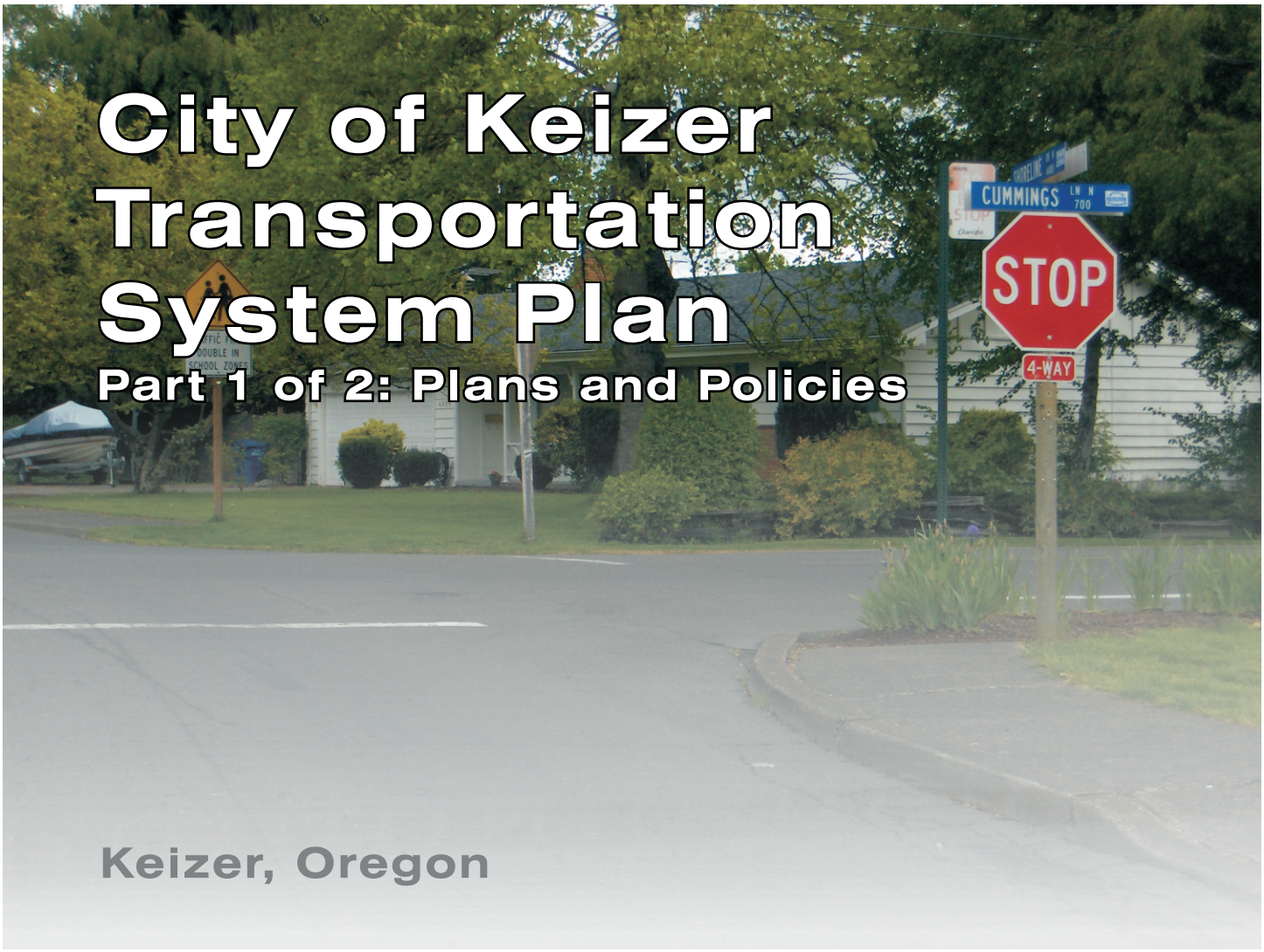


City of Keizer Transportation System Plan

Part 1 of 2: Plans and Policies

Keizer, Oregon

April, 2009

Revised June 2014

City of Keizer
Transportation System Plan

Part I – Plans and Policies

Keizer, Oregon

Prepared For:
City of Keizer
930 Chemawa Road NE
Keizer, Oregon 97303
(503) 390-3700

Prepared By:
Kittelson & Associates, Inc.
610 SW Alder, Suite 700
Portland, OR 97205
(503) 228-5230

Project No. 8310.5

April 2009

Revised June 2014

Table of Contents
Part 1: Plans and Policies

Part 2: Supporting Documentation

List of Figures

List of Tables

PREFACE

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and the State of Oregon Funds. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

City of Keizer Management Team

Sam Litke
Senior Planner

Nate Brown
Planning Director

ODOT Management Team

Dan Fricke
Senior Transportation Planner

Technical Advisory Committee (Keizer Citizens and Staff from City of Keizer, City of Salem and Marion County)

Jacque Moir
Keizer City Council

Cathy Clark
Keizer City Council

Holly Graf
City of Keizer Planning Commission

Doug Schneider
City of Keizer Planning Commission

Rob Kissler
City of Keizer Public Works

Karen Odenthal
Marion County

Ray Jackson
Mid-Willamette Valley Council of Governments

Dave Baltz
City of Salem

Dorothy Upton
Oregon Department of Transport
Transportation Planning Analysis Unit

Don Jordan
Oregon Department of Transport
District 3

Jason Locke
Department of Land Conservation
and Development

Matt Crall
Department of Land Conservation
and Development

Glen Hadley
Salem-Keizer Transit District

Darlene Taylor
Bikeways Committee

Steve Prothero
Traffic Safety Commission

David Rios
Traffic Safety Commission

Ron Anderson
Bikeways Committee

Robert Fox
Bikeways Committee

Mark Caillier
Business Representative

Stan Compton
Business Representative

William Galligan
Interested Citizen

Tim Smith
Interested Citizen

Joe Egil
Chamber Representative

Victoria Shinn
Chamber Representative

The Technical Advisory Committee members and City of Keizer staff devoted a substantial amount of time and effort to the development of the City of Keizer Transportation System Plan (TSP), and their participation was instrumental in the development of the recommendations that are presented in this report.

Consultant Team

Kittelson & Associates, Inc.
Elizabeth Wemple, PE
Dan Seeman, AICP
Dave Daly
Kirsty Bilton

Angelo Planning Group
Darci Rudzinski
Frank Angelo

Chapter 1
Introduction

INTRODUCTION

This document is an update to the September 2000, amended in 2004, City of Keizer Transportation System Plan (TSP). The purpose of the Keizer TSP Update (hereafter referred to as the TSP) is to provide a framework of goals, objectives, and recommended policies that will guide efforts for achieving an acceptable level of transportation facilities and services through the year 2031. This updated TSP replaces the 2004 TSP in-full.

The Keizer TSP update is organized into two parts. Part I is an explanation of the goals, objectives and policies for the TSP, an explanation of the performance measures for evaluating success of the TSP, and an explanation of the existing system and recommended improvements for each transportation mode. Part I is intended to be an applications document containing all information necessary for the TSP to be used on a daily basis. Part II contains all supplemental information regarding the TSP assumptions, calculations, methodologies, and evolution of ideas. Part II is intended to be supporting documentation and technical information necessary for Part I.

The TSP will be used by City staff, and policy makers to set guiding principles for the future growth and development of the City of Keizer. Citizens, stakeholders, and developers within the community can use this document to develop an understanding for the City's plans for transportation.

Process

The TSP Update process has been an 18 month process with key milestones to incorporate City staff input and Technical Advisory Committee (TAC) input. Membership on the TAC included citizens, representatives from City Council and Planning Commission, the City of Salem, and Marion County. In addition, other service districts (transit, fire) and stakeholders periodically attended the TAC meetings. Key milestones for the project included:

- TAC meeting #1 (July 2007) – Project kick-off and discussion of the draft goals and objectives.
- TAC meeting #2 (August 2007) – Draft policy changes, code and ordinance revisions, and implementation strategies for consistency with the TPR.
- TAC meeting #3 and Open House #1 (December 2007) – The existing conditions analysis and preliminary needs of the Keizer transportation system.
- TAC meeting #4 and Open House #2 (April 2008) – Future transportation system needs and alternatives.
- TAC meeting #5 (September 2008) – Draft alternative performance measures.
- TAC meeting #6 (December 2008) – Revised draft alternative performance measures, project needs, project funding, and draft TSP.

TSP Elements

The development of the Keizer TSP began with a review of the existing September 2000 TSP document (amended in 2004) that currently guides land use and transportation planning in Keizer. The outcome of this activity is documented in **Chapter 2** which summarizes the updated TSP goals, objectives and policies. This update is drawn from the goals identified in the previous TSP, conversations with City of Keizer staff and interactions with the TSP's Technical Advisory Committee.

Chapter 3 summarizes the alternative mode performance measures that will be used by the City to monitor advancement toward the community's goals and objectives. The current status and targets related to each performance measure, a brief summary of tools/methods for calculating each measure, as well as a brief summary of how each measure relates to the project goals and objectives is included in this chapter. Chapter 3 is intended to connect the performance measures to the TSP recommendations and to long term implementation and monitoring of TSP progress and success.

Chapter 4 addresses the street system element of the TSP. This element includes the roadway inventory, functional classification, design standards, operation standards, access management criteria, and near term, mid-term, and long term roadway improvement projects.

Chapter 5 provides a summary of existing pedestrian and bicycle facilities, the status of pedestrian and bicycle travel within the City, and near term, mid-term, and long term pedestrian and bicycle projects.

Chapter 6 addresses the transit element of the TSP and provides a summary of existing public transportation facilities, current programs encouraging use of transit, primary purposes for using public transportation within the City, and information related to future transit planning within the City.

Chapter 7 outlines transportation demand management (TDM) and includes existing programs, a list of potential strategies that the City can adopt in the future, and scenarios to successfully implement these TDM strategies.

Chapter 8 discusses all other transportation modes including air, water, pipeline, rail, and freight. This chapter summarizes local public and private airport facilities, water transportation, pipeline facilities, rail facilities, and freight facilities and routes.

Chapter 9 addresses the finance and funding element of the TSP and provides a discussion and comprehensive list of the recommended improvement projects as well as information related to current and possible future funding availability.

Chapter 10 summarizes outstanding projects and/or studies that were identified for future investigation by the City. Some of these projects and studies are currently being completed, while others are identified as possible needs.

Chapter 2
Goals, Objectives, and Policies

GOALS, OBJECTIVES, AND POLICIES

This chapter provides the goals, objectives, and policies for the future of Keizer's transportation system. The goals, objectives, and policies for the City's transportation system guide the development of the transportation system in the City. Objectives and policies for each goal are provided to identify and clarify the course of action to achieve each goal. The goals, objectives, and policies are based on those identified in the previous TSP, conversations with City of Keizer staff, and interactions with the project Technical Advisory Committee.

Public Involvement

Goal 1: Continued coordination with all residents of Keizer for regular monitoring and improvement of the Transportation System.

Policy 1: Revisions to the TSP shall require a public hearing consistent with state and local requirements.

Policy 2: The public shall be given an opportunity to comment on various transportation improvements projects through open house presentations and City Council meetings where public input will be considered.

Environment

Goal 2: Provide for a sustainable transportation system which respects the environment and community.

- *Objective 1: Minimize adverse effects on environmentally sensitive areas and water quality.*

Policy 1: Along existing streets which do not have storm drainage systems environmentally sensitive techniques such as the use of rain gardens shall be encouraged.

Policy 2: Analysis of all potential transportation improvements shall include potential impacts to wetlands and threatened or endangered species.

Policy 3: The planning and construction of future roads shall meet the requirements of applicable federal, state, and local environmental legislation.

Policy 4: Potential impacts from increased surface run-off associated with all transportation improvements shall be evaluated when comparing projects, options, or alternatives.

Policy 5: Road modernization and construction improvements shall be in compliance with all federal, state, and local water quality regulations.

Policy 6: Recommended improvements shall meet the requirements stipulated in the Clean Air Act Amendments of 1990 and the Oregon State Conformity Rule (OAR Section 340-20-700, et. seq.)

- *Objective 2: Minimize adverse effects (e.g. noise, air, speed) on neighborhoods.*
- *Objective 3: Consider opportunities to minimize impervious surfaces through alternative material use and pavement width reductions while still meeting the necessary standards.*

Policy 1: Where possible, such as on in-fill streets, the use of pervious surfaces shall be encouraged.

Streets

Goal 3: Maximize the efficiency of the existing transportation system.

- *Objective 1: Provide a street system emphasizing connectivity that minimizes travel time and congestion while being compatible with other modes of transportation.*

Policy 1: The city shall periodically review street classifications to ensure that all streets are correctly classified.

Policy 2: New development shall be required to connect to existing streets wherever possible and should avoid new cul-de-sacs unless it is determined through the review of the land use proposal to be impractical.

Policy 3: New development which will adversely impact the street system shall be required to make necessary improvements or mitigation measures that are determined to be roughly proportional to the new development.

Policy 4: Identify, designate, and adopt functional classifications for city streets.

Policy 5: Higher accident locations will be periodically evaluated for potential safety improvements.

Policy 6: Safety issues will be considered when evaluating improvement projects.

Policy 7: Minimize through traffic infiltration in residential neighborhoods by the application of the appropriate road standards and other measures.

Policy 8: Minimize disruption of neighborhoods when designing and constructing new roads.

Policy 9: The pedestrian, bicycle, and street system shall provide connectivity and continuity of travel between city entrance and exit points and major destinations and activity centers. The purpose is to minimize out-of-direction travel and circuitous routing.

- *Objective 2: Maximize available system capacity.*

Policy 1: Street cross section design may be modified by the City without the need for a variance for City initiated street improvement projects.

Policy 2: The City shall consider measures such as signal coordination to maintain an efficient street system.

Policy 3: As much as practical, maintain a street inventory that satisfies planning and decision-making needs. The inventory and/or portions thereof should be updated on a regular basis.

Policy 4: Techniques that improve capacity shall be used within existing rights of way to the extent practical.

Policy 5: When appropriate, access management strategies should be employed on arterials to improve safety and facilitate through traffic flow.

Policy 6: Consider installation of the appropriate bikeway, pedestrian, and public transportation amenities and facilities during design of new streets or major improvements.

Policy 7: The City shall inventory unused rights of way to determine the viability of certain sections of this portion of the transportation system.

- *Objective 3: Maintain the physical integrity of existing roads to preserve and maximize infrastructure investments.*

Policy 1: The City shall periodically review its maintenance schedule to ensure the street system is adequately maintained.

Policy 2: The costs associated with maintaining the existing roads at an acceptable condition shall be determined and addressed prior to the allocation of funds for all improvements.

- *Objective 4: Manage on and off-street parking to support community needs.*
- *Objective 5: Maintain an acceptable level of service within the transportation system.*

Policy 1: Signalized intersections will operate at Level of Service "D" or better during weekday peak hour conditions. Unsignalized intersections will operate at LOS "E" or better during weekday peak hour conditions. Intersections of two arterial streets will also operate with a volume-to-capacity ratio less than 0.95.

Comprehensive, Connected, and Multimodal

Goal 4: Provide efficient and comprehensive linkages between all modes of transportation.

- *Objective 1: Develop paths, connections, and facilities to provide simple access between modes at different parts of work, shopping, or recreational trips.*

  Policy 1: Support development of an appropriate transportation infrastructure that is comprehensive, connected, and multimodal.

  Policy 2: Work with surrounding jurisdictions to provide improvements to the regional bicycle system.

  Policy 3: Support the incorporation of multimodal connections and modal balance into local transportation facilities.

- *Objective 2: Safety must be an underlying concept for any element of the transportation system.*

Pedestrians and Cyclists

Goal 5: Develop a comprehensive system of pedestrian and bicycle facilities for the City of Keizer.

- *Objective 1: Establish a continuous, direct, and safe system of bicycle and pedestrian facilities within the Keizer urban area and connect it to the greater regional system.*

  Policy 1: The City shall continue to work with pedestrian and bicycle groups to evaluate improvements to these facilities.

  Policy 2: New developments shall be required to provide for pedestrian and bicycle facilities along the property frontage and connect to adjacent or nearby facilities.

  Policy 3: The City shall evaluate strategies such as the formation of a local improvement district (LID) as a means to fill in the gaps in the pedestrian and bicycle system.

  Policy 4: All bicycle facilities shall be constructed in accordance with ODOT bicycle facility standards where applicable.

  Policy 5: Project designs that accommodate bicycle facilities within the roadway rights of way shall be implemented where practical.

  Policy 6: The bicycle facilities inventory shall be updated on a regular basis to maintain accuracy.

  Policy 7: Bicycle safety devices such as bicycle-proof drain grates, rubberized pads at railroad crossings, and appropriate signage shall be utilized.

  Policy 8: Pedestrian issues shall be included in the prioritization of projects for allocation of all city funds.

Policy 9: Support continuation of current (or equivalent) federal, state, and local funding sources to construct or improve pedestrian facilities.

Policy 10: Encourage the timely repair and maintenance of existing pedestrian facilities including those identified as regionally significant.

Policy 11: Ensure that all pedestrian facilities are accessible and constructed in accordance with ADA and City sidewalk standards, including reasonable grades and adequate clearances.

Policy 12: The City shall work toward the completion of the street lighting system, designed to City illumination standards, on all arterial and collector streets. Through the use of neighborhood street lighting districts, property owners shall be encouraged to provide street lighting, designed to City illumination standards, on all public local streets.

Policy 13: Support an urban design that adequately considers pedestrian needs.

Policy 14: Where appropriate, such as on steep slopes or in environmentally sensitive areas, natural material in pedestrian facilities may be considered.

Policy 15: Pedestrian facilities that are not located within the right of way shall be within an easement granting the public the right to use the facility.

Policy 16: Designate a continuous and direct system of bicycle facilities that provides access to activity centers, schools, and other major destinations.

Policy 17: Identify necessary facility improvements on the bicycle system to ensure adequate bicycle access to activity centers, schools, and other major destinations.

Policy 18: The City will evaluate the feasibility and opportunity for Safe Routes to Schools programs in Keizer.

Policy 19 The city has identified in its Parks Master Plan a priority for multi-use paths adjacent to green spaces.

Objective 2: Achieve greater public awareness of safe pedestrian, bicycling, and motoring practices, procedures, and skills.

Policy 1: The City shall monitor pedestrian and bicycle crash data to formulate ways to reduce pedestrian and bicycle crashes.

Policy 2: Encourage the delineation of safe pedestrian ways, emphasizing separation from vehicular areas using planting strips, crosswalks, and increased lighting where appropriate.

Transit

Goal 6: Support a public transit system for all Keizer residents focusing on accessibility and mobility.

- *Objective 1: Facilitate public transit services throughout the urbanized portions of the Keizer area that ensures convenient accessibility to a variety of destinations at different times of the day. Advocate affordable transit service and increase ridership.*

Policy 1: The City will work with the Transit District to assure continued high quality transit system responsive to local community needs.

Policy 2: Support the implementation of region-wide transportation system efficiency strategies and activities that encourage the diversion of commuter trips away from the single-occupant vehicle.

Policy 3: Encourage preferential transit treatments, transit-related facility improvements, and appropriate transit-supportive land uses and development along the regional transit corridors.

Policy 4 Support incremental increases in the frequency and capacity of service in the regional transit corridors as warranted by demand.

Policy 5: Support regional efforts to identify and implement transit funding strategies and programs that will provide adequate, long-term, stable revenue source(s) for the public transportation system.

Policy 6: Support ongoing review and analysis of farebox revenues, ridership levels, and service costs to optimize the transit fare structure.

- *Objective 2: Encourage a transit system which offers connectivity between activity centers, such as schools, parks, shopping centers, and residences with a minimum of transfers.*

  Policy 1: Future development in Keizer Station in Area C may require the development of a commuter rail link and/or a satellite transit connection.

  Policy 2: Establish a transit station to serve the needs of the community. The site should accommodate the proposed use and provide adequate buffering and screening to mitigate any impacts on adjacent properties.

  Policy 3: Consider transit operations in the design of street infrastructure and land use developments wherever practical.

- *Objective 3: Support transit programs that serve transportation disadvantaged citizens consistent with Americans with Disabilities Act (ADA) requirements.*

  Policy 1: Support continued development and implementation of accessible fixed-route and appropriate complementary paratransit services as identified in the ADA Transit Plan.

  Policy 2: Consider supporting efforts of the Special Transportation Advisory Committee or its successors in implementing the RTP and/or similar efforts to improve transportation for the transportation disadvantaged.

Supplementary Transportation Resources

Goal 7: Collaborate with lead agencies (jurisdictions or organizations who lead the efforts to manage the various systems) to support development and maintenance of an adequate aviation, maritime, pipeline, and rail system to serve area demand.

- *Objective 1: Collaborate with lead agencies to support cost-effective regional aviation system operations and facilities adequate to serve area demand.*

  Policy 1: Support appropriate, cost-effective improvements to the region's aviation and related facilities based on sound economic analysis.

  Policy 2: Support efforts to renew commercial airline service to McNary Field as demand and financial considerations warrant.

  Policy 3: Support maintenance efforts that will preserve the region's general aviation facility in a manner that makes resumption of commercial aviation activities viable.

Policy 4: Support development of an appropriate multimodal transportation infrastructure that provides adequate access to the regional aviation facility, including a transit drop point at the terminal when scheduled commercial service becomes available.

- *Objective 2: Collaborate with lead agencies to support restoration of commercial and recreational navigation through the upper Willamette River where environmental impacts can be mitigated or minimized and economic justification exists.*

  Policy 1: Support the design and development of a boat ramp for recreational users to be located in Keizer Rapids Park.

  Policy 2: Provide appropriate assistance to further efforts to restore commercial navigation in the upper Willamette River through the SKATS area as warranted.

- *Objective 3: Collaborate with lead agencies to support a safe pipeline system that provides an adequate level of service for the movement of natural gas into, within, and through the Keizer area.*

  Policy 1: Support activities that maintain adequate pipeline operations and services into, within, and through the Keizer area.

  Policy 2: Support activities and procedures that ensure compliance with federal and state regulations pertaining to the safety of pipeline facilities and operations in the Keizer area.

- *Objective 4: Collaborate with lead agencies to support an adequate level of service to passenger and freight rail consumers within the Mid-Willamette Valley Council of Government area.*

  Policy 1: Support the development of a commuter rail station as shown in the Keizer Station Master Plan to be provided in Area C of Keizer Station. While no specific design or analysis has been done, this facility is to be either provided or an area set aside for its future development within Area C, unless it can be shown that a better location can be provided that will satisfy the design specifications for a commuter rail station, parking and associated facilities.

  Policy 2: Encourage continued and improved rail service to and from the Salem-Keizer metropolitan area.

  Policy 3: Support the continued improvement of the region's existing rail infrastructure and facilities.

  Policy 4: Encourage the development and implementation of adequate infrastructure and facilities to address the needs of both passenger and freight movements in the region.

Policy 5: Encourage improvements to the regional transportation system that enhance rail safety as well as safety between railroads and other transportation modes.

Policy 6: Encourage actions that maximize efficient use of existing rail infrastructure and improved service levels to address Salem-Keizer metropolitan area rail transportation needs.

Policy 7: Designate all rail corridor rights of way as "Transportation Corridor Preserves" pending results of alignment specific suitability studies.

Policy 8: Promote infrastructure upgrades to the passenger rail terminal.

Policy 9: Promote and support intercity and intracity public transportation system connections to the passenger rail terminal.

Funding

Goal 8: Provide adequate funding to meet current and future capital, maintenance, and operations needs of Keizer's transportation system.

- *Objective 1: Strive to meet the current and future capital improvement needs of the transportation system through an optimum mix of funding sources.*

Policy 1: As defined by Oregon Revised Statutes and City Ordinances, Systems Development Charges may be collected by the City to mitigate impacts placed on area-wide transportation facilities.

Policy 2: As authorized in the Keizer Development Code and Oregon Revised Statutes, those responsible for new development will mitigate their development's impacts on the transportation system concurrent with the development of the property.

Policy 3: Seek federal funding for capital improvements projects through participation in the MPO or other designated distribution process.

Policy 4: Continue to set aside one (1) percent of its allocation of State Highway Gas Tax funds for creation of on-street bicycle and pedestrian facilities.

Policy 5: Whenever possible, reserve funds for acquisition of property for future right of way opportunities.

Policy 6: Assuming no changes in state funding mechanisms, the primary funding sources for street system maintenance activities shall be the City's allocation of the State Highway Fuel Tax.

Policy 7: Continue to participate in cooperative agreements with other state and local jurisdictions for maintenance and operations activities based on equitable determinations of responsibility and benefit.

Policy 8: Transportation improvement projects identified on the Projects List in the TSP reflect the planning project list for these improvements. It is understood that this list is not the City's Capital Improvement Project list but is to be used as guidance as to the funding of transportation projects. While the City is not bound to fund all projects on this list it shall endeavor to complete as many projects within the specified time periods as is possible.

- *Objective 2: Strive to secure adequate funding to implement a street maintenance program which sustains a maximum service life for pavement surfaces and other transportation facilities.*

  Policy 1: Seek additional funding sources to meet the long term financial requirements of sustaining a perpetual life street maintenance program.

- *Objective 3: Strive to secure funding to adequately operate the transportation system including advance planning, design engineering, signal operations, system management, and illumination and cleaning activities.*

  Policy 1: Encourage and facilitate the formation of local street lighting districts to enable neighborhoods the opportunity for street illumination. The city shall consolidate street lighting districts by subdivision to achieve cost equity and benefits from economies of scale. The City may consider consolidation of existing street lighting local improvement districts.

  Policy 2: Pursue the award of federal, state, and private grants to augment operations activities, especially in the planning and engineering functions.

Transportation Demand Management

Goal 9: Reduce the single occupant vehicle demands on the current and future transportation system.

- *Objective 1: Work towards reducing the City's vehicle miles traveled.*

  Policy 1: Implement and monitor the performance measures identified in Chapter 3 of this document in order to reduce vehicle miles traveled within Keizer.

- *Objective 2: Reduce automobile travel demand generated by employment sites, retail development, schools, and public events in cooperation with the Metropolitan Planning Organization and other public interest groups.*

  Policy 1: Continue support of the Regional TDM Program, including the Cherriots Rideshare Program.

Policy 2: The City shall explore the availability of funding sources to ensure the ongoing viability of the Regional TDM Program.

Policy 3: Identify groups which have the greatest potential for reducing automobile trips, including employers and employment sites, and commuting students. Flexible-work schedules, telecommuting, transit ridership and car/van-pooling shall be emphasized as means to reducing trips.

Policy 4: Increase contacts to employers and schools by periodically contacting employers and schools to encourage trip reduction efforts. The City may also use public recognition for those organizations' efforts.

