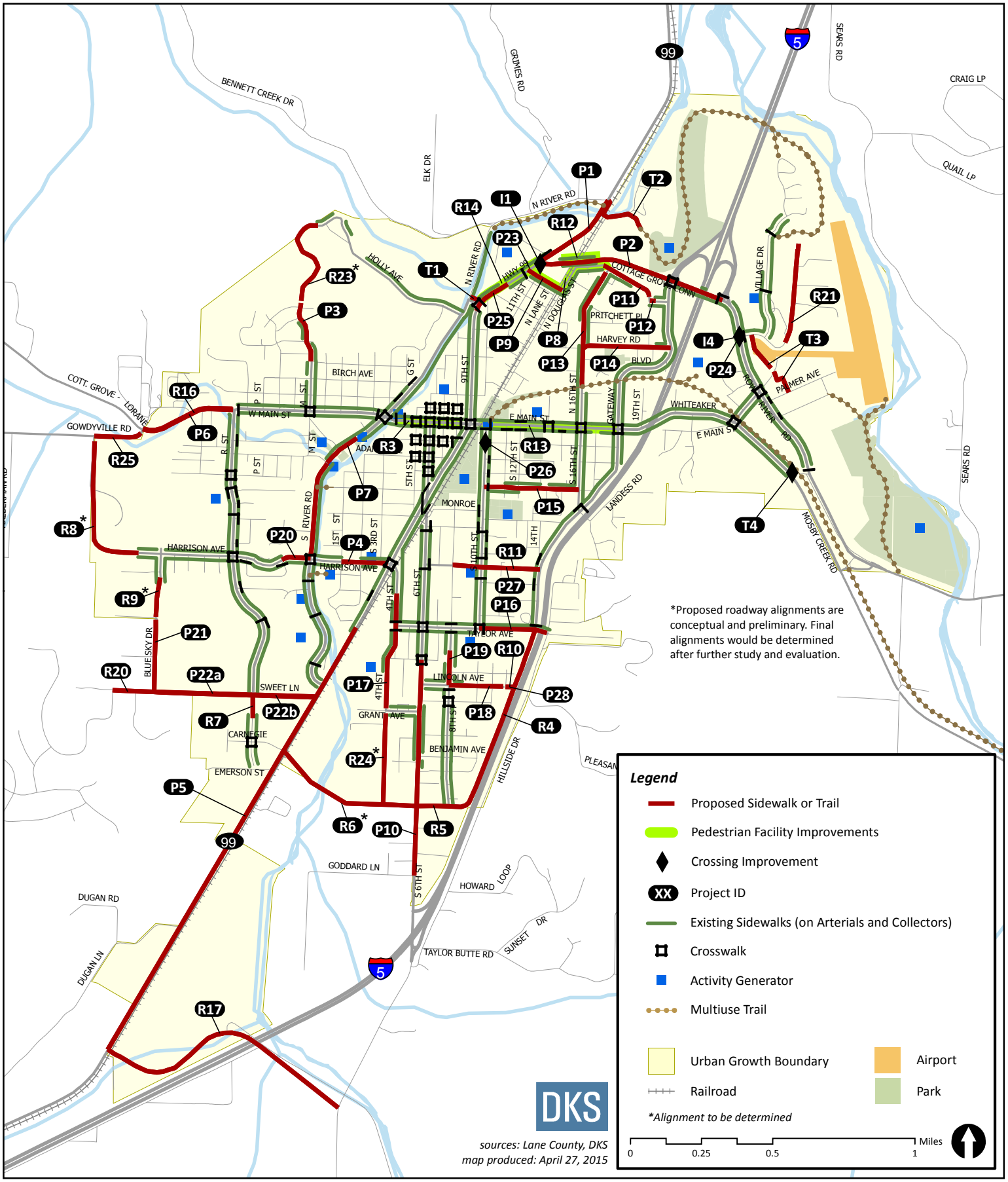
Cottage Grove TSP - Preliminary Bicycle Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on Main Street between OR 99 and River Road	Access	New	Low	Low	-
B4	Whiteaker St Bike Lanes	Widen to add bike lanes along Whiteaker from Gateway Boulevard to Thornton Road/Row River Trail	Access	New	Low	Medium	-
B5	M St Bike Lanes	Stripe bike lanes on M Street north of Main Street	Access	2008 TSP	Low	Low	-
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	2008 TSP	Medium	Medium	-
B7	Harrison Ave Bike Lanes	Restripe Harrison Avenue west of R Street to include Bike Lanes	Access	2008 TSP	Low	Low	-
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	2008 TSP	Low	Medium	-
B9	OR 99 Bike Facility South	Widen for bike lanes and/or construct multiuse trail on OR 99 from 8th Street to south UGB	Access	New	Medium	High	-
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	New	High	Low	Medium-term
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	New	Medium	Low	-
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibb Street. Signage would direct travelers off of OR 99: northbound travelers to 10th St shared roadway and southbound travelers to River Road bike lanes.	Access		Low	Low	-
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	New	Low	Low	Long-term
B15	Whiteaker Ave Bike Route	Designate and sign Whiteaker Ave as a bike route from North River Road via Covered Bridge to Or 99/Main St intersection	Access	New	Medium	Low	Medium-term

Transportation System Plan

FIGURE 2

Proposed Pedestrian Improvements



Cottage Grove TSP - Preliminary Bicycle Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
Multi-modal Roadway Projects							
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP	Medium	Medium	-
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	High	High	Short-term
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	High	High	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	Medium	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP	High	High	-
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP	Medium	High	-
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	High	Medium	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New	High	Low	Medium-term
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	Medium	Medium	Medium-term
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP	Low	Medium	-
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP	Medium	Medium	-
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP	Low	Medium	-
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium	High	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	Medium	High	Long-term

Cottage Grove TSP - Preliminary Bicycle Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	Low	Medium	-
Multi-modal Intersection Projects							
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	Low	High	Long-term
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff	Low	Medium	
Multi-use Trail Projects							
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	2008 TSP	Medium	Medium	-
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	2008 TSP	Low	Medium	-
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	New	Low	Medium	Medium-term
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Road and Currin Connector	Safety	New	Medium	Medium	Medium-term
Pedestrian Projects							
P1	OR 99 Sidewalks North	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	2008 TSP	Medium	Medium	Long-term
P2	Cottage Grove Connector Sidewalks	Construct Sidwalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	2008 TSP	Low	Medium	-
P3	M St Sidewalks	Construct missing sidewalk segments on M Street from Main Street to Holly Avenue	Access	2008 TSP	Low	Medium	Medium-term
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	2008 TSP	Medium	Medium	Medium-term
P5	OR 99 Sidewalks South	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	New	Medium	High	-
P6	Main St Sidewalk	R Street to City Limits	Access	New	Medium	Medium	-
P7	River Rd Sidewalks North	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue and south to Harrison Ave	Access	2008 TSP	Medium	Medium	Long-term
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Access	2008 TSP	Medium	Low	-
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	New	Medium	Medium	Long-term
P10	6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB extents	Access	New	High	Medium	Long-term
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	New	Medium	Medium	Long-term
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from 19th St to Gateway Blvd	Access	New	Medium	Low	-
P13	16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	New	Medium	Medium	Long-term
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from 16th St to Gateway Blvd	Access	New	Medium	Medium	Long-term
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from 10th St to 16th St	Access	New	Low	Medium	-
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from 10th St to Hillside Drive (does not include bridge replacement costs)	Access	New	Low	Medium	-
P17	4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	New	Medium	Medium	Long-term

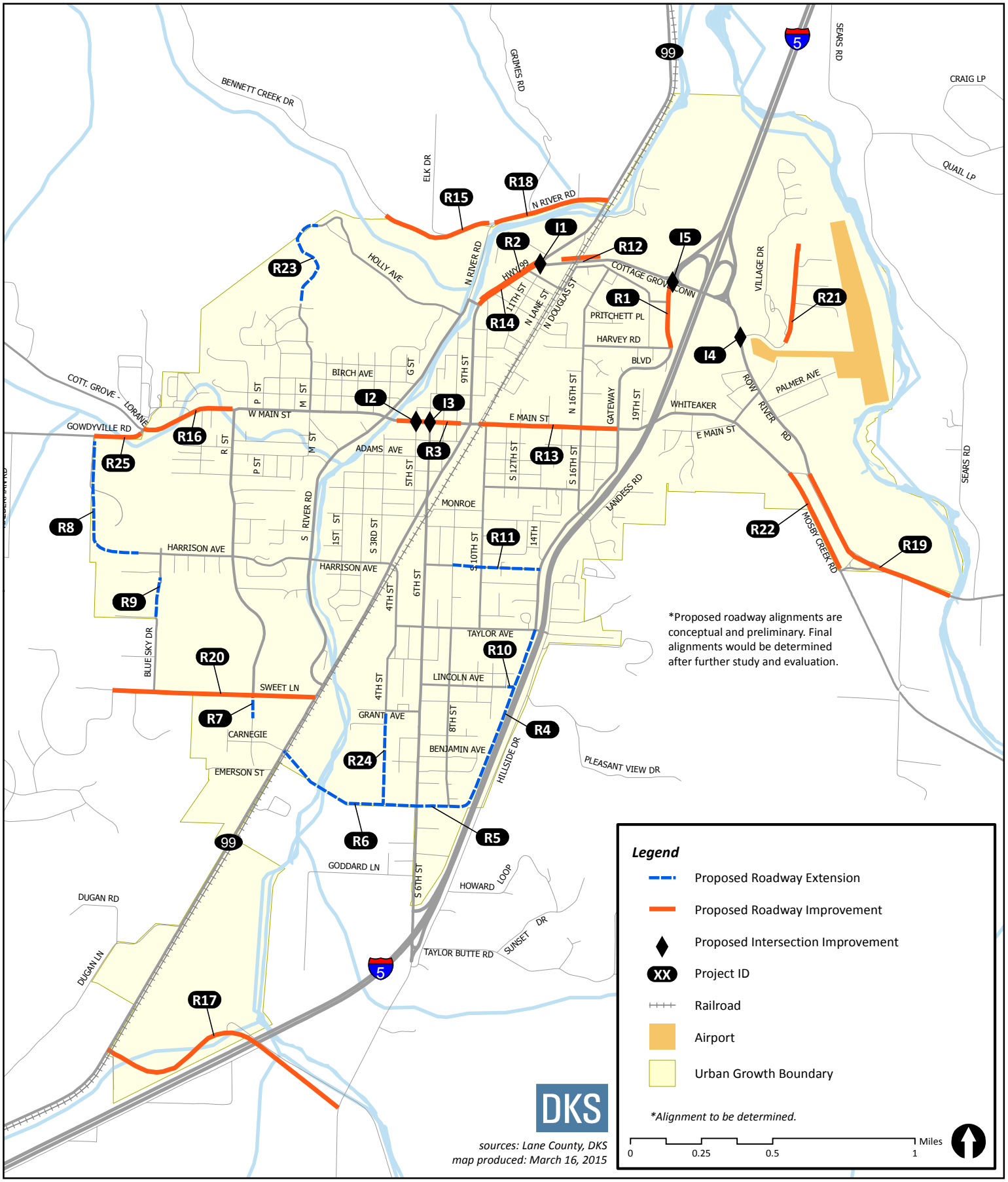
Cottage Grove TSP - Preliminary Bicycle Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from 8th Street to east end	Access	New	Low	Medium	-
P19	8th St Sidewalks North	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	New	Medium	Medium	Long-term
P20	Harrison Ave Sidewalks West	Construct missing sidewalk segments from Edison Ave to River Rd	Access	New	Low	Low	-
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	New	Low	Medium	-
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to R St	Access	New	Low	Medium	-
P22b	Sweet Ln Sidewalks	Construct sidewalk from R St to OR 99	Access	New	Medium	Medium	Medium-term
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	New	High	Low	Short-term
P24	Row River Rd Crosswalk Improvements near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon)	Access	New	Medium	Medium	Short-term
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	New	Medium	Medium	Medium-term
P26	10th St Crosswalk	Provide crosswalk at Washington Ave intersection	Access/Safety	New	High	Low	Short-term
P27	Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between 10th Ave and Gateway Blvd	Access	New	Low	Medium	Medium-term
P28	Lincoln Ave Pedestrian Connection	Provide pedestrian facilities to connect Lincoln Ave to proposed extension of Gateway Blvd	Access	New	Low	Medium	-

Transportation System Plan

FIGURE 1

Proposed Roadway Improvements



Cottage Grove TSP - Preliminary Roadway Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
Multi-modal Roadway Projects							
R1	Gateway Blvd Conversion	Convert 4-lane section to 3-lanes with bike lanes from Row River Road to Harvey Road	Safety / Access	2008 TSP	Medium	Medium	-
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	2008 TSP	High	Medium	Short-term
R3	Main Street Refinement Plan	Streetscape Plan	Community	Main Street Refinment Plan	High	High	Short-term
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R5	Cleveland Ave Extension East	Extension from Gateway Blvd. Extension to 6th St including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	-
R6	Cleveland Ave Extension West	Extension from west end to OR 99/R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	2008 TSP	High	High	Long-term
R7	R St Extension	Extension to complete R St from Sweet Ln. to Cleveland Ave. Extension including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	Medium	Long-term
R8	Gates Rd. Extension	Extension to complete Gates Rd from Gowdyville Rd. to Harrison Ave. including sidewalks and bike lanes	Connectivity	2008 TSP	Medium	High	Long-term
R9	Blue Sky Dr Extension	Extension from Harrison Ave to Sweet Ln including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd. extension including sidewalks	Connectivity	2008 TSP	Medium	Medium	Long-term
R11	Harrison Ave Extension	Extensions to connect Harrison Ave from 8th St to Gateway Blvd. including sidewalks	Connectivity	2008 TSP	High	High	-
R12	Cottage Grove Connector Bridge Widening	Widen to standard, include sidewalks and bicycle lanes	Safety / Access	2008 TSP	Medium	High	-
R13	East Main St Access Improvements	Modify access from OR 99 to Gateway Boulevard (e.g., consolidate driveways)	Safety	New	High	Medium	Medium-term
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	New	High	Low	Medium-term
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Road between North River Road and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Lane County TSP	Low	Medium	-
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Road (total cost $90,000). [County Project 70]	Safety / Standards	Lane County TSP	Medium	Medium	Medium-term
R17	Latham Road Modernization	Bicycle and pedestrian facilities on Latham Road between OR 99 and London Road. (total cost $100,000). [County Project 69]	Safety / Standards	Lane County TSP	Low	Medium	-
R18	North River Road Modernization	Upgrade on North River Road between OR 99 and Bennett Creek Road (total cost $430,000). [County Project 68]	Safety / Standards	Lane County TSP	Low	Medium	-
R19	Row River Road Modernization	Upgrade to a three-lane facility with bike lanes on Row River Road between the Row River and City Limits (total cost $900,000). [Project 67]	Safety / Standards	Lane County TSP	Medium	Medium	-

Cottage Grove TSP - Preliminary Roadway Project List

Project Information							Priority
Project #	Project Name	Project Description	Project Purpose	Source	Project Score Summary	Project Cost Summary	Preliminary Status
R20	Sweet Lane Modernization	Upgrade of Sweet Lane to urban standards from OR 99 to Talemena Drive (total cost $570,000). [County Project 65]	Safety / Standards	Lane County TSP	Medium	Medium	-
R21	Thornton Road Modernization	Addition of curb, gutter and sidewalks to Thornton Lane from Row River Road to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Lane County TSP	Low	Medium	-
R22	Moseby Creek Road Modernization	Rural modernization for Moseby Creek Road east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Lane County TSP	Low	Medium	-
R23	M St Extension	Extension to Holly Avenue including sidewalks	Connectivity	2008 TSP	Medium	High	Long-term
R24	4th St Extension	Extension south to Cleveland Extension including sidewalks	Connectivity	New	Medium	High	Long-term
R25	Gowdyville Road Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	New	Low	Medium	-
Multi-modal Intersection Projects							
I1	OR 99 at Cottage Grove Connector Improvements	Roundabout (or other intersection improvement) including pedestrian crossings	Safety	2008 TSP	Low	High	Long-term
I2	Main St at 6th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low	Low	-
I3	Main St at 5th St Improvements	Traffic Control Conversion to 4-way Stop	Community	City Staff	Low	Low	-
I4	Jim Wright Way at Row River Rd Improvements	Traffic Control Conversion to Traffic Signal with crosswalks	Mobility / Access	City Staff	Low	Medium	
I5	I-5 SB Ramp/Gateway at Row River Rd/Connector Improvements	Safety Improvements (e.g., signing and striping)	Safety	New	Low	Medium	-

Cottage Grove Transportation System Plan Update

TSP Open House - Community Event #2

April 28, 2015 **5:30-7:00 p.m.**

Stacy's Covered Bridge Restaurant
401 E. Main Street, Cottage Grove, OR 97424

Agenda

5:30 PM SELF-GUIDED FORMAT

Station 1: Pedestrian Projects

- Poster - Pedestrian Facilities & Key Issues
- Pens and stickers provided to identify priorities

Station 2: Bicycle Projects

- Poster - Bicycle Facilities & Key Issues
- Pens and stickers provided to identify priorities

Station 3: Roadway Projects

- Poster - Roadways & Key Issues
- Pens and stickers provided to identify priorities

Station 4: Preliminary Priority Project List

- Project Evaluations, Funding, and Recommendations
- Paper for attendees to provide feedback

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
COMMUNITY EVENT (TSP Open House) #3 SUMMARY

Date: October 6, 2015

Time: 5:30 PM to 7:00 PM

Location: Stacy's Covered Bridge Restaurant
401 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of this community meeting was to review the Draft Transportation System Plan (TSP), present the projects identified to address needs in Cottage Grove, and obtain input on revisions needed to the TSP prior to adoption.

I. Agenda/Stations

The open house followed a self-guided format with the following stations:

Station 1: TSP Update Overview

Station 2: Draft Financially-Constrained (Priority) Projects

Station 3: Pedestrian Projects

Station 4: Bicycle Projects

Station 5: Roadway Projects

Copies of the Draft TSP document (Volume 1) and lists of projects including evaluations and cost estimates were available for review. Pens and stickers were provided to comment on the maps.

Copies of the posters and handouts are attached to this summary.

II. Attendees

Approximately 10 people who attended the meeting signed-in and several others in attendance did not. There were also five project team attendees:

Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	City of Cottage Grove
David Reesor	Oregon Department of Transportation
Howard Schesser	City of Cottage Grove
Becky Taylor	Lane County

III. Summary of Discussions and Written Comments

A handout was provided for attendees to give their feedback. A copy of the handout is attached. A summary of the handout comments received as well as takeaways from discussions during the event is listed below:

- Concern was expressed about a potential roundabout at the OR 99/Cottage Grove Connector intersection working well. The TSP project at this location identifies “intersection improvements" because the final design has not been decided upon or approved by ODOT. Additional analysis would be performed prior to construction of improvements at the intersection.
- Concern about Daugherty Avenue being extended was expressed. Daugherty Avenue is classified as a local street and no project has been identified in TSP to extend the roadway. It may be desirable to provide a connection between S. River Road and Daugherty Avenue in the future. However, it is unlikely any roadway extension would be constructed unless adjacent properties are redeveloped.
- Concern was expressed regarding what impact the TSP would have on LTD transit services. The TSP supports LTD transit services and seeks to improve pedestrian and bicycle connections to transit stops. No reduction to transit services is planned or identified in the TSP.
- Some disapproval of the Main Street Refinement Plan was expressed by a meeting attendee. The TSP will not reexamine the recently adopted Plan. The TSP will reinforce community support for the Plan and include it on the list of Financially Constrained (priority) projects.
- Concerns were expressed about the design and function of ADA curb ramps for people in wheelchairs. The City Engineer may consider reviewing appropriate design for ADA ramps.
- It was suggested that there be more promotional signage on I-5 and wayfinding from the I-5 off-ramps to direct people to the downtown historic district.
- An extension of Taylor Avenue west to OR 99 was suggested. The connection would be challenging to construct because it would require a new rail-crossing.
- Several comments were made about maintenance issues. The TSP does not prioritize specific maintenance projects.
- A desire was expressed for more crosswalks along E. Main Street and a traffic signal at the intersection of S. 10th Street. ODOT has examined the intersection in the past and determined that, due to the proximity of the railroad crossing and existing transportation conditions, it is unlikely that a traffic signal will be constructed at this location. The City is exploring potential pedestrian crossings along E. Main Street.
- A desire was expressed for improved crossings at the intersection of OR 99 and S. 6th Street.
- A suggestion was made to convert parking along S. 8th Street between Taylor Avenue and E. Monroe Avenue to only one side of the street.
- A concern was raised about traffic speeds on E. Van Buren Avenue between Gateway Boulevard and S. 10th Street.
- Questions were raised about the proposed bicycle improvements near the Woodson Bridge. The proposed project could provide signage and striping to support shared use by people driving cars and people riding bikes. The current bridge is not wide enough to provide separate lanes for motor vehicles and bikes.

