COUNCIL ORDINANCE NO. 20582

COUNCIL BILL 5172

AN ORDINANCE CONCERNING LONG RANGE TRANSPORTATION PLANNING; ADOPTING THE EUGENE 2035 TRANSPORTATION SYSTEM PLAN; AMENDING THE EUGENE-SPRINGFIELD METROPOLITAN AREA GENERAL PLAN; AMENDING THE EUGENE-SPRINGFIELD METROPOLITAN AREA TRANSPORTATION PLAN (TRANSPLAN); AMENDING SECTIONS 9.0500, 9.8010, 9.9650 OF THE EUGENE CODE; 1971; AMENDING THE STREET CLASSIFICATION MAP; AMENDING ORDINANCE NO. 20528 (TO DELETE SECTION 67); REPEALING SECTION 9.9515 OF THE EUGENE CODE, 1971, REPEALING ORDINANCE NO. 20322 (2003 CENTRAL AREA TRANSPORTATION STUDY) AND PROVIDING FOR AN EFFECTIVE DATE.

ADOPTED: June 26, 2017

SIGNED: June 30, 2017

PASSED: 7:0

REJECTED:

OPPOSED:

ABSENT: Ward 4 vacant

EFFECTIVE: Pursuant to Section 16 of this ordinance.

ORDINANCE NO. 20582

AN ORDINANCE CONCERNING LONG RANGE TRANSPORTATION PLANNING; ADOPTING THE EUGENE 2035 TRANSPORTATION SYSTEM PLAN; AMENDING THE EUGENE-SPRINGFIELD METROPOLITAN AREA GENERAL PLAN; AMENDING THE EUGENE-SPRINGFIELD METROPOLITAN AREA TRANSPORTATION PLAN (TRANSPLAN); AMENDING SECTIONS 9.0500, 9.8010, 9.9650 OF THE EUGENE CODE, 1971; AMENDING THE STREET CLASSIFICATION MAP; AMENDING ORDINANCE NO. 20528 (TO DELETE SECTION 67); REPEALING SECTION 9.9515 OF THE EUGENE CODE, 1971, REPEALING ORDINANCE NO. 20322 (2003 CENTRAL AREA TRANSPORTATION STUDY) AND PROVIDING FOR AN EFFECTIVE DATE.

THE CITY OF EUGENE DOES ORDAIN AS FOLLOWS:

Section 1. Volume I and Appendices A – D of Volume II of the Eugene 2035 Transportation System Plan, attached to this Ordinance as part of Exhibit B and incorporated herein by this reference, are hereby adopted as part of the Eugene-Springfield Metropolitan Area General Plan to serve as Eugene's local transportation system plan.

Section 2. The Eugene Springfield Metropolitan Area General Plan is amended to add an Appendix E to the list of Appendices in Chapter I, Introduction, under the heading "Relationship to Other Plans, Policies, and Reports" by adding the following text after Appendix D:

The following Metro Plan appendix is available at the City of Eugene Planning and Development Department:

Appendix E *Eugene 2035 Transportation System Plan*

Section 3. The Transportation Element at Section III.F. of the Eugene Springfield Metropolitan Area General Plan is amended as described in Subsections A, B and C of this Section.

A. A new bullet entitled "Eugene Transportation System Plan" is added to the list of topics under the "Findings and Policies" heading as follows:

- Land Use
- Transportation Demand Management
- Transportation System Improvements
    - System-Wide

    - Roadways
    - Transit
    - Bicycle
    - Pedestrian
    - Goods Movement
    - Other Modes
- Finance
- Eugene Transportation System Plan

B. Subsection b. of Policy F.15 is amended as follows:

b. Acceptable and reliable performance is defined by the following levels of service under peak hour traffic conditions:

(1) Within Eugene's transportation planning area, the level of service set forth in the *Eugene 2035 Transportation System Plan*; and

(2) Level of Service D elsewhere.

C. A new topic and policy are added after Policy F.38 as follows:

Eugene Transportation System Plan

Policy

F.39 The *Eugene 2035 Transportation System Plan*, not including the transportation financing program, is the City of Eugene's local transportation system plan and is included as Appendix E to the Metro Plan.

Section 4. Subsection 2 of TSI Roadway Policy #2 of the Eugene-Springfield Transportation System Plan (TransPlan), is amended to provide as follows:

TSI Roadway Policy #2: Motor Vehicle Level of Service

2. Acceptable and reliable performance is defined by the following levels of service under peak hour traffic conditions:

a. Within Eugene's transportation planning area, the level of service set forth in the *Eugene 2035 Transportation System Plan*; and

b. Level of Service D elsewhere.

Section 5. Chapter 3, page 39 of the Eugene-Springfield Transportation System Plan (*TransPlan*), is amended to provide as follows:

The *Eugene 2035 Transportation System Plan* serves as the pedestrian and bicycle master plan for Eugene. The *Springfield Bicycle Plan* (1998) serves as the bicycle master plan for Springfield.