Policy 5: Increase ridesharing within the City by implementing internal incentive and recognition programs for employees who already use alternative transportation modes.

Policy 6: Develop a program, possibly through the permit process, to encourage promoters of public events to raise awareness of available alternative transportation. An example is placing bus routes and times in advertisements for sporting events.

Policy 7: Conduct marketing campaigns through various media to raise awareness of transportation options and to encourage the use of alternative transportation modes.

Policy 8: Conduct outreach activities at schools and community groups to inform them about transportation mode choices and the effects.

Goal 10: Ensure that the City of Keizer has an appropriate supply of parking facilities.

- *Objective 1: Determine Keizer's need for on-street parking facilities.*

  Policy 1: On-street parking is second in priority to the needs of the travel modes (i.e., vehicle, transit, bicycle, pedestrian) using the street right of way, except where abutting properties have no ability to provide their own off-street parking or where on-street parking is needed to support an existing business district.

  Policy 2: Where practical, existing on-street parking will be removed in preference to widening streets for additional travel lanes.

- *Objective 2: Promote economic vitality and neighborhood livability by requiring an appropriate supply of off-street parking facilities.*

  Policy 1: New development must provide, or have access to, an appropriate supply of off-street parking.

Policy 2: Through the land use process, continue to utilize maximum parking requirements. The purpose of this policy is to avoid the unnecessary use of land for off-street parking for new developments.

Policy 3: Major activity centers shall be accessible by transit and shall meet their parking demand through a combination of shared, leased, and new off-street parking facilities.

- *Objective 3: Reduce the City's parking supply per capita by ten percent by the year 2031.*

Policy 1: Work with the Metropolitan Planning Organization (MPO) to better estimate, evaluate, and monitor the parking inventory for commercial, industrial, and institutional lands within the MPO so as to meet the statewide goal of reducing per capita parking supply.

Policy 2: Develop strategies to implement the MPO's adopted parking measures on a local level.

Policy 3: Periodically review the City's off-street parking requirements to ensure that it is comprehensive and implements the goals of the TSP. This can include analysis of industry standards, changes in consumer behavior trends, or other measures.

Policy 4: Encourage new developments to establish parking plans which can utilize shared parking areas and alternative transportation options that will result in a reduction in the overall area needed for car parking.

Transportation System Management

Goal 11: Maximize the efficiency of the existing surface transportation system through management techniques and facility improvements.

- *Objective 1: Provide a system of traffic control devices maintained and operated to an acceptable LOS.*

Policy 1: Continue modernization of the signal system and improvements in coordination and efficiency. The City shall employ traffic signal timing plans that maximize the efficiency of the system given the particular travel demand of that time of day.

Policy 2: Conduct regular, preventive signal maintenance to avoid traffic delays and congestion from avoidable malfunctions.

Policy 3: Regularly maintain all traffic control devices (signs and markings) to minimize congestion and driver delay due to confusion. While priority shall always be given to regulatory and warning signs, informational (street name and directional) signs shall also be given attention.

Policy 4: Strive to give the physical improvement of intersections a higher priority than general street widening when seeking ways to increase capacity and relieve congestion.

Policy 5: Install bus turnouts on existing rights of way for arterial streets as a means of facilitating traffic flow during peak travel periods. The feasibility, location, and design of bus bays shall be developed in consultation with the Salem Area Mass Transit District.

Policy 6: Improve vision clearance through enforcement of maintenance requirements.

- *Objective 2: Improve physical design and management of on-street parking consistent with community need.*

Policy 1: When on-street parking is permitted on an arterial street, removing the on-street parking shall be the first consideration for enhancing capacity. Depending upon the situation and proper analysis, timed on-street parking prohibitions during peak travel periods may be considered in lieu of permanent removal.

- *Objective 3: Increase street system safety and capacity through access management.*

Policy 1: Develop and adopt specific access management standards.

Policy 2: When developed, access management standards will be incorporated into all arterial street design projects.

Policy 3: Consistent with the goal of improving mobility, develop access management projects for arterials to improve safety and traffic flow.

Chemawa/I-5 Interchange Area Management Plan (IAMP)

Goal 12: To protect the function and operation of the Chemawa/I-5 Interchange consistent with the planned land uses in the vicinity of the interchange. The primary function of this interchange is to serve statewide travel through the Salem/Keizer Metropolitan Area, and regional travel, where one trip end is in the Salem/Keizer Metropolitan Area and one is outside of the area. As the City's primary access to I-5, the Chemawa Interchange is also essential to the area's growth and economic development. Consequently, it is also a primary function of this interchange to serve the wide range of adopted land uses within the City that depend on the interchange for access to Interstate 5.

Policy 1: The City supports the improvements described in the Chemawa/I-5 IAMP as the Recommended Alternative and, in partnership with ODOT, Marion County and Salem, shall pursue funding for the Recommended Alternative improvements. The City of Keizer does not favor or oppose the part of the

plan known as Phase III (the Tepper Lane over-crossing and extension). It is expected that these improvements will be funded by some combination of City funds, County funds, transportation system development charges, development exactions, potential local improvement districts, transportation utility fees, and/or state and federal funds. Negotiations about proportional "fair share" contributions to the eventual financing strategies shall (1) reflect that the improvements benefit each jurisdiction involved in this IAMP, even when an improvement is not located within a jurisdiction's boundaries; and (2) recognize previous financial contributions to improve the interchange area transportation system.

Policy 2: The potential projects described in the IAMP as the Recommended Alternative and illustrated in Figure 5-1 and Appendix I, are not currently included in the Salem-Keizer Area Transportation Study (SKATS) 2031 RTSP. Until adequate funding is specifically identified for all, or a component, of these recommended improvements in the RTSP, these shall not consider as "planned improvements" or "reasonably likely" to be constructed within the 20-year (2031) planning horizon pursuant to the Oregon Transportation Planning Rule (TPR), Oregon Administrative Rules (OAR) 660-012-0060.

Policy 3: The City will coordinate with ODOT before amending the Transportation System Plan (TSP), proposing transportation improvements that could affect the function of the Chemawa/I-5 Interchange Area, or considering other land use plan or ordinance changes that are inconsistent with the adopted IAMP or the assumptions upon which it is based.

Policy 4: Given that it has been determined that the improvements recommended in the Chemawa IAMP are not reasonably likely to be constructed within the 2031 planning horizon and are therefore not planned improvements that can be relied upon to support subsequent land use changes, the City shall establish alternative mobility standards for local intersections shown in Table 6-3 of the IAMP and incorporated into Chapter 4 (Table 4-7) of the TSP to match their expected performance through 2031 to the existing adopted land use plans. These alternative standards shall supersede any alternative standards previously adopted.

Policy 5: Privately initiated, quasi-judicial plan amendments within the Chemawa Interchange Overlay Zone that would result in an increase in travel demand and would cause the adopted alternative mobility standards in either the Oregon Highway Plan or the TSP to be exceeded must be mitigated as provided for under OAR 660-012-0060 or OAR 731-017. Legislative plan amendments initiated by the City that will result in an increase in travel demand that causes these alternative mobility standards to be exceeded shall require mutual agreement between the City and ODOT. Such agreement may be predicated upon improvement or other mitigation agreements and must be

instituted through amendments to the IAMP and relevant local plans and ordinances.

Policy 6: In the event that all or a component of the Recommended Alternatives identified in this IAMP are included in the SKATS RTSP and become planned improvements that are therefore considered reasonably likely to be funded during the 2031 planning horizon, the City and ODOT will reassess the alternative mobility standards, as established in the IAMP and adopted in the TSP and OHP, and if necessary, adjust them (to be either more or less stringent) to support the land uses and travel demand associated with the existing adopted comprehensive plans at the time the specific improvements have been determined to be reasonably likely.

Policy 7: When the City legislatively updates the comprehensive plan and/or UGB in a manner that increases the future travel demand above the level assumed in this IAMP, the City shall coordinate with ODOT to update the IAMP, as mutually determined to be appropriate by ODOT and the affected jurisdictions. This kind of update may address land use assumptions, changes to recommended improvements, alternative mobility standards, and other relevant plan policies or ordinances.

Policy 8: The City shall notify and coordinate with ODOT in the review of proposed land use actions within the Chemawa Interchange Overlay Zone. Land use actions within the Chemawa Interchange Overlay Zone that may increase the future travel demand above the level assumed in this IAMP, such as zone changes, land use applications, development applications, non-land use actions such as requests for access to facilities under ODOT's jurisdictional authority, and other changes to the transportation system within the interchange management area must be found to be consistent with the adopted IAMP. Actions that are not consistent with the IAMP may only be approved by also amending the IAMP and related TSPs in compliance with OAR 660-012-0050 and -0055.

Policy 9: In order to protect transportation facilities in the Chemawa Interchange Overlay Zone, the City shall require a Traffic Assessment Report for all land use changes, land use applications, and development applications in the area, or a Traffic Impact Analyses (TIAs), developed pursuant to the requirements of the Development Code, for high traffic generation proposals. The City will coordinate with ODOT Region 2 staff, as appropriate, to determine the extent of the impact analysis.

Policy 10: The Chemawa IAMP serves as the Access Management Plan for the Chemawa Interchange Overlay Zone; all proposed new approach roads and changes to approaches within the overlay must be consistent with this plan.

Policy 11: The City supports the expansion of transit service in the vicinity of the interchange and, specifically, supports the development of a transit center within the Chemawa Interchange Overlay Zone, as well as a potential future commuter rail connection when and/or if warranted.

Policy 12: The City shall notify and coordinate with the local public transit service provider (Salem-Keizer Transit, "Cherriots") when land use applications are made in the Chemawa Interchange Overlay Zone.

Policy 13: Before or during the first review and update of the IAMP, which will occur within 5 to 10 years after its adoption, the City shall develop a strategy to enhance transportation demand management (TDM) in the Chemawa Interchange Overlay Zone. The TDM strategy may consist of either development requirements, a TDM program coordinated with employers within the Chemawa Interchange Overlay Zone, or some combination thereof.

Policy 14: The City supports walking and bicycling in the Chemawa Interchange Overlay Zone and will continue to explore ways to provide safe and accessible pedestrian and bicycle facilities in the vicinity of the interchange, especially in areas with environmental or other right-of-way constraints. In addition, the City will encourage enhanced treatments and facilities in the overlay, such as the existing pedestrian and bicycle undercrossings at Keizer Station in order to establish a safe, convenient, and continuous walking and bicycling system within the overlay that is connected to the existing and recommended surrounding transportation system.

Policy 15: The City will continue to explore ways to improve the local road system in order to relieve traffic on Chemawa Road and Lockhaven Road including improvements that are consistent with the IAMP Recommended Alternative (Section 5.1). The City will confer with ODOT about opportunities for state funding to be secured for local circulation improvements, pursuant to OHP Policy 2B, Off-System Improvements.

Chapter 3
Alternative Mode Performance Measures

ALTERNATIVE MODE PERFORMANCE MEASURES

This chapter summarizes the performance measures which will be used by City staff to monitor successful implementation of the community's vision for alternative mode transportation. The current status and targets related to each performance measure, a brief summary of tools/methods for calculating each measure, and a brief summary of how each measure relates to the project goals and objectives is documented below. This chapter is intended to provide direction on how to measure the system performance and monitor TSP progress and success.

Table 3.1 describes the performance measures and benchmarks for the pedestrian, bicycle, and transit modes as well as for funding of the transportation system. The percentage values shown in parentheses indicate what percentage of the facility the measure represents under existing conditions as well as desired for the future. A definition of each performance measure is provided in the following sections.

Table 3.1 TSP Performance Measures for Monitoring TSP Implementation

Measure	Description	Category (Unit)	2008 (percent of system)	2015 (percent of system)	2020 (percent of system)	2025 (percent of system)	2031 (percent of system)
1. Pedestrian	Increase miles of sidewalks along arterial, collector and residential streets and along streets that are adjacent to transit routes and neighborhood trip generators (i.e. schools, parks community centers, etc.).	Arterial/ Collector (miles)	25 (65%)	27 (70%)	30 (78%)	32 (85%)	35 (92%)
		Local Street (miles)	102 (72%)	108 (78%)	110 (78%)	116 (82%)	120 (85%)
		Private Street (miles)	30	31 32 34			36
2. Bicycle	Increase miles of bike lanes along arterial and collector streets and along streets that are adjacent to transit routes.	Arterial/ Collector (miles)	30 (72%)	32 (78%)	33 (80%)	35 (85%)	38 (91%)
3. Transit and Land Use	Number of residential units or square footage of commercial development within a transit influence area.	Residential (dwelling units)	9,800 (70%)	10,712 (73%)	11,775 (75%)	12,780 (77%)	14,032 (80%)
		Commercial (sq. ft)	1.6 million	2.2 million	2.5 million	2.8 million	3.5 million
4. Funding	Spending on transportation increases at a rate to match projected funding needs.	Annual	$1.2 mil	$720,000	$720,000	$800,000	$900,000
		5 or 7 year increment	N/A	$5.04 mil	$3.75 mil	$4.0 mil	$4.5 mil
		Cumulative	$1.2 mil	$6.24 mil	$9.99 mil	$13.99 mil	$18.49 mil

Pedestrian Performance Measure

1. Increase miles of sidewalks along streets that connect to transit routes and neighborhood trip generators (i.e. schools, parks, community centers, shopping centers, etc.).

Past experience in Keizer and similarly sized communities has shown that pedestrian use increases when the pedestrian facilities provide safe and convenient connections between residential areas and nearby attractions such as schools, parks, transit stops, shopping areas, and employment centers. The goal is to increase the miles of sidewalks within Keizer along arterial, collector, and residential streets with special emphasis on streets that also provide transit service and serve neighborhood trip generators such as school, parks, community centers, etc. It is also important for the Keizer pedestrian system to link with the neighboring regional pedestrian/pathway system. With the expansion of the pedestrian facilities in these key areas there will be a greater likelihood of walking trips in the future.

There are currently 157 miles of sidewalks in Keizer. A review of recent transportation projects indicates that approximately 6 miles have been added to arterial and collector streets in Keizer over the last 10 years, at a rate of approximately 0.6 miles per year. The proposed performance measures shown in Table 3.1 suggest an increased rate of 1.5 miles of sidewalk per year, which is double the rate of construction for the last ten years.

In addition the City is committed to constructing sidewalk projects which: fill an identified gap in the sidewalk system; or provide a connection to a community destination such as a school, park or employment/shopping area. Of the sidewalk related projects identified in Table 9.1 of Chapter 9 the following will fill an identified gap in the community's sidewalk system:

- S5 - Dearborn Avenue - Construct sidewalk on Dearborn Avenue from 13th Avenue to Verda lane;
- S2 - Mandbrin Avenue – Fill in sidewalk gaps on Mandbrin Avenue between Toni Avenue and River Road
- S9 - Windsor Island Road - Fill in sidewalk gaps from Chemawa Road to City limits.
- S10 - O-Neil Road - Fill in sidewalk gaps from Park Meadow Drive to Clear Lake Road

- S12 - Wheatland Road - Fill in sidewalk gaps from River Road to Clear Lake Road

Projects that will provide connections to current community destinations are:

- S4 – Chemawa Road from west city limits to River Road – provides partial connection to Keizer Rapids Park
- S11 – Chemawa Road from Verda Lane to Lockhaven Drive – providing a connection to employment and shopping at Keizer Station.
- S3 - Cummings Lane from Palma Ciea Park to River Road – providing a connection to Palma Ciea Park and Cummings Elementary school.
- S6 – Delight Street from Cummings Lane to Chemawa Road – providing a connection to Cummings Elementary and McNary High school.

Total estimated sidewalk spending is shown in Table 9.3 as $12,765,000. The projects identified above have an estimated total cost of $10,810,000. Approximately 85-percent of the sidewalk spending will be on projects to fill in gaps or connect destinations. The City's focus on filling existing gaps, connecting community destinations, and achieving 92-percent completion of the sidewalk system by 2031 will lead to a comprehensive pedestrian system.

Bicycle Performance Measure

2. Increase miles of bike lanes along arterial and collector streets and along streets that are adjacent to transit routes.

The goal is to provide a complete and continuous bicycle facility network within Keizer and to connect it to the bicycle networks of the City of Salem and Marion County. A bicycle facility includes designated bike routes, striped bike lanes on a roadway, shared-lane pavement markings (also called sharrows[1]), wide shoulders (5 foot or greater), or a separate path. The emphasis of improvements to the bicycle system is to create a safe comprehensive system of bicycle facilities within the city of Keizer. When a safe and convenient bicycle network is in place, there are

[1] Shared-lane pavement markings are a tool used to accommodate cyclists on roadways where bicycle lanes are desirable but infeasible to construct, as shown in the photo above. While they are not documented in the current Manual on Traffic Control Devices (MUTCD), the upcoming revision will include them.

opportunities for increased travel by bike in the community. Through the development of additional bike facilities, Keizer can also help achieve the transit goal by prioritizing bike projects that are able to serve transit hubs or transit oriented developments.

There are currently 30 miles of bike facilities in Keizer. A review of recent transportation projects indicates that approximately 10 miles of bike lanes for arterial and collector streets have been added to Keizer in the last 10 years, at a rate of approximately 1 mile per year.

Similar to sidewalks, the city is committed to constructing bicycle projects which: fill identified gaps in the system; or provide a connection to community destinations such as schools, parks or employment/shopping areas. Project B3 in Table 9.1 of Chapter 9 designates Verda Lane from Kalmia Drive to Lockhaven Drive as a bicycle route and fills an existing bicycle system gap on Verda Lane.

Bicycle projects that will connect current community destinations:

- B2 – Chemawa Road – construct bicycle lanes on both sides of the roadway from Windsor Island Road to West City Limit providing a connection to Keizer Rapids Park;
- B7 – Delight Street – designate as a bicycle route from Cummings Lane to Chemawa Road providing a connection to Cummings Elementary and McNary High schools;
- B11 – Meadow Glenn Street – Designate as a bicycle route from Parkmeadow Street to Clear Lake Elementary school;
- B4 – Tepper Lane – construct bicycle lanes on both sides of the street from McLeod Street to the railroad tracks providing a connection to Keizer Station;
- B9 – Brooks Avenue – designate as a bicycle route from Manbrin Drive to Salem Parkway providing regional connectivity; and
- B10 – 14th Avenue – Designate as a bicycle route from Lockhaven Drive to Gubser Elementary School.

Total estimated bicycle project spending is shown in Table 9.3 as $2,480,000. The projects identified above have an estimated total cost of $1,180,000. Approximately 50-percent of the bicycle project spending will be on projects which fill in gaps or connect destinations.

Transit and Land Use Performance Measure

3. Number of residential units, or square footage of commercial development, within a transit influence area.

When higher density residential development and employment centers are placed in close proximity to transit service there is a greater opportunity for transit trips, thereby reducing

Transit and Land Use Performance Measure

3. Number of residential units, or square footage of commercial development, within a transit influence area.

When higher density residential development and employment centers are placed in close proximity to transit service there is a greater opportunity for transit trips, thereby reducing vehicle miles traveled (VMT) in Keizer. For the purposes of this measure, the transit influence area is defined as an area within ¼ mile of a transit center or an area within ¼ mile of a transit stop. This type of development pattern can also increase opportunities for biking and walking between uses.

To help this measure move forward, Keizer will appropriately designate vacant or developable land to accommodate greater density and commercial/employment lands in transit influence areas. Additionally, Keizer will offer incentives for development and redevelopment in these areas. The measures can be deemed successful at the time the number of units per year or the square footage of commercial space per year exceeds the identified goals shown in Table 3.1. This table shows that there are separate goals for residential units and commercial development.

Funding Performance Measure

4. Spending on transportation increases at a rate to match projected funding needs.

The goal of this performance measure is to ensure adequate funding commitments to the future transportation improvements (as shown in the project priority list) needed in Keizer to support the adopted comprehensive land use plan.

In order to maintain continuity between funding and transportation system operation, Keizer will need to adjust the spending, reduce the number or cost of transportation projects, or develop other funding strategies. As appropriate, Keizer will seek funding grants and other opportunities to reduce potential funding shortfalls.

Chapter 4
Roadway System

ROADWAY SYSTEM

The roadway system is the primary means of mobility for Keizer residents. Pedestrians, bicyclists, and motorists all utilize public roads for the vast majority of their trips. Typically, roadways can be owned, operated, and maintained by the State of Oregon, a County, and/or a local jurisdiction. In Keizer all of the arterials and collectors are owned, operated, and maintained by the City of Keizer as illustrated in Figure 4.1. Salem Parkway (99E Business) and I-5 are owned and maintained by the Oregon Department of Transportation (ODOT).

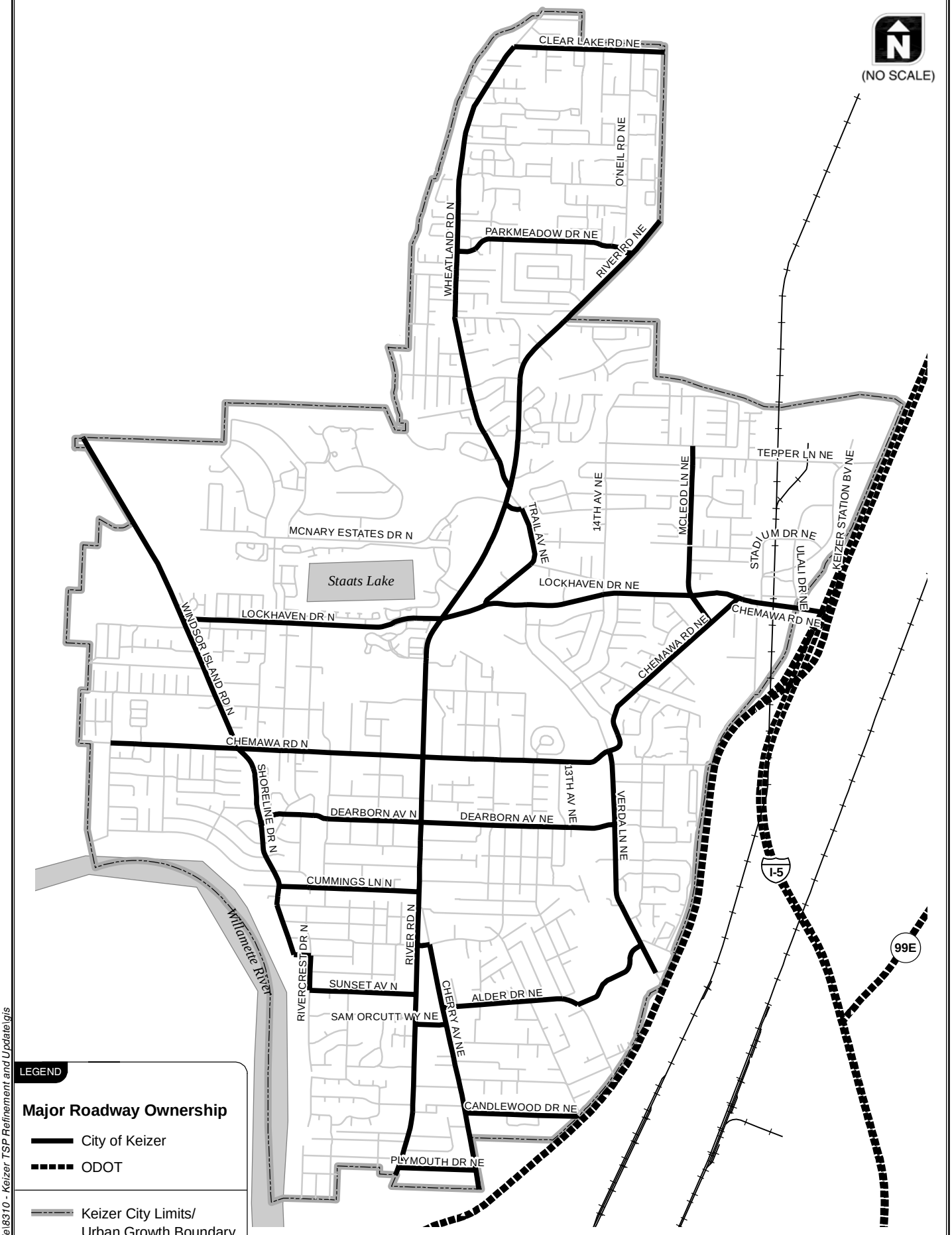
With jurisdiction of the roadways, the City of Keizer is responsible for:

- Determining the road's functional classification. This sets the roadway's role in the transportation system and its design features, such as width, right-of-way requirements, driveway (access) spacing standards, and the types of pedestrian and bicycle facilities provided.
- General maintenance and upkeep.
- Approving construction and access permits.

Functional Classification

A roadway's functional classification describes its role in the transportation system. In general, the basis of the functional classification of a roadway is dependent upon the priority given to each of its two primary functions: 1) providing regional mobility, and 2) promoting local accessibility. Mobility refers to physical movement and is evaluated based on travel distance and speed, while accessibility refers to the ability to connect desired goods, services, activities, and destinations. The City of Keizer defines streets based on the following classifications:

- ***Major Arterials*** serve as the supporting framework for the City's roadway network. These roadways are intended to serve higher volumes of traffic and provide the highest level of mobility into, out of, and within the City of Keizer. Approximately 15,000 to 50,000 Average Daily Traffic (ADT) travel on major arterials. Cherry Avenue, Lockhaven Drive between River Road and I-5, and River Road are major arterials in Keizer.
- ***Minor Arterials*** complement the major arterial system and primarily handle trips within Keizer. Minor arterials function to provide access between major arterials and collector roads and can also provide access to community activity centers, such as schools and parks. Minor arterials should not go through residential neighborhoods. Minor arterials function with approximately 7,000 to 20,000 ADT. Chemawa Road between River Road and Lockhaven Drive, and Wheatland Road are examples of minor arterials in Keizer.