In addition to discussions at the public event, attendees were encouraged to submit feedback through the project website (http://cottagegrovetsp.org/), especially for proposed projects (https://civiclaboratories.com/dks-associates/cottage-grove/). A summary of comments received as of October 13, 2015 are summarized below:

- Support was expressed for providing missing sidewalk segments on S. 6th Street (Project P10).
- Support was expressed for intersection improvements at the OR 99/Cottage Grove Connector Intersections (Project I1) and the proposed roadway conversion of OR 99 (Project R2) to help reduce speeding.
- Concern was expressed about the routing of freight traffic in the City, specifically along Main Street and S. River Road. It was suggested that the Woodson Bridge could be widened to better accommodate truck traffic.
- Support was expressed for the widening of the Cottage Grove Connector Bridge (Project R12) and providing sidewalks along the Connector (Project P2). There is a need for safe bicycle and pedestrian routes along the Connector.
- Support was expressed for providing bike lanes or shoulders on OR 99 in north Cottage Grove (Project B2). It was suggested that a regional bike route connecting between Cottage Grove and Eugene via Creswell could reduce commuter vehicle trips and bolster bicycle tourism.
- A desire for more crosswalks along E. Main Street (specifically between S. 10th Street and N. 14th Street) and concern about integrating the intersection of S. 10th Street with the intersection of OR 99 was expressed.
- A suggestion was made to enhance the mid-block pedestrian crossing on E.Main Street near City Hall.
- A desire for improved pedestrian facilities on the Woodson Bridge was expressed.
- The option of constructing traffic circles or mini-roundabouts was raised on E. Main Street in downtown. Disapproval of potential roundabouts or other changes on E. Main Street (Projects I2 and I3) was expressed. It was suggested that the downtown intersection operations remain as configured (with stop signs or traffic signals) as they are most clear for pedestrians and maintain the character of downtown. The projects have been dropped from the draft TSP.

Cottage Grove Transportation System Plan Update

TSP Open House - Community Event #3

October 6, 2015 **5:30-7:00 p.m.**

Stacy's Covered Bridge Restaurant
401 E. Main Street, Cottage Grove, OR 97424

Agenda

5:30 PM SELF-GUIDED FORMAT

Please review the project maps and provide comments on the handout.

Station 1: TSP Update Overview

- Poster - TSP purpose, process and schedule

Station 2: Draft Financially-Constrained (Priority) Projects

- Poster – Financially-Constrained Projects for All Modes
- Project Evaluations, Cost Estimates, and Prioritization
- Pens and stickers provided to comment

Station 3: Pedestrian Projects

- Poster – Illustrative and Financially-Constrained Pedestrian Projects
- Pedestrian Project Evaluations, Cost Estimates, and Prioritization
- Pens and stickers provided to comment

Station 4: Bicycle Projects

- Poster - Illustrative and Financially-Constrained Bicycle Projects
- Bicycle Project Evaluations, Cost Estimates, and Prioritization
- Pens and stickers provided to comment

Station 5: Roadway Projects

- Poster - Illustrative and Financially-Constrained Roadway Projects
- Roadway Project Evaluations, Cost Estimates, and Prioritization
- Pens and stickers provided to comment

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #3

What is a TSP?

- Provides long range direction for development of transportation facilities and services for all modes
- Transportation element of the Comprehensive Plan
- Includes transportation standards, future improvements and a finance program
- Facilitates cost-effective use of funds and demonstrates project need and readiness (for grant pursuits)

What must a TSP do?

- Provide consistency with state and regional plans
- Establish an efficient network of arterial/collector roadways
- Provide standards for layout, spacing, and connectivity of streets
- Protect facilities and corridors for intended uses
- Provide public transportation services to meet basic needs
- Provide a network of sidewalks and bikeways linking key destinations
- Develop a finance program that is reasonably likely to be funded

Public Involvement Opportunities

Open House #1 – Overview of project purpose, key issues identified from existing and future conditions

Open House #2 – Present evaluation of solutions and potential recommendations

Open House #3 – Overview of Draft TSP prior to adoption

Website – visit cottagegrovetsp.org to see project deliverables and keep informed on project status

Project Schedule

December 2013 – March 2014	Background Plan and Policy Review
January 2014 – October 2014	Existing Conditions and Future Needs Analysis
November 2014 – April 2015	Develop and Evaluate Solutions
May 2015 – October 2015	Prepare Draft Transportation System Plan Update
November 2015 – January 2016	Adoption Process

Oregon Department of Transportation

DKS

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #3

What has changed since the 2008 TSP?

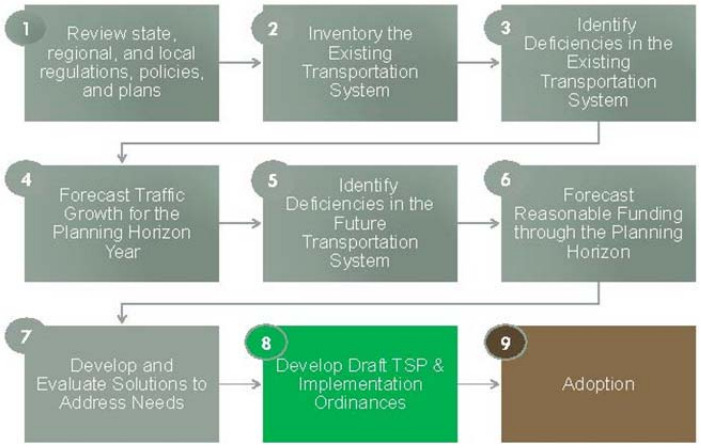
- Urban growth boundary expansion to south
- New infrastructure (e.g., Main Street/OR 99 improvements, traffic signals on Thornton)
- Traffic volumes have decreased 10% to 30% (from 2006)
- 2035 growth estimates adjusted: 37% population and 32% employment growth
- Updated forecasts show all study intersections operating within mobility standards through 2035
- Analysis of historical collision data shows 3 roadway segments and 1 study intersections with high collision rates and two locations with pedestrian fatalities
- $11.5 M funding estimate through 2035

What are the key issues for the 2015 TSP?

- Incorporate recent City planning efforts (e.g., Main Street Refinement Plan)
- Provide for UGB expansion areas
- Clear and consistent standards to support planned land uses and development
- Reasonable forecasts for 2035
- Safety strategies for collision "hot spots"
- Recommendation for OR 99 / Cottage Grove Connector / I-5 Interchange area
- Improve connectivity
- Plan for a complete multi-modal system

What is happening now?

- The Draft TSP has been developed including updated project lists and transportation standards
- Priority (financially constrained) projects have been identified and refined based on feedback from the Community Advisory Committee and the public
- Final comments and revisions are being solicited to prepare for adoption of the plan



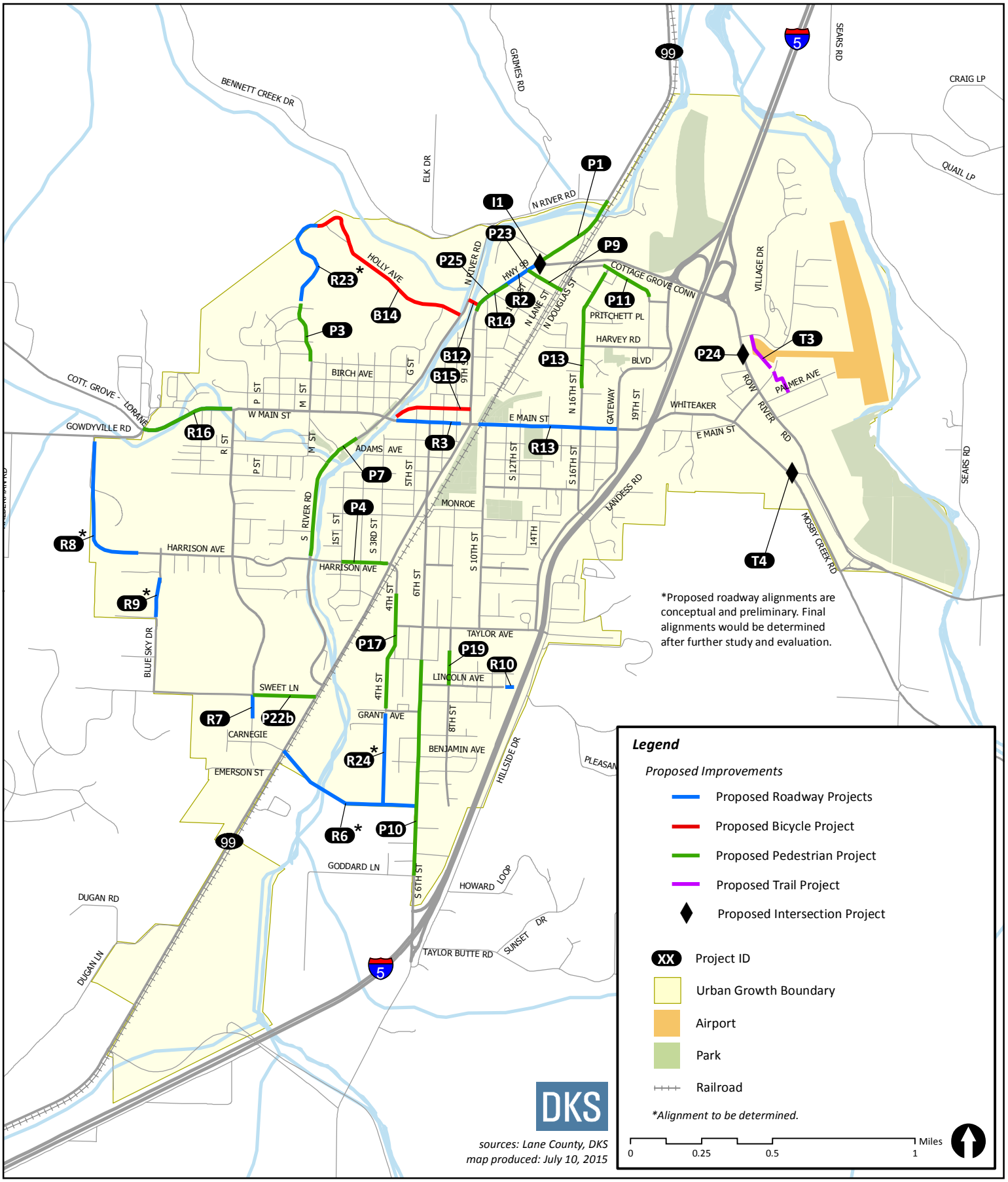
Oregon Department of Transportation

DKS

Transportation System Plan

FIGURE 6

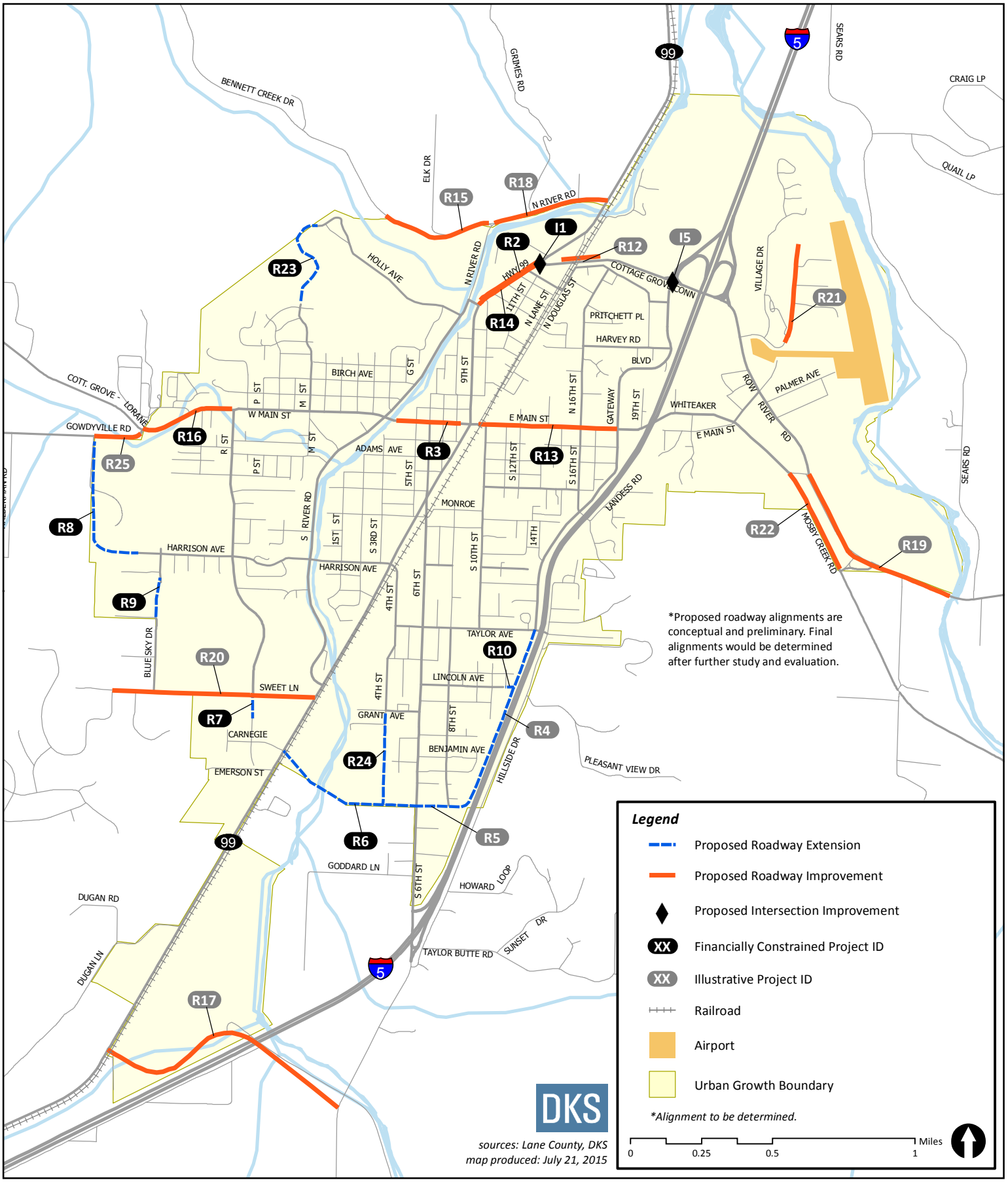
Financially Constrained Transportation Improvements



Transportation System Plan

FIGURE 7

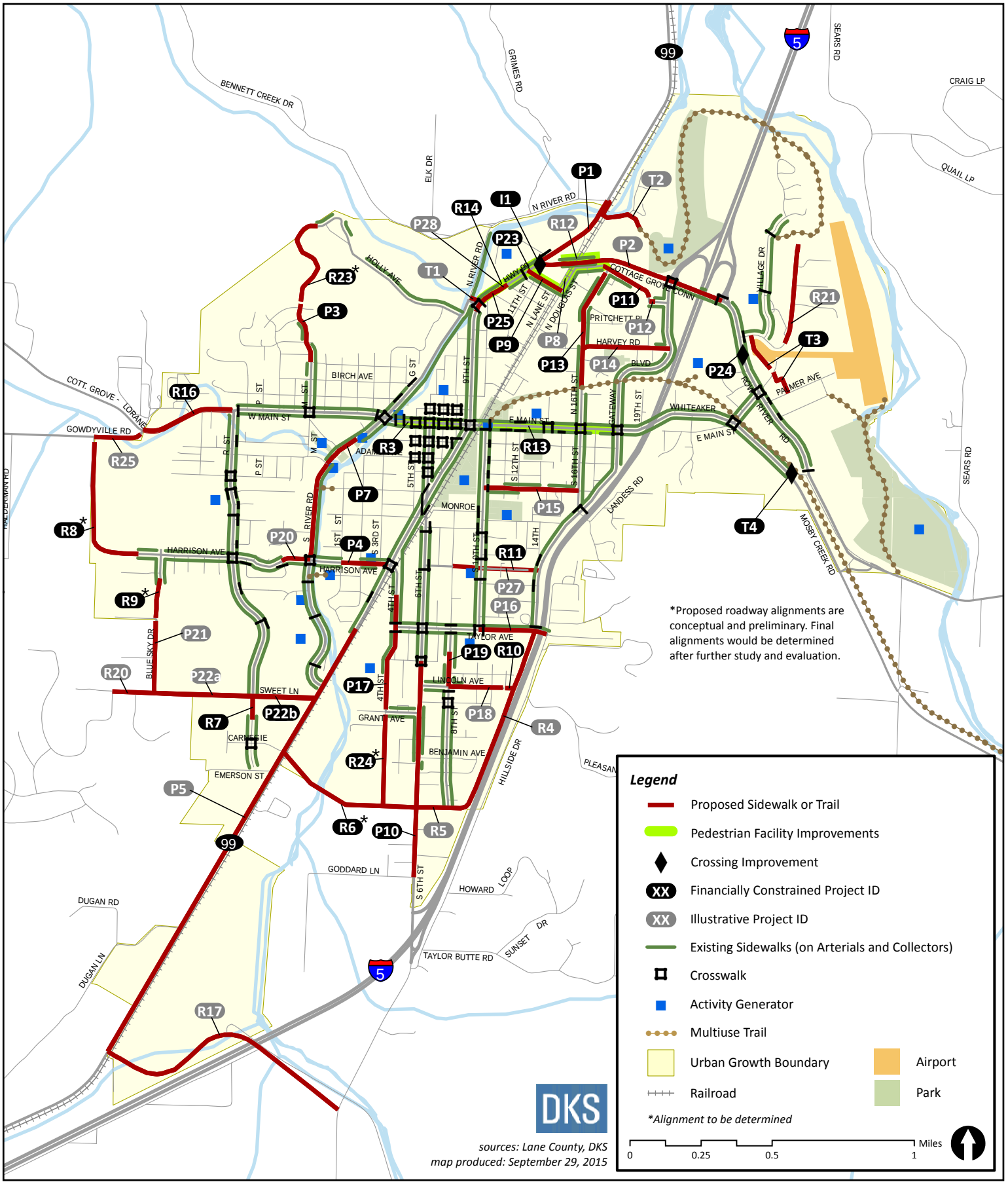
Illustrative & Financially Constrained Roadway Improvements