To the extent that the cities of Eugene and Springfield wish to adopt, amend, or maintain bicycle master plans, those plans must be consistent with *TransPlan*. All bikeways and other bicycle system improvements will be designed to meet standards specified in the *Oregon Bicycle and Pedestrian Plan* (1995), whenever possible.

Section 6. Definition of Refinement Plan in Section 9.0500 of the Eugene Code, 1971, is amended to provide as follows:

Refinement Plan. A detailed examination of the service needs and land use issues of a specific area, topic, or public facility. Refinement plans of the Metro Plan can include specific neighborhood plans, special area plans, or functional plans (such as the Eugene 2035 Transportation System Plan and TransPlan) that address a specific Metro Plan element or sub-element on a city-wide or regional basis.

Section 7. Subsection (3)(i) of Section 9.4930 of Eugene Code, 1971, is amended to provide as follows:

(i) Construction of paved pathways of no more than 6 feet in width for passive recreation within the conservation area for Category A, B, or C streams or Category A wetlands, and no more than 12 feet for bike paths identified in the Eugene 2035 Transportation System Plan or TransPlan. Subject to EC 9.4980 /WR Water Resources Conservation Overlay Zone Development Standards (2) through (6) and (11).

Section 8. Table 9.8010 of Section 9.8010 of Eugene Code, 1971, is amended to provide as follows:

9.8010 **List of Adopted Plans.** The documents listed in the following Table 9.8010, including any adopted amendments, are the currently effective adopted plans that may be applicable to a particular land use application. The plans and adopted policies are more particularly set forth beginning at EC 9.9500, and the boundaries for each are depicted on Map 9.8010 Adopted Plans.

Table 9.8010 List of Adopted Plans	
Bethel-Danebo Refinement Plan (Phase II)	River Road-Santa Clara Urban Facilities Plan
Bethel-Danebo Refinement Plan	Riverfront Park Study
Comprehensive Stormwater Management Plan	South Hills Study
Downtown Riverfront Specific Area Plan	South Willamette Subarea Study
Eugene Commercial Lands Study	TransPlan (Metro Area Transportation Plan)
Eugene Downtown Plan	Walnut Station Specific Area Plan
Eugene-Springfield Metropolitan Area General Plan (Metro Plan)	West University Refinement Plan
Eugene 2035 Transportation System Plan	Westside Neighborhood Plan

Table 9.8010 List of Adopted Plans	
Fairmount/U of O Special Area Study	Whiteaker Plan
Jefferson/Far West Refinement Plan	Willakenzie Area Plan
Laurel Hill Neighborhood Plan	Willow Creek Special Area Study
19th and Agate Special Area Stud	

Section 9. Map 9.8010 of Eugene Code, 1971, is amended as shown on Exhibit C attached to this Ordinance.

Section 10. Section 9.9515, Central Area Transportation Study (CATS) Policies, of Eugene Code, 1971, is deleted in its entirety.

Section 11. Subsection (3)(b) of Section 9.9650 of the Eugene Code, 1971, is amended to provide as follows:

9.9650 TransPlan Policies.

(3) Transportation System Improvements: Roadways. Motor vehicle level of service policy:

(b) Acceptable and reliable performance is defined by the following levels of service under peak hour traffic conditions:

(1) Within Eugene's transportation planning area, the level of service set forth in the Eugene 2035 Transportation System Plan; and

(2) Level of Service D elsewhere.

Section 12. The City of Eugene Street Classification Map adopted by Ordinance No. 20181 on November 22, 1999, and subsequently amended by Ordinance No. 20423 and Ordinance No. 20429, is hereby amended as depicted in Exhibit D attached to this Ordinance to reflect the streets constructed since 1999 and to change the classification of the streets described in the chart below:

Northwest Expressway (UGB to River Road)	Minor Arterial to Major Arterial
1st Avenue (Seneca Rd to Bertelsen Rd)	Major Collector to Minor Arterial
West Amazon Drive (Hilyard Street to Fox Hollow Road)	Minor Arterial to Major Collector
Olive Street (13th Avenue to 18th Avenue)	Major Collector to Neighborhood Collector
Kinsrow Avenue (MLK Blvd to Commons Drive) Commons Drive (Kinsrow Avenue to South Garden Way)	Neighborhood Collector to Major Collector
Willakenzie Road (Bogart Lane to Kingston Way) Spectrum Avenue (Coburg Road to Shadow View) Shadow View Drive (Spectrum Avenue to Chad Drive)	Local Street to Neighborhood Collector

Section 13. Ordinance No. 20322 (May 24, 2004), adopting the policies in the 2003 Central Area Transportation Study (CATS) as a refinement to the Eugene-Springfield Metropolitan Area General Plan, is repealed. Resolution No. 4369 and the Central Lane Eugene Parking and Traffic Circulation Plan adopted therein, which were repealed by Ordinance No. 20322, remain repealed.