JURISDICTIONAL RESPONSIBILITY
KEIZER, OREGON

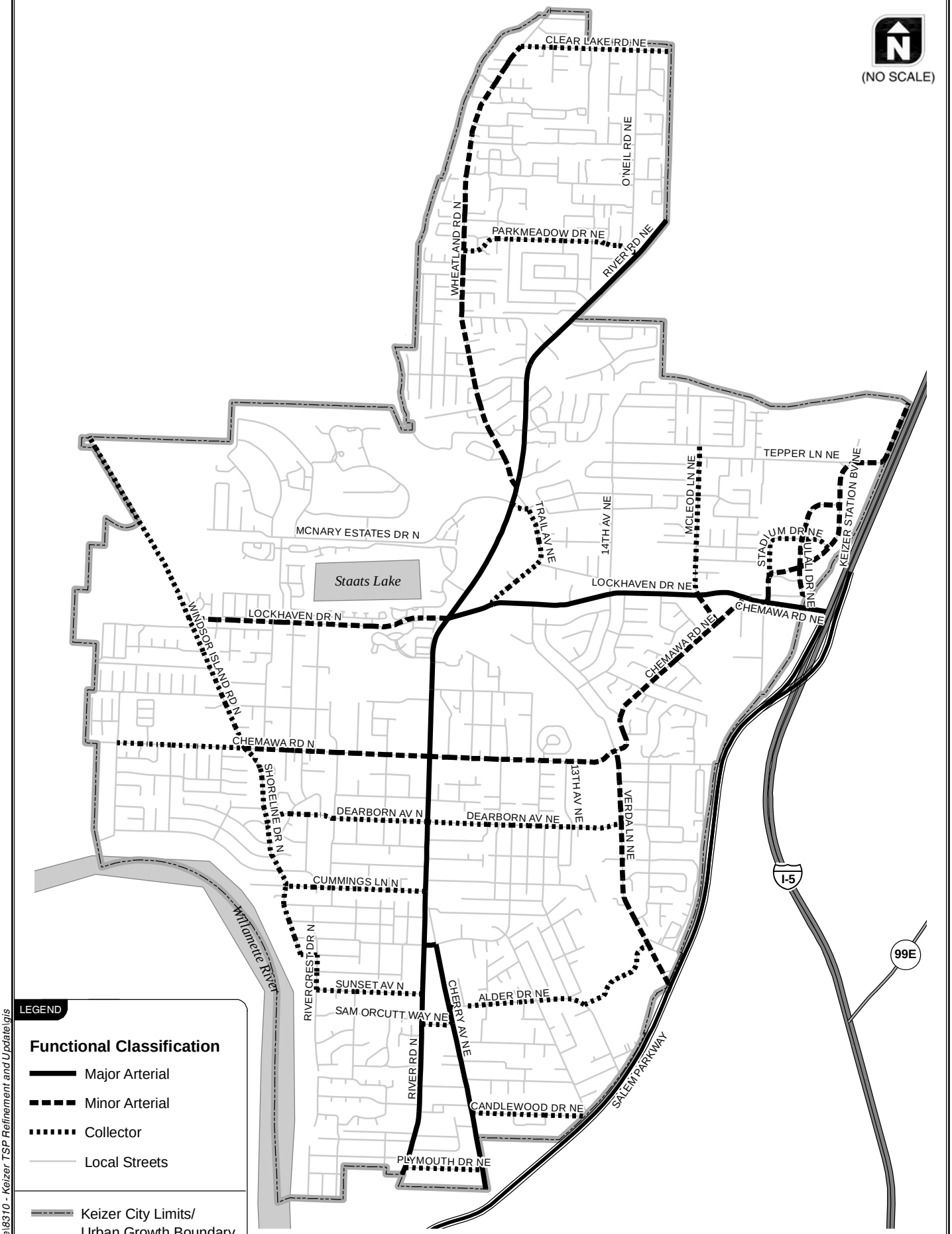
FIGURE 4.1

H:\projfile\8310 - Keizer TSP Refinement and Update\gis

- ***Collectors*** represent the intermediate roadway class. As their name suggests, these roadways collect traffic from the local street system and distribute it to the arterial street system. These roadways provide a balance between traffic movement and land access and facilitate traffic circulation through the city. Collectors function at 1,600 to 10,000 ADT. Chemawa Road between Windsor Island Road and 15th Avenue, and Dearborn Avenue are examples of collectors in Keizer.

- ***Local roads*** and streets are the lowest roadway class. Their primary purpose is to provide local land access and to carry locally generated traffic at relatively low speeds to the collector street system. Local streets provide connectivity through neighborhoods and are designed to discourage cut-through vehicular traffic. The majority of roadways in Keizer are local streets. As a general rule of thumb, residential livability concerns arise at approximately 1,600 ADT. This discussion is provided for reference only because the TSP focuses exclusively on Collector and Arterial Streets.

It is common for a street to have different classifications on some sections. As noted in the classification examples, Chemawa Road operates as both a minor arterial and collector within the City of Keizer. Figure 4.2 shows the classification of all roadways within the City of Keizer. As previously noted, Salem Parkway (99E Business) is owned and operated by ODOT. According to the ODOT functional classification system, Salem Parkway is classified as a Regional Highway (Expressway). As such its function is to provide regional mobility and, in this particular location, a connection between I-5 and Salem.



H:\projfile\8310 - Keizer TSP Refinement and Update\gis

FUNCTIONAL CLASSIFICATION MAP
KEIZER, OREGON

FIGURE **4.2**

Design Standards

The roadway design standards are shown in Table 4.1. The City of Keizer has developed street design standards based on the functional classification and operational needs of the roadway. The design standards were developed with close collaboration between planning and public works staff at the City. These standards are in accordance with the Transportation Planning Rule's requirement for minimum standards consistent with operational needs (Section 660-012-0045-7). Figures 4.3 and 4.4 illustrate the street design standard cross-sections.

The street design standards show five different options for local streets. These standards allow the City flexibility in the design of the street network.

Table 4.1 Street Design Standards

Functional Classification[1]	Number of Lanes	Parking	Bike Lanes[2]	Roadway Width (ft.)[3]	Sidewalks[4]	Right-of-Way Width (ft.)[4,5]	Maximum Dwelling Units Served
Major Arterial	5	No[6]	Yes	50-72	Yes	84	-
Minor Arterial	3	No[6]	Yes	36-50	Yes	72	-
Collector	2	No[6]	Yes	36-50	Yes	68	-
Local V	2	Yes	No	34	Yes	48	-
Local IV	2	Yes	No	32	Yes	46	79
Local III	2	Yes	No	30	Yes	44	19
Local II	2	Yes	No	30	Yes	42	14
Local I	2	Yes[7]	No	28	Yes[7]	35	9

[1] All local street categories have a ten-foot public utility easement on both sides and a five-foot slope and utility easement on collectors and arterials.

[2] Standard bike lane widths are six feet; although five feet may be approved on a case by case basis.

[3] Street improvement and right-of-way widths may be increased on a case by case basis as required by the city in accordance with Public Works Design Standards.

[4] All streets will have five foot wide sidewalks on both sides, unless noted. Meandering sidewalks may be considered/required on arterials and collectors.

[5] Additional right-of-way may be required at intersections for additional turning lanes. Right-of-way at intersections is required to provide for a minimum 20 foot curb return radius.

[6] Depending on installed improvements.

[7] Parking/sidewalks only required on one side of street.

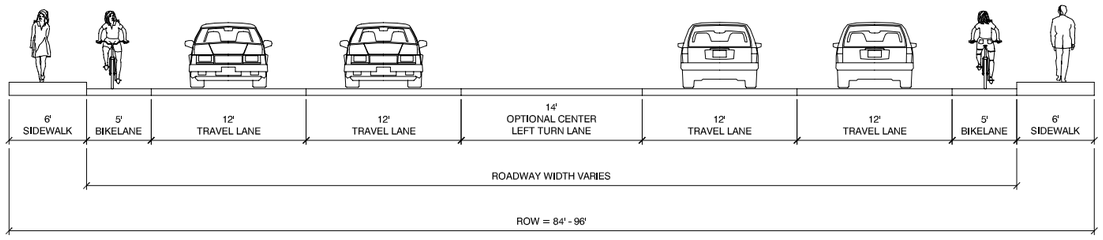
Table 4.1 shows that parking is generally not allowed on higher order streets (i.e. arterial and collector streets), however under some circumstances it may be permitted where it is considered appropriate by the City. This will be determined at the discretion of the City Engineer or City Council on a case by case basis.

These guidelines also include five foot planter strips on collectors and minor arterials. Additionally, use of transit is facilitated by construction of bus pullouts on Local Street V, collectors, and arterials.

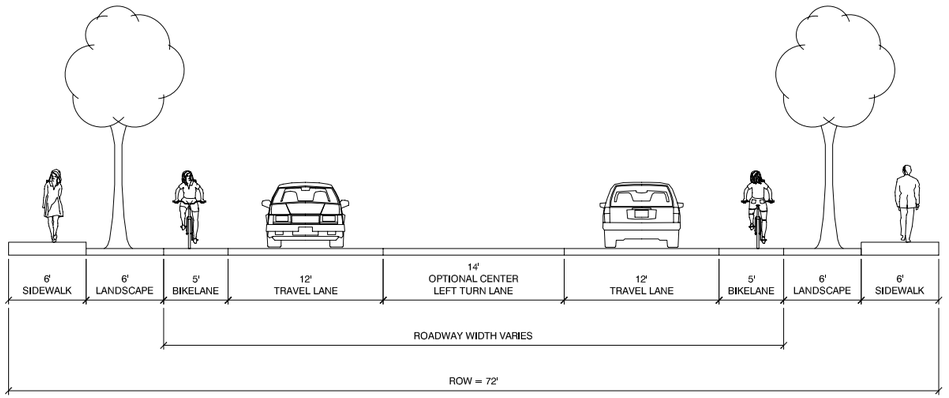
The City of Keizer has also developed design standards for access easements. An access easement is a private roadway that serves less than five dwelling units. These standards are shown in Table 4.2 and illustrated in Figure 4.3.

Table 4.2 Private Easement Street Design Standards

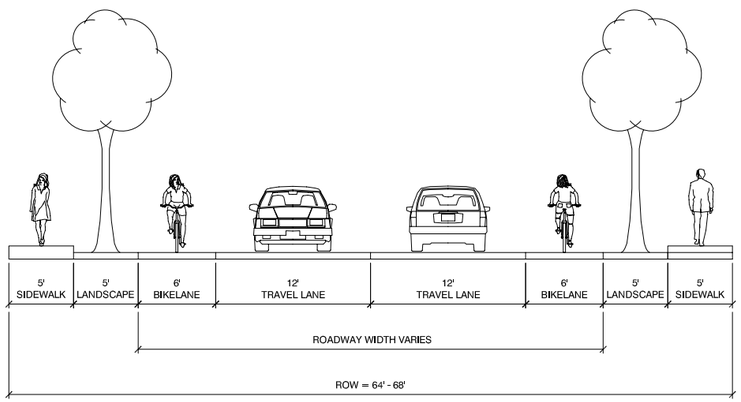
Easement Type	Minimum Right-of-Way Width (ft.)	Minimum Pavement Width (ft.)	Parking	Sidewalks	Maximum Dwelling Units Served
Access Easement II	16	16	No	No	4
Access Easement I	12	12	No	No	2



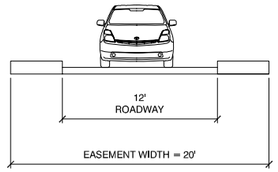
MAJOR ARTERIAL



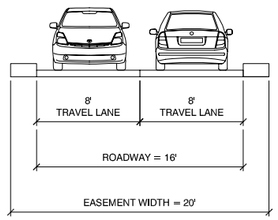
MINOR ARTERIAL



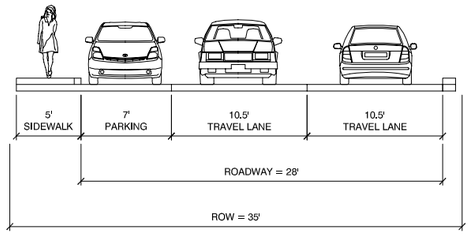
COLLECTOR



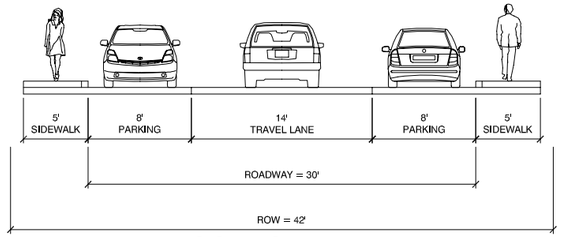
PRIVATE ACCESS EASEMENT I
(SERVING UP TO 2 DWELLING UNITS)



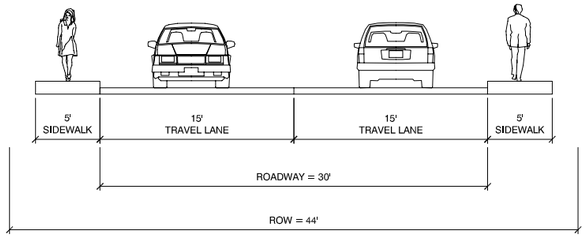
PRIVATE ACCESS EASEMENT II
(SERVING UP TO 4 DWELLING UNITS)



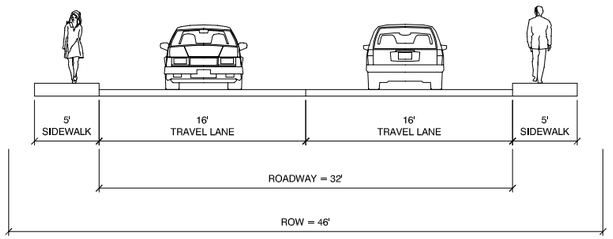
LOCAL STREET I
(SERVING UP TO 9 DWELLING UNITS)



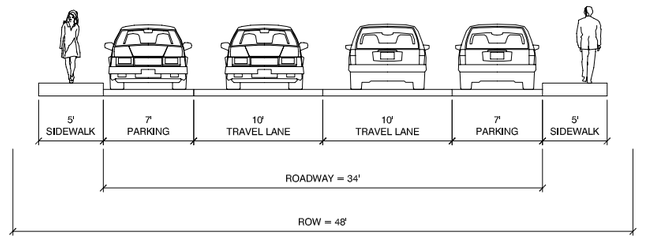
LOCAL STREET II
(SERVING UP TO 14 DWELLING UNITS)
SIDEWALKS MAY BE IN EASEMENTS FOR INFILL PROJECTS



LOCAL STREET III
(PARKING ALLOWED BOTH SIDES)
(SERVING UP TO 19 DWELLING UNITS)



LOCAL STREET IV
(PARKING ALLOWED BOTH SIDES)
(SERVING UP TO 79 DWELLING UNITS)



LOCAL STREET V
(PARKING ALLOWED BOTH SIDES)
(SERVING 80+ DWELLING UNITS)

Access Management Strategies

As noted earlier in this chapter, arterial streets serve two functions; 1) providing regional mobility for through traffic, and 2) promoting local accessibility for properties fronting and adjacent to the roadway. Because of the conflicting nature of these two functions, the traffic mobility function of arterial streets can be hampered by providing too much access to individual properties.

It is the purpose of this section to try and maintain the balance between these two arterial functions, recognizing both the rights of property owners to reasonable access and the public purpose of efficient traffic flow. These standards apply to new development or redevelopment; existing accesses are allowed to remain as long as the land use does not change. As a result, access management is a long term process in which the desired access spacing of a street evolves as redevelopment occurs.

In implementing access management standards, parcels cannot be landlocked but must have some way of accessing the public street system. This may mean allowing shorter access spacing than would otherwise be allowed, but the possibility of providing shared access with a neighboring parcel should also be explored.

Arterial Access Spacing Standards

On arterial streets, the minimum distance between curb cuts on any one block face, or between curb cuts and an intersecting street, is based on the posted speed of the street and shall not be less than 150 feet. No driveway will be permitted within the operational area of a traffic signal. Minimum distance for a curb cut from a signalized intersection will be 200 feet. Measurements shall be taken from the inside edge of the driveway, excluding any apron.

Table 4.3 shows the minimum spacing for public streets and driveways on an arterial street. Minimum and maximum allowed widths for private driveways for various land uses are summarized in Table 4.4.

Table 4.3 Arterial Access Spacing Standards

Posted Speed (miles per hour)	Minimum Spacing (feet)
25 150	
30 150	
35 150	
40 185	
45 230	
50 or higher	275

Table 4.4 Private Access Driveway Width Standards

Land Use	Minimum Width (feet)	Maximum Width (feet)
Single Family Residential	12	24
Multi-Family Residential	24	30
Commercial 3	0	40
Industrial 30		40

Where the existing configuration of properties and curb cuts in the vicinity of the building site precludes spacing of an access in accordance with Table 4.3, the Public Works Director shall be authorized to reduce the spacing requirement if all of the following conditions have been met:

1. Joint access driveways and cross access easements are provided, where possible, in accordance with the standards;

2. The site plan incorporates a unified access and circulation system in accordance with standards; and

3. The property owner enters into a written agreement with the City that pre-existing connections to the site will be closed and eliminated after construction of each side of the joint use driveway.

Driveway approaches must be designed and located so that an exiting vehicle will have an unobstructed sight distance (exclusive of tree trunks and post or columns less than one foot in diameter) in accordance with Table 4.5.

Table 4.5 Driveway Access Sight Distance Standards

Posted Speed (miles per hour)	Minimum Sight Distance (feet)
25 150	
30 175	
35 225	
40 275	
45 325	
50 or higher	350

Access Management Techniques

From an operational perspective, access management measures limit the number of redundant access points along roadways. This enhances roadway capacity and benefits circulation. Enforcement of the access spacing standards should be complemented with the provision of alternative access points. Purchasing right of way and closing driveways without a parallel road system and/or other local access could seriously affect the viability of the impacted properties.

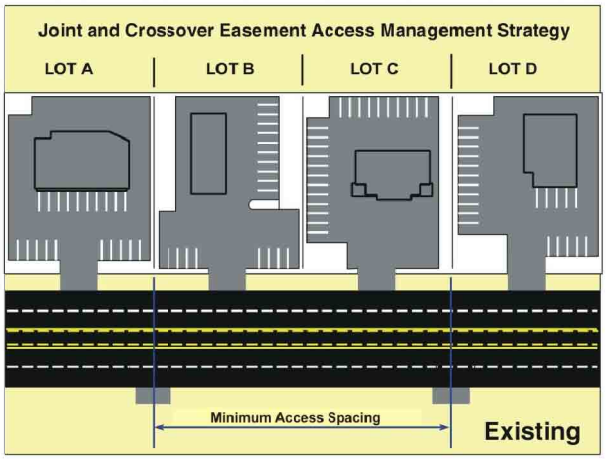
Thus, if an access management approach is taken, alternative access should be developed to avoid "landlocking" a given property.

As part of every land use action, the City of Keizer will evaluate the potential need for conditioning a given development proposal with the following items in order to maintain and/or improve traffic operations and safety along arterial and collector roadways.

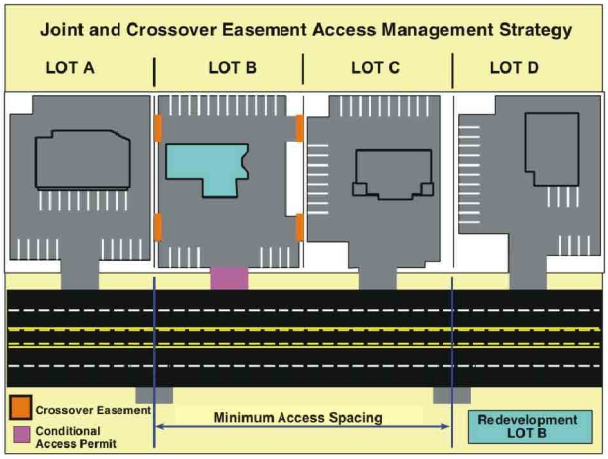
- Crossover easements should be provided, where possible, on all compatible parcels (considering topography, access, and land use) to facilitate future access between adjoining parcels.
- Conditional access permits may be issued to developments having proposed access points that do not meet the designated access spacing policy and/or have the ability to align with opposing driveways.
- Right of way dedications may be provided to facilitate the future planned roadway system in the vicinity of proposed developments.
- Half-street improvements (sidewalks, curb and gutter, bike lanes/paths, and/or travel lanes) may be provided along site frontages that do not have full build out improvements in place at the time of development.

Figure 4.5 illustrates the application of crossover easements and conditional access permits over time to achieve access management objectives. The individual steps are described in Table 4.6. As illustrated in the figure and supporting table, using these guidelines, driveways along the arterials will eventually move in the overall direction of the access spacing standards as development and redevelopment occur.

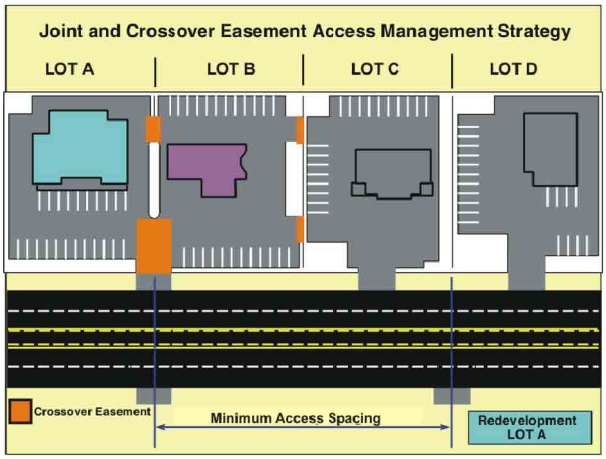
Proposed Access Management Strategy



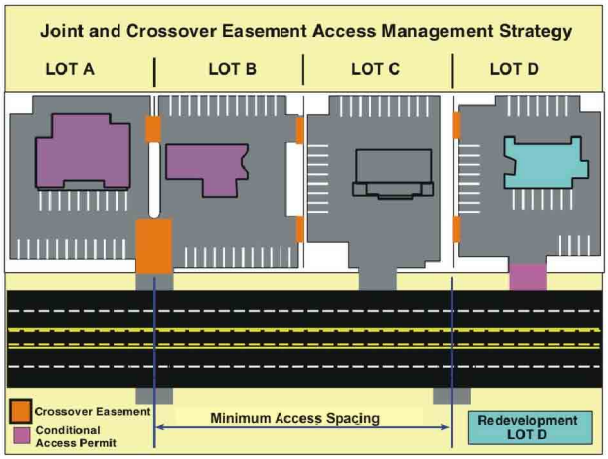
Step 1



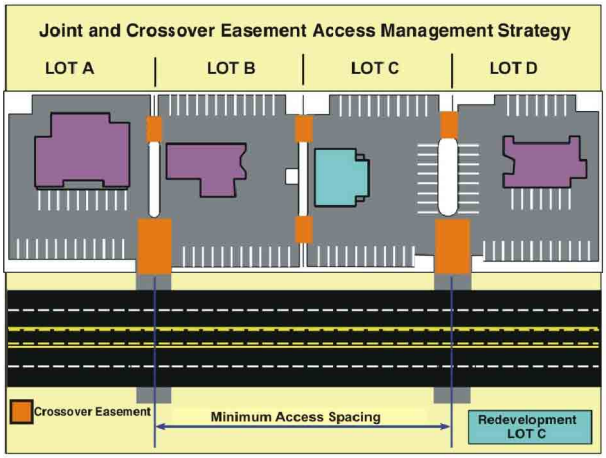
Step 2



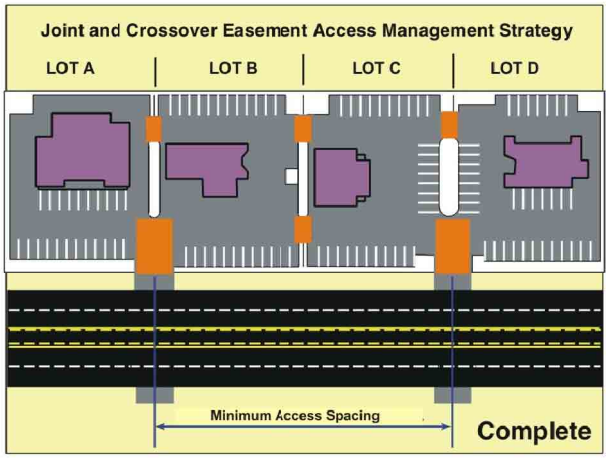
Step 3



Step 4



Step 5



Step 6

EXAMPLE OF CROSSOVER EASEMENT / INDENTURE / CONSOLIDATION / CONDITIONAL ACCESS PROCESS KEIZER, OREGON

FIGURE 4.5

Table 4.6 Crossover Easement / Access Consolidation / Conditional Access Process

Step	Process
1	EXISTING – Currently Lots A, B, C, and D have site access driveways that neither meet the access spacing criteria nor align with driveways or access points on the opposite side of the roadway. *Under these conditions motorists are put into situations of potential conflict (conflicting left turns) with opposing traffic. Additionally, the number of side-street (or site-access driveway) intersections decreases the operation and safety of the roadway.*
2	REDEVELOPMENT OF LOT B – At the time that Lot B redevelops, the City would review the proposed site plan and make recommendations to ensure that the site could promote future crossover or consolidated access. Next, the City would issue conditional permits for the development to provide crossover easements with Lots A and C, and grant a conditional access permit to the lot. *After evaluating the land use action, the City would determine that LOT B does not have either alternative access, nor can an access point be aligned with an opposing access point, nor can the available lot frontage provide an access point that meets the access spacing criteria for this segment of roadway.*
3	REDEVELOPMENT OF LOT A – At the time Lot A redevelops, the City would undertake the same review process as with the redevelopment of LOT B (see Step 2); however, under this scenario the City would use the previously obtained crossover easement at Lot B to consolidate the access points of Lots A and B. The City would then relocate the conditional access of Lot B to align with the opposing access point and provide safe and efficient access to both Lots A and B. *The consolidation of site-access driveways for Lots A and B will not only reduce the number of driveways accessing the roadway, but will also eliminate the conflicting left-turn movements on the roadway by the alignment with the opposing access point.*
4	REDEVELOPMENT OF LOT D – The redevelopment of Lot D will be handled in the same manner as the redevelopment of Lot B (see Step 2)
5	REDEVELOPMENT OF LOT C – The redevelopment of Lot C will be reviewed once again to ensure that the site will accommodate crossover and/or consolidated access. Using the crossover agreements with Lots B and D, Lot C would share a consolidated access point with Lot D and will also have alternative frontage access via the shared site-access driveway of Lots A and B. *By using the crossover agreement and conditional access permit process, the City will be able to eliminate another access point and provide the alignment with the opposing access points.*
6	COMPLETE – After Lots A, B, C, and D redevelop over time, the number of access points will be reduced and aligned, and the remaining access points will either meet or move in the direction of the access spacing plan.

Traffic Operations Standards

Traffic operations at intersections are described using two measures known as level of service (LOS) and volume-to-capacity (v/c) ratio.

Level of Service Standard

Level of service represents ranges in the average amount of delay that motorists experience when passing through the intersection. LOS is measured on an "A" (best) to "F" (worst) scale. At signalized and all-way stop-controlled intersections LOS is based on the average delay experienced by all vehicles entering the intersection. At two-way stop-controlled intersections LOS is based on the average delay experienced by the worst movement at the intersection, typically a left-turn from the stop-controlled street. For signalized intersections in the City of Keizer, LOS "D" (representing no more than 55 seconds of average delay) is considered to be the minimum acceptable operational level. For unsignalized intersections LOS "E" (representing no more than 50 seconds of average delay) is considered to be the minimum acceptable level.