Transportation System Plan

FIGURE 8

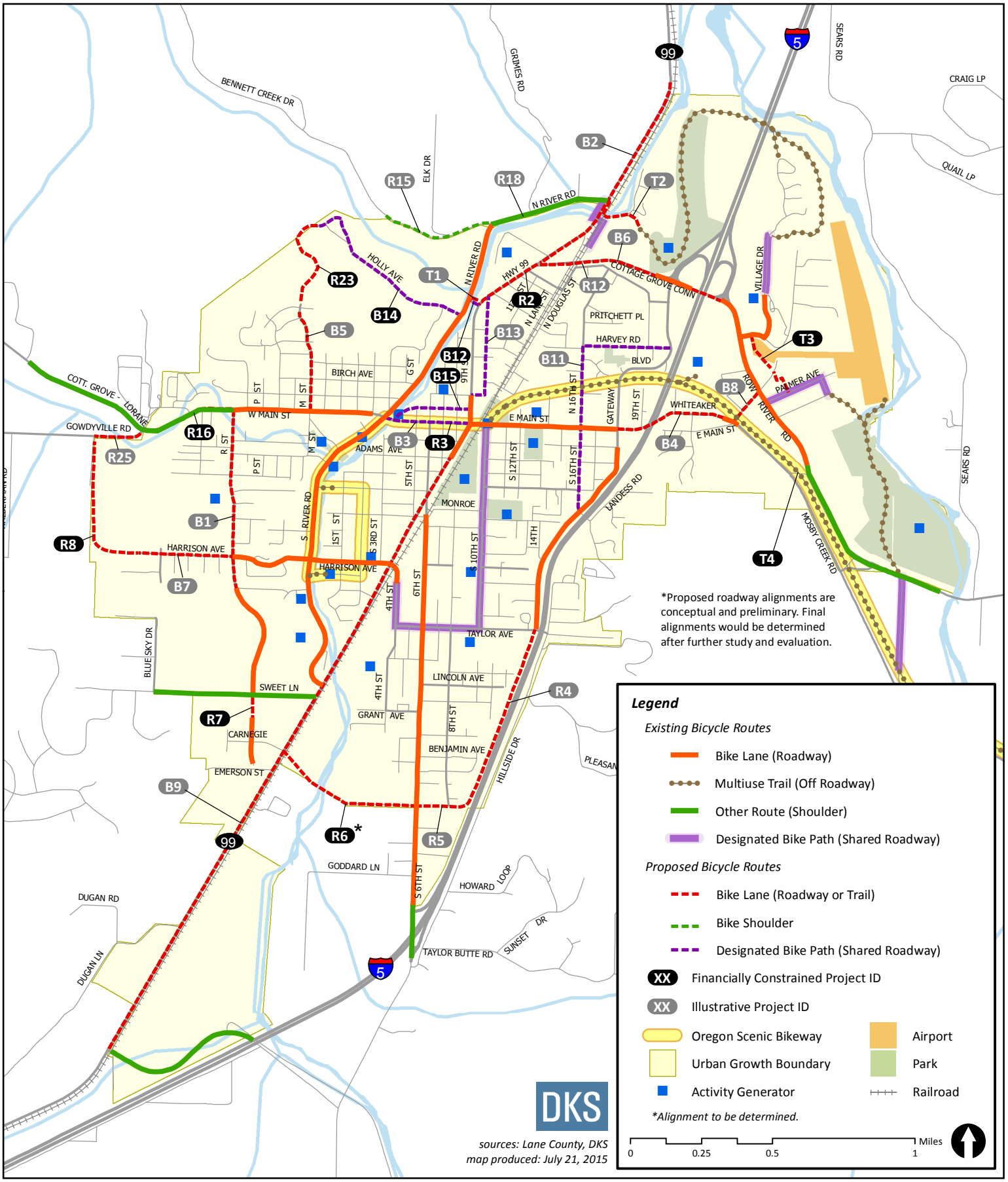
Illustrative & Financially Constrained Pedestrian Improvements



Transportation System Plan

FIGURE 9

Illustrative & Financially Constrained Bicycle Improvements



Transportation System Plan Update
Open House Event #3
October 6, 2015
5:30 – 7:00 p.m.

WELCOME to the Cottage Grove TSP Open House!

Please visit each of the displays located around the room to review the maps of proposed projects. Please provide your comments on this comment form. Help us ensure that the Draft TSP reflects what is most important for making Cottage Grove a better and safer place to walk, bike and drive!

Draft TSP Projects

The TSP Open House presents the 2015 Draft TSP for your review. The projects included in the TSP are summarized in four maps:

- **Financially-Constrained** Projects (Draft list of priority improvements)
- **Roadway** Projects (Financially-Constrained and Illustrative Projects)
- **Pedestrian** Projects (Financially-Constrained and Illustrative Projects)
- **Bicycle** Projects (Financially-Constrained and Illustrative Projects)

Each project was evaluated based on criteria that are developed from Cottage Grove's transportation goals and objectives.

TSP Update Process

Phase	Status
• Needs Analysis (Existing & Future Conditions)	Complete
• Funding Estimate Through 2035	Complete
• Draft Projects List	Complete
• Identify Community Priorities	Complete
• **Draft TSP**	**WE ARE HERE!**
• Adoption	Late 2015

How to Provide Feedback

- **Stickers** – Place post-it notes on the maps to comment on projects
- **Comment Forms** – This form is provided for you to leave more thorough feedback
- **Talk to Us** – We are available to answer your questions and hear your ideas.
- **Project Website** – If you think of something later that you didn't tell us tonight, you can leave feedback on the project website cottagegrovetsp.org

Please complete the comment form before you leave
or return it by Monday, October 12th to:

Amanda Ferguson
400 E. Main Street
Cottage Grove, OR 97424
(541) 942-3340
planner@cottagegrove.org

Thank You!

Transportation Priorities

With limited funding to make improvements to the transportation system, what types of projects do you feel the city should focus on? Select the three issues you think are most important or add topics that are not listed.

- ☐ Increase the convenience and availability of pedestrian and bicycle modes
- ☐ Provide for efficient motor vehicle travel to and through the city
- ☐ Provide transit service and amenities that encourage a higher level of ridership
- ☐ Provide an equitable, balanced, and connected multi-modal transportation system
- ☐ Enhance the health and safety of residents
- ☐ Foster a sustainable transportation system
- ☐ Ensure the transportation system supports a prosperous and competitive economy
- ☐ Coordinate with local and state agencies and transportation plans
- ☐ _____
- ☐ _____
- ☐ _____

Which of the proposed TSP projects are most important to you?

_____

_____

_____

_____

_____

_____

_____

_____

Which (if any) of the proposed TSP projects should NOT be prioritized?

_____

_____

_____

_____

_____

_____

_____

Transportation Funding

Would you support a local fee (e.g., $5.00 per month for each household) to pay for roadway maintenance and other transportation facility improvements?

Draft TSP

Does the draft TSP accurately reflect community transportation needs and priorities? If not, what changes should be made?

About You

How did you find out about this open house?

- ☐ City website
- ☐ Email
- ☐ Family/friend/neighbor
- ☐ Newspaper
- ☐ Poster/flyer
- ☐ Other:

Thank You!

For more project information or to provide your feedback online: visit www.cottagegrovetsp.org

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
Stakeholder Meetings #1 Summary

Date: December, November 16, 2014

Time: 2:30 PM to 3:30 PM (Transit Service Providers)
3:30 PM to 4:30 PM (Public Safety/Emergency Responders)

Location: City Hall
400 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of the Stakeholder Meetings was to meet with staff from transit service providers and the public safety/emergency response departments to provide an orientation to the Transportation System Plan (TSP) project, obtain input on the identified needs for transportation in Cottage Grove, and to generate ideas for potential solutions.

Attendees:

Stakeholders	
Tim Simon	Lane Transit District, Service Planner
Ruth Linoz	South Lane Wheels, Executive Director
John Wooten	South Lane County Fire & Rescue, Fire Chief
Mike Grover	Cottage Grove Police Department, Police Chief
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	City of Cottage Grove, City Planner
Howard Schesser	City of Cottage Grove, Community Development Director

1. Summary of Input from Transit Service Providers

Mat Dolata summarized the TSP purpose and relevance to transit services in the community. The following summarizes the feedback received from Tim Simon (LTD) and Ruth Linoz (SLW):

Transit Services

- Tim said he has heard requests for more weekend service frequency for car-free residents in Cottage Grove who want to travel between Eugene for weekend activities.
- Amanda Ferguson (Cottage Grove) says she has also heard requests for more evening service.
- Tim said he does not know of any current service-route issues but will ask operations staff for their input.
- Tim said there are no plans to modify route frequency or service at this time.

Pedestrian Facilities

- Ruth said the most significant needs related to the transportation system are improved pedestrian facilities and amenities, especially along heavy demand/high-traffic corridors such as Highway 99 (OR 99) and River Road (where sidewalks are inconsistent) and near downtown (where most of the local low-income housing is located and where more transit demand may be generated).
- Ruth observed that the Village Center bus stop on OR 99 is relatively popular but there is limited space and poor pedestrian connectivity in the area.
- Ruth noted a need for sidewalks along Douglass Avenue, near the railroad crossing.
- Ruth will ask her operators what other locations would benefit from improved pedestrian facilities.

Stop Amenities

- Ruth noted a desire for more stop amenities such as bus shelters. LTD currently provides some amenities at the Wal-Mart park-and-ride, near Lane Community College, and near the Main/River. LTD receives requests for more stop amenities but SLW generally does not.
- Amanda said a bus shelter was proposed as part of the Draft Main Street Refinement Plan.
- Tim will provide LTD ridership data. Ridership volume would need to be significant to trigger funding for improved stop amenities.
- Amanda noted that the park-and-ride is formalized through an agreement with Wal-Mart.

Proposed Roadway Projects

- In discussing potential roadway extensions, both the proposed southern connection (connecting the proposed R Street extension and OR 99 to the proposed Gateway Boulevard Extension and S. 6th Street) and proposed Harrison Avenue extensions (east of OR 99) would potentially provide options for transit route modifications and improved service.

- Ruth notes that coordination with the school district should occur during the TSP update if the Harrison Avenue extension is pursued.

- No concerns were expressed related to the proposed roundabout installations and/or roadway conversion (from 4 motor vehicle lanes to 3 lanes plus bike lanes) on OR 99. Roundabouts can be supported as long as they are designed for safety and are pedestrian-friendly.

- Transit service providers would generally prefer not to have bus pullouts.

II. Summary of Input from Emergency Responders

Mat Dolata summarized the TSP purpose and findings to date. The following summarizes the feedback received from John Wooten (SLCFR) and Mike Grover (CGPD):

Proposed Roadway Projects

- Proposed conversion of traffic signals on Main Street to all-way stop signs would not be supported by emergency responders. They currently have the technology (in-vehicle communications devices and sensors) that provide traffic signal preemption. Conversion to all-way stop could slow emergency response. Mike and John would prefer to keep the existing traffic signals.

- No issues or concerns were raised related to a potential roundabout at the intersection of OR 99 and the Cottage Grove Connector.

- John noted that fast access to I-5 is important for emergency responders and the primary route is northbound on OR 99 (towards the I-5 interchange). South 6th Street is another important emergency response route.

- Connectivity is an important issue for emergency responders. Support was expressed for additional connections and rail-crossing opportunities.

- Mike expressed support for proposed roadway extensions to create the southern connection (connecting the proposed R Street extension and OR 99 to the proposed Gateway Boulevard Extension and S. 6th Street). This could potentially help emergency response time.

- Interest was expressed in building a full interchange at the I-5/6th Street interchange to help emergency response time.

- Mike suggested interactive radar speed signs as a possible way to address the speeding issue on OR 99.

- A rectangular rapid flashing beacon was raised as a potential improvement for pedestrians on River Road near the pre-school.

Roadway Standards

- Maintaining or improving access to residential areas is important for emergency responders.

- Any proposed narrowing of roads would need to be reviewed.

- No “skinny street” standards are being proposed, but emergency responders would be unlikely to support them if they were.

A copy of the handout provided to stakeholders is attached to this summary.

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

What is a TSP?

- Provides long range direction for development of transportation facilities and services for all modes
- Transportation element of the Comprehensive Plan
- Includes transportation standards, future improvements and a finance program
- Facilitates cost-effective use of funds and demonstrates project need and readiness (for grant pursuits)

What must a TSP do?

- Provide consistency with state and regional plans
- Establish an efficient network of arterial/collector roadways
- Provide standards for layout, spacing, and connectivity of streets
- Protect facilities and corridors for intended uses
- Provide public transportation services to meet basic needs
- Provide a network of sidewalks and bikeways linking key destinations
- Develop a finance program that is reasonably likely to be funded

Public Involvement Opportunities

Open House #1 – Overview of project purpose, key issues identified from existing and future conditions

Open House #2 – Present evaluation of solutions and potential recommendations (Spring 2015)

Open House #3 – Overview of Draft TSP prior to adoption (Summer 2015)

Website – visit cottagegrovetsp.org to keep informed throughout the project

Project Schedule

December 2013 – March 2014	Background Plan and Policy Review
January 2014 – October 2014	Existing Conditions and Future Needs Analysis
November 2014 – April 2015	**Develop and Evaluate Solutions**
April 2015 – October 2015	Prepare Draft Transportation System Plan Update
November 2015 – March 2016	Adoption Process

Oregon Department of Transportation

DKS

TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

What has changed since the 2008 TSP?

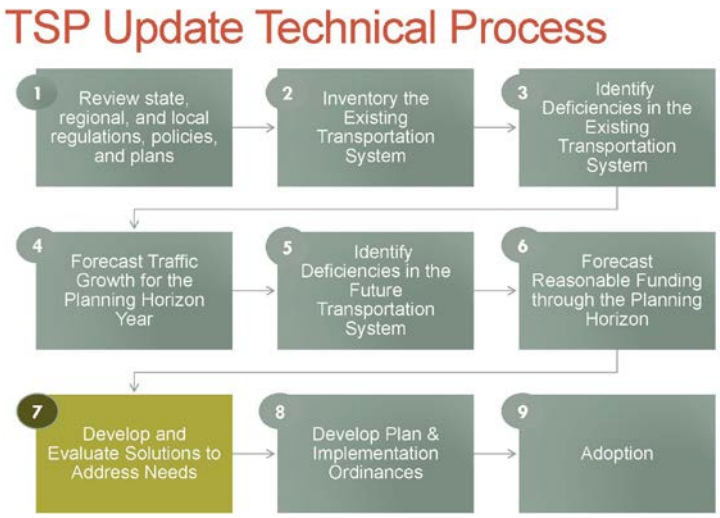
- Urban growth boundary expansion to south
- New infrastructure (e.g., Main Street/OR 99 improvements, traffic signals on Thornton)
- Traffic volumes have decreased 10% to 30% (from 2006)
- 2035 growth estimates adjusted: 37% population and 32% employment growth
- Updated forecasts show all study intersections operating within mobility standards through 2035
- Analysis of historical collision data shows 3 roadway segments and 1 study intersections with high collision rates and two locations with pedestrian fatalities
- $10.5 M funding estimate through 2035

What are the key issues for the 2015 TSP?

- Incorporate recent City planning efforts (e.g., Main Street Refinement Plan)
- Provide for UGB expansion areas
- Clear and consistent standards to support planned land uses and development
- Reasonable forecasts for 2035
- Safety strategies for collision "hot spots"
- Recommendation for OR 99 / Cottage Grove Connector / I-5 Interchange area
- Improve connectivity
- Plan for a complete multi-modal system

What happens next?

- Potential solutions will be developed and discussed with the Community Advisory Committee
- Solutions will be evaluated based on effectiveness criteria that reflect TSP Objectives
- Transportation standards will be reviewed and updated
- Initial recommendations will be presented at TSP Open House #2 (Spring 2015)