Section 14. The limitation on the use of the land (trip cap) set forth in Section 67 of Ordinance No. 20528 is hereby repealed.

Section 15. The legislative findings set forth in the attached Exhibit A are adopted in support of this Ordinance.

Section 16. Effective Date:

A. Except as otherwise delayed pursuant to Subsection C of this Section, for purposes of its application to land located inside the city limits of the City of Eugene, the provisions of this Ordinance shall become effective 30 days from the date of passage by the City Council and approval by the Mayor.

B. Except as otherwise delayed pursuant to Subsection C of this Section, for purposes of their application to land located outside the city limits of the City of Eugene, the provisions of Sections 1 through 5 of this Ordinance shall take effect 30 days from the date of passage by the City Council and approval by the Mayor, or upon the date the Lane County Board of Commissioners has adopted an ordinance containing provisions substantially identical to those in Sections 1 through 5 of this Ordinance, whichever is later.

C. The change to motor vehicle levels of service for the ODOT facilities described at Table 4.1 of the Eugene 2035 Transportation System Plan and the repeal of the trip cap described in Section 14 of this Ordinance shall become effective upon the Oregon Highway Commission's written acceptance of the changed levels of service for the ODOT facilities described in Table 4.1 of the Eugene 2035 Transportation System Plan. Such written acceptance may, but is not required to, take the form of an action of the Oregon Highway Commission that amends the

Oregon Highway Plan to change levels of service for the ODOT facilities to those described in Table 4.1.

Section 17. Implementation Plans. By June 30, 2018, the City Manager shall bring to the City Council for a vote, an amendment to the 2035 TSP that creates a TSP Implementation Plan that will achieve the Climate Recovery Ordinance as it relates to the transportation sector and a Vision Zero adopted goals. The TSP Implementation Plan shall include: 1) the 2035 TSP-related specific prioritized actions, programs, projects, and performance measure benchmarks needed to achieve the Council's adopted climate recovery and Vision Zero goals; 2) specify their costs, benefits and co-benefits, and funding sources; and 3) the schedule for their implementation. The City Manager shall update the City Council quarterly on the progress made toward creating the TSP Implementation Plan.

Passed by the City Council this	**Approved by the Mayor this**
26th day of June, 2017	**30 day of June, 2017**
Deputy **City Recorder**	Lucy Vinis **Mayor**

Findings in Support of
An Ordinance Concerning Long-Range Transportation Planning

(Adopting the *Eugene 2035 TSP*; Amending the *Metro Plan, TransPlan,*
Eugene Code Chapter 9, Ordinance No. 20528, and the Eugene Street Classification Map;
and Repealing the 2003 Central Area Transportation Study)

Overview

For decades the Eugene-Springfield metropolitan area had a shared regional comprehensive plan and regional transportation system plan, known as the *Metro Plan* and *TransPlan*. These plans guided transportation decisions for both Eugene and Springfield inside a shared urban growth boundary. For both cities, *TransPlan* functioned as the Local Transportation System Plan and the Regional Transportation System Plan. In 2007, the Oregon Legislature passed House Bill 3337, which required Eugene and Springfield to develop separate urban growth boundaries. As a result, Eugene began the *Envision Eugene* project*,* including Eugene-specific transportation planning. Additionally, in October 2008, the State's Land Conservation and Development Commission approved a regional work plan to prepare and adopt a *TransPlan* update to address federally mandated regional transportation planning requirements. So that each city's local transportation system plans could serve as the backbone of the regional *TransPlan* update, the cities of Eugene, Springfield and Coburg undertook local transportation planning efforts in advance of the *TransPlan* update. Within the last few years the cities of Springfield and Coburg have adopted their local transportation system plans (both co-adopted by Lane County); once the *Eugene 2035 Transportation System Plan (2035 TSP)* is adopted, the region's *TransPlan* update will move forward.

The *2035 TSP* meets state requirements for a local transportation system plan and is a resource for future transportation decision making within the City of Eugene. The *2035 TSP* identifies the preferred future multi-modal transportation system and articulates the City's goals and policies related to this transportation system. It also identifies the function, capacity, and location of future facilities, and identifies planning-level costs for improvements needed to support expected development and growth, and possible sources of system funding. The *2035 TSP* is intended to provide the City with flexibility as critical transportation investments are prioritized and funded.

The *2035 TSP* ensures the vision for the transportation system meets community needs, communicates the City's aspirations, conforms to state and regional policies, and provides an infrastructure and program plan to meet these community, regional, and state needs. The *2035 TSP* includes a total of 6 chapters, including: Chapter 1 – Introduction; Chapter 2 – Goals, Policies, and Actions; Chapter 3 – Needs Assessment and Evaluation; Chapter 4 – Creating Multimodal Systems; Chapter 5 – Transportation Priorities and Project Categories; and Chapter 6 – Transportation Funding and Implementation.