Volume-to-Capacity Standard

The volume-to-capacity (v/c) ratio is a measure of how close an intersection is operating to its theoretical capacity. The theoretical capacity of an intersection is the number of vehicles that can pass through in a given period of time. A v/c ratio of 1.00 of more indicates that more traffic is traveling through the intersection per hour than the theoretical capacity of the intersection.

The City of Keizer maintains a v/c standard for arterial/arterial intersections as the operation of these intersections is critical to the operation of the network as a whole. Therefore an intersection of two arterial roadways must have a v/c ratio of 0.95 or less to be operating acceptably. For all other intersection types, only the LOS is used for determining intersection operation.

Table 4-7: Alternative Mobility Standards for City of Keizer Facilities in the Chemawa Interchange Overlay (CIO) Zone

Intersection	Existing Mobility Standard	Forecasted 2031 V/C Ratio Applying AMS	Alternative Standard (AMS) Assumptions and Thresholds
Lockhaven @14th	V/C 0.87	0.97	Apply non-Seasonally Adjusted Volumes for analysis Apply hourly Peaking instead of 15-minute peaking Increase mobility standard to V/C<1.0
Lockhaven@ McLeod	V/C 0.87	0.76	Increase mobility standard to V/C < 1.0
Lockhaven@ Chemawa/Keizer Station	V/C 0.87	0.85	Increase mobility standard to V/C < 1.0
Lockhaven @ River	V/C 0.87	0.87	Increase mobility standard to V/C < 1.0
Lockhaven @Verda	V/C 0.87	0.69	Increase mobility standard to V/C < 1.0

Transportation System Management

Transportation system management (TSM) is a term used to describe measures and techniques that attempt to maximize street system capacity and reduce demand. TSM measures are typically low cost, localized improvements to the existing infrastructure to increase its efficiency. TSM measures should always be considered in addition to roadway and capacity improvement projects. TSM measures relevant to Keizer include:

- Access management (apply access spacing standards, implement access management strategies).
- Improve traffic control devices (optimize signal timing, maintain and modernize signs and signals).
- On-street parking management (remove parking when extra capacity is required, prohibit parking on busy streets during peak periods).

As projects are identified and designed for the community, TSM measures should be considered as viable solutions to be integrated into projects.

Existing Traffic Operations Analysis

A detailed description of the existing conditions analysis (completed in January 2008) is found in the Existing Conditions Assessment memorandum provided in Appendix D of Volume II of this Transportation System Plan. Figures 4.6 and 4.7 provide a summary of the existing conditions operations analysis at the study intersections during the weekday a.m. and p.m. peak hours, respectively.

Signalized Intersections

According to the existing conditions summary, all signalized study intersection along City of Keizer arterials and collectors currently operate at a LOS "D" or better during the weekday a.m. and p.m. time periods. An intersection of two arterial roads must also have a v/c ratio of 0.95 or less to be considered to have an acceptable level of operation.

The performance of the intersections of Cherry Avenue and Verda Lane on Salem Parkway are measured against the ODOT volume-to-capacity ratio standard of 0.85. Both intersections are operating at acceptable volume-to-capacity ratios.

Unsignalized Intersections

During the existing weekday p.m. peak hour the Lockhaven Drive/Verda Lane intersection operates at LOS "F" due to the critical shared northbound left/right movement. The shared northbound left/right movement on Verda Lane is currently under capacity with a v/c ratio of 0.46, and it is likely that adequate gaps exist in traffic on Lockhaven Drive due to the signalized intersection of River Road/Lockhaven Drive, and 14th Avenue/Lockhaven Drive surrounding the intersection. All other traffic movements through this intersection currently experience acceptable levels of service.

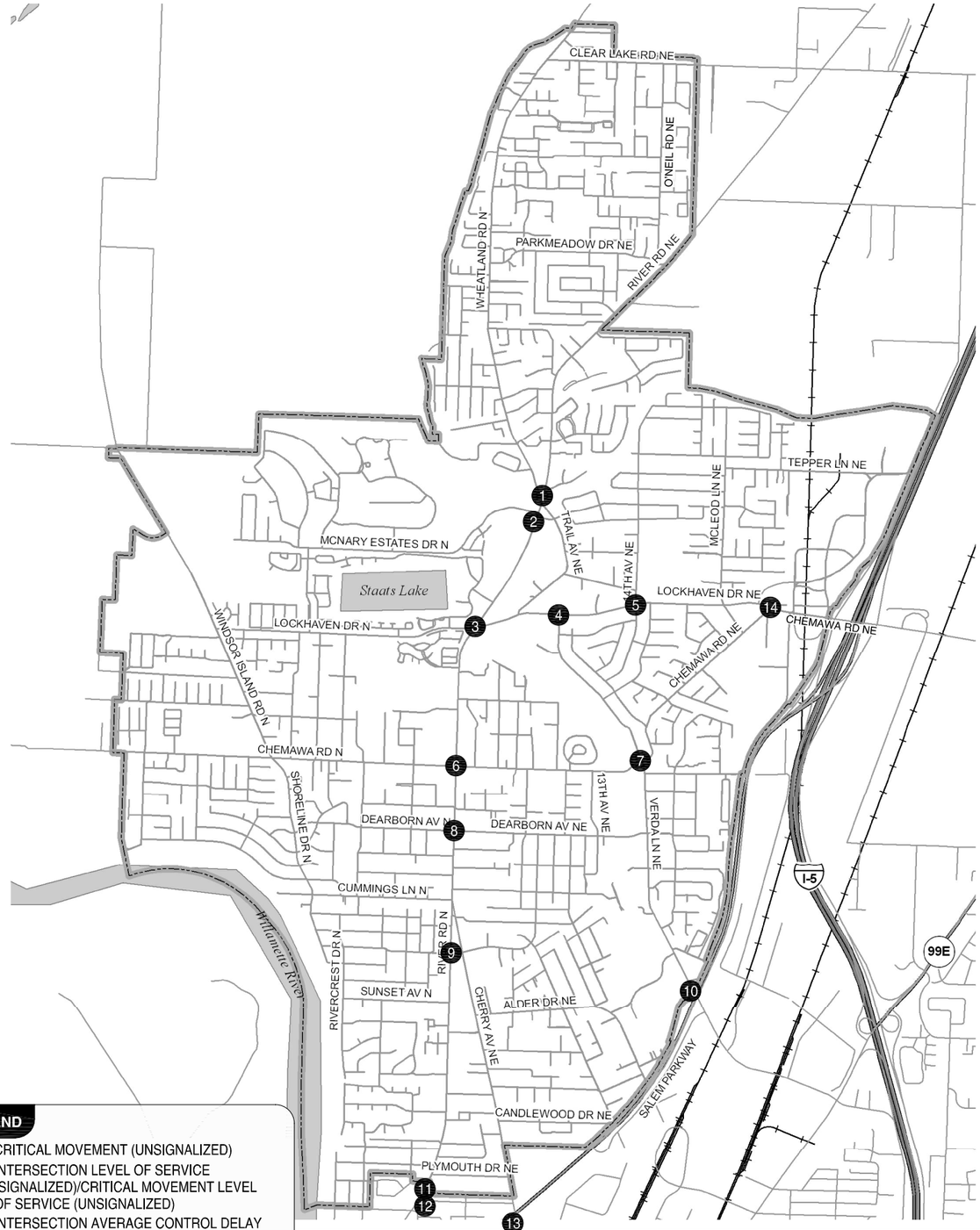
Roadway Safety

The critical rate method was used to identify if any of the study intersections had crash rates exceeding what would be expected at comparable intersections. The intersection of Verda Lane/Salem Parkway was identified as having more crashes than expected. Because this intersection is not under City of Keizer jurisdiction it is recommended that the City work closely with ODOT on future monitoring and possible intersection improvements.

In addition, a review of crash type and severity data, and intersection geometry was also conducted at the other study intersections. Based on this review, three additional intersections were identified for further study:

- River Road/Manbrin Drive – because of the relatively high number of turning-movement collisions and injury accidents,
- River Road/Dearborn Avenue – because of the relatively high number turning-movement collisions and injury accidents.
- River Road/Wheatland Road – because of the complexity of the intersection involving off-setting eastbound and westbound approaches and the curvature of the eastbound approach in close proximity to the signal. In addition, the collision diagrams showed a potential issue with the northbound left-turn movement and revealed that there could also be issues with sneakers – vehicles attempting to make the northbound left-turn movement during the yellow or all-red clearance interval.

There were no fatalities at any of the study intersections between 2002 and 2006.

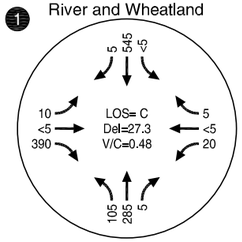


LEGEND

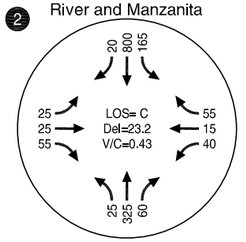
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

(NO SCALE)

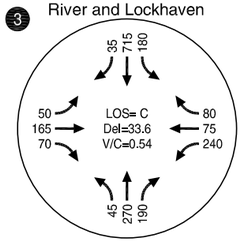
1 River and Wheatland



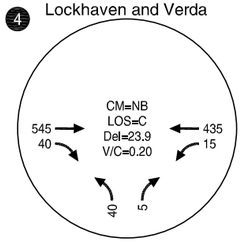
2 River and Manzanita



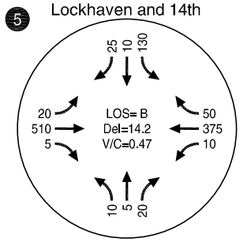
3 River and Lockhaven



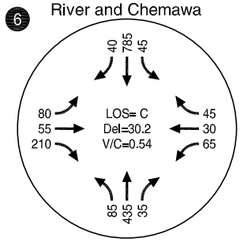
4 Lockhaven and Verda



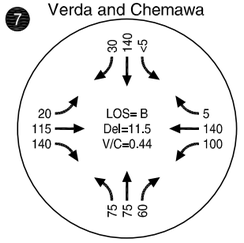
5 Lockhaven and 14th



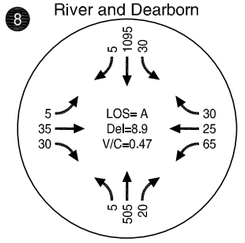
6 River and Chemawa



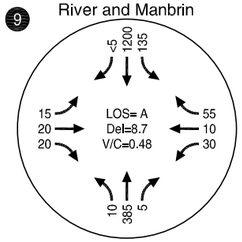
7 Verda and Chemawa



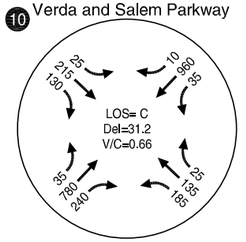
8 River and Dearborn



9 River and Manbrin



10 Verda and Salem Parkway



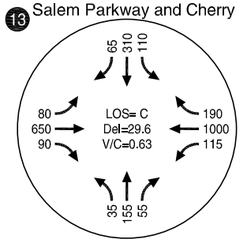
11 River and Shangri-La

AM Peak Hour Analysis Not Performed

12 River and Broadway

AM Peak Hour Analysis Not Performed

13 Salem Parkway and Cherry

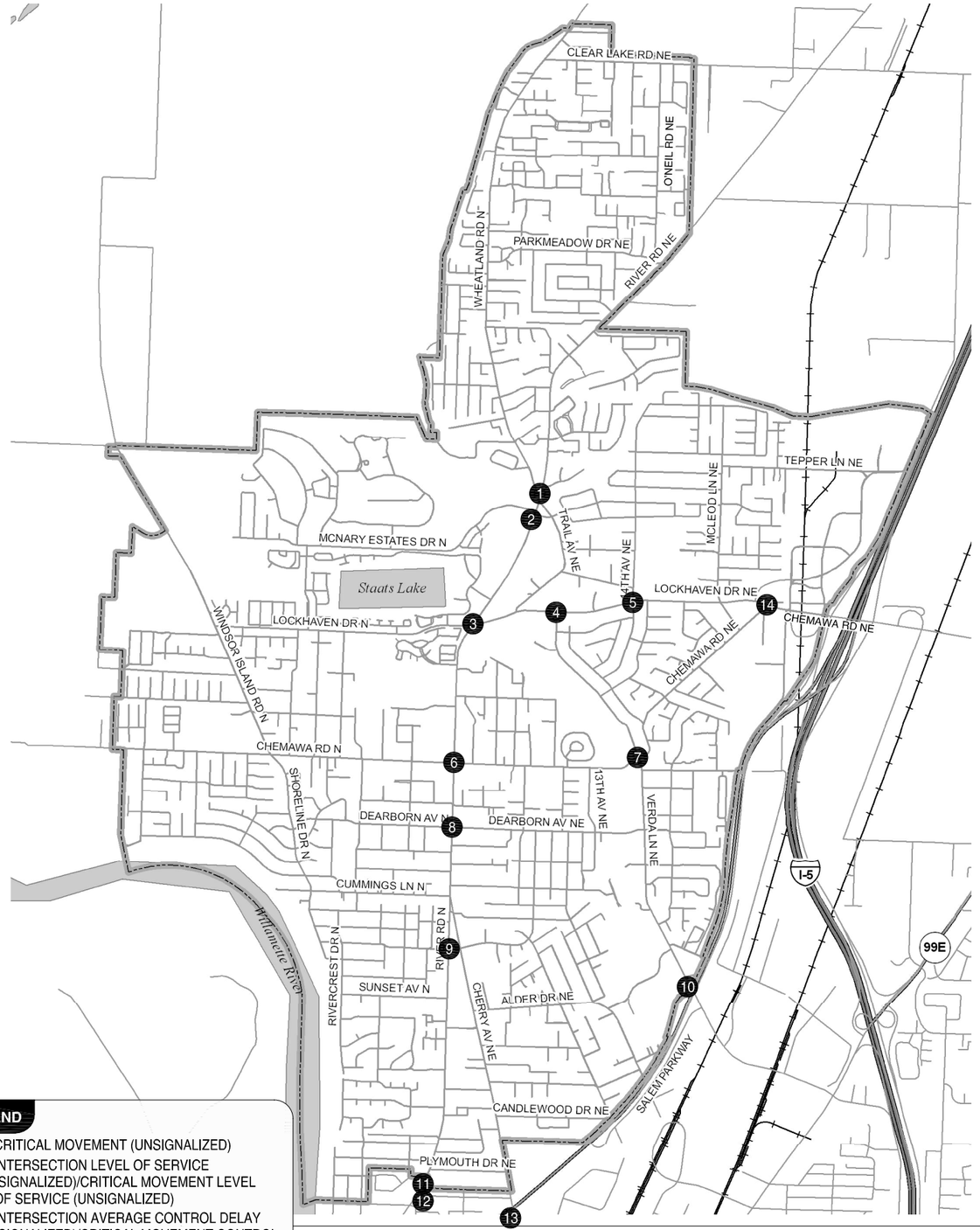


14 Lockhaven and Chemawa

AM Peak Hour Analysis Not Performed

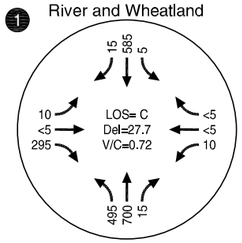
EXISTING TRAFFIC CONDITIONS AM PEAK HOUR
KEIZER, OREGON

FIGURE **4.6**

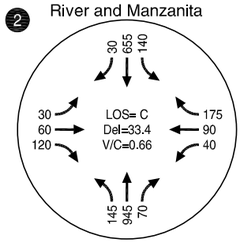


(NO SCALE)

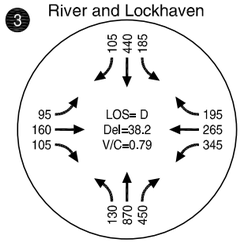
1 River and Wheatland



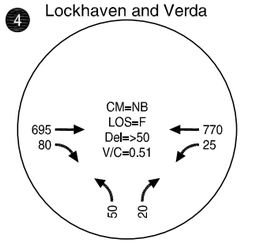
2 River and Manzanita



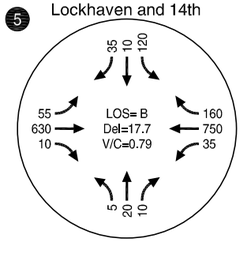
3 River and Lockhaven



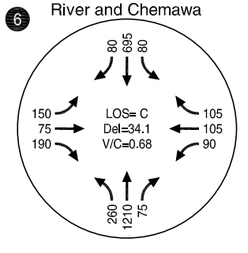
4 Lockhaven and Verda



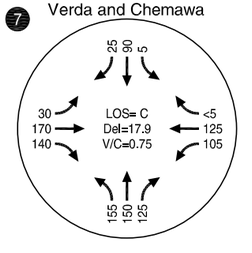
5 Lockhaven and 14th



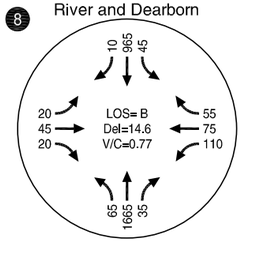
6 River and Chemawa



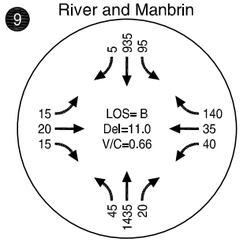
7 Verda and Chemawa



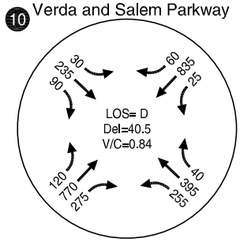
8 River and Dearborn



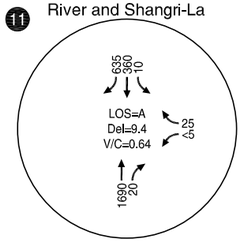
9 River and Manbrin



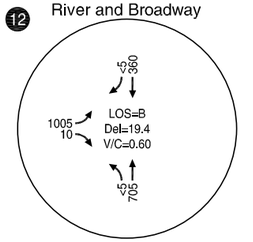
10 Verda and Salem Parkway



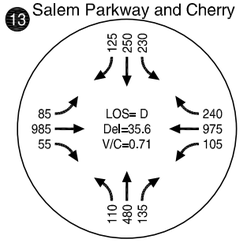
11 River and Shangri-La



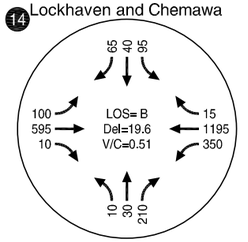
12 River and Broadway



13 Salem Parkway and Cherry



14 Lockhaven and Chemawa



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)

LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)

Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

EXISTING TRAFFIC CONDITIONS PM PEAK HOUR
KEIZER, OREGON

FIGURE **4.7**

Future No-Build Conditions Analysis

The "no-build" scenario transportation analysis consists of 2031 forecasted traffic volumes assigned to the existing roadway system with no capacity improvements other than those currently programmed (i.e. those projects with committed funding). The programmed improvements include the following:

- Additional east/west travel lanes on Lockhaven Drive/Chemawa Road between McLeod Lane and Ulali Drive/ Stadium Drive.
- Widening of Verda Lane from Chemawa Road to the south City limits to include additional travel lanes, bicycle lanes, and sidewalks.
- Widening of Chemawa Road to major arterial design standards including sidewalks and bike lanes.
- Traffic signal interconnects along River Road and Lockhaven Drive.

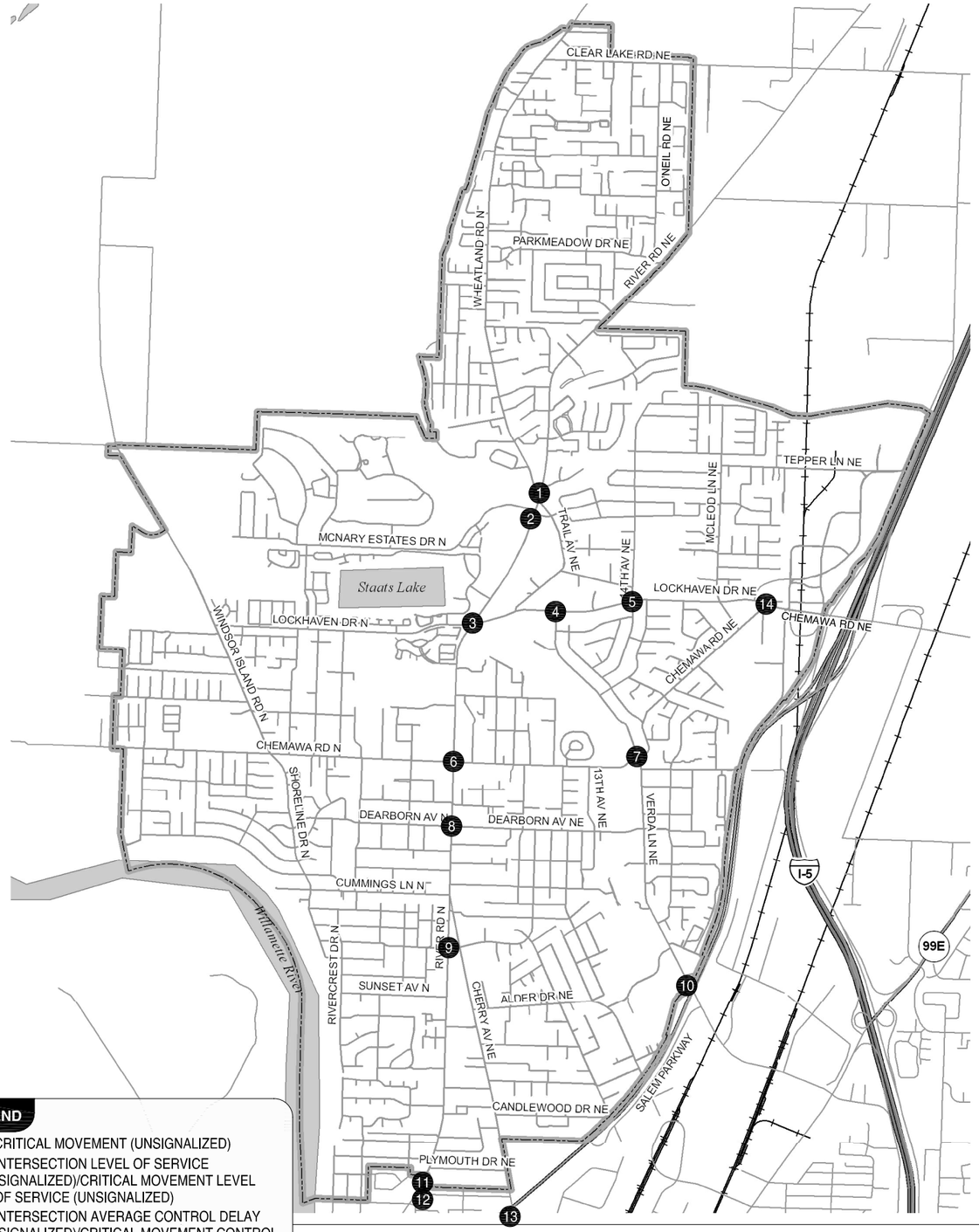
Methods for developing the forecast traffic volumes are shown in Appendix E of Volume II of the TSP. Assuming the existing transportation system plus the programmed projects shown above, and if growth occurs as assumed in the SKATS model, traffic operations at all of the study intersections will degrade. Figure 4.8 illustrates the future volumes and traffic operations analyses during the weekday p.m. peak hour.

Table 4.8 provides a comparison of the existing and future traffic operations at each of the study intersections. In Table 4.8 the intersection operation is described as a function of under, near, at, or over capacity based upon the v/c ratio. An intersection is considered to operate "under capacity" when the v/c ratio is 0.90 or less. If the v/c is between 0.90 and 0.94, the intersection is considered to be "near capacity". An intersection is "at capacity" when the v/c ratio is between 0.95 and 0.99. If the v/c is greater than or equal to 1.00, then the intersection is considered to be "over capacity."

Table 4.8 2031 Base Intersection Operations

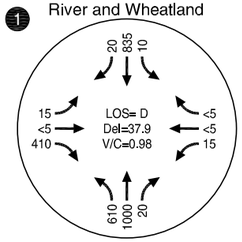
Intersection	Existing 2007		Future 2031	
	LOS	Capacity	LOS	Capacity
Two-Way Stop Controlled Intersections				
Verda Lane / Lockhaven Drive	F	Under Capacity	F	Over Capacity
All-Way Stop Controlled Intersections				
Verda Lane / Chemawa Road	C	Under Capacity	F	Over Capacity
Signalized Intersections				
River Road / Wheatland Road	C	Under Capacity	C	At Capacity
River Road / Manzanita Street	C	Under Capacity	C	Under Capacity
River Road / Lockhaven Drive	D	Under Capacity	D	Near Capacity
Lockhaven Drive / 14th Avenue	B	Under Capacity	E	Over Capacity
Lockhaven Drive / Chemawa Road	B	Under Capacity	D	Under Capacity
River Road / Chemawa Road	D	Under Capacity	D	Near Capacity
River Road / Dearborn Avenue	B	Under Capacity	C	At Capacity
River Road / Manbrin Drive	B	Under Capacity	C	Under Capacity
River Road / Shangri-La	A	Under Capacity	B	Under Capacity
River Road / Broadway	B	Under Capacity	C	Under Capacity
Salem Parkway / Cherry Avenue	C	Under Capacity	D	Near Capacity
Salem Parkway / Verda Lane	D	Under Capacity	E	Over Capacity

Notes:
-Shading represents intersections where the level of service (LOS) is exceeding adopted standards or the volume-to-capacity ratio is near, at, or over capacity.
-Under Capacity = volume-to-capacity ratio (v/c) <0.90, Near Capacity = v/c Ratio 0.90-0.94, At Capacity = v/c Ratio 0.95-0.99, Over Capacity = v/c Ratio ≥1.0
-Signalized and all-way stop delay represents the average vehicle delay for the whole intersection.
-Unsignalized delay represents the highest minor street approach delay.
-For a detailed review of the intersection level of service and capacity conditions, see Appendix B in Part II of the TSP.