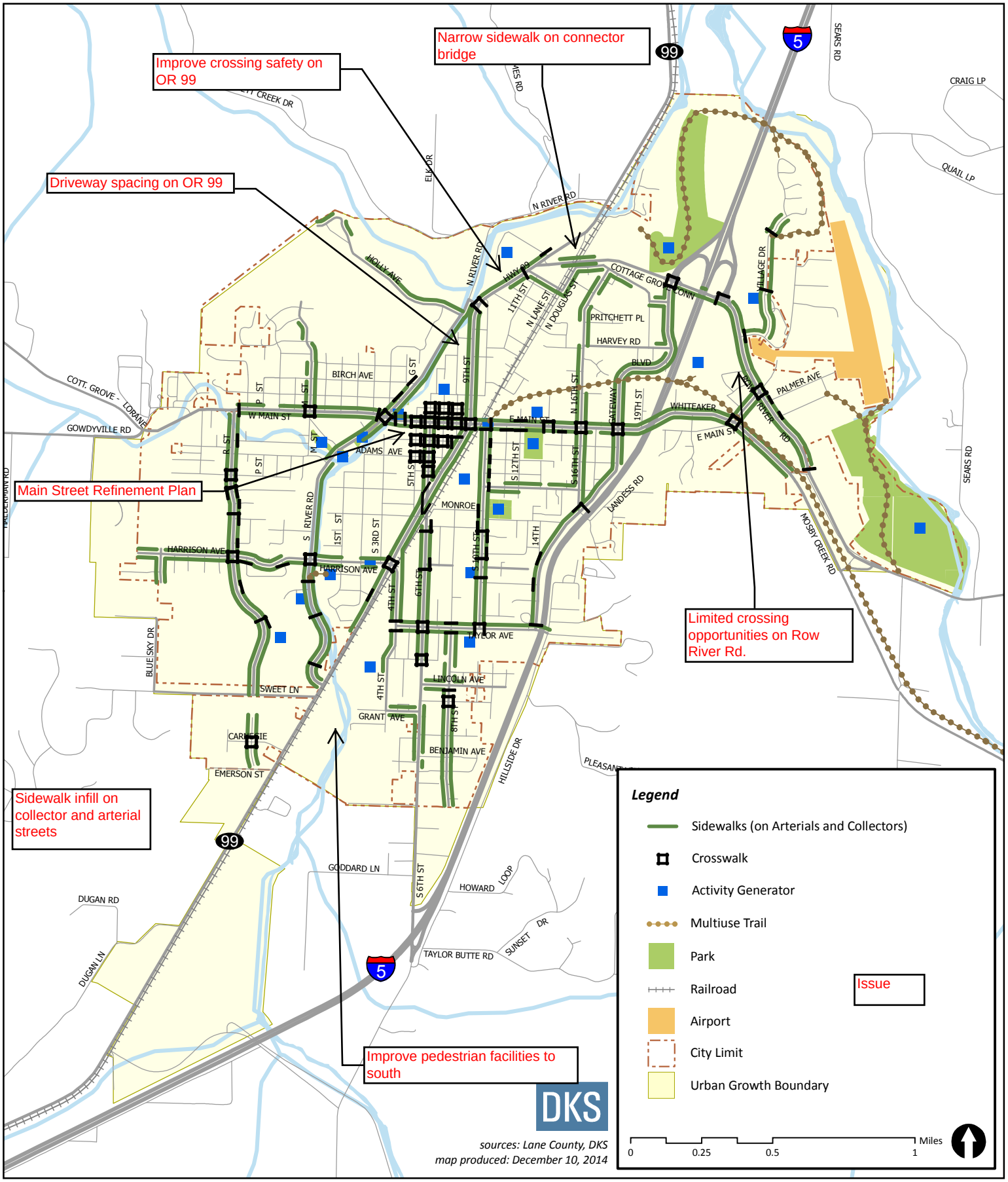


Oregon Department of Transportation

DKS

Transportation System Plan

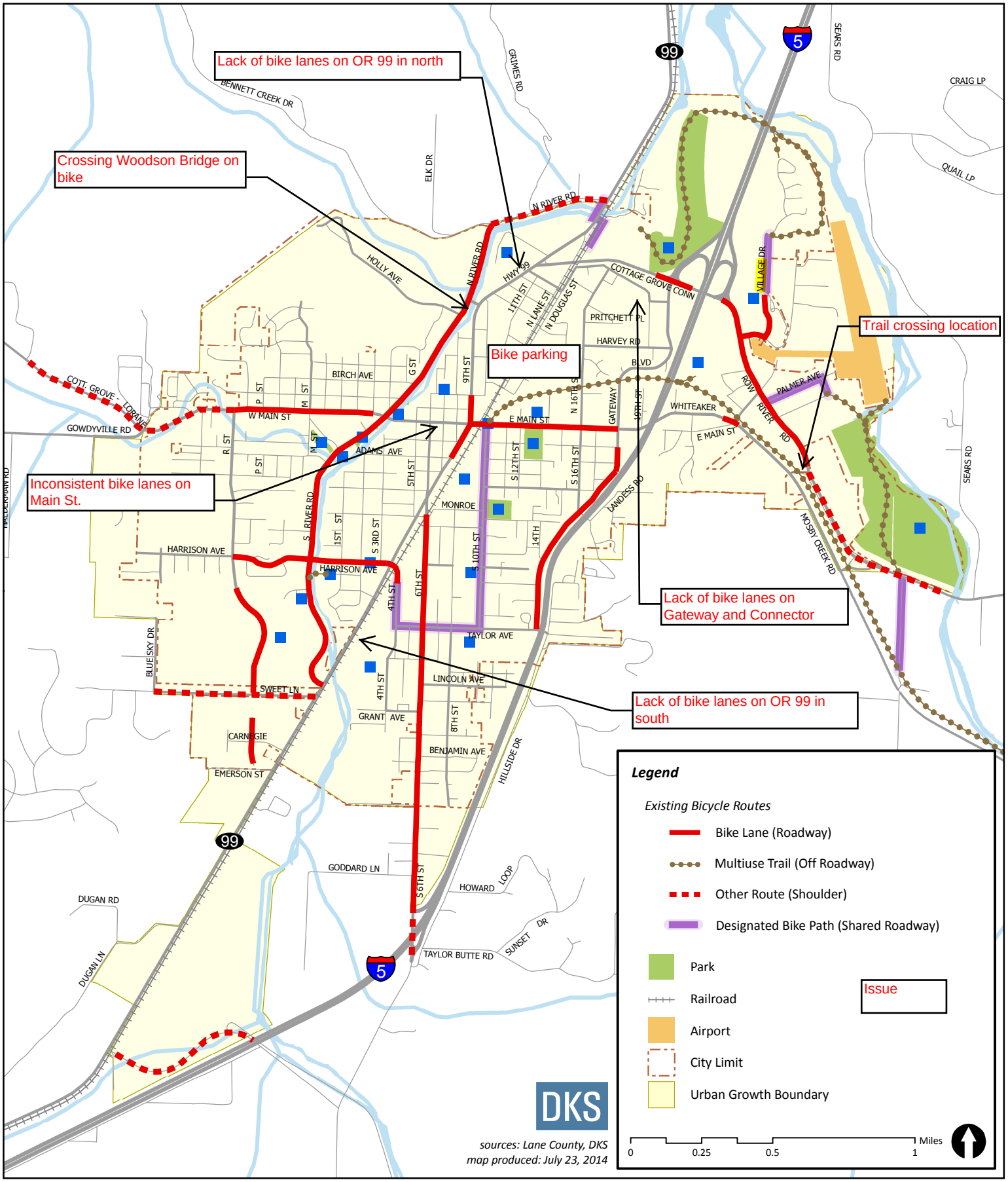
Pedestrian Facilities & Issues



sources: Lane County, DKS
map produced: December 10, 2014

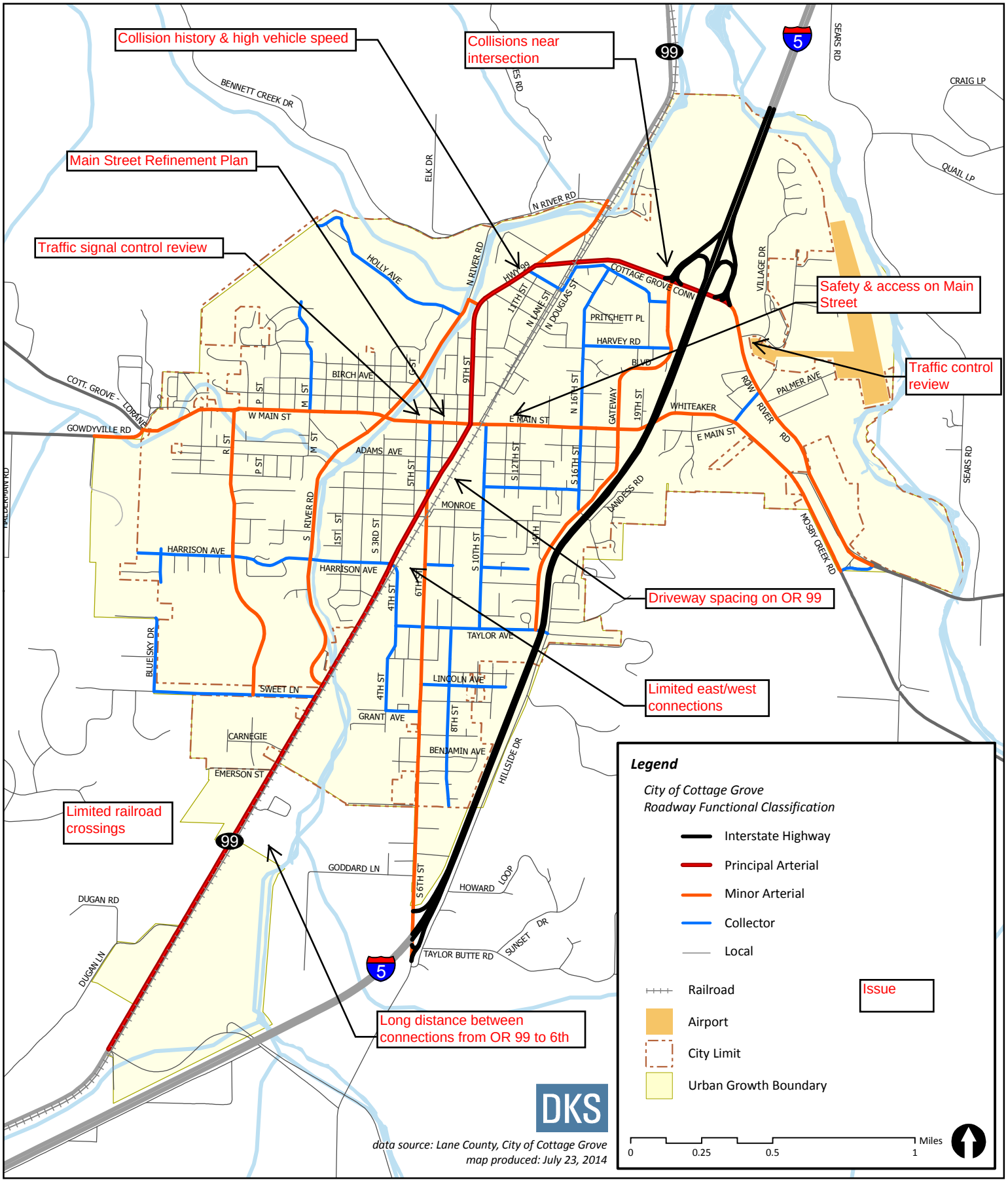
Transportation System Plan

Bicycle Facilities & Issues



Transportation System Plan

Motor Vehicle Facilities & Issues



TRANSPORTATION SYSTEM PLAN UPDATE
OPEN HOUSE #1

Goals

1: Enhance the Cottage Grove area's quality of life and competitive economic advantage by providing a transportation system that is: Accessible, Balanced, Efficient, Environmentally responsible, Equitable, Financially stable, Interconnected, Safe, and Sustainable.

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

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

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

Objectives

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

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

3: Provide for efficient movement of goods and services.

4: Provide an environmentally responsible transportation system.

5: Provide a safe transportation system.

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

7: Make streets as "unobtrusive" to the community as possible.

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

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

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

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

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

Policies

See printout for full list of the 44 TSP policies.

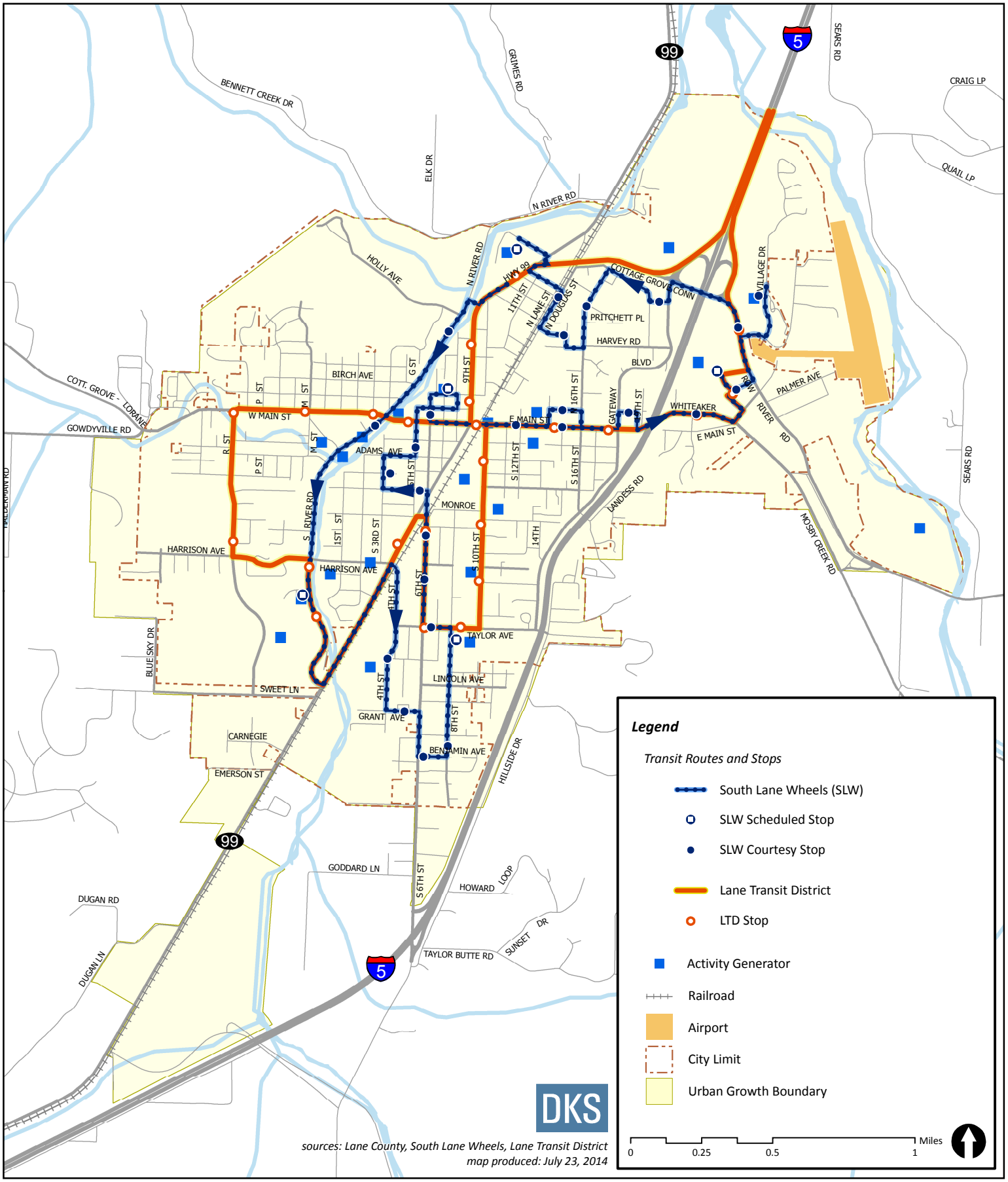
Oregon Department of Transportation

DKS

Transportation System Plan

FIGURE 6

Transit Routes

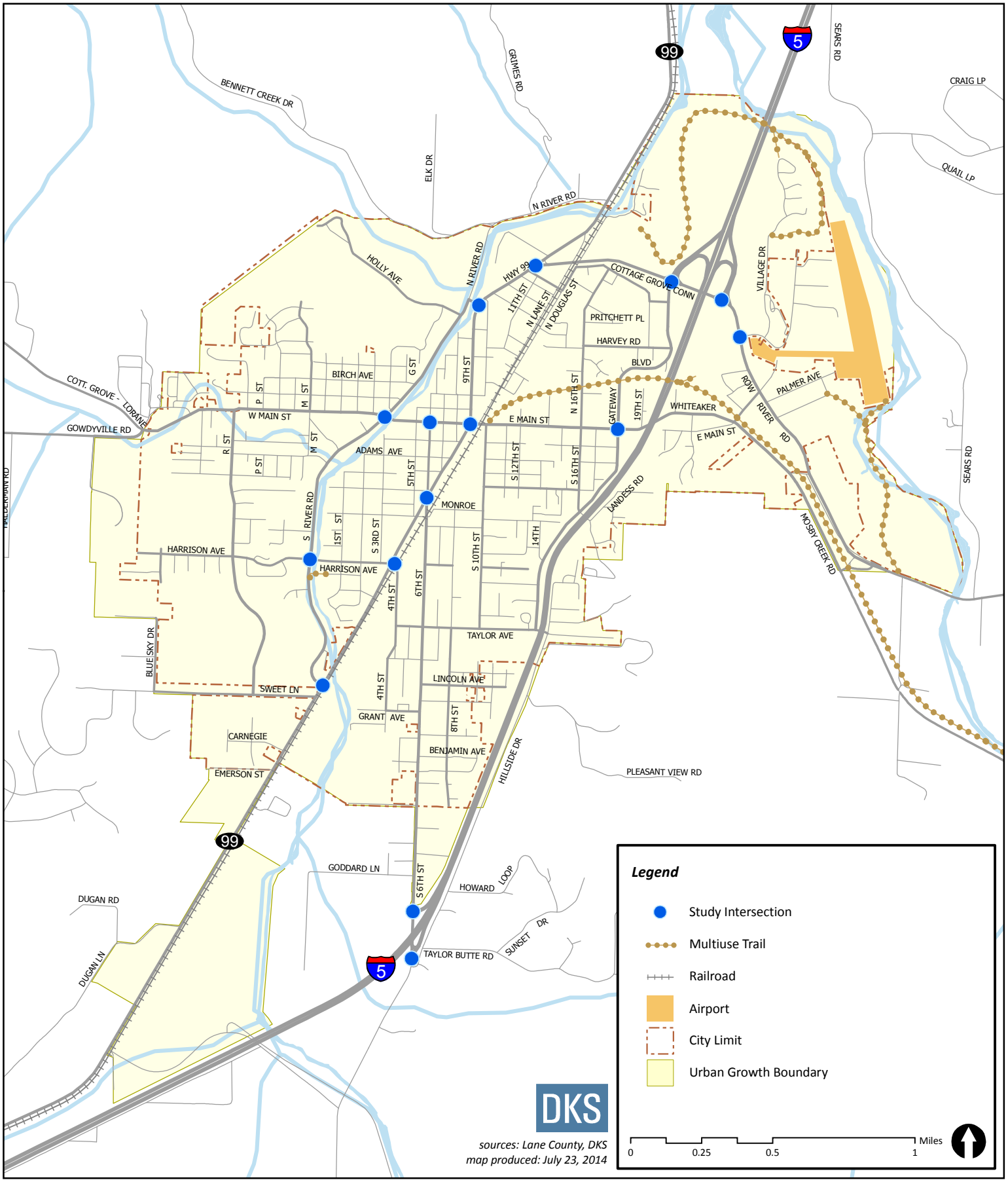


sources: Lane County, South Lane Wheels, Lane Transit District
map produced: July 23, 2014

Transportation System Plan

FIGURE 1

Study Area



Legend

- Study Intersection
- Multiuse Trail
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: July 23, 2014

COTTAGE GROVE TRANSPORTATION SYSTEM PLAN
Stakeholder Meetings #2 Summary

Date: October 6, 2015

Time: 2:00 PM to 2:45 PM

Location: City Hall
400 E Main Street, Cottage Grove, OR 97424

Purpose: The purpose of the Stakeholder Meetings was to meet with a property owner and developer in Cottage Grove to review the Draft Transportation System Plan (TSP), including proposed projects, and address any potential concerns or desired revisions.

Attendees:

Stakeholders	
Andy Woodard	Property Owner/Developer
Project Team	
Mat Dolata	DKS Associates
Amanda Ferguson	City of Cottage Grove

1. Summary of Stakeholder Input

Andy Woodard had previously expressed concerns via the project website about the alignment of proposed roadway extensions (specifically on Cleveland Avenue and S. 4th Street). Amanda Ferguson contacted Andy to meet in person and discuss his concerns and the TSP in general. A summary of key points from the meeting are listed below:

- Andy expressed concerns that the proposed S. 4th Street Extension (Project R24) and Cleveland Avenue Extension (Project R16) had fixed alignments that would restrict redevelopment potential in south Cottage Grove.

- Andy emphasized that development plans for his property in the area were unknown and no development was imminent.

- Mat and Amanda stated that the planned roadway alignments were conceptual and preliminary. A key purpose of the TSP is to express the community intention to provide connectivity in the area as development occurs.

- Mat referenced the local street connectivity map, which identifies where desired local street connections could be made. As with the proposed roadway extensions, the alignments are conceptual and preliminary.

- Discussion around the proposed Cleveland Avenue extension recognized the need to provide a new railroad crossing that would likely be at-grade. This would likely require closing another railroad crossing to be achieved. This could potentially be the railroad crossing near Rachel Road. Alternative access (to the Cleveland Ave extension) for the area around Rachel Road would need to be provided as part of the project.

- Andy asked about the status of other developments in the City. Amanda noted that Sunrise Ridge (a residential development in northwest Cottage Grove) is not complete but gradually getting filled in.

- Andy expressed concern about the System Development Charge (SDC) and felt that it might be holding back growth in Cottage Grove, based on conversations with other developers. Amanda noted that Cottage Grove's SDC rates were typical of similar communities.