While reflective of Eugene's current planning work, the *2035 TSP* is a component of the Eugene-Springfield Metropolitan Area General Plan (*Metro Plan*) and is being adopted as part of the *Metro Plan*. The findings that follow demonstrate that the *2035 TSP,* and the entire *2035 TSP* adoption package, is consistent with applicable approval criteria. The *2035 TSP* adoption package consists of:

1. The Eugene 2035 Transportation System Plan
2. Conforming amendments to the *Metro Plan*
3. Conforming amendments to *TransPlan*

4. Conforming amendments to Eugene Code Chapter 9

5. Amendment to Eugene Ordinance No. 20528 to delete section 67 (to remove the limitation on trips)

6. Repeal of Eugene 2003 Central Area Transportation Study (CATS)

7. Eugene Street Classification Map amendments.

I. <u>***Metro Plan*** **Amendments,** ***TransPlan*** **Amendments and** ***2035 TSP*** **Adoption**</u> **("the amendments")**

Amendments to the *Metro Plan* and *TransPlan* and adoption of the *2035 TSP* are all governed by the *Metro Plan* amendment approval criteria. Eugene and Lane County have identical approval criteria for *Metro Plan* amendments (below), set forth in Eugene Code 9.7735 and Lane Code 12.225.

(1) The proposed amendment is consistent with the relevant Statewide Planning Goals; and
(2) The proposed amendment does not make the <u>*Metro Plan*</u> internally inconsistent.
(3) When the city-specific local comprehensive plan also applies, the proposed amendment is consistent with the city-specific local comprehensive plan.

Throughout the findings set forth below, the *2035 TSP* and the conforming *Metro Plan* and *TransPlan* amendments are collectively referred to the "*2035 TSP"* or "the amendments."

(1) The amendment is consistent with applicable statewide planning goals adopted by the Land Conservation and Development Commission.

<u>*Goal 1 - Citizen Involvement*</u>. *To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

The City of Eugene and Lane County have acknowledged citizen involvement programs and acknowledged processes for securing citizen input on all proposed *Metro Plan* amendments. The governing bodies' codes require that notice of the proposed amendments be given and public hearings be held prior to adoption. Notification of the proposed amendments and opportunities for public participation in these amendments were consistent with the acknowledged citizen involvement programs.

This goal was met through an extensive public involvement process. A Community Involvement Strategy for the update of the Eugene Transportation System Plan was developed in preparation of the project. This Program was reviewed and endorsed by the Eugene Planning Commission, which acts as the Committee for Citizen Involvement. The program outlined the information, outreach methods, and involvement opportunities available to the citizens during the process. Information was distributed and input solicited throughout the process. Opportunities for engagement included: a project website (including web-based surveys); targeted outreach with local community service organizations and Planning Commission, Sustainability Commission, and City Council.

During preparation of the draft TSP, a Transportation Community Resource Group (TCRG) was created to invite participation from many of the original members of the Envision Eugene Community Resource Group (CRG), the Pedestrian and Bicycle Master Plan project advisory committee, the city's standing

Bicycle and Pedestrian Advisory Committee (BPAC), a multi-agency Technical Advisory Committee, staff from the Oregon Department of Land Conservation and Development (DLCD) and Department of Transportation (ODOT), Lane County staff, and the public at large. The TCRG spent years studying and providing advice to staff on land use planning, bicycle and pedestrian planning, transit planning, demand management techniques, street design, traffic congestion, sustainability, efforts to reduce greenhouse gas emissions, and transportation funding. The TCRG was instrumental in creating the goals, policies, potential action items, and project lists for the draft TSP.

The Eugene and Lane County Planning Commissions public hearing on the proposal was duly noticed to all neighborhood organizations, community groups and individuals who have requested notice, as well as to the City of Springfield. Additionally, notice was set to each individual that received notice of Eugene Ordinance No. 20528 and to everyone that owns property on a street that is proposed to be reclassified. Notice of the public hearing was also published in the Register Guard. The Eugene City Council and Lane County Board of Commissioners joint public hearing to consider approval, modification, or denial of the amendments was duly noticed. These processes afford ample opportunity for citizen involvement consistent with Goal 1.

As a result of this extensive public involvement process, the proposed amendments meet the requirements of Goal 1.

<u>*Goal 2 - Land Use Planning*</u>. *To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual basis for such decisions and actions.*

The Eugene-Springfield Metropolitan Area General Plan (*Metro Plan*) is the policy tool that provides a basis for decision-making in this area. The *Metro Plan* was acknowledged by the State in 1982 to be in compliance with statewide planning goals, and again after periodic review in 2004. This amendment to the *Metro Plan* is undertaken to adopt the *2035 TSP* in a manner consistent with current conditions and citizen values. The amendment to the *Metro Plan* to recognize the *2035 TSP* is being processed as a Type II procedure, which requires any applicable statewide planning goals, federal or state statutes or regulations, Metro regulations, comprehensive plan policies, and City's implementing ordinances be addressed as part of the decision-making process. Upon adoption, the *2035 TSP* will replace *TransPlan* as Eugene's local TSP. Because *TransPlan* remains a refinement to the *Metro Plan* and will continue to serve as the Regional Transportation System Plan (RTSP) until the RTSP is updated (per an LCDC work plan), the adopted performance measure in *TransPlan* are still applicable.