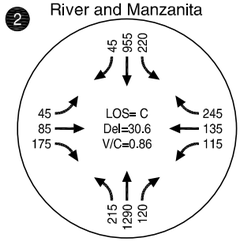


(NO SCALE)

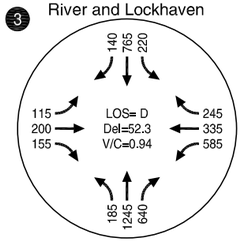
1 River and Wheatland



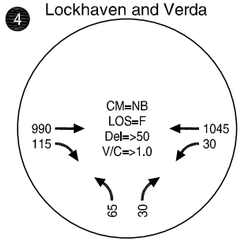
2 River and Manzanita



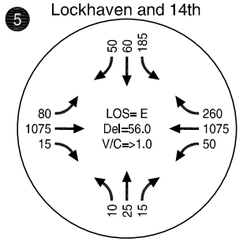
3 River and Lockhaven



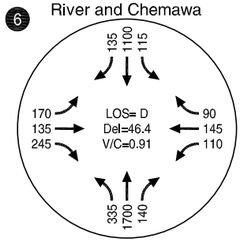
4 Lockhaven and Verda



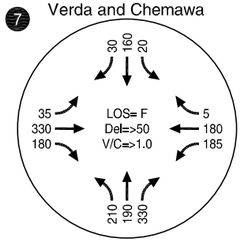
5 Lockhaven and 14th



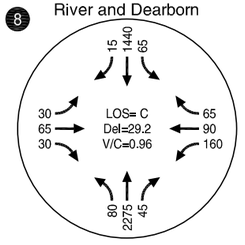
6 River and Chemawa



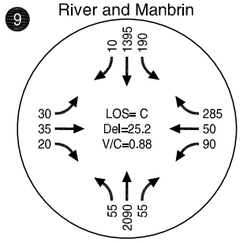
7 Verda and Chemawa



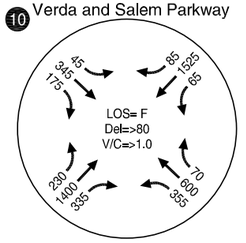
8 River and Dearborn



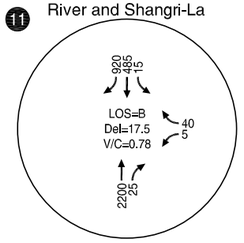
9 River and Manbrin



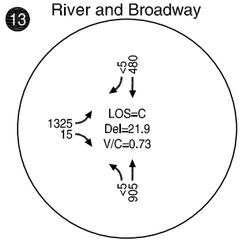
10 Verda and Salem Parkway



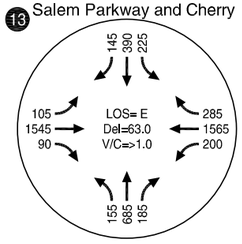
11 River and Shangri-La



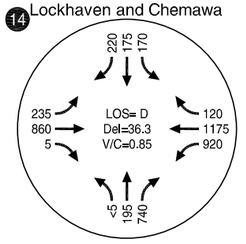
13 River and Broadway



13 Salem Parkway and Cherry



14 Lockhaven and Chemawa



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

FUTURE YEAR 2031 TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
KEIZER, OREGON

FIGURE **4.8**

Roadway Capacity Upgrade Projects

The results of the future conditions no-build analysis showed a number of intersections that are projected to have operating deficiencies. Notably, the following signalized intersections are forecast to operate at an unacceptable level of service (LOS "E" or worse) and exceed their available capacity by the year 2031:

- 14th Street/Lockhaven Drive
- Verda Lane/Salem Parkway
- Salem Parkway/Cherry Avenue

In addition, the critical movements at the following unsignalized intersections are projected to exceed capacity and operate with a level of service "F" in year 2031:

- Verda Lane/Chemawa Road
- Verda Lane/Lockhaven Drive

Finally, several intersections are projected to operate near, at, or over capacity by the year 2031 without exceeding the level of service standards. These intersections include:

- River Road/Wheatland Road (identified for further investigation based on the existing crash analysis)
- River Road/Lockhaven Drive
- River Road/Chemawa Road
- River Road/Dearborn Avenue (identified for further investigation based on the existing crash analysis)
- River Road/Manbrin Drive (identified for further investigation based on the existing crash analysis)

The following section provides an evaluation of alternative intersection improvements and other street improvements that would mitigate the above deficiencies. Table 4.9 provides a summary of roadway system improvement projects discussed in detail. These projects are not listed in any order of priority or cost.

The first four projects listed are expected to be carried out in conjunction with one another and have been evaluated accordingly (i.e. River Road/Wheatland Road; River Road/Manzanita Street; Verda Lane Extension; and Verda Lane/Lockhaven Drive). The remaining projects are expected to be undertaken independent to other projects noted herein.

Conceptual sketches of the upgrades are also included for each project. Because these sketches are conceptual, full pedestrian and cyclist facilities have not been illustrated on all of the figures. Nonetheless, these facilities will be included during the detailed planning stage and the ultimate design.

A number of options are available to provide for cyclists at these intersections including on-street cycle lanes. There is currently no clear guidance as to whether cycle lane marking can extend through an intersection. However the Manual on Uniform Traffic Control Devices (MUTCD) (Section 3B08) notes that if markings are to continue through an intersection, they must be the same color and width as the lane on either side of the intersection. This is one option for providing cycle lanes through various intersections that should be investigated when designing new projects.

Table 4.9 Roadway Improvement Project Summary

#	Location	From	To	Description of Improvement	Priority	Cost*
R1	Salem Parkway I-5 On-Ramp	N/A	N/A	– Widen Salem Parkway on-ramp to I-5 to two lanes. – Coordination with ODOT required	High	$
R2	River Road/ Manzanita Street	N/A	N/A	– Move intersection approximately 250 feet to the south. – Realign and reconstruct Manzanita Street and McNary Estates Drive approaches to River Road. – Construct separate westbound through and right-turn lanes.	Medium	$$$
R3	River Road/ Wheatland Road	N/A	N/A	– Construct dual northbound left-turn lanes. – Change north and south left-turn phases to a protected left-turn phase. – Extend length of second southbound through lane.	Medium	$$$
R4	River Road/ Lockhaven Drive	N/A	N/A	– Convert westbound approach to dual left-turn lanes, single through lane, and separate right-turn lane. – Convert east/west split phasing to protected left-turn phasing. – Implement access management measures on adjacent properties with driveways within intersection influence area at the time of property redevelopment.	Medium	$$
R5	Verda Lane Extension	River Road	Lockhaven Drive	– Extend Verda Lane north of Lockhaven Drive to connect with River Road at new alignment of McNary Estates Drive. – Realign Trail Avenue.	Low	$$$
R6	Lockhaven Drive/ 14th Avenue	N/A	N/A	– Construct westbound right-turn lane. – Modify northbound and southbound approaches to include separate left-turn lane and shared through and right-turn lane.	High	$
R7	Chemawa Road/ Verda Lane	N/A	N/A	– Install a single-lane roundabout at intersection.	Medium	$$-$$$
R8	Lockhaven Drive/ Verda Lane	N/A	N/A	– Signalize intersection with Verda Lane extension to the north. – Restrict north/south through movements on Verda Lane.	Low	$$
R9	Transportation and Access Management – Various Locations	River Road	Chemawa Road	– Perform Lockhaven Drive Corridor Study.	High	$
		South City Limits	Lockhaven Drive	– Perform River Road Corridor Study.	High	$
		Lockhaven Drive	Windsor Island Drive	– Perform Chemawa Road Corridor Study.	High	$

* $$$ - Expected to have major ROW needs and/or a significant project scope.
$$ - Expected to have some ROW needs and/or a moderate project scope.
$ - Expected to have minor ROW needs and/or a small project scope.

River Road / Wheatland Drive

This intersection is forecast to operate near capacity (v/c=0.98) due to a heavy northbound and southbound traffic on River Road and a particularly heavy northbound left-turn movement from River Road to Wheatland Drive. The crash analysis revealed a potential issue with the northbound left-turn movement and revealed that there could also be issues with sneakers – vehicles attempting to make the northbound left-turn movement during the yellow or all-red clearance interval. Given the constrained geographic nature of the northern part of the City and the lack of parallel north/south roadways, the River Road/Wheatland Road intersection is an intersection of critical importance. As such, the noted capacity constraints will need to be addressed at the intersection.

Improvements at this intersection include the following:

- The heavy northbound left-turn movement will need dual left-turn lanes and a protected left-turn phase to provide additional capacity and minimize vehicle queuing.
- The outside (curb lane) southbound through lane will need to be lengthened to improve lane utilization and better accommodate directional southbound through volumes.

The improvements can help improve safety by accommodating additional vehicles during each phase of the signal cycle. This will reduce driver delay and may reduce the number of vehicles entering the intersection during yellow or all-red time. Additionally, the protected phase for northbound left turn will provide protection from southbound traveling vehicles on River Road. Table 4.10 summarizes the no-build and the improvement alternatives. A sketch of the improvement is presented in Figure 4.9.

As noted earlier, this sketch is conceptual and does not include details of pedestrian or cyclist facilities. These features will be added as part of the detailed design stage to ensure that the needs of all road users are met.

Table 4.10 Summary of River Road / Wheatland Road Project

	No-Build Alternative	Improvement Alternative – Add second northbound left-turn lane and protected left-turn signal phase. – Lengthen outside southbound through lane
Traffic Operations	Will operate at capacity. Excessive vehicle queues on the northbound left-turn lane and southbound through lane.	Will operate with sufficient capacity. Better southbound through lane utilization and vehicle queues.
Safety	Likely to see crash patterns consistent with existing conditions which include rear-end collisions and angle collisions associated with the northbound left-turn. Increasing traffic volumes and vehicle queuing concerns may lead to additional collisions involving the northbound left-turn movement.	Protected left-turn phasing has the potential to reduce the frequency and severity of angle type crashes. Better southbound through lane utilization has the potential to reduce vehicle queues and limit rear-end collisions.
Impacts	Potential for bottleneck conditions. Increasing vehicle delay, intersection safety, and congestion.	Will require significant intersection modifications and lane widening on River Road and Wheatland Road. Significant property impacts to the northwest quadrant of intersection.
Cost	N/A	High ($) due to significant ROW needs, additional receiving lanes on Wheatland Road, and property impacts.

SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

WHEATLAND ROAD/RIVER ROAD INTERSECTION
KEIZER, OREGON

FIGURE **4.9**

River Road / Manzanita Street

The River Road/Manzanita Street intersection is currently located within close proximity of the River Road/Wheatland Drive intersection. Given the projected traffic volume increases along River Road, greater separation between these two intersections would improve the progression of traffic flow along River Road and minimize the potential for vehicle queue spillback and rear-end crashes. The alternative to achieve greater intersection separation involves relocating the existing River Road/Manzanita Street intersection approximately 250 feet south of its current location. This relocation also involves the reconstruction of both the McNary Estates Drive and Manzanita Street approaches. The existing section of Manzanita Street, east of River Road, would be vacated or converted to a cul-de-sac with access from Trail Avenue to meet access requirements, if necessary. A shared path for pedestrians and cyclists would also be created in this area as part of the realignment to provide convenient connections to the north on River Road for non-motorized modes.

Coupled with the extension of Verda Lane discussed below, this intersection becomes a key component in the establishment of a partial north/south alternative to River Road. An evaluation of the alternative is presented in Table 4.11. Figure 4.10 illustrates a conceptual sketch of the alternative. Pedestrian and cyclist facilities through the intersection are not illustrated in detail in this figure but will be required as the plan for this intersection is developed.

Table 4.11 Summary of River Road / Manzanita Street Project

	No Build Alternative	Realignment Alternative – Move intersection approximately 250 feet to the south. Reconstruct McNary Estates Drive and Manzanita Street approaches. – Construct separate westbound through and right-turn lanes.
Traffic Operations	Will operate near capacity. Close spacing to River Road/Wheatland Drive intersection will result in poor progression and queuing conflicts. Long westbound vehicle queues.	Will operate with sufficient longer-term capacity. Improved intersection spacing with River Road/Wheatland Drive. Westbound right-turn lane will decrease delay and add long-term capacity to the intersection.
Safety	No change to the existing condition; therefore safety concerns are likely to continue which include rear-end collisions along River Road.	Increased intersection spacing from Wheatland Drive will reduce the potential for vehicle queue backups and rear-end crashes.
Impacts	Without improvements, queue spillbacks are likely from the River Road/Wheatland Drive intersection. Increasing vehicle delay, intersection safety, and congestion.	Both the McNary Estates Drive and Manzanita Street approaches will need to be reconstructed, requiring significant amounts of right-of-way. Although right-of-way will be needed, adjacent properties are currently undeveloped.
Cost	N/A	High ($) due to ROW acquisition needs, roadway and traffic signal construction costs, intersection realignment, and property impacts.

SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

RIVER ROAD/MANZANITA STREET INTERSECTION
KEIZER, OREGON

FIGURE **4.10**

Extension of Verda Lane

The north/south movements within the City of Keizer are currently limited to a few key corridors such as River Road and portions of Verda Lane and Chemawa Road. Opportunities for the development of new corridors are limited. One potential corridor that could still be established is an extension of Verda Lane from its current terminus at Lockhaven Drive to a new connection with River Road just south of the existing Manzanita Street intersection.

If pursued, the Verda Lane extension would be constructed concurrently with intersection modifications at the Lockhaven Drive/Verda Lane, detailed in the following section, and following completion of upgrades at the River Road/Manzanita Street intersection, outlined in the section above.

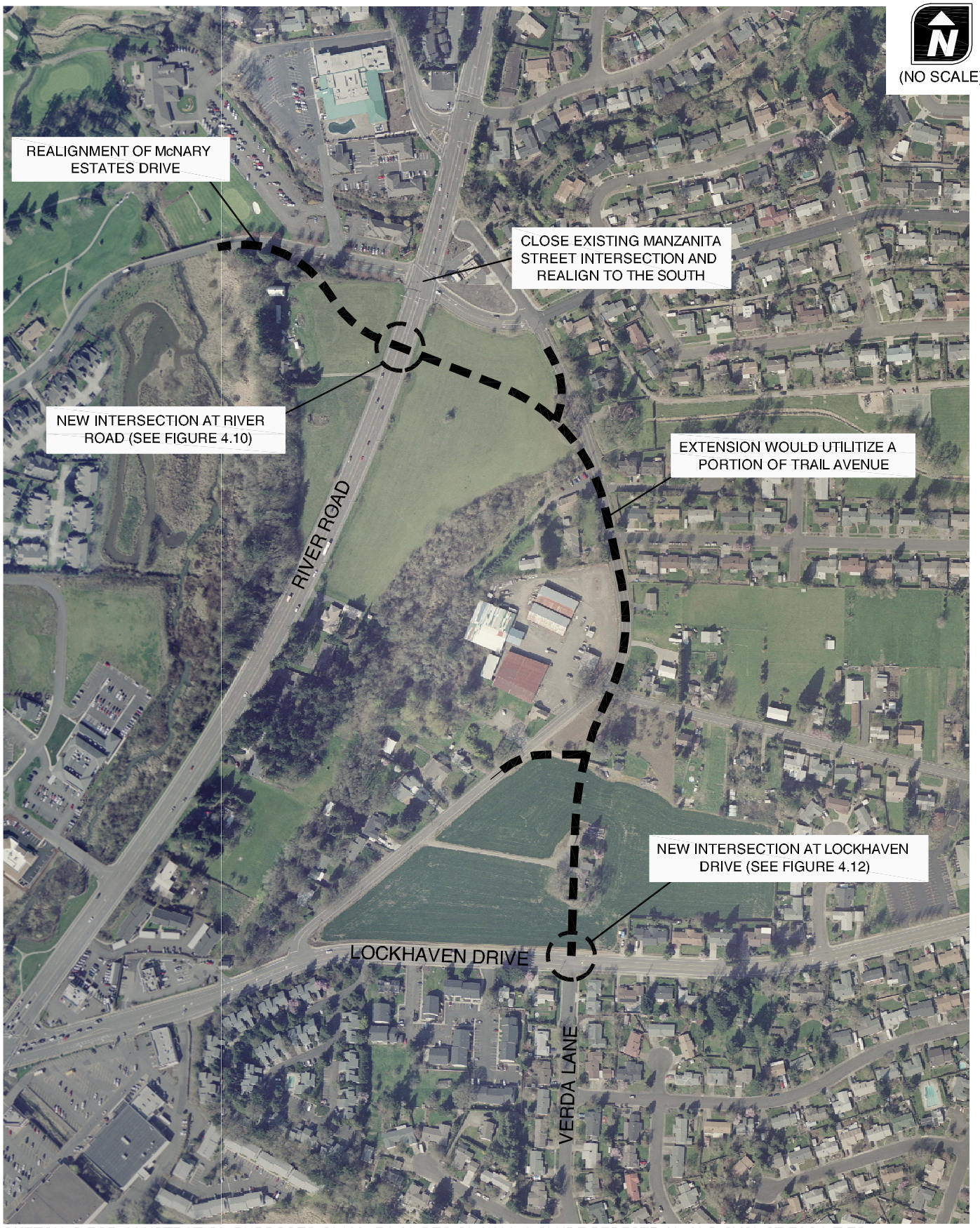
This project consists of extending Verda Lane north of Lockhaven Drive and connecting to River Road at the new alignment of the Manzanita Street/McNary Estates Drive intersection.

Utilizing a portion of the Trail Avenue corridor, this extension will provide an alternative route to allow some traffic the opportunity to bypass the River Road/Lockhaven Drive intersection. In addition, the more direct connection between River Road and Lockhaven Drive would potentially minimize the amount of neighborhood cut-through traffic that currently takes place along the 14th Avenue and Harmony Road corridors.

An evaluation of the project is presented in Table 4.12. A conceptual layout is shown in Figure 4.11. It is expected that the extension will provide appropriate facilities for pedestrians and cyclists.

Table 4.12 Summary of Verda Lane Extension Project

	No Build Alternative	Extension Alternative – Extend Verda Lane from Lockhaven Drive to River Road.
Traffic Operations	Traffic destined for River Road will continue to cut through the residential neighborhoods to the north using 14th Avenue, Harmony Drive, and Manbrin Street.	Alternative route has the potential to reduce cut through traffic on local streets. May potentially reduce traffic demand at the River Road/Lockhaven Drive intersection.
Safety	No change to the existing condition.	Would help to reduce through traffic on residential streets, thereby improving the safety of those streets.
Impacts	Continue to see cut-through traffic on local neighborhood streets. River Road/Lockhaven Drive will continue to be the primary intersection for accommodating traffic from the northern part of the City that is destined to/from the Chemawa interchange.	Would require significant amounts of right-of-way. Special intersection design treatments would be necessary at the Lockhaven Drive/Verda lane intersection to reduce north/south through movements (see Lockhaven Drive/Verda Lane intersection project).
Cost	N/A	High ($) due to ROW acquisition needs, roadway construction costs, and property impacts.



SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

VERDA LANE EXTENSION
KEIZER, OREGON

FIGURE **4.11**

Lockhaven Drive / Verda Lane

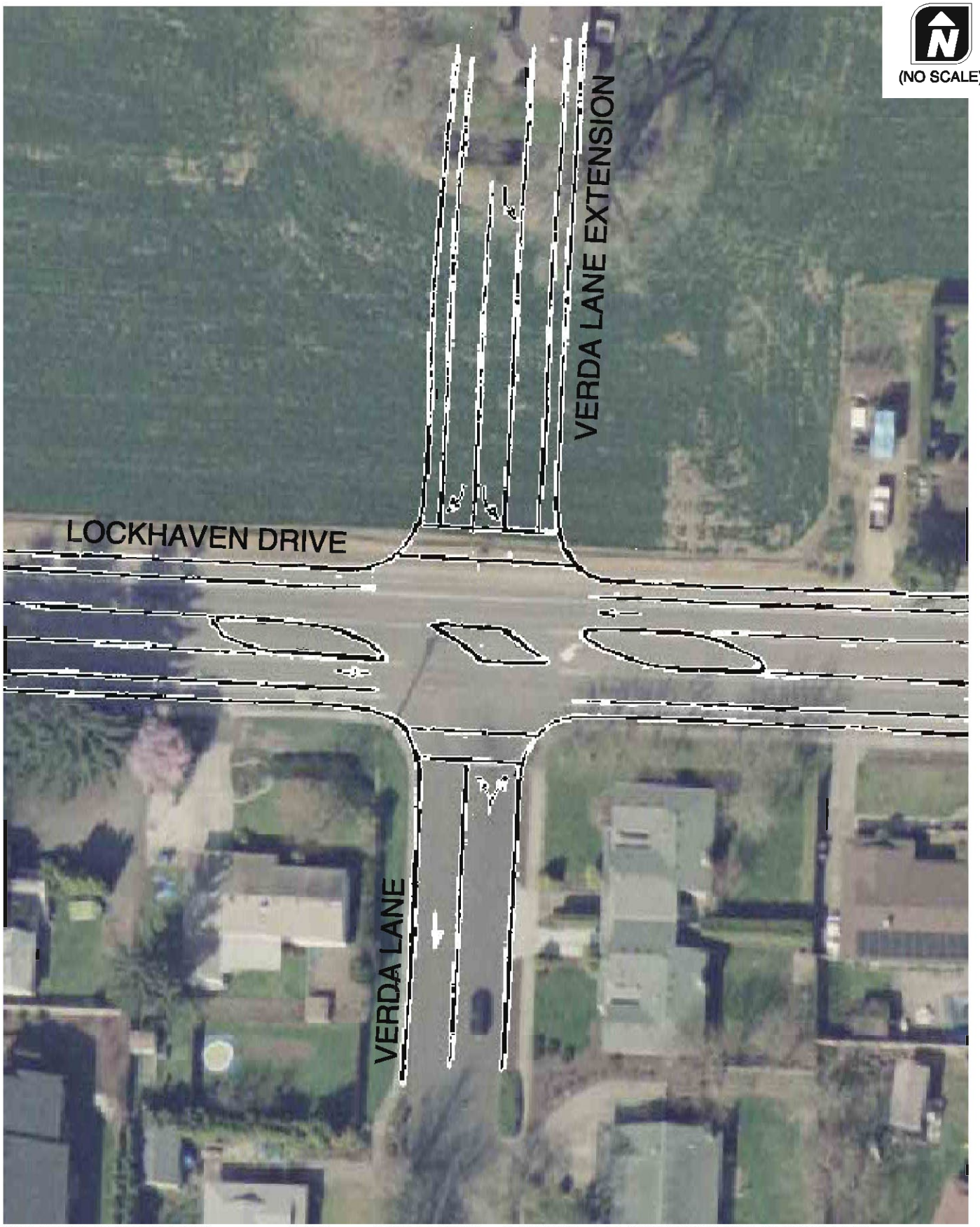
In order to establish the extension of Verda Lane, consideration was given to its intersection with Lockhaven Drive. A number of different concepts were developed and reviewed for this location, including traffic calming and a roundabout. These concepts were rejected by the local community in keeping with their desire to minimize through traffic volumes on Verda Lane south of Lockhaven Drive. Figure 4.12 illustrates the community's preferred intersection form.

As shown in this figure, the intersection improvements include a treatment to limit the volume of through traffic along Verda Lane south of Lockhaven Drive. Such channelization would effectively preclude Verda Lane from becoming a through route and thus maintain local street volumes on this portion of Verda Lane; a desire clearly expressed by residents of this neighborhood. A description and evaluation of the project is provided in Table 4.13 below.

While pedestrian and cyclist facilities are not shown on Figure 4.12 they will be considered during the detailed design stage of the project. Since the intersection will be signalized, these users can be safely accommodated with this design.

Table 4.13 Summary of Lockhaven Drive / Verda Lane Project

	Limited Movement Intersection Configuration – Signalize the intersection of Lockhaven Drive and Verda Lane. – Restrict north/south through movements on Verda Lane at Lockhaven Drive.
Traffic Operations	As a signalized intersection with limited movements, the improvement will result in LOS "A" with sufficient longer-term capacity.
Safety	Signalization will improve the accessibility and safety for turning movements to/from Verda Lane. Signalization will also improve the ability for pedestrians and cyclists to safely cross at this intersection.
Impacts	Extension of Verda Lane will require right-of-way. Adjacent property is currently undeveloped, resulting in minimal impacts to existing properties. Restriction of through movements will likely keep traffic volumes to levels that are desirable for a local street through a residential neighborhood.
Cost	Moderate ($) due to traffic signal construction costs, medians, and other intersection modifications.



SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

VERDA LANE/LOCKHAVEN DRIVE INTERSECTION
KEIZER, OREGON

FIGURE **4.12**

H:\projfile\8310 - Keizer TSP Refinement and Update\Task 5 - Draft TSP\Part 1\Chapter 4\ALT DWGS\Verda & Lockhaven.dwg Mar 03, 2009 - 4:59pm - kbilton Layout Tab: Verda & Lockhaven

River Road/Lockhaven Drive

River Road/Lockhaven Drive intersection is projected to operate at LOS "D". This, according to City standards, is acceptable. However the long-term capacity of the intersection is limited due to existing geometric and signal phasing inefficiencies. To improve the long-term capacity, the westbound approach will need dual left-turn lanes, a single through lane, and a separate right-turn lane. This widening and lane reconfiguration will allow the existing east/west split phasing to be replaced with a more conventional and efficient protected left-turn phasing. An evaluation of the project is presented in Table 4.14. A sketch illustrating this project is provided in Figure 4.13.

Table 4.14 Summary of River Road/Lockhaven Drive Project

	No Build Alternative	Improvement Alternative – Convert westbound approach to dual left-turn lanes, a single through lane, and a separate right-turn lane. – Convert east/west split phasing to a more conventional protected left-turn phasing. – Upon redevelopment of adjacent properties, implement access management measures for those driveways within the influence area of the signalized intersection.
Traffic Operations	Will operate at LOS "D" and near capacity. Excessive vehicle queues on the westbound approach.	With westbound dual left-turn lanes and separate through and right-turn lanes, the intersection will operate at LOS "D" and under capacity.
Safety	No change to the existing layout; therefore safety concerns are likely to worsen as traffic volumes grow.	Additional westbound lanes will minimize vehicle queues and reduce the potential for rear-end collisions. Improved access management will reduce turning movement conflicts within the intersection influence area.
Impacts	Without improvements, the long-term capacity of the intersection is limited through the 2031 study period. Increasing vehicle delay, intersection safety, and congestion.	Lane additions on Lockhaven Drive will require right-of-way and will likely have significant property impacts to adjacent businesses.
Cost	N/A	Moderate ($) due to ROW acquisition needs for the westbound right-turn lane and traffic signal modification.

SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

RIVER ROAD/LOCKHAVEN DRIVE INTERSECTION
KEIZER, OREGON

FIGURE **4.13**

Lockhaven Drive / 14th Avenue

A high east/west travel demand is projected to limit the long-term capacity of the Lockhaven Drive/14th Avenue intersection. To maximize the available capacity of the intersection, a westbound right-turn lane will be needed. In addition, the north and south 14th Avenue approaches will need to be modified to include a separate left-turn lane and shared through/right-turn lane. A sketch of the project is presented in Figure 4.14. A summary of the project is provided in Table 4.15.