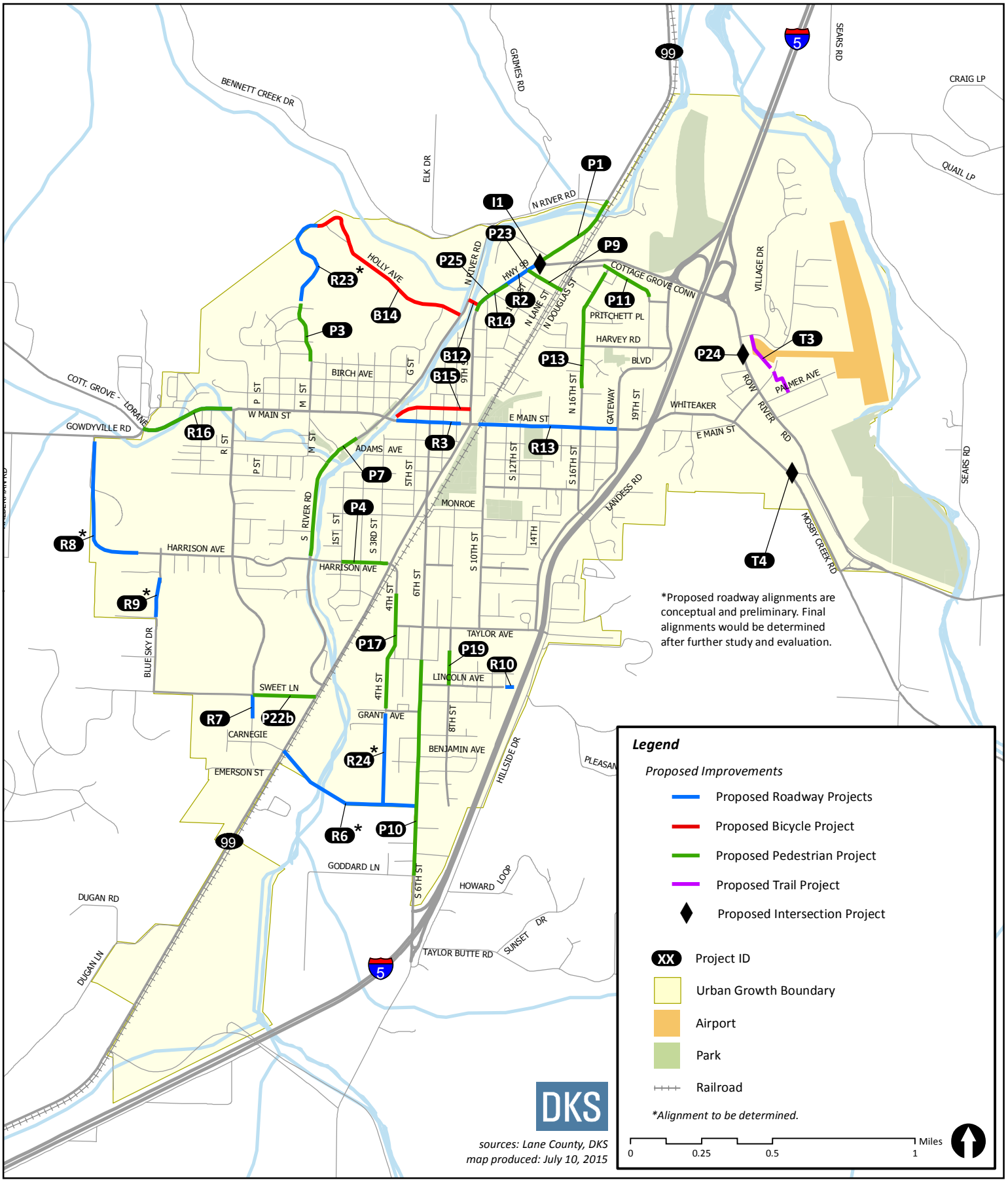
- Mat asked Andy if he was comfortable with the TSP and proposed projects. Andy said that in general he was fine with the Plan, pending changes to development opportunities.

The maps reviewed during the meeting (from the Draft TSP) are attached.

Transportation System Plan

FIGURE 6

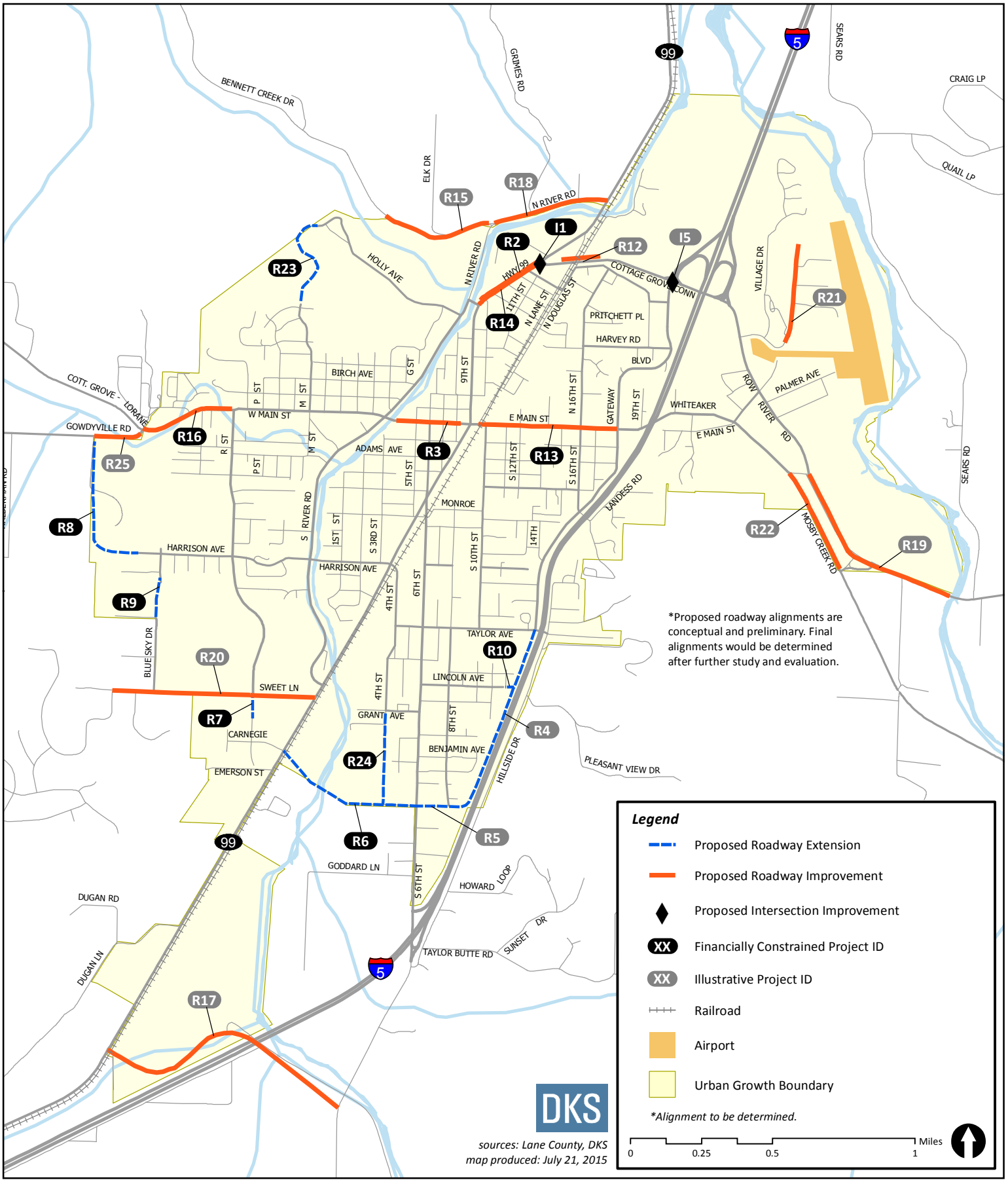
Financially Constrained Transportation Improvements



Transportation System Plan

FIGURE 7

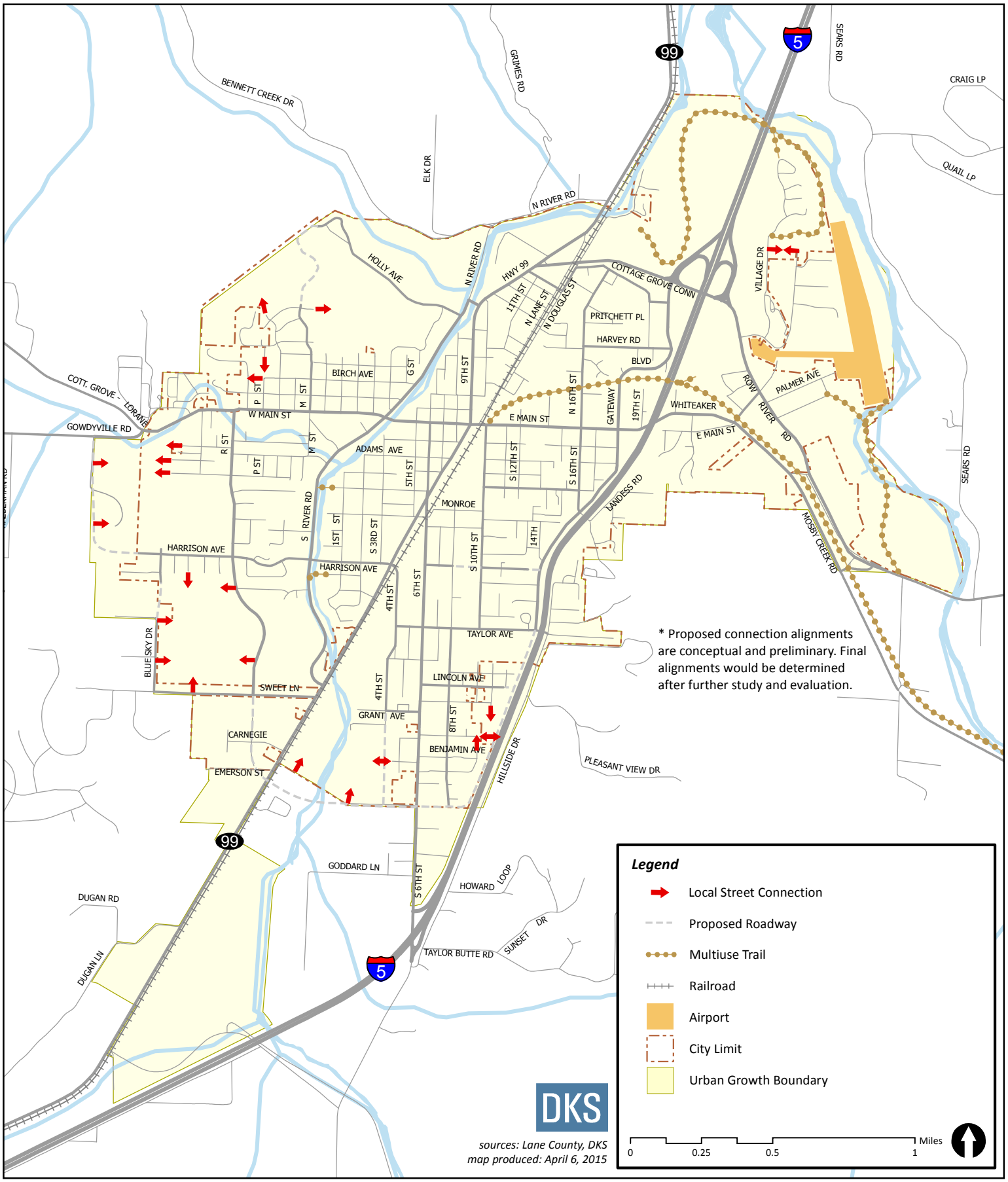
Illustrative & Financially Constrained Roadway Improvements



Transportation System Plan

FIGURE 10

Local Street Connections



Cottage Grove TSP Update

City Council Work Session

December14, 2015

TSP OVERVIEW

What **is** a TSP?

- Transportation element of Comp Plan
- Long-range (20 year) Plan
- Guides investments
- Identifies multimodal projects that expand or improve the transportation system
- Coordinated with state, county, local plans

What **isn't** a TSP?

- Not a maintenance document
- Not adding new fees
- Not identifying new funding sources
- Not committing funding to specific projects
- Not revisiting the Main Street Refinement Plan

Why is a TSP **Important**?

- Smarter investment decisions
- Position for competitive grant applications
- Manage transportation system function through standards and requirements
- Clear guidance during development review
- Balances needs of all travel modes
- Reflects community goals
- Required by state

WHY UPDATE NOW?

What has changed in Cottage Grove?

- 2008 TSP horizon year was 2025
- Expanded UGB
- Revised growth expectations (from 2009 EOA & 2010 ELN)
- Constructed transportation improvements (e.g., OR 99@Main, traffic signals on Thornton)
- Adopted Main Street Refinement Plan

New Information

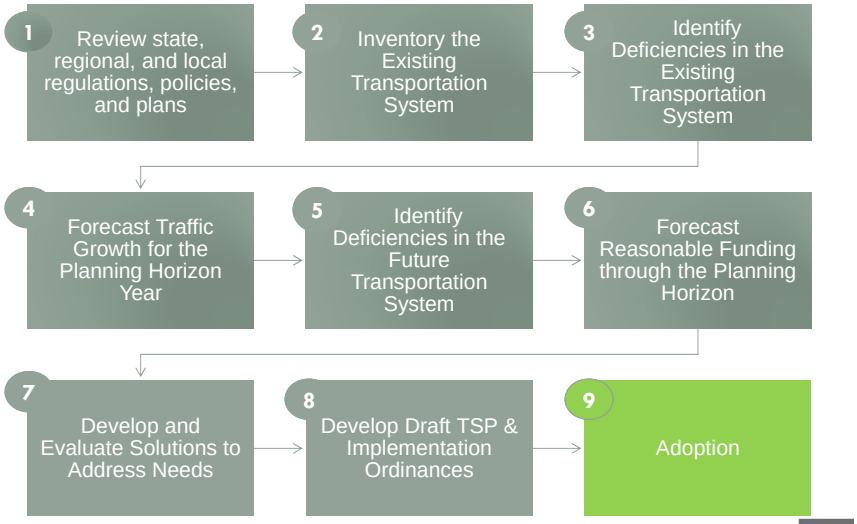
- New safety information (ODOT crash data)
- Traffic volumes went down (10 to 30% from 2006 to 2014)
- More reasonable forecasts for year 2035
- Congestion: from six deficient intersections in 2025 to zero in 2035
- Focus on safety, multi-modal access, and connectivity

TSP DEVELOPMENT PROCESS

City Council Work Session

DKS

Technical Process



City Council Work Session

DKS

Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
- **November 2014 – May 2015**
  Develop and Evaluate Solutions
- **June 2015 – October 2015**
  Prepare Draft Transportation System Plan Update
- **November 2015 – January 2016**
  Adoption Process

Schedule

- **December 2013 – March 2014**
  Background Plan and Policy Review
- **January 2014 – October 2014**
  Existing Conditions and Future Needs Analysis
  Community Event #1 – December 2014
- **November 2014 – May 2015**
  Develop and Evaluate Solutions
  Community Event #2 – April 2015
- **June 2015 – October 2015**
  Prepare Draft Transportation System Plan Update
  Community Event #3 – October 2015
- **November 2015 – January 2016**
  Adoption Process

Public Input

← **Identify Needs & Solutions**

← **Review Projects & Identify Priorities**

← **Review TSP**

Public Involvement

- **Community Advisory Committee: 4 Meetings**
- **Public Open Houses: 3 Community Events**
- **Stakeholder Meetings: 2 Meeting Dates**
- **Website**: **cottagegrovetsp.org**

OUTCOMES

Two-Tiers of Project Lists

- Start with larger list of options and prioritize
- Informed by evaluation results & public involvement

- **"Illustrative" Solutions List**

  Overall list of projects that are needed and accepted, but may not be funded by 2035
- **"Financially Constrained" Solutions List**

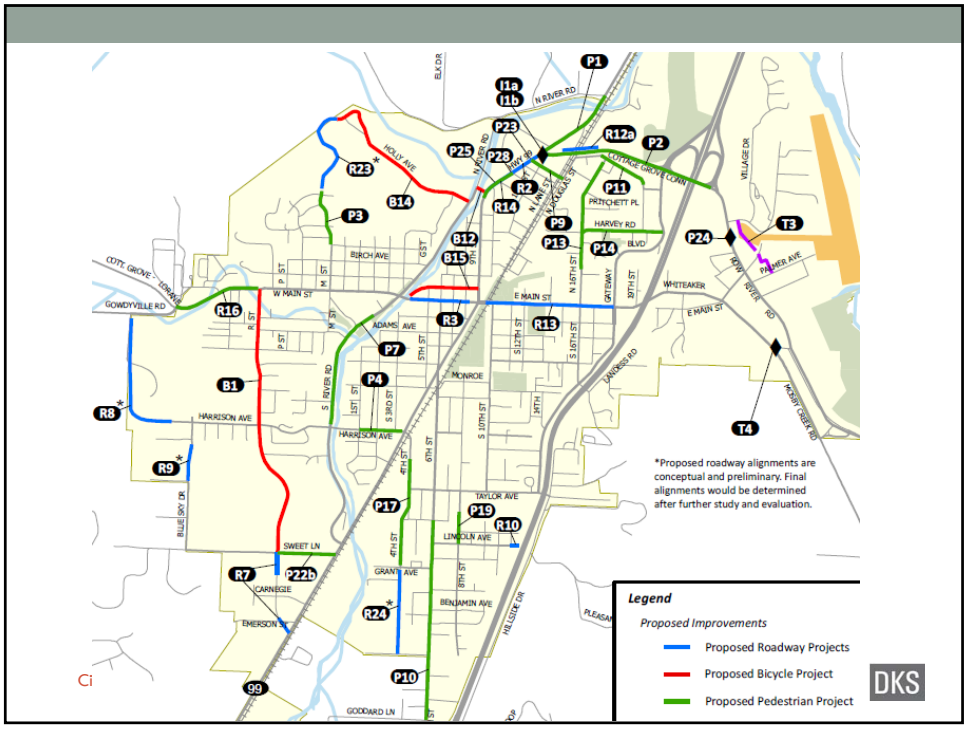
  Prioritize these projects given constrained funding

  Reflect reasonable funding estimate ($11.5 M)

  Reflect top community priorities

Financially Constrained Plan

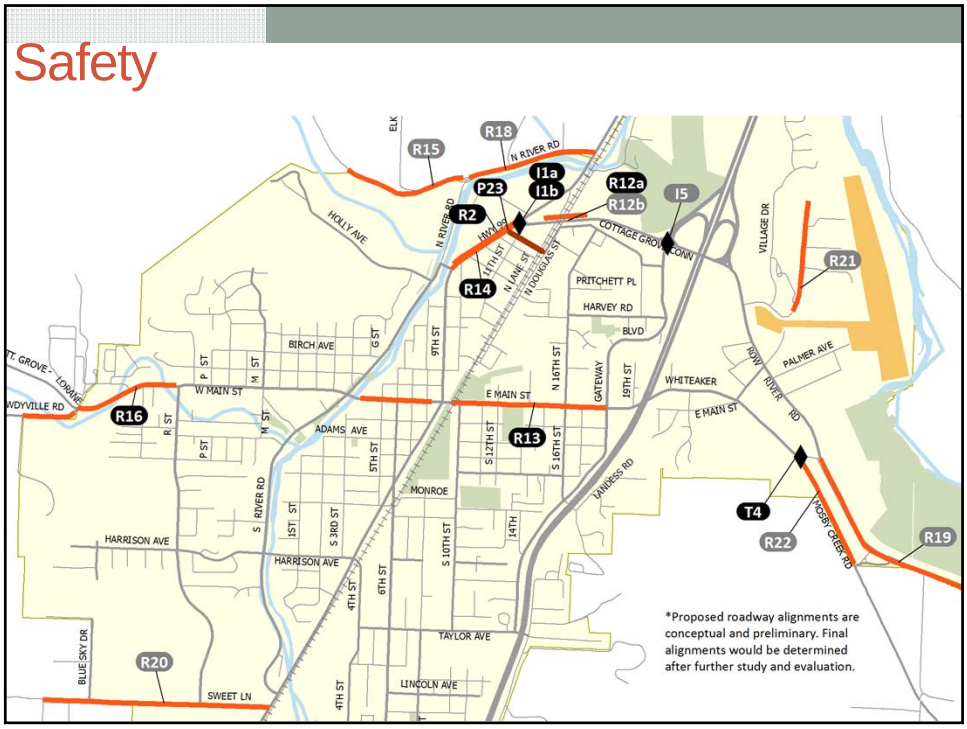
- TSP must identify financially constrained plan (based on reasonable funding estimate)
- Must support growth areas (SDC $)
- Must enhance transportation system (grant $)
- Must be multi-modal (state gas tax$)
- Assumes developer contributions