These findings and the record show that there is an adequate factual base for the City's and County's decision concerning the amendments. Goal 2 requires that plans be coordinated with the plans of affected governmental units and that opportunities be provided for review and comment by affected governmental units. The Goal 2 coordination requirement is met when the adopting governmental bodies engage in an exchange, or invite such an exchange, between the adopting bodies and any affected governmental unit and when the adopting bodies use the information obtained in the exchange to balance the needs of the citizens. To comply with the Goal 2 coordination requirement, the two jurisdictions coordinated the review of these amendments with all affected governmental units. Notice of the proposed amendments and information about where the materials would be available for review was mailed to all parties that had requested such notice.

There are no Goal 2 exceptions required for the amendments. Therefore, the amendments are consistent with Statewide Planning Goal 2.

Goal 3 - Agricultural Lands. To preserve agricultural lands.

The statewide planning goals relate to agricultural lands in Oregon and is not applicable to the proposed amendments.

Goal 4 - Forest Lands. To conserve forest lands.

The statewide planning goal relate to forest lands in Oregon and is not applicable to the proposed amendments.

Goal 5 - Open Spaces, Scenic and Historic Areas, and Natural Resources. To conserve open space and protect natural and scenic resources.

OAR 660-023-0250(3) provides: Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

- *(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a significant Goal 5 resource or to address specific requirements of Goal 5;*
- *(b) The PAPA allows new uses that could be conflicting uses with a particular significant Goal 5 resource site on an acknowledged resource list; or*
- *(c) The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area.*

These amendments do not create or amend the City's list of Goal 5 resources, do not amend a code provision adopted to address specific requirements of Goal 5, do not allow new uses that could be conflicting uses with a significant Goal 5 resource site and do not amend the acknowledged urban growth boundary. Therefore, Statewide Planning Goal 5 does not apply.

Goal 6 - Air, Water and Land Resource Quality. To maintain and improve the quality of the air, water and land resources of the state.

Goal 6 addresses waste and process discharges from development, and is aimed at protecting air, water and land from impacts from those discharges. The amendments to not affect the City's ability to provide for clean air, water or land resources. The *2035 TSP* was developed following the rules and guidance found in Oregon Revised Statute 660-012 and the Central Lane MPO Regional Transportation Plan (RTP). Both outline strategies for decreasing vehicle miles traveled and single- occupancy vehicle trips, which are intended to help improve air quality in the Central Lane MPO Area.

The *2035 TSP* contains policies related to development along key multi-modal corridors, transportation demand management and the encouragement of transportation without reliance on automobiles, including transit, bicycles, and pedestrian travel. The *2035 TSP* incorporates the Eugene Climate Recovery Ordinance goal of by year 2030 reducing community-wide use of fossil fuels by 50 percent compared to 2010 usage. This goal and policies are related to the need to maintain and improve the air quality in the metropolitan area. Projects identified in the *2035 TSP* will be designed and constructed in accordance with applicable federal, state, and local regulations.

Additionally, from 2013 to mid-2015 the City participated in a scenario planning process led by the Central Lane MPO. The scenario planning process examined how transportation policies might affect equity, public health, economic vitality, and greenhouse gas emissions in the region. The state required the project partners to examine at least one scenario that would achieve a 20 percent reduction (below 2005 emissions levels) in greenhouse gas emissions from light vehicles. Generally, the 20 percent greenhouse gas emission reduction target of the scenario planning study is consistent with the goal of the Climate Recovery Ordinance. While the preferred scenario selected by the Central Lane MPO is not a statement of regional policy and the strategies are not intended to be directive or regulatory, the *2035 TSP* incorporates and advances many of the strategies identified by the Central Lane MPO as a way of achieving the preferred scenario. Some specific examples of how the *2035 TSP* advances the preferred scenario strategies are as follows:

1. The *2035 TSP* plans for significant investment in active transportation over the next 20 years. (Active transportation strategies #1 & #2)
    - Of the 264 projects planned in the *2035 TSP* to be built over the next 20 years (excluding those to be built upon development), 239 of the projects are entirely pedestrian and bicycle projects; those projects include 89 neighborhood greenways, 22 on-street bike lanes, 18 shared use paths, 12 protected bike lanes, and 85 separated path/sidewalk projects.
    - Six of the 264 projects are transit projects, which include improving frequent transit service and multimodal travel along numerous transit corridors.
    - These 245 bicycle, pedestrian, and transit projects represent 51% of the total transportation dollars that are planned to be spent over the next 20 years.
    - Of the 19 remaining projects, 6 of the projects are complete street upgrades to existing roadways; all 6 of these projects have a significant bicycle and pedestrian component. These complete street projects represent an additional 10% of the total transportation dollars.
    - Not counting the three rail projects (which amount for 6% of the total transportation dollars), only three projects planned for the next 20 years have no explicit bicycle, pedestrian, or transit component contained in their project descriptions. These three projects represent approximately 8% of the total transportation dollars that are planned to be spent over the next 20 years.