Table 4.15 Summary of Lockhaven Drive / 14th Avenue Project

	No Build Alternative	Improvement Alternative – Construct a westbound right-turn lane. – Modify the northbound and southbound approaches to include a separate left-turn lane and shared through/right-turn lane.
Traffic Operations	Traffic volumes are projected to continue to increase, limiting the overall capacity of the intersection along this primary east/west arterial.	A westbound right-turn lane will provide additional longer-term capacity at the intersection.
Safety	No change from existing conditions.	May reduce the potential for rear-end collisions along Lockhaven Road.
Impacts	Significant vehicle queues and delays.	Will require some ROW acquisition and have some property impacts.
Cost	N/A	Low ($) due to some relatively minor ROW needs and traffic signal modification requirements.

SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

LOCKHAVEN DRIVE/14TH AVENUE
KEIZER, OREGON

FIGURE **4.14**

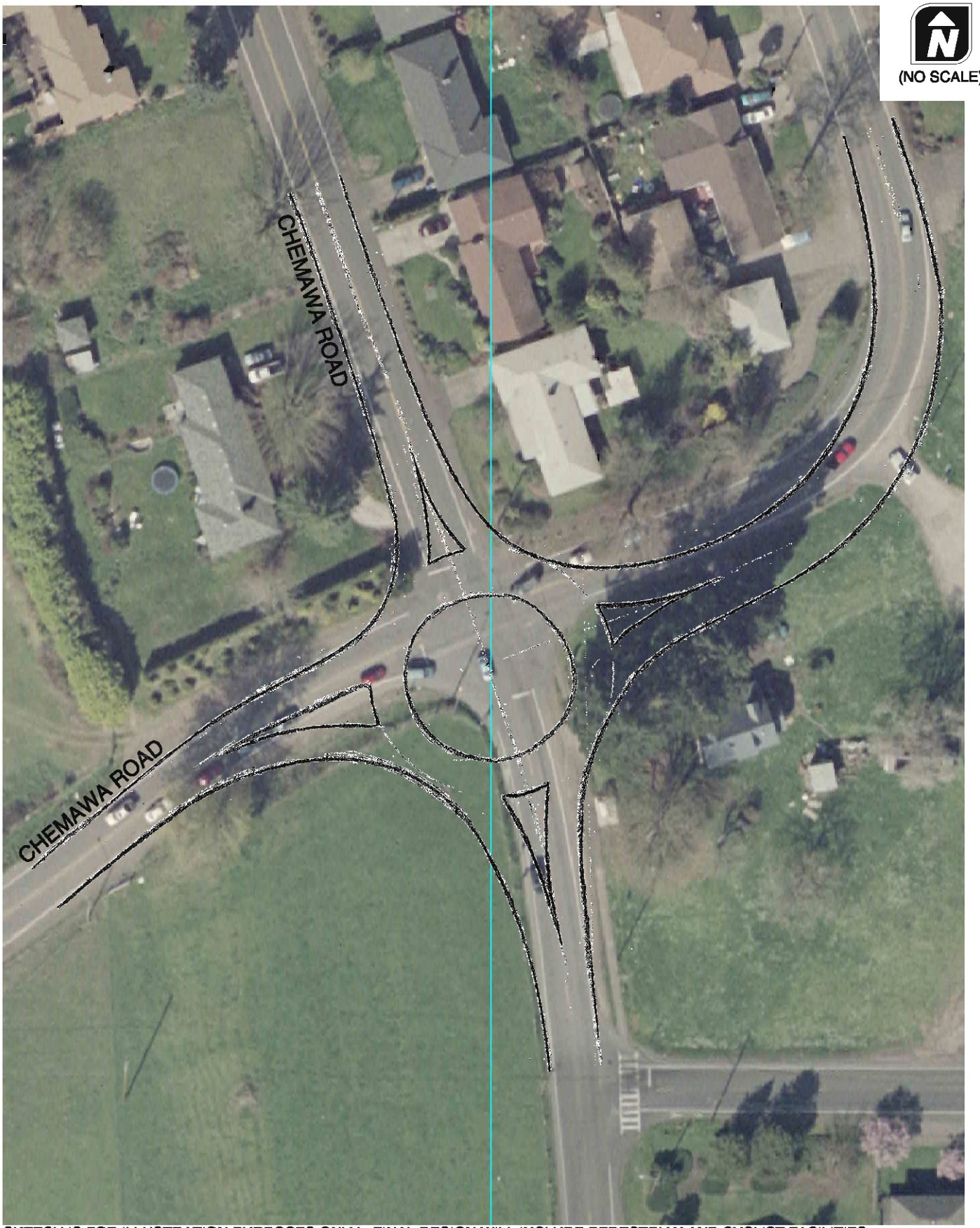
Verda Lane/Chemawa Road

This intersection is forecast to operate at LOS "F" and exceed its available capacity as an all-way stop-controlled intersection. Mitigation for this intersection includes the installation of a single lane roundabout. A roundabout will provide for continuous traffic flow through the intersection and can effectively reduce the severity of crashes. The traffic operations at a single lane roundabout are comparable to those of a traffic signal. Details of the single lane roundabout are provided in Table 4.16. A sketch of the intersection is presented in Figure 4.15. Pedestrian and cyclist facilities will be included during the detailed design of the intersection.

If the installation of a roundabout becomes unfeasible, alternatively a traffic signal could be installed at this intersection. Analysis of traffic signal warrants was completed and the forecast 2031 volumes indicate that the signal warrants will be met for this intersection. It was assumed that Chemawa Road was the major road when conducting the traffic signal warrant analysis. A summary of the signalized intersection operation and preliminary sketch was completed as part of the Future Alternatives Analysis which is documented in Appendix F in Part 2 of the TSP.

Table 4.16 Summary of Verda Lane/Chemawa Road Project

	Roundabout Alternative – Acquire right-of-way (SW & NW quadrants) – Install single lane roundabout (120 ft inscribed circle diameter).
Traffic Operations	Eliminates forecast congestion. v/c=0.69
Safety	Roundabouts typically have fewer high-speed injury collisions and collisions are typically less severe than signalized intersections.
Impacts	The larger footprint of the roundabout requires more right-of-way compared to the signalized intersection. Some potentially significant property impacts are likely along the southwest and southeast quadrants.
Cost	Moderate to High ($) due to increased ROW acquisition, property impacts, and roadway construction costs.



(NO SCALE)

SKETCH IS FOR ILLUSTRATION PURPOSES ONLY - FINAL DESIGN WILL INCLUDE PEDESTRIAN AND CYCLIST FACILITIES

VERDA LANE/CHEMAWA ROAD INTERSECTION
KEIZER, OREGON

FIGURE **4.15**

Access Management Studies

Managing access to the City's road system is necessary to preserve the capacity of the City's arterial street system. This is accomplished by minimizing the number of points where traffic flow can be disrupted by traffic entering and exiting the roadway. Additionally, access management can enhance safety along City roadways by minimizing the number of potential conflict points.

Several access management measures can potentially be implemented as described below:

- Work with developers during the application process to consolidate driveways and limit new ones where feasible.
- Consider the use of raised medians on busy arterials to limit driveway access to right-in/right-out turning movements.
- Develop access management plans for arterials and collector streets.

These types of access management measures should be considered on segments such as:

- River Road from the south City Limits to Lockhaven Drive;
- Lockhaven Drive between Windsor Island Drive and Chemawa Road; and
- Chemawa Avenue between Lockhaven Drive and Windsor Island Drive.

Salem Parkway

The Salem Parkway is an ODOT owned and maintained facility. The two study intersections at Cherry Avenue and Verda Lane are under the jurisdiction of ODOT, but have been included in the long-term analysis as they are significant portals to/from the City of Keizer. Due to a projected increase in regional transportation demand, both intersections are forecast to operate above ODOT's 0.85 volume-to-capacity standard. To mitigate these forecast conditions, improvements could include a separate southbound right-turn lane and dual northbound left-turn lanes on the Salem Parkway at both intersections. In addition, Verda Lane may need additional through lanes to better facilitate movements across the Parkway. As traffic continues to grow at these locations, ODOT and the City of Keizer should continue to monitor operations and collaboratively plan for improvements as appropriate.

Chapter 5
Pedestrian and Bicycle System

PEDESTRIAN AND BICYCLE SYSTEM

As the City of Keizer continues to develop, future population growth will increase the need for expanding the existing pedestrian and bicycle facilities and developing new facilities. Providing a connected network of pedestrian and bicycle facilities is important for serving:

- Shorter trips from neighborhoods to area activity centers, such as schools, churches, and neighborhood commercial uses;
- Recreational trips (e.g. jogging or hiking) and circulation within parklands;
- Commute trips where mixed-use development is provided and people have chosen to live near where they work; and
- Providing access to public transit by either walking or cycling.

Providing pedestrian and bicycle facilities for these trip types moves in the direction of fulfilling the City's goal to reduce overall vehicle miles traveled by automobile.

This chapter provides a summary of existing pedestrian and bicycle facilities, the status of pedestrian and bicycle travel within the City, design standards, design standard amendments, and near term, mid-term, and long term pedestrian and bicycle projects. Consideration will be given to the 2008 City of Keizer Parks and Recreation Master Plan and projects will be integrated where possible.

Existing Pedestrian Facilities Analysis

Pedestrian facilities in Keizer will be integrated with transit stops and will separate pedestrians from vehicular traffic. Furthermore, pedestrian facilities will provide continuous connections between neighborhoods, employment areas, and nearby pedestrian attractors. Of the five existing minor arterials, McLeod Lane and Wheatland Road do not have bike lanes or sidewalks. On McLeod Lane this is limited to between Lockhaven Drive and Chemawa Road; all other sections have bike lanes and sidewalks. Verda Lane has bike lanes but no sidewalks. In addition, the following collectors do not provide sidewalks on both sides of the street along the entire length of roadway:

- Candlewood Drive
- Chemawa Road (Windsor Island Road to 15th Avenue)
- Clearlake Road
- Cummings Lane
- Dearborn Avenue
- Sunset Avenue
- Trail Avenue
- Windsor Island Road

Figures 5.1 and 5.2 illustrate the locations of sidewalks within the study area along with key pedestrian trip generators. Figure 5.1 shows the area of Keizer located north of Lockhaven Drive and Figure 5.2 shows the area of Keizer located south of Lockhaven Drive. These two figures show that much of Keizer is well covered by the sidewalk network, especially the area of the city located north of Lockhaven Drive.

Figures 5.1 and 5.2 also depict sidewalk gaps on study roadways and show the locations where pedestrian generators lack sidewalk connections. Several of these locations are identified as follows:

- The area bordered by Shoreline Drive to the west, River Road to the east, Sunset Avenue to the south, and Lockhaven Drive to the north, including areas around McNary High School and Cummings Elementary School.
- Dearborn Avenue between 13th Avenue and Verda Lane.
- Chemawa Road west of River Road.
- Wheatland Road north of River Road.
- Keizer Little League Park, the Volcanoes Stadium, Claggett Creek Park, McNary High School, and River's Edge Park.

Gaps near pedestrian generators are the greatest impediment to pedestrian trips because they occur where a high number of pedestrian trips are likely to occur.

EXISTING SIDEWALK NETWORK AND PEDESTRIAN GENERATORS NORTH KEIZER, OREGON

FIGURE 5.1

H:\profile\8310 - Keizer TSP Refinement and Update\gis

EXISTING SIDEWALK NETWORK AND PEDESTRIAN GENERATORS SOUTH KEIZER, OREGON

FIGURE 5.2

H:\projfile\8310 - Keizer TSP Refinement and Update\gis

Pedestrian Improvement Projects

City of Keizer policies require all new development and redevelopment to provide adequate sidewalk facilities. As such, some sections of missing pedestrian facilities will be completed as development occurs. Consequently, the sidewalk focus in the alternatives analysis involves completing short gaps in the existing sidewalk system, identifying and prioritizing longer sidewalk gaps in already developed areas, and continuing the expansion of the City's off-street pathway network. The city has identified in its parks Master Plan a priority for multi-use paths adjacent to greenspaces.

Figures 5.3 and 5.4 illustrate the locations of sidewalk improvement projects within the study area. Figure 5.3 shows the area of Keizer located south of Lockhaven Drive and Figure 5.4 shows the area of Keizer located north of Lockhaven Drive. Additionally, Table 5.1 provides a summary of the sidewalk improvement alternatives and reason for the improvements. These projects are not listed in any order of priority.

FUTURE SIDEWALK PROJECTS NORTH
KEIZER, OREGON

FIGURE 5.3

H:\profile\8310 - Keizer TSP Refinement and Update\gis

FUTURE SIDEWALK PROJECTS SOUTH
KEIZER, OREGON

FIGURE 5.4

H:\profile\8310 - Keizer TSP Refinement and Update\gis

Table 5.1 Pedestrian Improvement Projects

#	Roadway	Description	From	To	Reasons for Improvement	Priority	Cost*
S1	Sunset Avenue	Construct sidewalks	Rivercrest Drive	River Road	– Sunset Ave is a collector roadway and a direct connection between Rivercrest Drive and River Road. – Provide better neighborhood and regional access to Sunset Park and transit stops.	Low	$$
S2	Manbrin Avenue	Fill in sidewalk gaps	Toni Ave.	River Road	– Improve sidewalk continuity west of River Road by filling in a relatively small gap along Manbrin Avenue.	Low	$
S3	Cummings Lane	Construct sidewalks	Palma Ciea Park	River Road	– Cummings Lane is a collector roadway and a direct connection between Rivercrest Drive and River Road. – Provide better regional access to Palma Ciea Park, existing transit stops, and commercial centers along River Road. – Provide better access to Cummings Elementary School.	High	$$
S4	Chemawa Road	Construct sidewalks	West City Limits	River Road	– Provide a continuous east/west sidewalk network with regional access to Keizer Rapids Park. – Chemawa Road is a minor arterial and provides regional access to commercial areas and transit opportunities.	High	$$$
S5	Dearborn Avenue	Construct sidewalks	Delight Street	River Road	– Improve sidewalk continuity west of River Road and fill in a significant gap in the sidewalk network.	Medium	$$
S6	Delight Street	Construct sidewalks	Cummings Lane	Chemawa Road	– Provide better neighborhood access to Cummings Elementary School. – Improve north/south sidewalk continuity west of River Road.	Medium	$$
S7	Dearborn Avenue	Construct sidewalks	13th Avenue	Verda Lane	– Fill in a small gap in the east/west sidewalk network.	Medium	$$
S8	Verda Lane	Construct sidewalks	Alder Drive	Kalmia Drive	– Establish a continuous north/south sidewalk connection between Lockhaven Drive and the Salem Parkway.	Medium	$$$
S9	Windsor Island Road	Fill in sidewalk gaps	Chemawa Road	City Limits	– Provide better sidewalk connectivity and access to transit stops.	Low	$$$
S10	O'Neil Road	Fill in sidewalk gaps	Parkmeadow Drive	Clear Lake Road	– Provide a continuous north/south alternative to River Road and Wheatland Road.	Medium	$
S11	Chemawa Road	Construct sidewalks	Verda Lane	Lockhaven Drive	– Provide a continuous east/west sidewalk connection from River Road to Keizer Station.	Medium	$$
S12	Wheatland Road	Fill in sidewalk gaps	River Road	Clear Lake Road	– Provide a continuous north/south sidewalk alternative to River Road.	Low	$

* $$$ - Expected to have major ROW needs and/or a significant project scope.
$$ - Expected to have some ROW needs and/or a moderate project scope.
$ - Expected to have minor ROW needs and/or a small project scope.

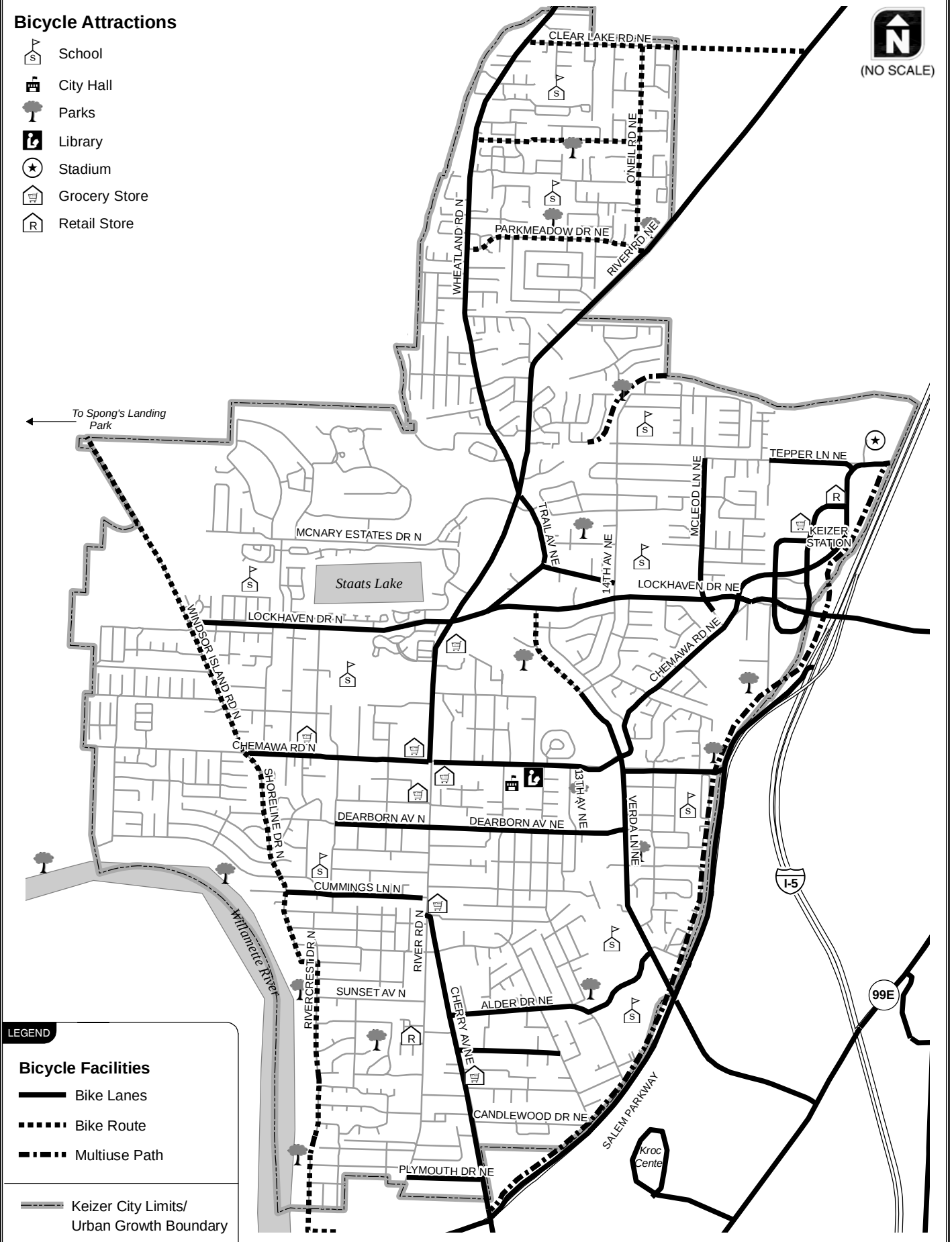
Existing Bicycle Facilities Analysis

Bicycle facilities (dedicated bicycle lanes in the paved roadway, multi-use paths shared with pedestrians, etc.) serve a variety of trips. Supporting bicycling as a viable alternative to the automobile requires more than simply providing bicycle lanes. Support facilities, such as secure parking and worksite changing facilities, are also needed before many potential users will consider the bicycle trip as a practical alternative.

Bicycle facilities will connect residential neighborhoods to schools, retail centers, and employment areas. Dedicated bicycle facilities are required along major streets where automobile traffic speeds are significantly higher than bicycle speeds. However, allowing bicycle traffic to mix with automobile traffic is acceptable where the average daily traffic (ADT) on a roadway is less than 3,000 vehicles per day, according to the Oregon Bicycle and Pedestrian Plan (Oregon Department of Transportation, 1995).

Based on the City's most recent inventory of the existing bicycle facilities, Figure 5.5 depicts the locations of existing bicycle facilities in the City of Keizer. Most of the major bicycle trip generators are located on the bicycle network or have local street connections to the bike network. The only arterial without bike lanes in Keizer is River Road south of Chemawa Road. In addition, the following collector streets do not have bike lanes on both sides of the street along the entire length of roadway:

- Alder Drive
- Candlewood Drive
- Chemawa Road (Windsor Island Road to 15th Avenue)
- Clearlake Road
- Parkmeadow Drive
- Shoreline Drive
- Sunset Avenue
- Trail Avenue
- Windsor Island Road



BICYCLE ROUTE NETWORK
KEIZER, OREGON

FIGURE 5.5

H:\projfile\8310 - Keizer TSP Refinement and Update\gis

Bicycle Improvement Projects

Improved bicycle facilities were the primary bicycle need identified by both the technical analysis and public comment. One specific area of concern expressed by the public included improving River Road for bicycling, particularly the section south of Chemawa Road.

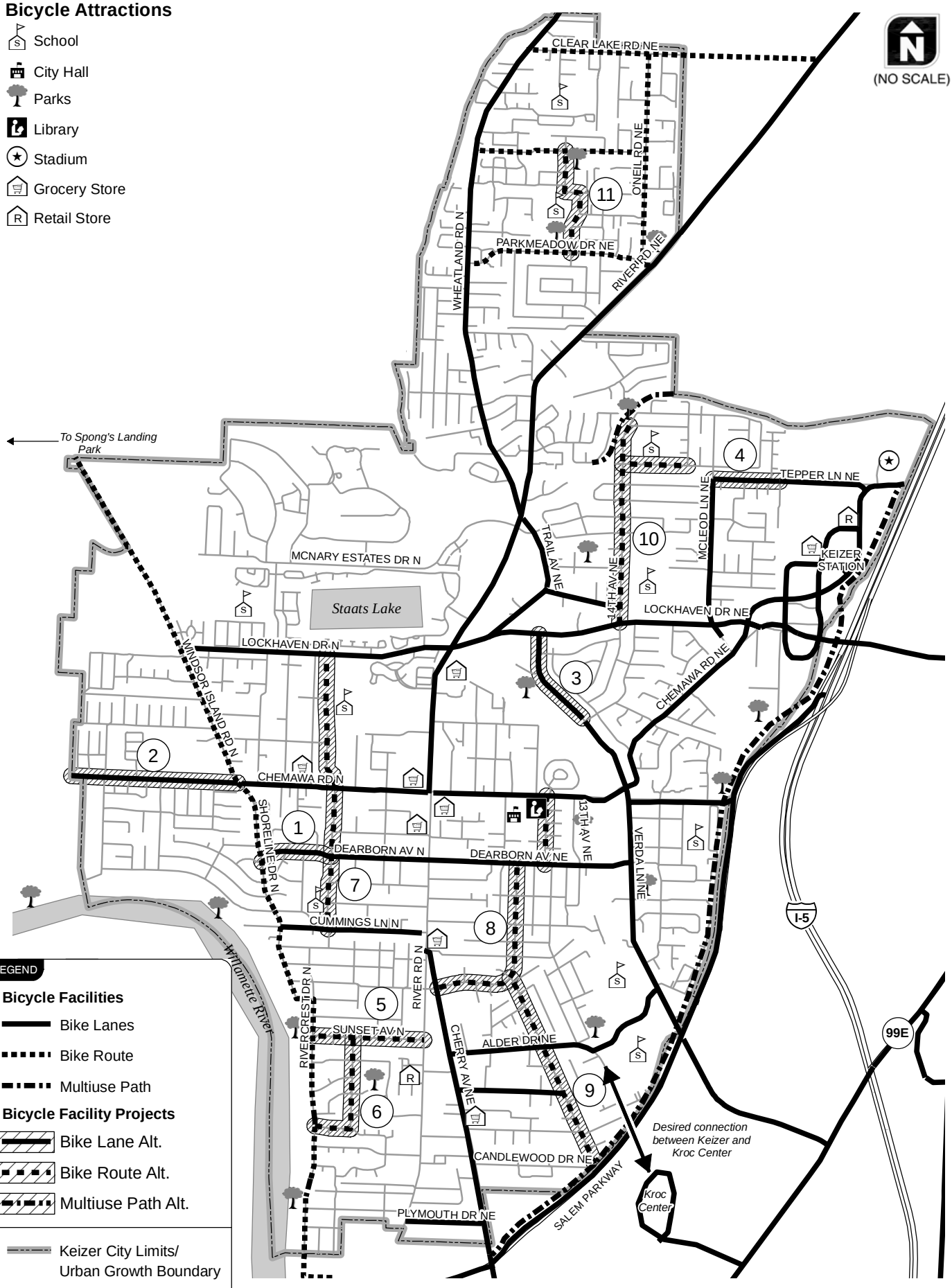
Project alternatives for the above mentioned locations were discussed as part of the alternatives selection process, however there were no identified projects to address enhanced bicycle facilities on Rivercrest Drive, Shoreline Drive, or River Road south of Chemawa Road. The following section provides additional information regarding these routes.

River Road (South of Chemawa Road)

A project alternative to accommodate bike lanes on River Road from Chemawa Road into Salem was reviewed during the TSP process. The identified project proposed a reduction in lane width (from 12 feet to 10 feet) for all travel lanes on River Road. Additionally, the width of the center turn lanes was proposed to be narrowed from 12 feet to 11 feet. The combination of these lane reductions was to accommodate a single 4.5 foot bike lane for the northbound and southbound directions.

This project was removed from further consideration since the proposed roadway cross section does not fit within the City's design standards for bike lanes on an arterial street. Understanding the relatively high volume of cyclists and the desire to use River Road as a connection to Salem, the TSP identified projects considered alternate adjacent routes to River Road to accommodate bicycle traffic.

To mitigate gaps in the bicycle system a set of improvement projects has been identified. The project locations are illustrated in Figure 5.6. Additional descriptions for each alternative are provided in Table 5.2. These projects are not listed in any order of priority.