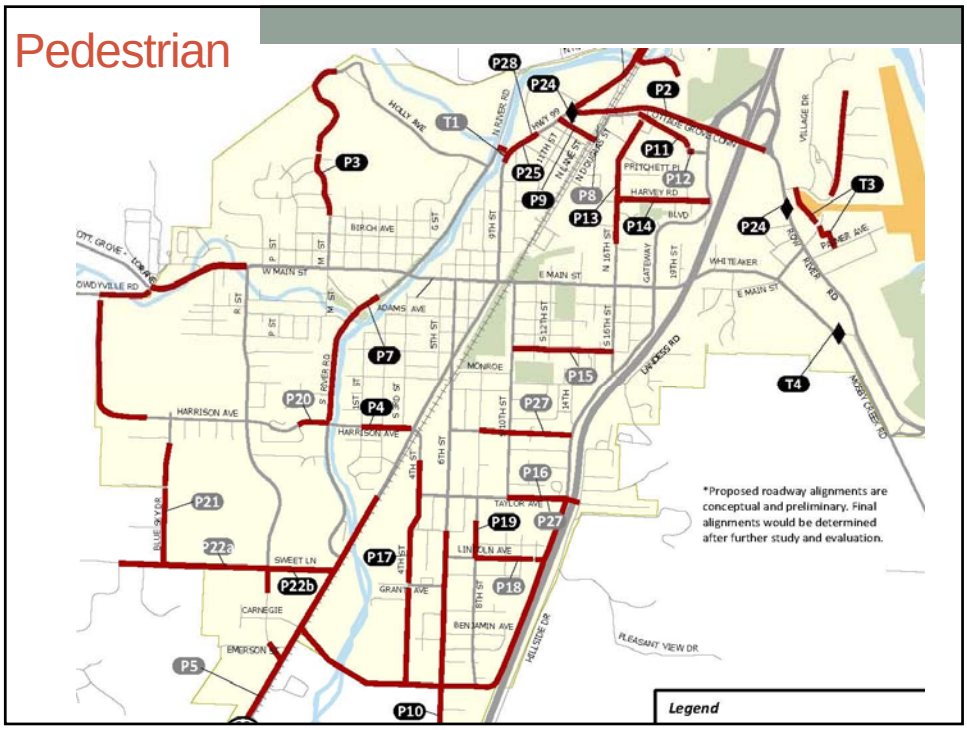
TSP Outcomes

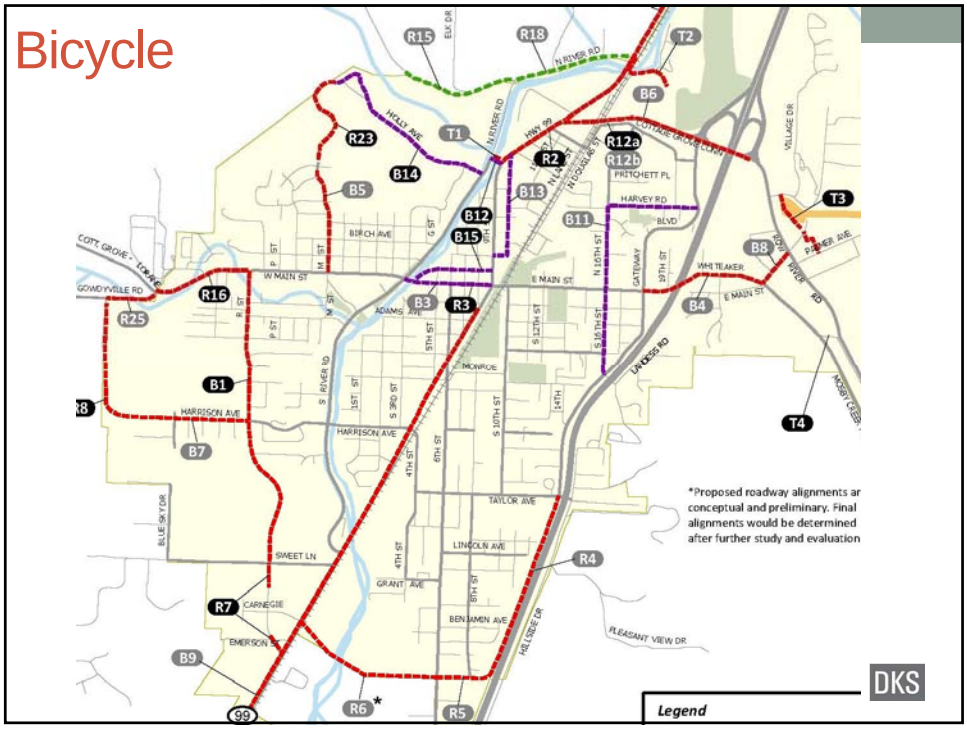
- Improve Safety (e.g., OR 99 near Connector)
- Expand Bike/Ped Transportation Network (including roadway crossings)
- Enhance Recreational Opportunities
- Support Historic Downtown
- Identify New Connections to Support Growth and Fill Gaps

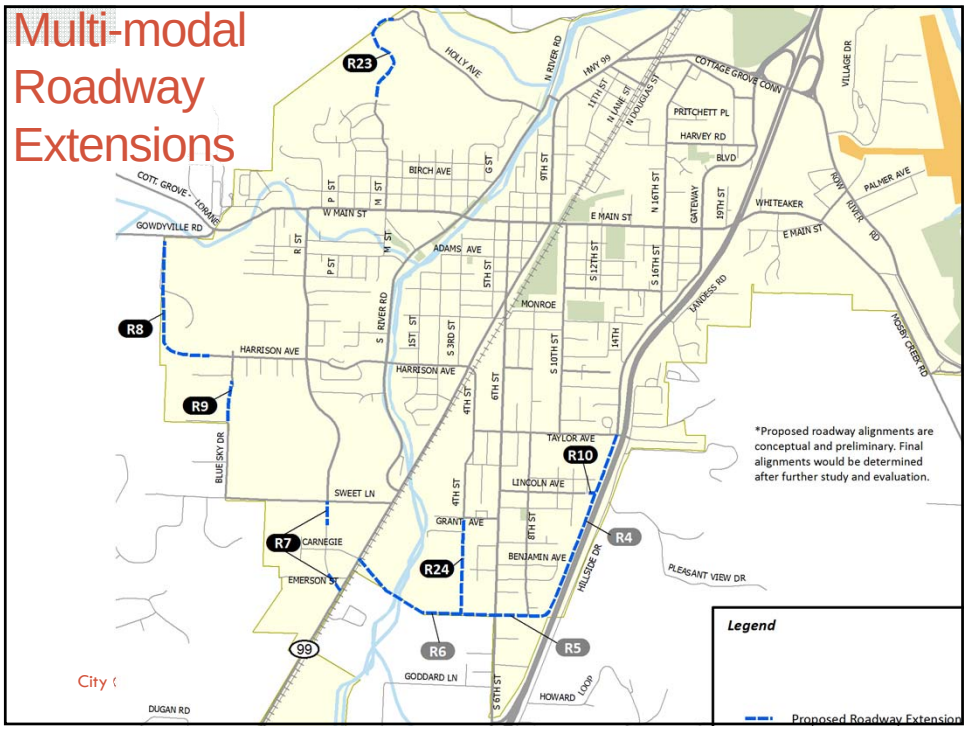
Safety



Pedestrian




Bicycle
R15
R18
T2
B6
R23
T1
R2
R12a
R12b
B14
B5
B13
B12
B11
T3
B15
B8
R16
B3
R3
B4
R25
B1
T4
B7
*Proposed roadway alignments ar conceptual and preliminary. Final alignments would be determined after further study and evaluation
R4
R7
B9
R6
R5
Legend
DKS


Multi-modal Roadway Extensions
R23
R8
R9
R10
R7
R4
R24
R6
R5
99
*Proposed roadway alignments are conceptual and preliminary. Final alignments would be determined after further study and evaluation.
Legend
Proposed Roadway Extension

Corridor Improvements / Modernization

Keys to Success

- Provide for UGB expansion
- Incorporate recent City and corridor planning efforts
- Safety strategies for "hot spots"
- Reasonable traffic forecasts for the year 2035
- Reflect reasonable funding estimate
- Clear and consistent standards
- Planning for a complete multi-modal system
- Identify a plan for OR 99/CGC/I-5 Interchange
- Position for competitive funding opportunities

ODOT STIP "Enhance" Grant Application

NEXT STEPS

Adoption Process

- Planning Commission Hearing: Nov 18 ☑
- City Council Work Session: Dec 14 ☑
- Final TSP (revisions)
- City Council Hearing: Jan 11

PROPOSED PROJECTS

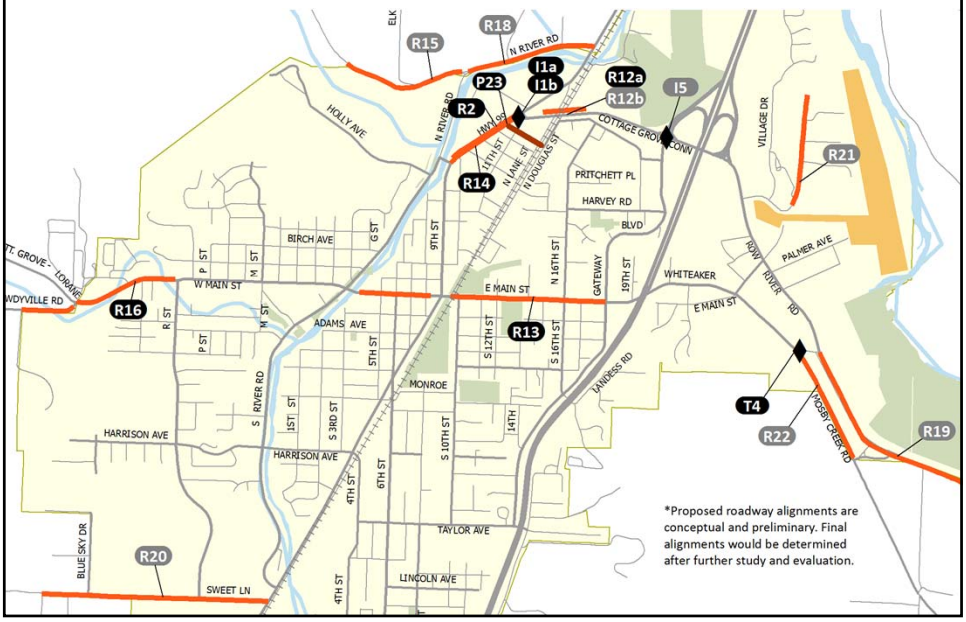
Financially Constrained & Illustrative

Compiling a Preliminary Project List

- Start with 2008 TSP
- Include Lane County TSP projects
- Address outstanding needs
- Not financially cost-constrained

DKS

Safety

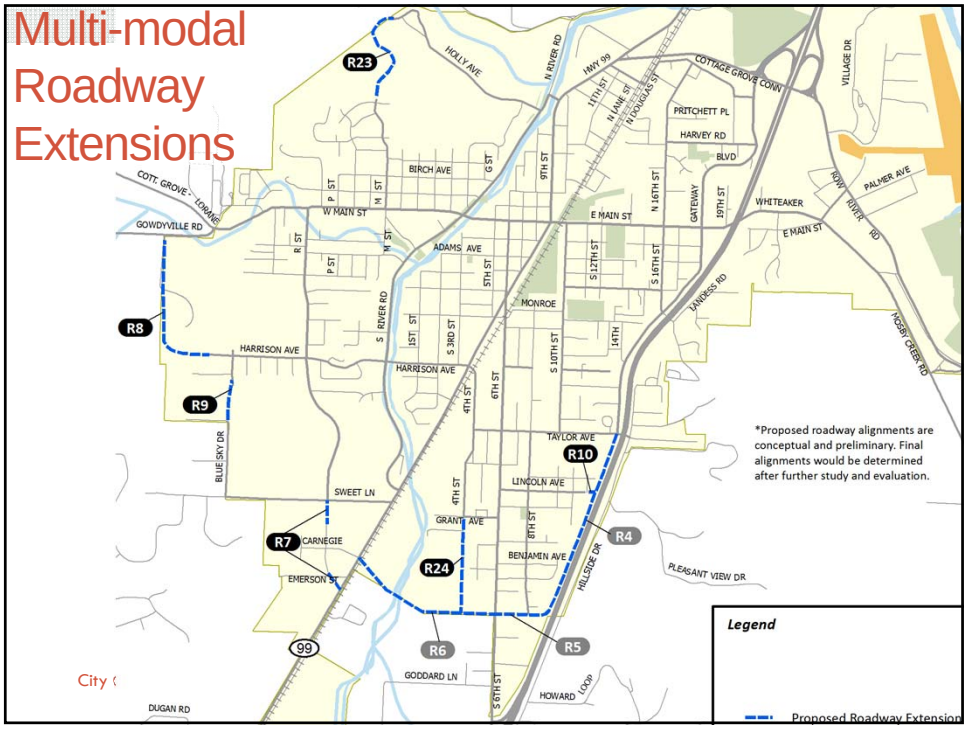


Safety Improvements

- OR99 conversion (4 lanes to 3+) [R2]
- OR99 / Connector intersection (roundabout) [I1]
- Access management (driveways) [R13, R14]
- Intersection safety improvements at Gateway/CGC (striping, signing, reflective plates, access) [I5]

Safety Improvements (Cont.)

- Modernizations add sidewalks and/or bike lanes
- CGC Bridge widening (ODOT) [R12]
- Safer Crossings
  - OR99/Geer (Rectangular Rapid Flash Beacon) [P23],
  - Jim Wright Way/Row River Rd (Hybrid Beacon) [P24],
  - Currin Connector Trail Crossing (Realign) [T4]



Multi-modal Roadway Extensions

- Gates Rd to Harrison Ave [R8]
- Blue Sky Dr to Harrison Ave [R9]
- R St/Cleveland Ave/Gateway Blvd [R4-R7]
- Lincoln Ave to Gateway Blvd Ext. [R10]
- M St to Holly Ave [R23]
- 4th St to Cleveland Ext. [R24]

Corridor Improvements / Modernization

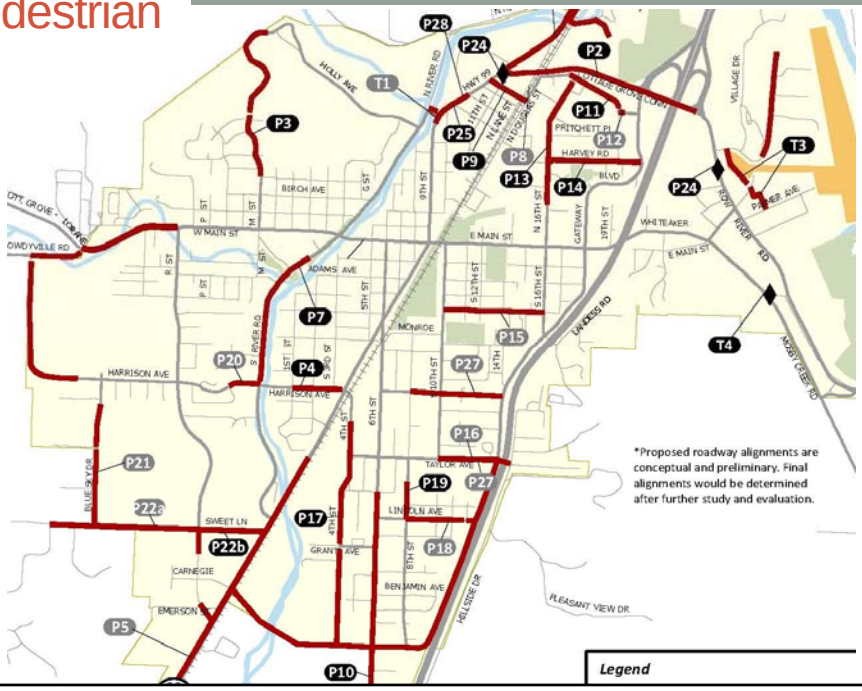
Corridor Improvements

- OR99 conversion (4 lanes to 3+) [R2]
- OR99 access management (driveways) [R14]
- CGC Bridge widening (ODOT) [R12]
- Main St Refinement Plan [R3]
- E. Main St Access Management [R13]

Roadway Modernization (County)

- Mosby Creek Rd [R22] & Row River Rd [R19]
- Thornton Ln [R21]
- Bennet Creek Dr [R15] & N. River Rd [R18]
- CG-Lorane Hwy [R16]
- Gowdyville Rd [R25] **not on County TSP list*
- Sweet Ln [R20]
- Latham Rd [R17]

Pedestrian



Pedestrian Projects

- Sidewalk in-fill on collectors and arterials
- Safe routes to schools
  - Harrison Ave [P4], River Rd [P7], 4th St [P17]
- Safer Crossings
  - OR99/Geer [P23], Jim Wright Way/Row River Rd [P24]
- Harrison Ave connection [P27]
- CG Connector alternative path [P8]

Roadway Modernization (ODOT)

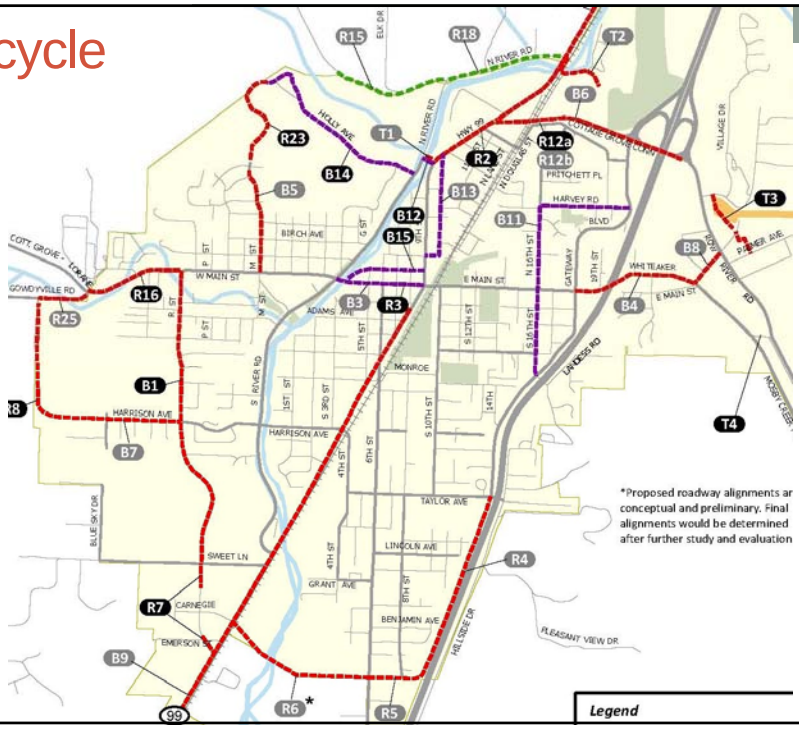
Add/reconstruct to include bike/ped facilities

- South OR 99 [B9, P5]
- North OR 99 [B2, P1]
- CG Connector [B6, P2]

Multi-use Trails

- Bike/ped bridge adjacent to Woodson Br. [T1]
- Northern trail connection (River Rd to North Regional Park) [T2]
- Eastern trail connection (Jim Wright Way to Palmer Ave) [T3]

Bicycle



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Bicycle Projects

- Designate bike paths
  - Holly Ave [B14],Whiteaker Ave [B15],10th St [B13]
- Bike lanes
  - Harrison Ave [B7], R St [B1], M St [B5], Whiteaker Ave [B4], Thornton Ln [B8]
- Other
  - Row River Trail Crossing at Currin Connector [T4]
  - Bike Parking [B10]
  - Woodson Bridge Bike Treatment [B12]
  - Main St Bike Improvements [B3]