2. Establishment of a bike share program is currently underway and is one of the *2035 TSP*'s four bicycle policies. (Active transportation strategy #3)

3. Identified potential action items for meeting *2035 TSP* policy objectives include providing education and awareness programs, such as *SmartTrips* and school-based transportation options (including Safe Routes to School) to improve safety for all travelers and providing support for Safe Route to School programs and other programs that create safe walking

conditions between residences and schools and other neighborhood destinations. (Active transportation strategy #5, Education and marketing strategy #1).

4. A system-wide policy of the *2035 TSP* is fostering neighborhoods where Eugene residents can meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure. The related potential action item is the creation of a strategy to facilitate 90 percent of Eugene residences to be within 20-minute neighborhoods. (Active transportation strategy #6)

5. The *2035 TSP* policies promote improved transit services that are integrated through context specific multimodal planning for all Key Corridors. One of the four transit policies in the *2035 TSP* is to collaborate with Lane Transit District to provide a network of high capacity, frequent, and reliable transit services, including consideration of Bus Rapid Transit, to the City's identified Key Corridors and to Frequent Transit Corridors as defined by Lane Transit District's Long Range Transit Plan. Additionally, the *2035 TSP* includes $171.4 million in transit projects that support the transit policies and the identified transit needs. (Transit strategies #3 and #4).

6. The six multimodal/transit projects planned for the next 20 years include the improvement of frequent transit service and multimodal travel along Coburg Road, River Road, Highway 99, 30th Avenue and Amazon Parkway, new transfer stations, and enhanced pedestrian crossings. Additionally, an identified potential action item is to review City Code and amend it if needed to enable additional opportunities to provide bikeways and improved pedestrian connections between key destinations, transit stops, and residential areas with new development and redevelopment. (Transit strategies #5 and #7).

7. Identified potential action items include aligning the City's land use and parking regulating to encourage walking, biking, and use of public transit and periodically reviewing parking needs in the downtown, Federal Courthouse, and riverfront districts and balance supply with other objectives, such as economic vitality; support for transit, walking, and biking; reduced consumption of fossil fuels; and human-scaled urban form. Additionally, for more than 10 years the City has had in place *Standards for Transportation Demand Management Programs* that provide a mechanism to vary the number of required off-street parking spaces by providing a strategy for reducing vehicle use and parking demand and using benchmarks to measure program effectiveness. (Parking management strategy #2)

8. The *2035 TSP* recognizes the Regional Transportation Options Plan (RTOP) adopted by the Central Lane MPO as the regional guidance for programs that reduce reliance on single-occupancy vehicles and identifies seven key programs and services, including: SmartTrips individualized marketing programs to encourage active transportation choices; School-Based Transportation Options: Build off existing Safe Routes to School programs to include coordinated program with ridesharing and transit promotion and expand the program to middle and high schools; Rideshare (carpooling and vanpooling); and, LTD's Group Bus Pass program. (Education and marketing strategies #1, 3, and #6)

As a result, the proposed amendments are in compliance with Goal 6.

<u>Goal 7 - Areas Subject to Natural Disasters and Hazards</u>. To protect life and property from natural disasters and hazards.

Goal 7 requires that local government planning programs include provisions to protect people and property from natural hazards such as floods, landslides, earthquakes and related hazards, tsunamis and wildfires. The Goal prohibits a development in natural hazard areas without appropriate safeguards. The amendments do not affect the City's restrictions on development in areas subject to natural disasters and hazards. Further, the amendments do not allow for new development that could result in a natural hazard. Therefore, Statewide Planning Goal 7 does not apply.

<u>Goal 8 - Recreational Needs</u>. To satisfy the recreational needs of the citizens of the state and visitors, and where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

Goal 8 ensures the provision of recreational facilities to Oregon citizens and is primarily concerned with the provision of those facilities in non-urban areas of the state. Goal 8 also allows, but does not require, the City to create an inventory of recreational needs. The amendments do not affect the current provisions for recreation areas, facilities or recreational opportunities, nor will the amendments affect access to existing or future recreational facilities. Further, the amendments do not change the *Metro Plan* and *TransPlan* policies that support access to recreational facilities with the Metropolitan area and to recreations opportunities outside the area or delete any planned transportation projects that would make recreational facilities more available. Therefore, the amendments are consistent with Goal 8.