H:\proj\fila\8310 - Keizer TSP Refinement and Update\gis

BICYCLE ROUTE NETWORK PROJECTS
KEIZER, OREGON

FIGURE **5.6**

Table 5.2 Bicycle Improvement Projects

#	Roadway	Description	From	To	Reasons for Improvement	Cost*
B1	Dearborn Avenue	Designate as a bicycle route.	Delight Street	Shoreline Drive	– Fill in a small gap and provide continuous bike route from Verda Lane to Shoreline Drive.	$
B2	Chemawa Road	Construct bicycle lanes on both sides of the roadway.	Windsor Island Road	West City Limit	– Provide a continuous east/west bicycle network. – Chemawa Road is a minor arterial. – Provide regional access to Keizer Rapids Park.	$$$
B3	Verda Lane	Designate as a bicycle route.	Kalmia Drive	Lockhaven Drive	– Fill in a small gap and provide a continuous bike route from Lockhaven Drive to Salem Parkway.	$
B4	Tepper Lane	Construct bicycle lanes on both sides of the roadway.	McLeod Drive	Railroad tracks	– Better neighborhood access to Keizer Station and multi-use path.	$$
B5	Sunset Avenue	Construct bicycle lanes on both sides of the roadway.	Rivercrest Drive	River Road	– Sunset Avenue is a collector roadway and a direct connection between Rivercrest Drive and River Road. – Provide better neighborhood and regional access to Sunset Park and transit stops.	$$$
B6	Fall Creek Drive/5th Avenue	Designate as a bicycle route.	Rivercrest Drive	Sunset Avenue	– Provide better neighborhood and regional access to Willamette Manor Park.	$
B7	Delight Street	Designate as a bicycle route.	Cummings Lane	Lockhaven Drive	– Provide neighborhood and regional route designation to Cummings Elementary School and McNary High School	$
B8	Mandbrin Dr/Thorman Avenue	Designate as a bicycle route.	Cherry Avenue	Dearborn Avenue	– Provide neighborhood and regional route designation between Cherry Avenue and Dearborn Avenue.	$
B9	Brooks Avenue	Designate as a bicycle route.	Mandbrin Drive	Salem Parkway	– Provide neighborhood and regional route designation to the Salem Parkway multi use path.	$
B10	14th Avenue	Designate as a bicycle route.	Lockhaven Drive	Gubser Elementary	– Provide neighborhood and regional route designation to Gubser Elementary School.	$
B11	Meadow-Glenn St.	Designate as a bicycle route.	Parkmeadow Street	Clear Lake Elementary	– Provide neighborhood and regional route designation to Clear Lake Elementary School.	$

* $$$ - Expected to have major ROW needs and/or a significant project scope.
$$ - Expected to have some ROW needs and/or a moderate project scope.
$ - Expected to have minor ROW needs and/or a small project scope.

Chapter 6
Transit System

TRANSIT SYSTEM

Several public transportation services are provided within the City of Keizer. Services include paratransit, passenger rail service, intercity bus and fixed route bus. The current status of each transit service is described in the following paragraphs.

Paratransit

CherryLift is an origin to destination paratransit service for people whose disability prevents them from using the Cherriots buses some or all of the time. As referenced in the *Specialized Transportation Plan for Polk and Marion Counties*, CherryLift provides curb-to-curb service to ADA-certified persons unable to ride Cherriots. CherryLift operates ten to twelve vehicles daily and provides approximately 60,000 rides annually. A 24-hour advanced reservation is required to ride CherryLift. Service hours and days parallel those of Cherriots. The fare is $2.50 each way and can be paid in either cash or using a CherryLift ticket.

Amtrak

The closest Amtrak facility providing intercity rail travel is located in Salem. The Amtrak Cascades line and the Coast Starlight line serve the Salem Amtrak facility. The Amtrak Cascades line provides service between Eugene-Springfield, Oregon and Vancouver, British Columbia, and the Coast Starlight line provides service between Los Angeles, California and Seattle, Washington.

Greyhound

The closest intercity bus facility is the Salem Greyhound station located in Salem. The Greyhound station and ticketing office is open Monday through Saturday from 7:00 a.m. to 8:00 p.m., on Sundays from 7:00 a.m. to 9:00 a.m. and 11:30 a.m. to 8:00 p.m., and on holidays from 7:00 a.m. to 2:30 p.m.

Fixed Route Bus

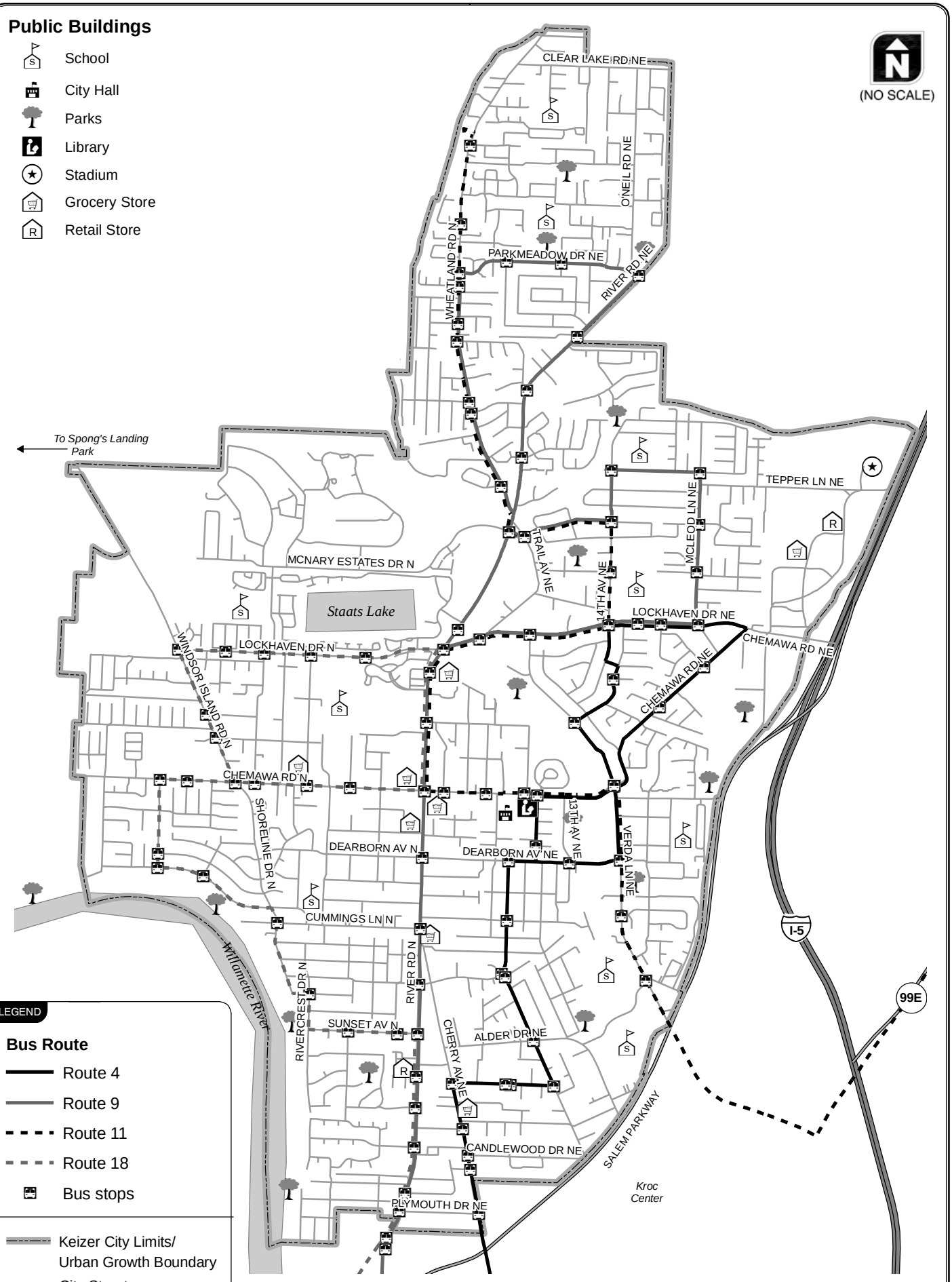
The regional transit system is called “Cherriots” and is operated by Salem - Keizer Transit, also known as the Salem Area Mass Transit District (SAMTD). The Cherriots service provides fixed-route public transportation within the urban growth boundaries of Salem and Keizer. The Cherriots network is composed of 27 bus routes, with four routes: Routes 4, 9, 11 and 18, providing service to, from, and within Keizer. Service is provided primarily from two transit centers. The Salem Transit Mall, the main transfer location, is located at Courthouse Square in Downtown Salem. Buses depart from this transit center at 15 and 45 minutes after the hour. The secondary transit center, the Glen Creek Transit Station, is located in West Salem with buses departing on the hour and 30 minutes after the hour. To facilitate the bus service in Keizer,

shelters are provided at a number of bus stops. Bus pullouts are also provided on River Road, Cherry Avenue, and Lockhaven Drive.

The service routes and stop locations are shown in Figure 6.1 and described in the following section.

A summary of the bus routes traveling in Keizer follows:

- Route 4 Keizer East provides service from the Salem Transit Center to Whiteaker Middle School in east Keizer, and operates from 6:00 a.m. to 10:00 p.m. on weekdays. Route 4 operates with a frequency of 30 minutes during weekday a.m. and p.m. peak hours, and 60 minutes the rest of the day. Route 4 does not operate on Saturdays and Sundays or holidays.
- Route 9 Keizer Central provides service from the Salem Transit Center to Fred Meyer North along River Road in central Keizer. Route 9 operates from 6:00 a.m. to 10:00 p.m. on weekdays. Busses operating on Route 9 alternate between "Loop A" and "Loop B." "Loop A" provides service to Parkmeadow Drive, while "Loop B" provides service to Whiteaker Middle School. Route 9 operates with a 15 minute frequency during weekday a.m. and p.m. peak hours, and 30 minutes the rest of the day. Route 9 does not operate on Saturdays, Sundays or holidays.
- Route 11 Lancaster Drive provides service in north Keizer, and serves Kaiser Permanente, Chemeketa College, and Lancaster Mall along Lancaster Drive, Verda Lane, River Road, and Wheatland Road. Route 11 operates from 6:30 a.m. to 10:00 p.m. on weekdays with a frequency of 60 to 80 minutes. Route 11 does not operate on Saturdays, Sundays or holidays.
- Route 18 Keizer West provides service from the Salem Transit Center to McNary High School in West Keizer along River Road and past the Fred Meyer grocery store near the intersection of Broadway Street/Salem Parkway. Route 18 operates from 6:00 a.m. to 10:00 p.m. with a 60 minute frequency on weekdays. Route 18 does not operate on Saturdays, Sundays or holidays.



H:\profile\8310 - Keizer TSP Refinement and Update\gis

EXISTING TRANSIT SYSTEM
KEIZER, OREGON

FIGURE 6.1

The Transit Quality of Service Evaluation (TQSE) measures, including transit service frequency and hours of service, were used to evaluate the corresponding levels of service for existing fixed route bus service. Based on this review it was determined that the existing fixed route transit service operates with some service limitations as outlined below:

- Regarding service frequency, the existing fixed routes operate in a range of headways that provide unattractive service for most riders (headways of approximately 21-30 minutes).
- The current fixed routes operate for approximately 15-17 hours per day on the weekdays depending on the route. This is defined as an acceptable level of service time, with evening service, however, late night service, weekend, or holiday service is not provided on any route.
- As seen in Figure 6.1 the existing service routes provide coverage to most areas of Keizer, however, coverage to neighborhoods in the north and northwest sections of the City is limited.

Proposed Transit System Improvements

In the fall of 2008, Salem-Keizer Transit sponsored a bond measure to provide funding to support transit operations. One component of this was to be for converting the Cherriots service from the existing pulse system to a nodal system called a "3C" operating system: centers, corridors, and circulators. The bond measure failed. However, the proposed changes to the fixed route bus service would have been:

- Corridor routes include routes providing service between the transit node centers in Keizer and Salem.
- Circulator routes are intended to provide expanded service from the proposed transit center to surrounding neighborhoods in Keizer.
- A new transit center is proposed for Keizer as part of the changes. The site is yet to be selected, but ideally will be located in the vicinity of the Chemawa Road/River Road intersection.

Although these service improvements are currently no longer planned, to meet the identified TSP goals regarding transit service in Keizer, City staff will continue to work closely with Salem-Keizer Transit staff to advocate transit system and facility improvements that are consistent with community goals and development plans.

For example, the City will consider the promotion of nodal development and or transit oriented development (TOD) in the vicinity of transit facilities as the system expands and development or redevelopment occurs. The City will revisit the TSP when future transit plans are known and funding is available to designate the location and density of nodal development along transit routes and near facilities.

The City of Keizer is committed to working to provide opportunities for viable and effective choices for its citizens regarding transportation needs. To this end, the City is committed to work with the Transit District to upgrade, strengthen and expand service wherever possible.

The location of transit facilities will be such that the citizens of Keizer will have easy access, will feel safe, and will enjoy direct service to transit routes in the metropolitan area. The location of transit facilities will address the need for access to the major corridors of River Rd, Salem Parkway, or other designated major corridors and provide access to the Civic Center, Parks, and shopping areas. The placement of such facilities will balance the need for proximity to residential areas with that of not creating disruptive impacts in established neighborhoods.

Additionally, mitigation of noise and light impacts to surrounding residential areas will be employed to ensure a high quality of life, while promoting more efficient mixed use development within the City where appropriate. Such design considerations as location along collectors and arterials, utilizing corner lot development, and close proximity to the major corridors of the City will be incorporated in the development of such facilities.

Chapter 7
Transportation Demand Management

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is defined as actions that attempt to manage and reduce the automobile trip demand on the transportation system. TDM strategies are increasingly more important as environmental concerns become more critical, gas prices vary and congestion increases.. 2007 census data revealed that approximately 77 percent of Keizer's residents drove alone to work.

Adding automobile travel lanes, building new roads, and connecting local neighborhood roads to collectors or arterials are traditional approaches to providing for increased travel demand. However, these methods are not the only solution for solving traffic problems. Road construction is expensive; and funds to finance the work are not always available when needed. Impacts on neighborhoods associated with construction disruption, air pollution, and in some cases, potential for higher speed traffic are usually unacceptable.

Transportation demand management (TDM) strategies are implemented to relieve traffic congestion, provide options for travel choice and to increase street use. Typical strategies include ridesharing programs, vanpooling, bus pooling, alternative work schedules, travel-time shifting (out-of-peak period), telecommuting, and increasing bicycle, pedestrian, and transit use.

Existing TDM Programs

A number of TDM programs are currently in place within Keizer and the Mid-Willamette Valley region. These programs are summarized below.

Mid-Willamette Valley Regional TDM Program

The Regional TDM Program is operated by the Mid-Willamette Valley Council of Governments (MWVCOG) and is designed to complement and enhance the efforts that began with the Regional Rideshare Program in 1975. The TDM program started in 1994 and is funded through the federal Surface Transportation Program as well as local funding sources. The program currently includes the following components:

- Regional Rideshare Program
- Employer/Employee Outreach
- TDM Program Development and Evaluation

Regional Rideshare Program

The main program offered under the Regional TDM umbrella is the Regional Rideshare Program. The Regional Rideshare Program originated in 1975 as a cooperative effort between the city of Salem, the Mid-Willamette Valley Council of Governments (MWVCOG), and the State of Oregon Department of General Services. The program objective was to alleviate parking demand in the Central Business District (CBD) and Capitol Mall area by providing transportation alternatives to driving alone to work. By the end of 1977, the program had expanded to include a region-wide carpool matching service, preferential parking and reduced parking fees for carpools, park-and-ride facilities connecting to Cherriots bus service, the Cherriots Commuter Bus club (a "no charge" express transit service for CBD/Capitol Mall area commuters), the use of flex hours, and a referral service for vanpools. The program was administrated by the MWVCOG until July 1979. In July 1979, the city of Salem Public Works Department assumed responsibility for administration of the program. In July 2005 the Salem-Keiser Transit District assumed responsibility for the administration of the program and markets the program under the name of "Cherriots Rideshare". The Regional Rideshare Program is funded through the federal Surface Transportation Program - Urban.

Currently, the Regional Rideshare Program's major components are the Carpool Matching Services, Vanpool Referral Services and administering the Emergency Ride Home Program, described in detail below.

- Carpool Matching Service and Participation. Carpooling involves the use of an employees' private vehicle to carry fellow employees or other commuters to work, either using one car and sharing expenses, or rotating vehicle use so that no money changes hands. The Cherriots Rideshare program provides a computerized carpool matching service and offers a 24 hour Rideshare Hotline for potential carpool participants within an 80 mile radius of the Salem-Keizer-Turner urban area. Applicants are matched with those individuals commuting in the same direction and receive a computer printout or email containing contact information of other participants. The average daily round trip commute for carpool participants was approximately 45 miles in 2005-2006. Cherriots Rideshare processes approximately 62 potential carpool applications a month. As of June 2006, there were 2,778 applicants in the rideshare database.

- Vanpool Referral Service. Vanpools can be company sponsored, third-party, or owner operated. A vanpool involves between 7 and 15 riders that is driven by a volunteer driver/coordinator who is commuting to the same location as the riders. Riders usually meet at a designated pick-up location, and have a designated drop-off point at the destination. Each rider pays a monthly fee that is determined by the lease cost plus gas, divided by the number of riders. When a carpool application is processed, applicants are also matched with vans that may serve their commuting needs. The applicant receives information about how to contact the driver, pick-up and drop-off locations, times and fares. In 2007, there were 25 vanpools in the Cherriots Rideshare database.

  Participants of the carpool/vanpool referral service can also apply for reserved parking spaces located in one of Salem's three downtown parking structures (Pringle, Marion Parkade, and Liberty Square). Currently, carpool and vanpool participants can obtain reduced parking fees for reserved carpool/vanpool parking spaces in the Pringle Parking Structure.

Employee/Employer Outreach

The Cherriots Rideshare staff also provides outreach to employers and employees within the region to develop Employee Transportation Programs. Possible components of an Employee Transportation Program include:

- New employee introduction package: Includes two free bus passes and a form to enroll in the ride matching program.
- Reduced price bus passes: Monthly passes on Cherriots at a discount.
- Preferential/Reduced Carpool Parking: For those employees joining or starting a carpool, the city of Salem has designated parking spaces for carpools. In addition, some area businesses and agencies offer a similar service in their private parking lots.
- Bicycle and Pedestrian Incentives: Designed to encourage employees to walk or bike to work. Several companies in the area offer on-site bicycle lockers for their workers. In addition, the City of Salem has a number of lockers for rent in downtown.
- Flexible work hours.
- Teleworking.
- Emergency Ride Home program: For employees enrolled in the program who have an emergency that requires the employee to leave immediately, this program would pay for the taxi fare.

Another part of the TDM program's outreach is to inform employers, employees, and the public of the benefits and possibilities that are part of Employee Transportation Programs specifically and TDM strategies in general. These tasks include:

- Assist major employers to develop and establish a comprehensive employee transportation program.

- Explore the feasibility of developing a Transportation Management Association.
- Promote incentives and disincentives for the use of rideshare, transit, bicycling, and walking by employees and the community.
- Assist in the development and establishment of telecommuting programs.
- Promote alternative work hours.
- Participate in community activities to promote TDM strategies where appropriate.

On a regular basis, the TDM staff also meets with public and private sector employers and employees to develop transportation programs and provide information on transportation alternatives.

TDM Program Development and Evaluation

Cherriots rideshare also undertakes TDM Program Development and Evaluation which includes:

- Research TDM strategy related incentives/disincentives and programs elsewhere in the nation for potential applicability for the region. Determine implementation process for these incentives/disincentives to employers and employees.
- Develop marketing promotions.
- Produce newsletter to promote carpool/vanpool use and other transportation alternatives to the single-occupant vehicle, energy conservation, and air quality for distribution to policy makers, local communities, businesses, and the public.
- Retain existing public carpool parking and locate additional on-street carpool parking spaces in the Downtown/Capitol Mall area, as the demand warrants.
- Develop and implement a park-and-ride plan in coordination with Salem-Keizer Transit District for the Salem-Keizer urban area.
- Identify and develop potential park-and-ride sites within Marion and Polk Counties and coordinate the designation and/or construction of these sites with the appropriate jurisdictions.
- Continue to improve the current computer matching program in order to meet the needs of prospective clients and cost effectiveness of the program.
- Improve program monitoring and evaluation procedures to assess the overall effectiveness of the program and the special marketing promotions.
- Develop ordinances to require TDM strategies in lieu of other mitigation measures in Traffic Impact Analysis.

Park-and-Ride Lots

Park-and-ride lots are either publicly or privately owned facilities that give automobile commuters a place to park and then carpool or ride transit. With the eventual implementation of express transit service, more park-and-ride locations will be necessary. The location of these new facilities will require continued study by the City of Keizer and SAMTD.

Currently, there are two functioning park-and-ride lots in Keizer. One unofficial lot is located on the south side of Chemawa Road at Radiant Drive. The second lot is located at the Safeway store on the southeast corner of River Road and Chemawa Road. Additional park-and-ride facilities are anticipated to be constructed as part of Area C of Keizer Station. The timing of this stage of development is currently unknown.

Potential TDM Strategies

There are a wide variety of possible TDM strategies that could be adopted and implemented by the City of Keizer to reduce VMT and increase trips completed by other travel modes. A number of strategies are summarized below. As appropriate, City of Keizer staff will explore opportunities for expanding TDM services/facilities in Keizer.

Promote Walking and Bicycle School Trips

The City of Keizer shall work with the school district to promote walking and bicycle trips to schools and bus stops that service schools. Assistance may be available through the Safe Routes to School Program to assist with this outreach.

Outreach to New and Relocating Residents

Relocation is a key time for people to consider travel options and change travel habits. An outreach program will identify target market segments among new residents and develop strategies to market travel options and services to those audiences. A number of the elements that are currently being used for employer/employee outreach could be modified for use within the community. For example, the new employee introduction package and pedestrian and bicycle incentives.

Encourage Walking Trips

A number of measures can be undertaken to improve the walk-ability of the City and encourage walking trips. These measures include: the publication and distribution of sidewalk network maps, improving sidewalk and path conditions for all users, increasing perceived pedestrian safety through better lighting and landscaping, creating pedestrian short-cuts at mid-block locations and at the end of cul-de-sacs, installing way-finding signage to attractors and transit facilities, and creating a more attractive pedestrian environment.

Parking Management

The management of parking results in positive impacts across land uses, managing the transportation system, and supporting the economy. Parking is often considered "free" by the public and assumed to be a cost of doing business by companies.

Potential parking management strategies include:

- designating spaces for carpools and vanpools in convenient locations,
- installing bicycle parking facilities in prominent locations,
- encouraging employers to discontinue parking subsidies for employees,
- prohibiting on-street parking on busy roadways at peak periods to increase available traffic lanes,
- separating or "unbundle-ing" parking from multi-family residential and/or office developments. This means that parking is sold or rented separately from the property. For example, rather than renting or selling an apartment with two parking spaces, the parking spaces are bought or rented separate to the apartment. This strategy results in people paying only for the parking that they require. Additional spaces can then be sold, leased, or used for paid parking for surrounding land uses. The City should monitor parking in the area to ensure that on-street parking is not being used to avoid paying for spaces,
- sharing parking spaces between adjacent buildings and land uses to take advantage of different peak period times. Examples of complimentary land uses include offices and theatres or restaurants. As a result, the total parking quantity can be reduced when compared to the total requirement for the land uses individually. This method can also maximize usage of existing parking supply as redevelopment occurs.

- implementing parking pricing or short term parking zones that free up parking in business and retail centers while encouraging drivers with long term parking needs to try carpooling, transit or other options.

Bicycle/Transit Integration

Cycling and transit travel modes integrate well, with cycling used for shorter-distance trips and transit used for mid to long distance trips on busy corridors. Providing facilities for cyclists at transit stops increases the transit influence area as people can travel further on bicycle than by walking within a relatively short amount of time.

There are number of ways to accommodate these users including providing secure bicycle storage facilities at transit stops, providing bicycle storage on the transit vehicle (i.e. bus mounted bicycle racks, storage areas inside train carriages), and/or ensuring that bicycles can access transit stops and stations in a safe manner.

Event Transit Service

City of Keizer could develop an Event Management Plan in collaboration with local businesses and SAMTD to increase transit and shuttle service and the use of park-and-ride and overflow parking lots during festivals and events within the City.

Scenarios for Successful TDM Strategy Implementation

Based upon information provided by the MWVCOG, TDM strategies are more successful when following factors are considered. The City will work with the Cherriots Rideshare Staff to maximize opportunities to use TDM strategies in Keizer.

- The target area for a TDM program should be clearly defined (e.g., Downtown, City Hall area). The largest scale demand management/rideshare experiments have been at the sub-area level and have been characterized by significant reductions in certain types of vehicle trip rates.
- Strategies are more effective if coupled with complementary strategies (e.g., park-and-ride facilities are more likely to be successful if linked to express or limited stop transit service).
- Demand management/rideshare programs are most likely to be successful where there are financial incentives to encourage commuter participation (e.g., transportation allowances). Congestion, parking costs, etc., often needs to be perceived as unacceptable before voluntary demand management/rideshare options become widely attractive to commuters.
- Marketing efforts should target those commuters who are interested in or open to altering their commute pattern (e.g., market segmentation). Time and resources may not be best used in trying to change the minds of those who are committed drive-alone commuters.
- The larger the scope of the program, the more important it is that there is cooperation among jurisdictions, private employers, and the public. Coordinated efforts among agencies and transportation providers are more likely to succeed than overlapping efforts.

Chapter 8
Air, Water, Pipeline, Rail, and Freight Systems

AIR, WATER, PIPELINE, RAIL, AND FREIGHT SYSTEMS

Air

No airport exists in Keizer; however McNary Field is located four miles south of Keizer in Salem. This airport serves general aviation aircraft, the Oregon Army National Guard – Army Aviation Support Facility, and a Federal Express office and package reload facility.

From June 2007 to October 2008, Delta Airlines' connection carrier, SkyWest provided commercial service from Salem to Salt Lake City, Utah for connections to other national and international Delta Airlines flights. The City of Salem continues to seek a commercial carrier for service to/from Salem. In addition, Portland International Airport (PDX) is the principal airport in the State of Oregon, and is located 50 miles north of Keizer.

Water

The Willamette River is located along the west side of the city of Keizer and does not include any port or harbor facilities within the Keizer area. Near Keizer, the Willamette River is approximately 500 feet wide and 4 to 16 feet deep.

The Wheatland Ferry, located approximately four miles north of Keizer on Matheny Road, provides passenger service across the Willamette River in Marion County. The ferry connects with Wheatland Road in Yamhill County and is open year-round, except Thanksgiving and Christmas Day. It is also closed when the depth of the Willamette River is greater than 16 feet or when the flow of water in the river is low.

The Wheatland Ferry operates daily from 5:30 AM to 9:45 PM, with the following tolls:

- Motorcycles – $1
- Autos & Pickups – $1.35
- Vehicles w/Trailers – $2.75
- Vehicles Over 20 Feet – $2.75
- Dual-Axle Vehicles – $4
- Vehicles Using Entire Ferry – $12
- Toll Tickets:
    - $54 buys a 48 punch ticket
    - $27 buys a 24 punch ticket

The Wheatland Ferry can carry up to nine vehicles per trip, corresponding to a maximum weight of 80,000 lbs (40 tons) and a maximum length of 63 feet. The ferry ride across the river is less than two minutes, and the ferry runs continuously throughout the day. The ferry carries approximately 750 cars per day in the winter and 950 cars a day in the summer. According to Marion County Public Works, most of the passengers are commuters, with an equal number of crossings in both directions.