Cottage Grove TSP - Financially Constrained and Illustrative Projects

Project Information							Cost Estimate			Priority	
ID	Name	Description	Primary Purpose	Project Group	Source	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status	Public Agency Cost (Financially Constrained Projects)
Multi-modal Roadway Projects											
R2	OR 99 Conversion	Convert 4-lane section to 3-lanes with bike lanes from Cottage Grove Connector to Woodson Bridge	Safety / Access	Corridor Improvement	2008 TSP	High	$80,000	$80,000	Medium	Short-term	$ 80,000
R3	Main Street Refinement Plan	Streetscape Plan	Community	Corridor Improvement	Main Street Refinment Plan	High	$4,000,000	$4,000,000	High	Short-term	$ 4,000,000
R4	Gateway Blvd Extension	Extension from Taylor Ave to Cleveland Ave including sidewalks and bike lanes	Connectivity	Roadway Extension	2008 TSP	Medium	$4,000,000	$3,200,000	High	*N/A*	$ -
R5	Cleveland Ave Extension (East)	Extension from Gateway Blvd Extension to S. 6th St including sidewalks and bike lanes	Connectivity	Roadway Extension	2008 TSP	Medium	$1,300,000	$260,000	High	*N/A*	$ -
R6	Cleveland Ave Extension (West)	Extension from west end to OR 99/S. R St or OR 99/Carnegie Ln including sidewalks and bike lanes (alignment to be determined)	Connectivity	Roadway Extension	2008 TSP	High	$8,000,000	$4,000,000	High	*N/A*	$ -
R7	S. R St Extension	Extension to complete S. R St from Sweet Ln to OR 99 including sidewalks and bike lanes	Connectivity	Roadway Extension	2008 TSP	Medium	$1,650,000	$700,000	High	Long-term	$ 700,000
R8	Gates Rd Extension	Extension to complete Gates Rd from Gowdyville Rd to W. Harrison Ave including sidewalks and bike lanes	Connectivity	Roadway Extension	2008 TSP	Medium	$3,770,000	$755,000	High	Long-term	$ 755,000
R9	Blue Sky Dr Extension	Extension from W. Harrison Ave to Sweet Ln including sidewalks	Connectivity	Roadway Extension	2008 TSP	Medium	$900,000	$0	Medium	Long-term	$ -
R10	Lincoln Ave Extension	Extension from east end to Gateway Blvd extension including sidewalks	Connectivity	Roadway Extension	2008 TSP	Medium	$200,000	$0	Medium	Long-term	$ -
R12a	Cottage Grove Connector Bridge Widening - Design	Widen to standard, include sidewalks and bicycle lanes - Design Only	Safety / Access	Modernization	2008 TSP	Medium	$875,000	$875,000	Medium	Medium-term	$ 875,000
R12b	Cottage Grove Connector Bridge Widening - Construction	Widen to standard, include sidewalks and bicycle lanes - Construction & Administration	Safety / Access	Modernization	2008 TSP	Medium	$2,870,000	$2,870,000	High	*N/A*	$ -
R13	E. Main St Access Improvements	Modify access from OR 99 to Gateway Blvd (e.g., consolidate driveways)	Safety	Corridor Improvement	New	High	$70,000	$35,000	Medium	Medium-term	$ 35,000
R14	OR 99 Access Improvements	Modify access from Cottage Grove Connector to Woodson Bridge (e.g., consolidate driveways)	Safety	Corridor Improvement	New	High	$60,000	$60,000	Medium	Medium-term	$ 60,000
R15	Bennet Creek Road Modernization	Widening and guardrail upgrade on Bennett Creek Rd between N. River Rd and the bridge at the UGB (total cost $270,000). [County Project 71]	Safety / Standards	Modernization	Lane County TSP	Low	$270,000	$270,000	Medium	*N/A*	$ -
R16	Cottage Grove Lorane Highway Modernization	Bicycle and pedestrian facilities on the Cottage Grove – Lorane Highway from the city limit to Gowdyville Rd (total cost $90,000). [County Project 70]	Safety / Standards	Modernization	Lane County TSP	Medium	$90,000	$90,000	Medium	Medium-term	$ 90,000
R17	Latham Rd Modernization	Bicycle and pedestrian facilities on Latham Rd between OR 99 and London Rd. (total cost $100,000). [County Project 69]	Safety / Standards	Modernization	Lane County TSP	Low	$100,000	$66,667	Medium	*N/A*	$ -
R18	N. River Rd Modernization	Upgrade on N.River Rd between OR 99 and Bennett Creek Rd (total cost $430,000). [County Project 68]	Safety / Standards	Modernization	Lane County TSP	Low	$430,000	$430,000	Medium	*N/A*	$ -
R19	Row River Rd Modernization	Upgrade to a three-lane facility with bike lanes on Row River Rd between the Row River and City Limits (total cost $900,000). [County Project 67]	Safety / Standards	Modernization	Lane County TSP	Medium	$900,000	$720,000	Medium	*N/A*	$ -
R20	Sweet Ln Modernization	Upgrade of Sweet Ln to urban standards from OR 99 to Talemena Dr (total cost $570,000). [County Project 65]	Safety / Standards	Modernization	Lane County TSP	Medium	$570,000	$456,000	Medium	*N/A*	$ -
R21	Thornton Rd Modernization	Addition of curb, gutter and sidewalks to Thornton Ln from Row River Rd to ECM gate (total cost $220,000). [County Project 64]	Safety / Standards	Modernization	Lane County TSP	Low	$220,000	$176,000	Medium	*N/A*	$ -
R22	Moseby Creek Rd Modernization	Rural modernization for Moseby Creek Rd east of the Currin Connector (total cost $250,000). [County Project 94]	Safety / Standards	Modernization	Lane County TSP	Low	$250,000	$200,000	Medium	*N/A*	$ -
R23	N. M St Extension	Extension to Holly Ave including sidewalks	Connectivity	Roadway Extension	2008 TSP	Medium	$3,750,000	$0	High	Long-term	$ -
R24	S. 4th St Extension	Extension south to Cleveland Ave Extension including sidewalks	Connectivity	Roadway Extension	New	Medium	$1,550,000	$0	High	Long-term	$ -
R25	Gowdyville Rd Modernization	Build up to standards including pedestrian and bicycle facilities from Gates Rd to Cottage Grove - Lorane Hwy	Connectivity	Modernization	New	Low	$450,000	$450,000	Medium	*N/A*	$ -

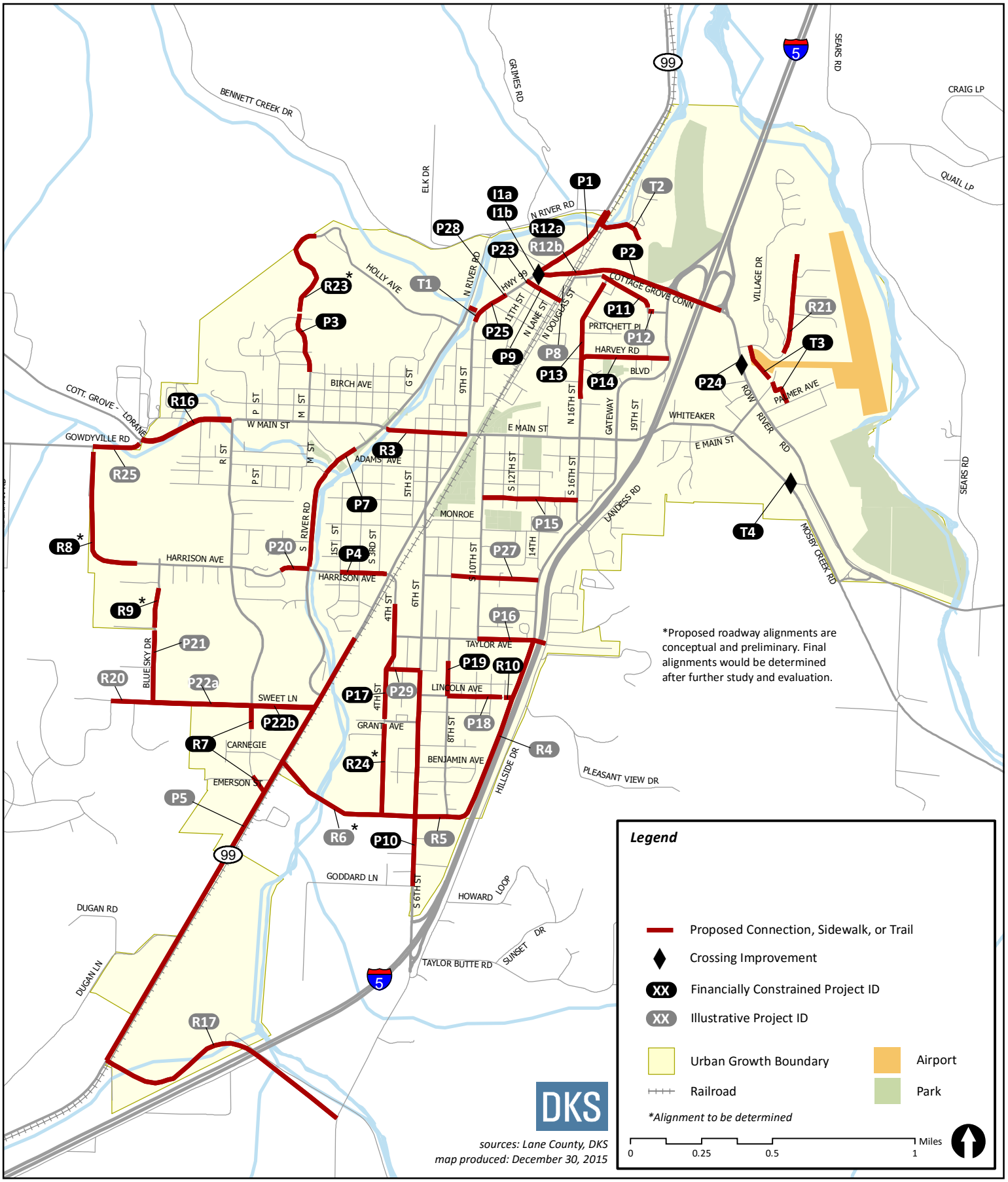
Cottage Grove TSP - Financially Constrained and Illustrative Projects

Project Information							Cost Estimate			Priority	
ID	Name	Description	Primary Purpose	Project Group	Source	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status	Public Agency Cost (Financially Constrained Projects)
Multi-modal Intersection Projects											
I1a	OR 99 at Cottage Grove Connector Improvements - Design	Roundabout (or other intersection improvement) including pedestrian crossings - Design Only	Safety	Intersection	2008 TSP	Low	$325,000	$325,000	Medium	Medium-term	$ 325,000
I1b	OR 99 at Cottage Grove Connector Improvements - Construction	Roundabout (or other intersection improvement) including pedestrian crossings - Construction & Administration	Safety	Intersection	2008 TSP	Low	$1,195,000	$1,195,000	High	Long-term	$ 1,195,000
I5	I-5 SB Ramp/Gateway at Row River Rd/Connector Improvements	Safety Improvements (e.g., signing and striping) near the intersection	Safety	Intersection	New	Low	$60,000	$60,000	Medium	*N/A*	$ -
Multi-use Trail Projects											
T1	Woodson Bridge	New bicycle/pedestrian bridge adjacent to existing bridge	Connectivity	Trail	2008 TSP	Medium	$350,000	$350,000	Medium	*N/A*	$ -
T2	Northern Trail Connection	Multiuse trail connection from North River Road to North Regional Park	Connectivity	Trail	2008 TSP	Low	$700,000	$700,000	Medium	*N/A*	$ -
T3	Eastern Trail Connection	Multi-use trail connection between Jim Wright Way and Palmer Ave, located east of Row River Rd	Connectivity	Trail	New	Low	$150,000	$150,000	Medium	Medium-term	$ 150,000
T4	Currin Connector Trail Crossing	Modify Row River Trail crossing to better align with intersection near Mosby Creek Rd and Currin Connector	Safety	Trail	New	Medium	$70,000	$70,000	Medium	Medium-term	$ 70,000
Pedestrian Projects											
P1	OR 99 Sidewalks (North)	Construct sidewalks on OR 99 between the Cottage Grove Connector and N. River Road	Access	Modernization	2008 TSP	Medium	$500,000	$500,000	Medium	Long-term	$ 500,000
P2	Cottage Grove Connector Sidewalks	Construct sidewalks on Cottage Grove Connector between OR 99 and I-5 Southbound Ramp (excluding bridge related costs)	Access	Modernization	2008 TSP	Low	$480,000	$480,000	Medium	Medium-term	$ 480,000
P3	N. M St Sidewalks	Construct missing sidewalk segments on N. M St from Chestnut Ave to Holly Ave	Access	Sidewalk In-fill	2008 TSP	Low	$250,000	$0	Medium	Long-term	$ -
P4	Harrison Ave Sidewalks East	Construct missing sidewalk segments Harrison Avenue from OR 99 to 1st Street	Access	Sidewalk In-fill	2008 TSP	Medium	$85,000	$42,500	Medium	Medium-term	$ 42,500
P5	OR 99 Sidewalks (South)	Construct missing sidewalk segments on OR 99 from Taylor Place to South UGB	Access	Modernization	New	Medium	$1,150,000	$920,000	High	*N/A*	$ -
P7	S. River Rd Sidewalks	Repair substandard sections and fill-in missing sections of sidewalk along S. River Rd between Nellis Pl and W. Harrison Ave	Access	Sidewalk In-fill	2008 TSP	Medium	$180,000	$180,000	Medium	Long-term	$ 180,000
P8	Cottage Grove Connector Alternative Pedestrian Route	Wayfinding to identify alternative pedestrian route	Connectivity	Pedestrain Connection	2008 TSP	Medium	$10,000	$10,000	Low	*N/A*	$ -
P9	Chamberlain Ave Sidewalks	Construct missing sidewalk segments from OR 99 to Douglass Ave	Access	Sidewalk In-fill	New	Medium	$100,000	$50,000	Medium	Long-term	$ 50,000
P10	S. 6th St Sidewalks	Construct missing sidewalk segments from Filmore Ave to south UGB	Access	Modernization	New	High	$600,000	$400,000	Medium	Long-term	$ 400,000
P11	Ostander Ln Sidewalks	Construct missing sidewalk segments from Douglass Ave to Oswald Ave	Access	Sidewalk In-fill	New	Medium	$150,000	$75,000	Medium	Long-term	$ 75,000
P12	Oswald Ave Sidewalks	Construct missing sidewalk segments from N. 19th St to Gateway Blvd	Access	Sidewalk In-fill	New	Medium	$25,000	$12,500	Low	*N/A*	$ -
P13	N. 16th St Sidewalks	Construct missing sidewalk segments from Ostrander Ln to Row River Trail	Access	Sidewalk In-fill	New	Medium	$175,000	$87,500	Medium	Long-term	$ 87,500
P14	Harvey Rd Sidwalks	Construct missing sidewalk segments from N.16th St to Gateway Blvd	Access	Sidewalk In-fill	New	Medium	$250,000	$125,000	Medium	Long-term	$ 125,000
P15	Madison Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to S. 16th St	Access	Sidewalk In-fill	New	Low	$200,000	$100,000	Medium	*N/A*	$ -
P16	Taylor Ave Sidewalks	Construct missing sidewalk segments from S. 10th St to Hillside Dr (does not include bridge replacement costs)	Access	Sidewalk In-fill	New	Low	$150,000	$75,000	Medium	*N/A*	$ -
P17	S. 4th St Sidewalks	Construct missing sidewalk segments from Grant Ave to OR 99	Access	Sidewalk In-fill	New	Medium	$375,000	$187,500	Medium	Long-term	$ 187,500
P18	Lincoln Ave Sidewalks	Construct missing sidewalk segments from S. 8th St to east end	Access	Sidewalk In-fill	New	Low	$250,000	$125,000	Medium	*N/A*	$ -
P19	S. 8th St Sidewalks	Construct missing sidewalk segments from Taylor Ave to Lincoln Ave	Access	Sidewalk In-fill	New	Medium	$65,000	$32,500	Medium	Long-term	$ 32,500
P20	W. Harrison Ave Sidewalks	Construct missing sidewalk segments from Edison Ave to S. River Rd	Access	Sidewalk In-fill	New	Low	$45,000	$22,500	Low	*N/A*	$ -
P21	Blue Sky Dr Sidewalks	Construct sidewalk from Sweet Ln to Extension	Access	Modernization	New	Low	$350,000	$175,000	Medium	*N/A*	$ -
P22a	Sweet Ln Sidewalks	Construct sidewalk from Blue Sky Dr to S. R St	Access	Modernization	New	Low	$300,000	$150,000	Medium	*N/A*	$ -
P22b	Sweet Ln Sidewalks	Construct sidewalk from S. R St to OR 99	Access	Modernization	New	Medium	$350,000	$175,000	Medium	Medium-term	$ 175,000
P23	OR 99 Crosswalk Improvements at Geer Ave	Improve crossing safety with changes to signing and/or pedestrian-activated warning (cost estimate assumes Rectangular Rapid Flash Beacon)	Safety	Pedestrain Crossing	New	High	$45,000	$45,000	Low	Short-term	$ 45,000
P24	Row River Rd Crosswalk near Jim Wright Way	Provide pedestrian crossing opportunity near Jim Wright Way (cost estimates assumes Pedestrian Hybrid Beacon). Specific location TBD.	Access	Pedestrain Crossing	New	Medium	$60,000	$60,000	Medium	Short-term	$ 60,000
P25	OR 99 Sidewalk Infill	Construct missing sidewalk segments between Woodson Pl and Lord Ave	Access	Sidewalk In-fill	New	Medium	$125,000	$100,000	Medium	Medium-term	$ 100,000
P27	E. Harrison Ave Pedestrian Connection	Provide pedestrian facilities to connect between S. 10th Ave and Gateway Blvd	Connectivity	Pedestrain Connection	New	Low	$200,000	$160,000	Medium	*N/A*	$ -