<u>Goal 9 - Economic Development</u>. To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

Goal 9 requires cities to evaluate the supply and demand of commercial and industrial land relative to community economic objectives. The Administrative Rule for Statewide Planning Goal 9 (OAR 660 Division 9) requires that the City "[p]rovide for at least an adequate supply of sites of suitable sizes, types, location, and service levels for a variety of industrial and commercial uses consistent with plan policies[.]" Among other things, the rule requires that cities complete an "Economic Opportunities Analysis." OAR 660-009-0015. Based on the Economic Opportunities Analysis, cities are to prepare Industrial and Commercial Development Policies. OAR 660-009-0020. Finally OAR 660-009-0025 requires that cities designate industrial and commercial lands sufficient to meet short and long term needs. OAR 660-009-0010(2) provides that the detailed planning requirements imposed by OAR 660 Division 9 apply "at the time of each periodic review of the plan (ORS 197.712(3))." The Eugene Commercial Lands Study (1992) is acknowledged for compliance with the requirements of Goal 9 and the corresponding Administrative Rule.

The adoption of the amendments will not impact the supply of industrial or commercial lands and will not change or conflict with the economic policies of *Metro Plan*. The amendments do not change the *TransPlan* and *Metro Plan* policies directed toward enhancing the economic opportunity available within the Eugene-Springfield area by assuring adequate public facilities and infrastructure to provide a transportation system that is efficient, safe, interconnected and economically viable and fiscally stable. The amendments seek to provide a multi-modal transportation system to meet the needs of the community and accommodate economic growth, within projected revenues, into the future. The proposed amendments are consistent with Goal 9.

<u>Goal 10 - Housing</u>. To provide for the housing needs of the citizens of the state.

The Eugene-Springfield Metropolitan Area Residential Lanes and Housing Study (1999) is acknowledged for compliance with Goal 10. The adoption of the amendments will not impact the supply of residential lands and will not result in any change or conflict with the housing policies of the *Metro Plan.* The amendments seeks to provide a multi-modal transportation system to meet the needs of the community into the future, including accommodating its housing needs. The proposed amendments are consistent with Goal 10.

<u>Goal 11- Public Facilities and Services</u>. To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

The Eugene-Springfield Metropolitan Area is currently in compliance with Goal 11 through its acknowledged Public Facilities and Services Plan (PFSP), Comprehensive Plan, and adopted Transportation System Plan, *TransPlan*. The amendments will not result in any change or conflict with the Comprehensive Plan, PFSP, or *TransPlan*. The proposed amendments will update the transportation element of the *Metro Plan* by replacing *TransPlan* as the locally adopted TSP. As a result, the amendments are in compliance with Goal 11.

<u>Goal 12- Transportation</u>. To provide and encourage a safe, convenient and economic transportation system.

Goal 12 is implemented through the Transportation Planning Rule (TPR), as defined in Oregon Administrative Rule OAR 660-012-0000, et seq. The proposed amendments are consistent with all applicable provisions of OAR 660-012-0010. Further, the amendments are consistent with, and a further step toward fulfillment of the Regional Transportation Work Plan approved pursuant to OAR 660-012-0016(2)(b) by the Land Conservation and Development Commission on October 16, 2008.

The amendments adopt the *2035 TSP*, which was completed following the rules outlined in the Transportation Planning Rule. The TPR states that when amendments to a functional plan would significantly affect an existing or planned transportation facility the local government shall put in place measures to assure that the allowed land uses are consistent with the identified function, capacity and performance standards (level of service, volume to capacity ratio, etc.) of the facility. The *2035 TSP* provides an updated, balanced transportation system with amended functions and capacity of the roadways system that will accommodate growth and land uses envisioned by the acknowledged *Metro Plan*.

For the reasons set forth below, the proposed amendments are in compliance with Goal 12. The table below (Findings Table A) provides specific findings discussing compliance with individual sections of the TPR.

TPR Requirements	Compliance
OAR 660-012-0015 Preparation and Coordination of Transportation System Plans	
3) Cities and counties shall prepare, adopt and amend local TSPs for lands within their planning jurisdiction in compliance with this division: (a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP;	Chapter 3 and Appendix A (Existing Conditions) document the existing conditions inventory and analysis. These outline all of the identified needs associated with today's conditions for each mode as well as those intersections and streets not meeting applicable operating standards. Chapter 3 and Appendix B (No Build) document the No Build analysis. These outline all of the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. Each mode's needs as well as intersection and streets not meeting applicable standards are noted. Appendix C (20 year Needs Analysis) and Chapters 4 and 5 document the Build analysis. These outline the identified facilities and services needed to meet the identified transportation needs by mode. The *2035 TSP* was prepared in collaboration with ODOT to ensure consistency with the Oregon Highway Plan, with Lane County to ensure consistency with the County TSP, and with LCOG to ensure consistency with *TransPlan* and the Central Lane RTP. The *2035 TSP* has the same horizon year as the federally required Central Lane RTP. Even though the *2035 TSP* and *TransPlan* have different horizon years (2035 for the local TSP and 2027 for the regional TSP), there is no conflict between the population and employment numbers. Table B, below, details the consistency between the *2035 TSP* and *TransPlan*. Additionally, because the transportation policies in the *Metro Plan* are taken verbatim from *TransPlan*, the findings of consistency between the Transportation Element of the *Metro Plan* and the *2035 TSP* further demonstrate consistency between the *2035 TSP* and *TransPlan*.
(b) Where the regional TSP or elements of the	Not applicable. Applicable regional and state plans