Pipeline

The only pipelines in Keizer are feeder lines for Northwest Natural Gas. The pipeline facilities within the Keizer area have an excellent safety record, without incident. The current system is adequate to support the city's needs for the next 20 years.

Rail

The existing railway through Keizer crosses the southeastern Keizer city limits near Ridge Drive, heads due north and exits the city limits on its northern border. The sole rail crossing in Keizer is located at the intersection of Lockhaven Drive/Ridge Road, and has a new gated warning signal, as well as railroad crossing signs. This line has been leased to, and is operated by, Portland and Western (P&W) Railroad. P&W, is a wholly owned subsidiary of Genesee & Wyoming Inc., and operates a 520 mile regional system. It is currently a freight rail line; however, there have been preliminary discussions about modifying it to provide commuter rail service connecting to Tri-Met's Westside Express Service (WES) commuter rail. WES commenced operation in February 2009.

Freight

While there is not a large volume of freight traffic in Keizer, the majority of the freight movement is made on Lockhaven Drive, Chemawa Road, River Road, and Salem Parkway. A rock quarry is located in west Keizer on Chemawa Road. Trucks from the quarry access I-5 via Chemawa Road and Lockhaven Drive. Additionally, there are three commercial/distribution centers: Advantage Transportation Services, located near the intersection of Cherry Avenue/Salem Parkway, Cummings Moving Systems, located near the intersection of Lockhaven Drive/River Road, and CAD NW Conveyored Aggregate Delivery, also located near the intersection of Lockhaven Drive/River Road. Finally, Salem Parkway at the southern edge of the city is also a major truck route, providing access between I-5 and Salem. With potential commercial development in Keizer, there is potential for commercial traffic to become a more critical issue within the City.

Chapter 9
Financial Projections and Project Needs

FINANCIAL PROJECTIONS AND PROJECT NEEDS

The financial overview presented in this chapter is intended to provide historical context for transportation expenditures and revenues in the City of Keizer and to identify primary sources for capital project funding. Analysis of past funding availibility and projections were conducted to explore the potential for various funding mechanisms. All costs discussed in this chapter are based upon 2008 dollar values.

Chapters 4 and 5 of the TSP identified roadway, bicycle and pedestrian projects that meet Keizer's transportation needs until the year 2031 based on the forecasted traffic growth in the City. The future transportation needs of the City were determined using the information received from two sources: comments received from the public and technical analysis of future traffic operations and safety along major roadways in the City.

The projects listed in Table 9.1 present the recommended immediate, near, mid and long term projects for development in Keizer. In each case there is a project name and description, estimated planning level costs, and estimated priority. The projects address various transportation issues such as roadway connectivity, traffic operations, safety, and pedestrian and bicycle needs.

The priority for roadway projects was based on the capacity needs and connectivity needs of the system. The pedestrian and bicycle projects were prioritized based on connectivity to the existing system and connectivity between pedestrian/bicycle generators such as community centers, schools, businesses, and shopping centers. The prioritization of all projects is tempered based on the available annual funding described later in this chapter.

Table 9.1 City of Keizer Financially Unconstrained Projects and Prioritization

Project	Location	Description	From	To	Cost[1]
Immediate Term (0-5 Years)					
R1	I-5 Southbound On-Ramp	Widen Salem Parkway on-ramp to I-5 to two lanes.	N/A		$360,000
R6	Lockhaven Drive at 14th Avenue	Construct a westbound right-turn lane. Modify the northbound and southbound approaches to a separate left-turn lane and shared through/right-turn lane.	N/A		$280,000
B1	Dearborn Avenue	Designate as a bicycle route. Provide signage for bicycle route with approximately 1,300' of pavement markings.	Delight Street	Shoreline Drive	$5,000
B2	Chemawa Road	Construct bicycle lanes on both sides of the roadway. Includes roadway widening to accommodate 5' bike lanes. Does not include any sidewalk/curb construction.	Windsor Island Road	West City Limit	$675,000
B3	Verda Lane	Designate as a bicycle route. Provide signage for bicycle route with approximately 2,000' of pavement markings.	Kalmia Drive	Lockhaven Drive	$5,000
B7	Delight Street	Designate as a bicycle route with shoulders and widening. Provide signage for bicycle route with approximately 5,000' of pavement markings.	Cummings Lane	Chemawa Road	$160,000
B11	Meadow Glenn Street	Designate as a bicycle route. Provide signage for bicycle route with approximately 1,500' of pavement markings.	Parkmeadow Street	Clear Lake Elementary	$5,000
S4	Chemawa Road	Construct approximately 1,200' of concrete curb and sidewalk. Bring Chemawa Road to arterial street standards.	West City Limits	River Road	$2,160,000
Near Term (5-10 Years)					
R4	River Road at Lockhaven Drive	Convert westbound approach to dual left-turn lanes, a single through lane, and a separate right-turn lane. Convert east/west split phasing to a more conventional protected left-turn phasing. Upon redevelopment of adjacent properties, implement access management measures for driveways within the influence area of the signalized intersection.	N/A		$370,000
R3	River Road at Wheatland Road	Construct dual northbound left-turn lanes. Change northbound/southbound to a protected left-turn phase. Extend length of second southbound through lane.	N/A		$960,000
R7	Chemawa Road/ Verda Lane	Install single-lane roundabout (120 ft inscribed circle diameter).	N/A		$1,275,000
R9	Transportation Management/ Access Management	Perform Lockhaven Drive Corridor Study Perform River Road Corridor Study Perform Chemawa Road Corridor Study	River Road South City Limits Lockhaven Drive	Chemawa Road Lockhaven Drive Windsor Island Drive	$300,000 $250,000 $100,000
B4	Tepper Lane	Construct bicycle lanes on both sides of the roadway. Includes roadway widening to accommodate 5' bike lanes. Does not include any sidewalk/curb construction.	McLeod Drive	Railroad Tracks	$165,000
B5	Sunset Avenue	Construct bicycle lanes on both sides of the roadway. Includes roadway widening to accommodate 5' bike lanes. Does not include any sidewalk/curb construction.	Rivercrest Drive	River Road	$165,000

Project	Location	Description	From	To	Cost[1]
B6	Fall Creek Drive/ 5th Avenue	Designate as a bicycle route. Provide signage for bicycle route with approximately 2,000' of pavement markings.	Rivercrest Drive	Sunset Avenue	$5,000
B8	Manbrin Drive/ Thorman Avenue	Designate as a bicycle route with shoulders and widening. Provide signage for bicycle route with approximately 3,000' of pavement markings.	Cherry Avenue	Dearborn Avenue	$160,000
S3	Cummings Lane	Construct approximately 3,250' of curb and sidewalk along sections of Cummings Lane to bring to collector standards	Palma Ciea Park	River Road	$1,080,000
S5	Dearborn Avenue	Construct approximately 1,000' of curb and sidewalk to fill in gaps. Bring to collector street standard.	Delight Street	River Road	$580,000
S11	Chemawa Road	Construct approximately 4,000' of curb and sidewalks to bring Chemawa Road to arterial street standards.	Verda Lane	Lockhaven Drive	$1,330,000
Mid-Term (10-15 Years)					
R2	River Road at Manzanita Street	Move intersection approximately 250 feet to the south. Construct separate westbound through and right-turn lanes.	N/A		$2,700,000
B9	Brooks Avenue	Designate as a bicycle route. Construct full improvements (bike lane, curb and gutter, shoulder, and sidewalks). Provide signage for a bicycle route with approximately 4,000' of pavement marking.	Mandbrin Drive	Salem Parkway	$160,000
B10	14th Avenue	Designate as a bicycle route. Provide signage for a bicycle route with approximately 4,000' of pavement.	Lockhaven Drive	Gubser Elementary	$10,000
S1	Sunset Avenue	Construct approximately 2,000' of curb, sidewalks, and bike lanes to bring to collector street standards	Rivercrest Drive	River Road	$665,000
S6	Delight Street	Construct approximately 2,500' of curb and sidewalk. Bring Delight Street to local street standards.	Cummings Lane	Chemawa Road	$830,000
S7	Dearborn Avenue	Construct approximately 1,000' of curb, sidewalk and bike lanes to bring to collector street standards.	13th Avenue	Verda Lane	$330,000
S8	Verda Lane	Construct approximately 5,500’ of curb, sidewalks and bike lanes to bring to arterial street standards.	Alder Drive	Kalmai Drive	$1,825,000
Long Term (15-20 Years)					
R5	Verda Lane Extension	Extend Verda Lane north of Lockhaven Drive and connect to River Road at a new alignment of McNary Estates Drive. Realign Trail Avenue. Close the existing River Road/Manzanita Street/McNary Estates Drive intersection.	River Road	Lockhaven Drive	$2,075,000
R8	Lockhaven Drive/ Verda Lane Alternatives	Signalize the intersection. Restrict north/south through movements on Verda Lane.	Windsor Island Drive	Chemawa Road	$400,000
S2	Mandbrin Avenue	Fill in sidewalk gaps to local street standards. Construct approximately 625' of curb and sidewalk.	Toni Avenue	River Road	$210,000
S9	Windsor Island Road	Fill in sidewalk gaps to collector standards. Construct approximately 6,000' of curb, sidewalk and bike lanes to bring to urban standards.	Chemawa Road	City Limits	$1,995,000
S10	O'Neil Road	Fill in sidewalk gaps to local street standards. Construct approximately 1,600' of curb and sidewalk.	Parkmeadow Drive	Clear Lake Road	$530,000
S12	Wheatland Road	Fill in sidewalk gaps to arterial street standards. Construct approximately 6,300' of curb and sidewalk.	River Road	Clear Lake Road	$2,095,000
				TOTAL	**$24,215,000**

[1] Cost estimates does not include cost associated with acquiring right of way.

The total estimated 20 year transportation system improvements funding need for the City of Keizer is approximately $24,215,000. In addition to this spending, City of Keizer will continue to maintain their existing transportation system through on-going maintenance programs. This is spending in addition to the above capital improvements.

Estimated Available Funds

Based upon past and current revenue sources from the City of Keizer's annual budget, approximately $500,000 per year is available from the Capital Improvement Program (CIP) Street Fund. It is estimated that this fund will remain the same or increase by approximately four percent over the next 20 years. Currently the City of Keizer also maintains a Transportation System Development Charge (TSDC) program of which $110,000 is available annually for transportation improvement projects. It is expected that the TSDC program will be updated and modified as necessary following adoption of the updated TSP.

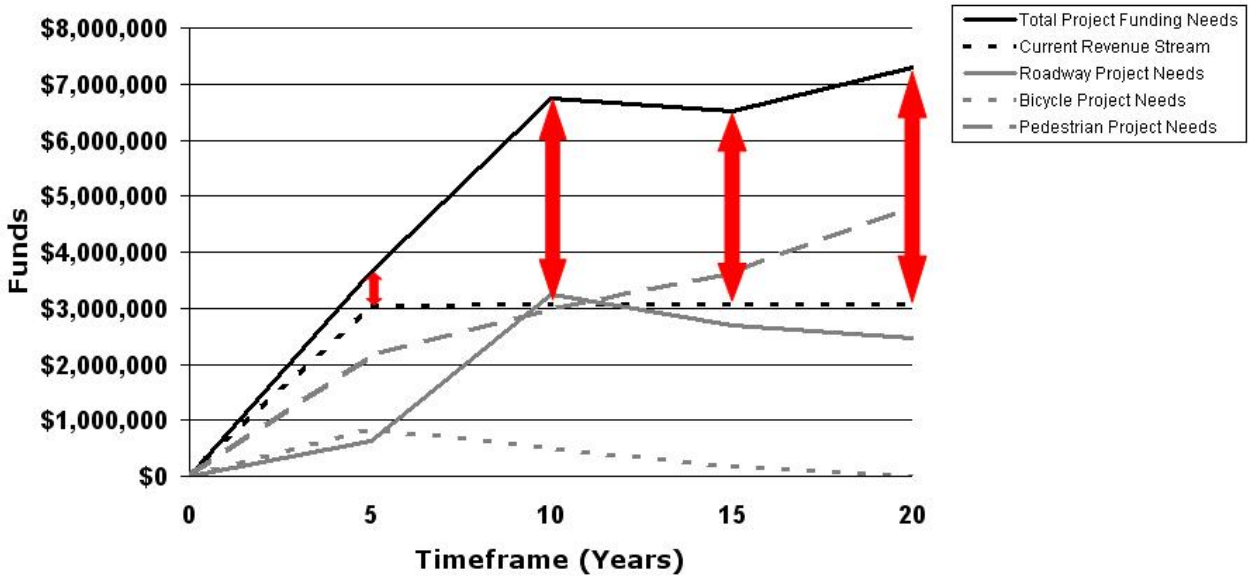
Table 9.2 shows the available funds for transportation projects over the next 20 years in increments of five year periods, assuming that the current funding sources remain the same. An incremental increase for each timeframe determined that the annual CIP Street Fund is forecast to increase by approximately four percent in the 20 year horizon. This translates to an approximate 0.002 percent annual increase to the $500,000 currently available. Table 9.3 below illustrates the funds required and available for each five year period, assuming the small percent annual increase to the CIP budget.

Table 9.2 Estimated Available Funds

Timeframe (Years)	Funding Stream	Funds Needed
0-5	$3,055,000	$3,650,000
5-10	$3,065,000	$6,740,000
10-15	$3,070,000	$6,520,000
15-20	$3,075,000	$7,305,000
TOTAL	**$12,265,000**	**$24,215,000**

Figure 9.1 provides a graphical representation of the available transportation system funding from existing sources, and the project costs for the unconstrained transportation system needs identified for the next 20 years in the City of Keizer. The arrows in the graph represent the funding gap between the estimated funding available and the forecast project funding needs.

Figure 9.1 Keizer 20 Year Transportation Funding



As shown in the graph, a funding gap of approximately $12 million exists between the estimated funding available and the forecast project funding needs to accommodate all of the identified transportation system projects.

Potential Funding Sources

Approximately $24 million is required within the 20 year horizon to implement all of the transportation improvements identified in the financially unconstrained needs analysis. In the near term, a total of $3,650,000 is needed to implement projects in the immediate term (0-5 years). Current funding for the immediate term horizon is $3,055,000, leaving a gap of approximately $595,000 for projects without an identified funding source. This gap continues to grow in future years; therefore, additional funding sources and opportunities will continue to be explored by the City. The City will take advantage of funding and opportunities available at any given time to identify the most appropriate project for the given time period.

Statewide Transportation Improvement Program (STIP)

Every two years, ODOT allocates funding to improvement projects on state and local facilities through its four-year funding program, the Statewide Transportation Improvement Program (STIP). The STIP has provisions for funding local projects that are outside ODOT jurisdiction. For the City of Keizer to receive such funding, the City's project(s) would be selected and identified in the Salem Keizer Area Transportation Study (SKATS) Transportation Improvement Program (TIP). While Keizer has not had projects in the TIP every year, they have had projects in the TIP with some regularity. With the adoption of the TSP, the City will be in a stronger position to pursue funding for projects listed in the TSP as these projects will comply with ODOT's

Transportation Planning Rule (TPR). However, it should be noted that being listed in the TSP does not guarantee STIP funding.

In addition, there are State Transportation Enhancement funds and Bicycle/Pedestrian Grants that the City can apply for to fund some of the projects identified in the TSP. Keizer has also applied for grants that address stormwater to provide for pedestrian/street amenities such as the 'rain gardens' on Dearborn Avenue.

Updated System Development Charges (SDC)

The SDC program charge is based on the projected needs over a 20-year planning horizon. Once the system development charge (SDC) projects have been identified and the total cost to implement the projects has been estimated, an SDC cost per trip assessment can be developed based on the trip generation potential of future development. As a result, the SDC program will be updated after adoption of the TSP.

Local Improvement District (LID)

Local Improvement Districts (LID) are created to finance transportation system improvements through special assessments against benefited properties. A LID provides a mechanism to coordinate installation and funding of improvements between one or more property owners. LID's may be formed when property owners petition the City for the purpose of constructing and funding public improvements in their neighborhood. At times, a LID may be formed when the City determines that improvements are necessary. Special assessments to the properties benefiting from the improvements can be implemented by the City through the formation of a LID. Typical improvements made through the LID process are to streets, water lines, sewers, sidewalks, bicycle lanes, street lighting, and traffic signals.

LIDs are initiated either by written petition from property owners or directly by City Councilors. In some cases, the City Councilors may require installation of public improvements that are considered essential to the welfare of the City and shall initiate a LID to construct and assess the sidewalk costs to adjacent property owners. A LID can also be initiated when a certain percentage of the benefiting property owners petition to the City to initiate a LID to construct the improvements.

Municipal Bonds

Municipal bonds are debt issued to fund public infrastructure projects by jurisdictions and institutions like the U.S. government, local governments, water districts, companies, and many other types of institutions. When an investor buys bonds, he or she is lending money to fund the public project with an agreement that the seller of the bond agrees to repay the principal amount of the loan at a specified time. The interest that investors receive is exempt from some income taxes.

Tax Levies

It is within City of Keizer jurisdiction to levy taxes to fund public infrastructure projects that are needed to accommodate future growth in the City. A local tax could be in the form of local gas tax, ad valorem tax (Latin for "according to value"), or other forms of tax.

State of Oregon: Jobs and Transportation Act 2009

Currently, the Oregon State Legislature is reviewing the "Jobs and Transportation Act 2009". This set of initiatives proposed by the Governor's office would inject $1 billion biennially into Oregon economies. Possible sources for funding have been identified and include a combination of congestion pricing, title fees, and gas tax increases. The 2009 recommended funding available for Oregon cities estimates approximately $1,235,000 would be available to Keizer annually to pay for transportation investment projects. Although this Transportation Act is not yet approved, it represents a significant investment into Oregon's transportation infrastructure and consequently into Keizer's future transportation system.

Project and Funding Summary

Keizer's TSP identifies the roadway connectivity, operation, safety, pedestrian, bicycle, transit, and railroad needs of the City for the next 20 years. It also supports the anticipated population and economic growth of the City. In summary, the short term, mid-term and long term needs of the City are shown in Table 9.3. As shown in Table 9.3, the sum of pedestrian and bicycle project costs are nearly double that of the identified roadway project costs.

Table 9.3 Project and Funding Summary by Timeframe

	Bicycle Projects	Sidewalk Projects	Roadway Projects	Total Projects
Immediate Term (0–5 years)				
Number of Projects	5	1	2	8
Estimated Cost of Projects	$850,000	$2,160,000	$640,000	$3,650,000
Percent of Total Cost	23%	59%	18%	100%
Available Funding				$3,055,000
Funding Shortfall				($595,000)
Short Term (5–10 years)				
Number of Projects	4	3	4	11
Estimated Cost of Projects	$495,000	$3,090,000	$3,255,000	$6,740,000
Percent of Total Cost	7%	45%	48%	100%
Available Funding				$3,065,000
Funding Shortfall				($3,675,000)
Mid-Term (10–15 years)				
Number of Projects	2	4[1] 1		7
Estimated Cost of Projects	$1,135,000[2] $2,	685,000	$2,700,000	$6,520,000
Percent of Total Cost	18%	41%	41%	100%
Available Funding				$3,070,000
Funding Shortfall				($3,450,000)
Long Term (15–20 years)				
Number of Projects	0	4	2	6
Estimated Cost of Projects	$0	$4,830,000	$2,475,000	$7,305,000
Percent of Total Cost	0%	66%	34%	100%
Available Funding				$3,075,000
Funding Shortfall				($4,230,000)
TOTAL (0 – 20 years)				
Number of Projects	11	12	9	32
Estimated Cost of Projects	$2.480.000	$12,765,000	$9,070,000	$24,215,000
Percent of Total Cost	10%	53%	37%	100%
Available Funding				$12,265,000
Funding Shortfall				($11,950,000)

[1] Two of these sidewalk projects also include the construction of bike lanes. The cost of constructing the bike lanes has been shown separate to the cost of constructing the sidewalks.

[2] This number includes the cost of constructing bike lanes as part of sidewalk projects discussed in footnote 1.

Chapter 10
Outstanding Actions, Steps, or Refinements

OUTSTANDING ACTIONS, STEPS, OR REFINEMENTS

During the TSP update process, a number of projects and/or additional studies were identified for future investigation by the City of Keizer. These items are summarized in this chapter for future reference and consideration by the City. Some of the projects discussed below are currently underway or are being investigated; others are more conceptual at this time. No cost estimates have been prepared for any of this work, and this will need to be considered if/when these projects are considered.

Roadway Projects

Infill Design Standards

The City of Keizer is in the process of updating the City's Infill Design Standards. These standards will include street design standards which have been included in this TSP. The infill street design standards included in this TSP are not anticipated to change as part of the City's adoption process.

Salem River Crossing Project

The Salem River Crossing project is being conducted by the City of Salem and ODOT. The project purpose is to work with area stakeholders to develop solutions for crossing the Willamette River in the Salem-Keizer metropolitan area that meet transportation needs, are compatible with the built and natural environments, and have broad community and regional support. The project builds on the results of previous studies to develop an environmental impact statement (EIS) and a funding strategy to move the identified solution or solutions toward implementation. If/when an additional Willamette River crossing is constructed in Keizer, and if this results in additional traffic on the Salem Parkway, the City will continue to monitor traffic operations and pedestrian crossing opportunities at intersections along the Salem Parkway to ensure local circulation needs are met and enhanced.

Lockhaven Drive

Lockhaven Drive is the principal east/west travel route within Keizer and connecting to Interstate 5. The TSP evaluation of future conditions identifies that this road will be over capacity and congested by the year 2031 if no actions are taken in advance. A number of improvements have been developed in this TSP; however these measures alone will not be sufficient to cope with the projected traffic volumes in the long-term. The function of and travel demand on Lockhaven Drive is integrated with the size, type and location of access to Interstate 5 and future growth in Keizer. At the time of the writing of this document, a Chemawa/I-5 Interchange Area Management Plan study was underway by ODOT.

Residents of Keizer currently oppose any widening of Lockhaven Drive and have expressed interest in more access to I-5, even though it is not a facility in the TSP. City of Keizer Staff should develop a sub-area study to identify a future form and function of Lockhaven Drive and thus begin to plan for the future of this street.

Miscellaneous Projects

The following roadway projects were also identified as requiring additional investigation or monitoring:

- Candlewood Drive/Cherry Avenue – monitor traffic operations to determine if improvements are needed; and
- Verda Lane/Alder Street/Claxter Road – evaluate traffic operations during school arrival and departure hours to identify if operational improvements are needed.
- Examine roads city-wide which currently do not provide through connectivity with emphasis on improving bicycle and pedestrian safety.

Pedestrian and Bicycle Projects

Kroc Center Connection

The Salvation Army Kroc Corps Community Center is in the process of constructing the Kroc Center as a major regional recreational facility for the community. The Kroc Center will be located south of the Salem Parkway in Salem, and within one mile of 2 elementary schools. City of Keizer staff and residents are keenly interested in exploring the opportunities for direct pedestrian and bicyclist accessibility between Keizer and the Kroc Center and will actively pursue funding, design, and approval with regional partners.

Local Street Pedestrian Facilities

The TSP has focused on higher order roads such as arterials and collectors. However, as identified by the Technical Advisory Committee there are a number of local streets within Keizer that do not currently have complete and/or connected pedestrian facilities. Members of the Technical Advisory Committee expressed an interest in developing a program to identify, prioritize and fund sidewalk maintenance or new construction on local roads. A particular interest was focused on the five areas bounded by:

- Cummings – River Rd – Chemawa – Delight
- Candlewood – Cherry – Alder
- Chemawa – Newberg – Lockhaven – Windsor island
- Dearborn – River – Dietz – 13th
- Verda – Keizer – Kennedy – Dearborn

City of Keizer staff will consider the feasibility of developing such a program.

Transit Projects

Commuter Rail Extension

In February 2009 Tri-Met began operation of WES (short for Westside Express Service) commuter rail connecting Beaverton and Wilsonville. WES runs at 30 minute headways during the morning and evening peak hours on Monday through Friday. Preliminary discussions and concepts are underway for extending this service from Wilsonville to Salem. If the service were extended, it could potentially include a stop in Keizer. While there are no formal plans in place for such a service, the City of Keizer will explore opportunities to consider the feasibility of such service.

Intercity Transit Service

Recognizing that many of Keizer residents work in Salem or Portland, as growth continues to occur there will be increasing demand for intercity transit service. A WES extension, travel demand management programs such as carpooling and ridesharing, or an expansion of Cherriots services could be developed or expanded to provide such services. City of Keizer staff will work with SAMTD to explore opportunities and feasibility of intercity transit service.

Transit Service to Keizer Station

City of Keizer residents would like to see transit service to and from Keizer Station integrated into Cherriots transit services.

Other Projects

Urban Growth Boundary Expansion

In the future, the City may evaluate the opportunity and need for expanding the City's Urban Growth Boundary (UGB). If, in the future, an urban growth boundary expansion is considered, the following is a framework for the transportation analyses:

- The multimodal transportation system needs for the expansion area will be studied and developed.
- The transportation system impacts of the expansion area on the existing City transportation system will be studied and necessary improvements to the existing City system identified. Plans for mitigations to negative impacts to the existing transportation system will be determined and included in the City's capital improvement program as appropriate prior to adoption of the UGB expansion.

The City's TSP would subsequently be updated to reflect the appropriate changes due to the urban growth boundary expansion.

I-5/Chemawa Road Interchange Area Management Plan

At the time of this writing, the City of Keizer and the Oregon Department of Transportation (ODOT) are in the process of developing an Interchange Area Management Plan (IAMP) for the area in the vicinity of the Chemawa Road interchange with Interstate 5. This plan is considering

many options to ensure and preserve existing and future mobility to and from the interstate at a variety of locations. Options under consideration include improvements specifically at the Chemawa Road interchange, options connecting Chemawa Road and Quinaby Road/Perkins Street, and 35th Street, optional concepts for improvements at the Brooks Interchange (Brooklake Road), and additional connectivity at Verda Lane/Hyacinth Street.

As the IAMP process continues and is finalized, City of Keizer staff will ensure that discussions and recommendations from this TSP process are considered and integrated where possible with recommendations from the IAMP process. Further, findings from the IAMP study may result in the City needing to revisit and update this TSP.

Traffic Signal Maintenance and Modernization

The ongoing maintenance and upgrading of existing traffic signal hardware requires consideration by the City. This will result in operating cost savings as new technology often requires less energy to run and has a longer life. An example of this is traffic signals that use LEDs in place of traditional incandescent light bulbs.

Transportation System Development Charge Program Update

The City of Keizer will update their Transportation System Development Charge (TSDC) program once the TSP is adopted. This update will be conducted to reflect the changes from the previous TSP.