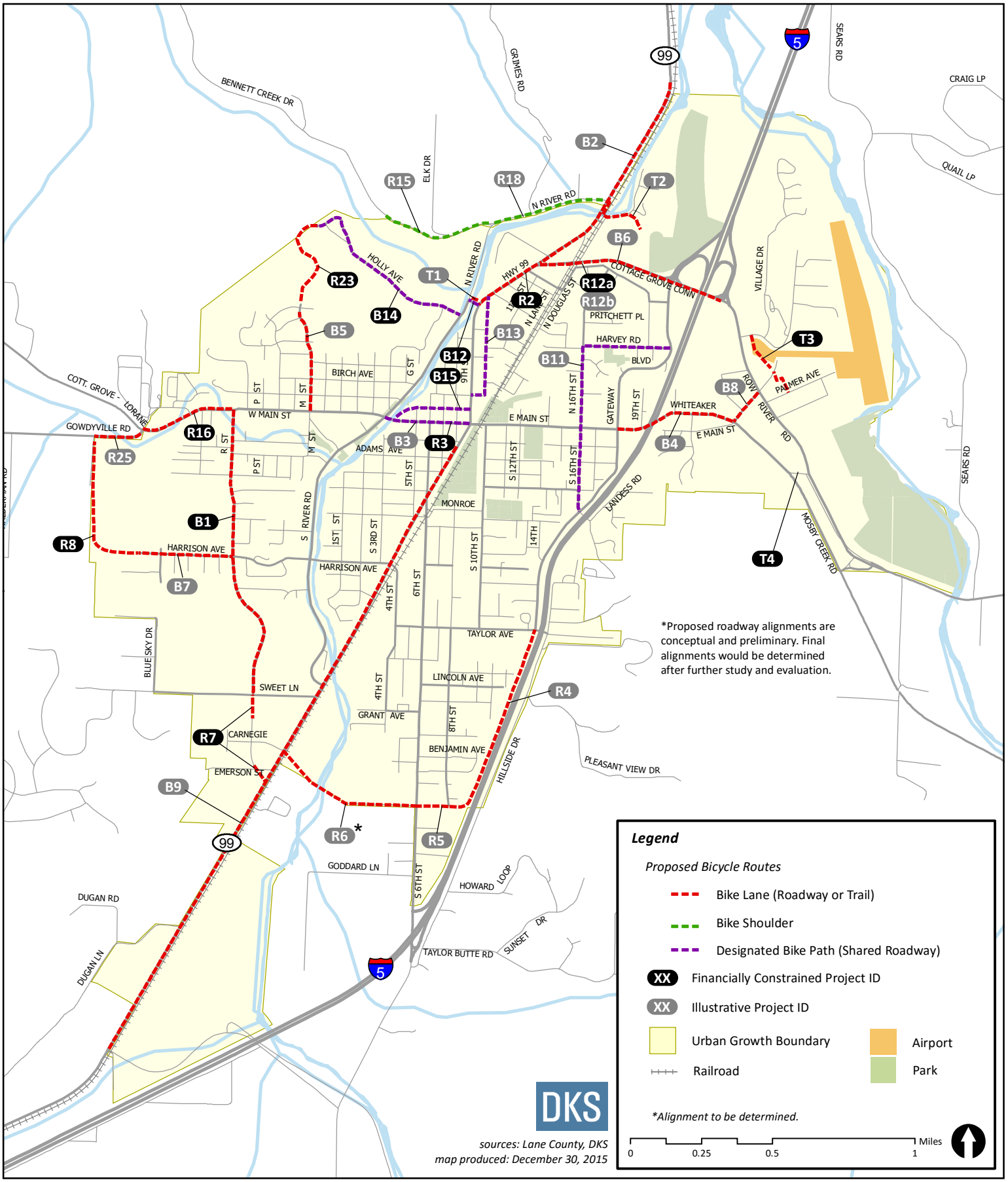
Cottage Grove TSP - Financially Constrained and Illustrative Projects

Project Information							Cost Estimate			Priority	
ID	Name	Description	Primary Purpose	Project Group	Source	Project Evaluation Score Summary	Total Estimated Project Cost	Public Project Cost Share Estimate	Project Cost Summary	Priority Status	Public Agency Cost (Financially Constrained Projects)
P28	OR 99 Sidewalk Ramps	Provide ADA-compliant pedestrian ramps at roadway intersection on OR 99, between the Cottage Grove Connector and the Woodson Bridge	Access	Modernization	New	Low	$140,000	$140,000	Medium	Medium-term	$ 140,000
P29	Fillmore Avenue Sidewalks	Construct missing sidewalk segments from S. 4th St to S. 5th St	Access	Sidewalk In-fill	New	Medium	$30,000	$15,000	Low	*N/A*	$ -
Bicycle Projects											
B1	S. R St Bike Lanes	Restripe S. R St to include bike lanes along entire duration south of W. Main St	Access	Bike lanes	2008 TSP	Low	$60,000	$60,000	Medium	Short-term	$ 60,000
B2	OR 99 Bike Lanes (North)	Widen and restripe OR 99 to include bike lanes from Cottage Grove Connector to north UGB	Access	Modernization	New	Low	$850,000	$850,000	Medium	*N/A*	$ -
B3	Main St Bicycle Shared Route	Signing and striping to promote bicycle usage on E. Main St between OR 99 and River Rd	Access	Bicycle Connections	New	Low	$25,000	$25,000	Low	*N/A*	$ -
B4	E. Whiteaker St Bike Lanes	Widen to add bike lanes along E. Whiteaker St from Gateway Blvd to Thornton Rd/Row River Trail	Access	Bike lanes	New	Low	$400,000	$320,000	Medium	*N/A*	$ -
B5	N. M St Bike Lanes	Stripe bike lanes on N. M Street north of W. Main St	Access	Bike lanes	2008 TSP	Low	$30,000	$30,000	Low	*N/A*	$ -
B6	Cottage Grove Connector Bike Lanes	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs)	Access	Modernization	2008 TSP	Medium	$600,000	$600,000	Medium	*N/A*	$ -
B7	W. Harrison Ave Bike Lanes	Restripe W. Harrison Ave west of S. R St to include bike lanes	Access	Bike lanes	2008 TSP	Low	$25,000	$25,000	Low	*N/A*	$ -
B8	Thornton Rd Bike Lanes	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	Access	Bike lanes	2008 TSP	Low	$150,000	$150,000	Medium	*N/A*	$ -
B9	OR 99 Bike Facility (South)	Widen for bike lanes and/or construct multiuse trail on OR 99 from S. 8th St to south UGB	Access	Modernization	New	Medium	$1,500,000	$1,500,000	High	*N/A*	$ -
B10	Bicycle Parking	Install bicycle parking (various locations)	Access	Bicycle Connections	New	High	$65,000	$65,000	Medium	Medium-term	$ 65,000
B11	Gateway Blvd Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Harvey Rd and 16th St. Signage would direct travelers off of Gateway Blvd and onto 16th St and Harvey Rd shared roadways.	Access	Bicycle Connections		Low	$35,000	$35,000	Low	*N/A*	$ -
B12	Woodson Bridge Bicycle Crossing Treatment	Add bicycle signing and striping treatments to support bicycle travel on Woodson Bridge	Access	Bicycle Connections	New	Medium	$5,000	$5,000	Low	Medium-term	$ 5,000
B13	OR 99 Alternative Bicycle Route	Add signing and striping to designate recommended bicycle routes between Woodson Bridge and Gibbs Ave. Signage would direct travelers off of OR 99: northbound travelers to N. 10th St shared roadway and southbound travelers to N. River Rd bike lanes.	Access	Bicycle Connections		Low	$30,000	$30,000	Low	*N/A*	$ -
B14	Holly Ave Bike Route	Designate and sign Holly Ave as a bike route	Access	Bicycle Connections	New	Low	$20,000	$20,000	Low	Long-term	$ 20,000
B15	Whiteaker Ave Bike Route	Designate and sign E. Whiteaker Ave as a bike route from N. River Rd via Centennial Bridge to OR 99/E. Main St intersection	Access	Bicycle Connections	New	Medium	$35,000	$35,000	Low	Medium-term	$ 35,000
Total:							**$49,675,000**	**$30,738,667**			**$11,200,000**

Transportation System Plan
PEDESTRIAN PROJECTS
(Financially Constrained & Illustrative)



Transportation System Plan
Bicycle Projects
(Financially Constrained & Illustrative)



*Proposed roadway alignments are conceptual and preliminary. Final alignments would be determined after further study and evaluation.

Legend

Proposed Bicycle Routes

- Bike Lane (Roadway or Trail)
- Bike Shoulder
- Designated Bike Path (Shared Roadway)

XX Financially Constrained Project ID

XX Illustrative Project ID

Urban Growth Boundary

Railroad

Airport

Park

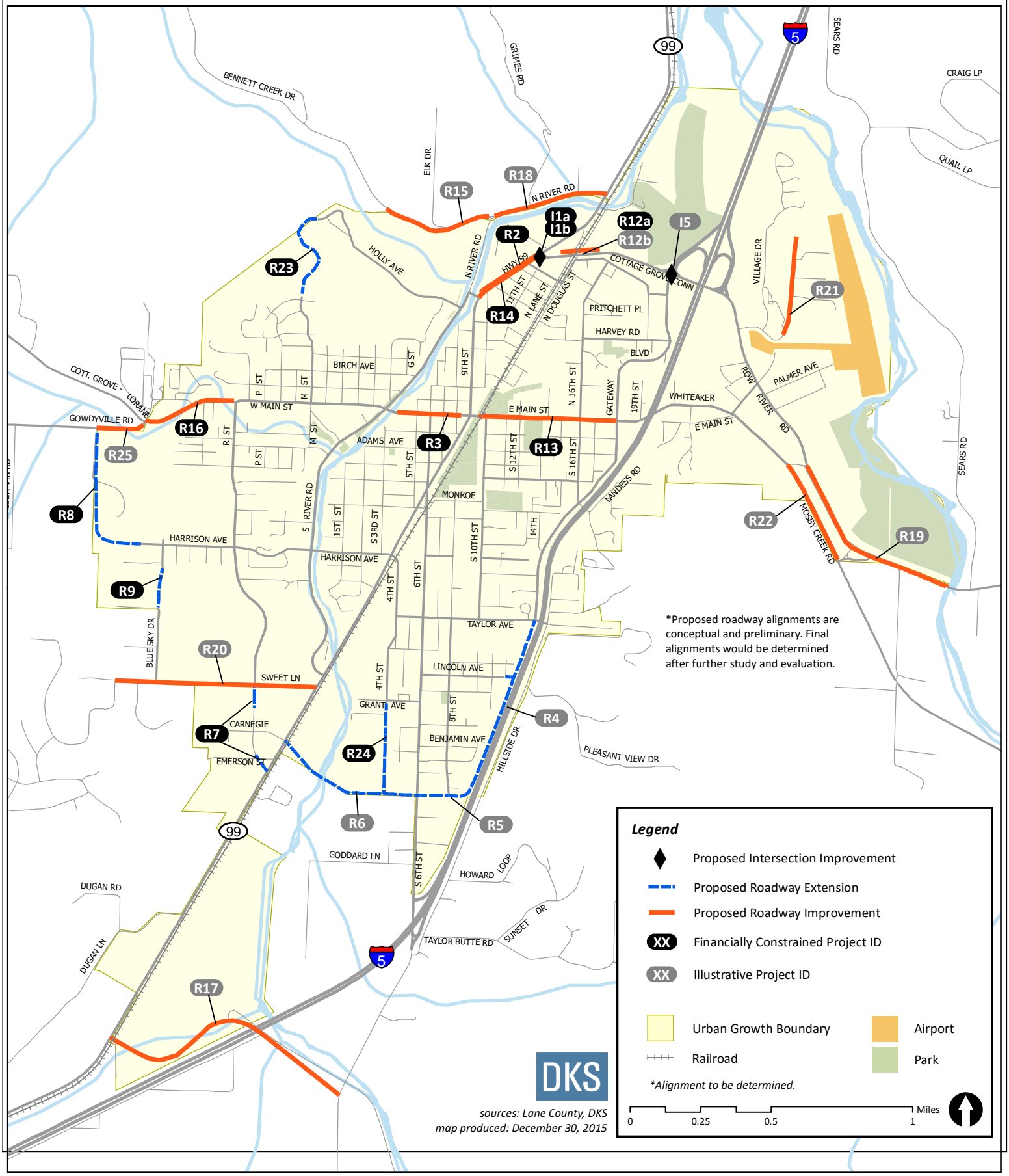
**Alignment to be determined.*

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: December 30, 2015

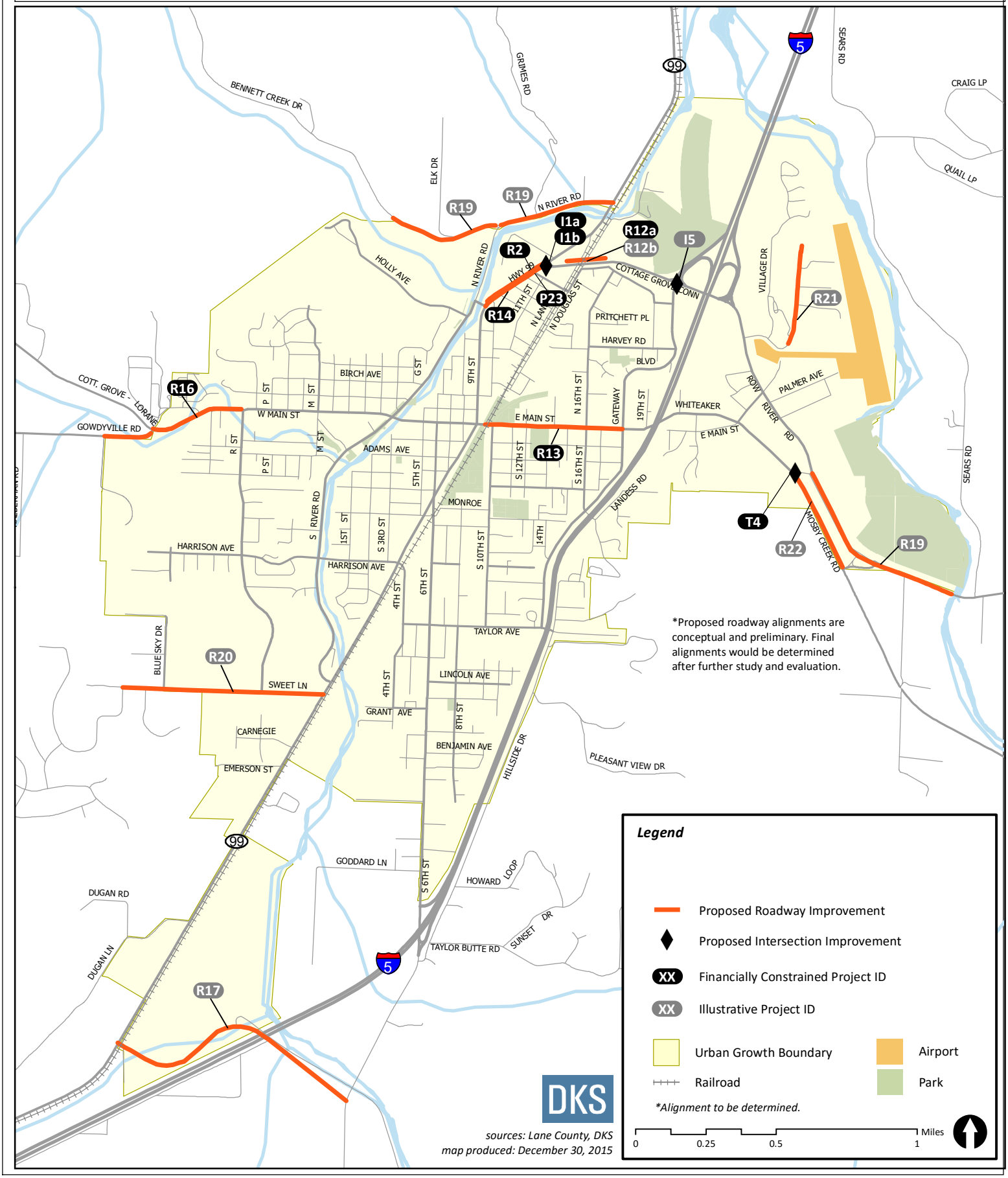
Transportation System Plan
Roadway Projects
(Financially Constrained & Illustrative)



Transportation System Plan

SAFETY PROJECTS

(Financially Constrained & Illustrative)



*Proposed roadway alignments are conceptual and preliminary. Final alignments would be determined after further study and evaluation.

Legend

- Proposed Roadway Improvement
- Proposed Intersection Improvement
- XX — Financially Constrained Project ID
- XX — Illustrative Project ID
- Urban Growth Boundary
- Railroad
- Airport
- Park

**Alignment to be determined.*

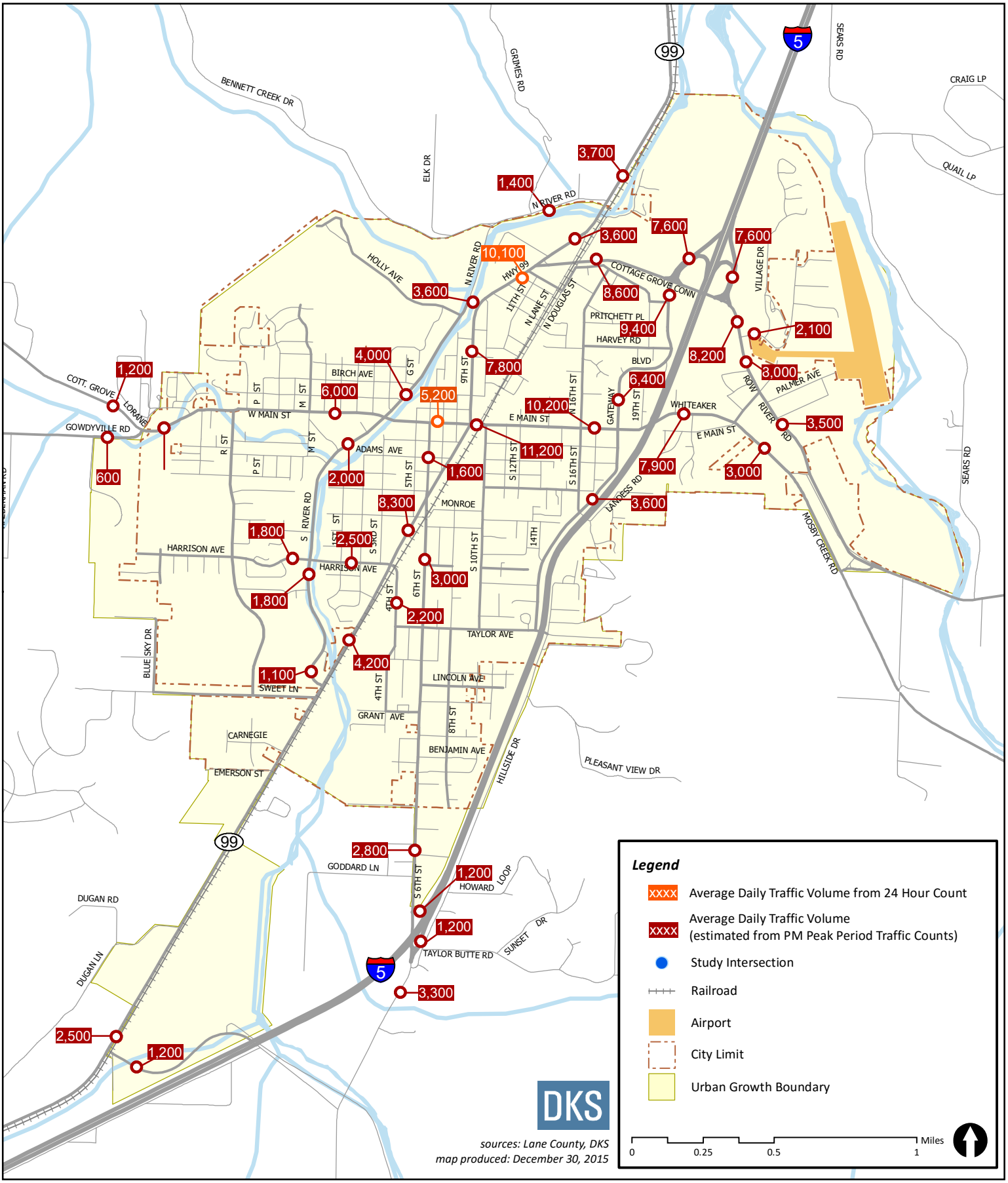
0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: December 30, 2015

Transportation System Plan

Estimated Average Daily Traffic Volume (2014)



Legend

- XXXX — Average Daily Traffic Volume from 24 Hour Count
- XXXX — Average Daily Traffic Volume (estimated from PM Peak Period Traffic Counts)
- Study Intersection
- Railroad
- Airport
- City Limit
- Urban Growth Boundary

0 0.25 0.5 1 Miles

DKS

sources: Lane County, DKS
map produced: December 30, 2015