state TSP have not been adopted, the city or county shall coordinate the preparation of the local TSP with the regional transportation planning body and ODOT to assure that regional and state transportation needs are accommodated.	have been adopted. Future updates of the RTSP and RTP are being coordinated with this TSP update with ODOT and the Central Lane MPO.
(4) Cities and counties shall adopt regional and local TSPs required by this division as part of their comprehensive plans. Transportation financing programs required by OAR 660-012-0040 may be adopted as a supporting document to the comprehensive plan.	The *2035 TSP* is being adopted as part of the *Metro Plan*. The *Metro Plan* is being amended to add the following Policy F.39 to the Transportation Element: "The Eugene 2035 Transportation System Plan, not including the transportation financing program, is the City of Eugene's local transportation system plan and is included as Appendix E to the *Metro Plan*."
(5) The preparations of TSPs shall be coordinated with affected state and federal agencies, local governments, special districts and private providers of transportation services.	The Project Management Team (PMT), Technical Advisory Committee (TAC), and Transportation Community Resource Group (TCRG), as described in Chapter 1 of the TSP, included representatives of Lane County, Lane MPO, ODOT, ODOT Rail, DLCD, City of Springfield, Lane Transit District, Northwest Natural Gas, Union Pacific Railroad, and Eugene Airport and were part of the TSP development for all required coordination. The Lane ACT, Eugene Area Chamber of Commerce, University of Oregon, private freight interests, Eugene-Springfield Fire/EMS, Eugene Bicycle and Pedestrian Advisory Committee, and the Bethel and 4J public school districts were consulted on multiple occasions during TSP preparation.
(6) Mass transit, transportation, airport and port districts shall participate in the development of TSPs for those transportation facilities and services they provide. These districts shall prepare and adopt plans for transportation facilities and services they provide. Such plans shall be consistent with and adequate to carry out relevant portions of applicable regional and local TSPs. Cooperative agreements executed under ORS 197.185(2) shall include the requirement that mass transit, transportation, airport and port districts adopt a plan consistent with the requirements of this section.	Eugene does not have a port. The Airport Master Plan was previously adopted by Eugene and Lane County as part of the *Metro Plan*; it is adopted and incorporated by reference in the *2035 TSP*. Management staff from the Airport was involved as a TSP Technical Advisory Team member. Lane Transit District, Lane County transit district, was a member of the TSP Technical Advisory Team and a regular participant in the Transportation Community Resource Group (TCRG) public advisory group. City transportation planners, including the TSP project manager, participated regularly in the update of LTD's Long Range Transit Plan. The concepts and definitions of Frequent transit networks (FTN) were coordinated so that the policy direction in the LRTP, TSP, and Envision Eugene ("Key Corridors") was consistent and complementary. The

	corridor planning needs of the TSP and LRTP are being simultaneously implemented by the co-City/LTD managed MovingAhead project. LTD has participated and been influential in the creation of the TSP's transit policies and potential actions.
OAR 660-012-0016 Coordination with Federally-Required Regional Transportation Plans in Metropolitan Areas	
(1) In metropolitan areas, local governments shall prepare, adopt, amend and update transportation system plans required by this division in coordination with regional transportation plans (RTPs) prepared by MPOs required by federal law. Insofar as possible, regional transportation system plans for metropolitan areas shall be accomplished through a single coordinated process that complies with the applicable requirements of federal law and this division. Nothing in this rule is intended to make adoption or amendment of a regional transportation plan by a metropolitan planning organization a land use decision under Oregon law.	Eugene, as a member of the Central Lane MPO, has been a part of the MPO's regional transportation plan (RTP) update process. The *2035 TSP* has been prepared and coordinated with *TransPlan* and the Central Lane RTP. The *2035 TSP* replaces *TransPlan* as the city's local TSP; *TransPlan* will continue to serve as the area's regional TSP until the new RTSP is developed and adopted. The Central Lane MPO has a work plan approved by LCDC for updating its RTSP. The local TSPs of the individual Central Lane MPO agencies are intended to form the basis of the updated RTSP. The City's adoption of the *2035 TSP* is the last local TSP adopted for the Central Lane MPO area.
OAR 660-012-0020 Elements of TSPs	
(1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs. (2) The TSP shall include the following elements: (a) Determination of transportation needs as provided in OAR 660-012-0030	Chapter 3 and Appendix A (Existing Conditions) document the Existing Conditions Inventory and Analysis. These outline all of the identified needs associated with today's conditions for each mode as well as those intersections and streets not meeting applicable operating standards. Chapter 3 and Appendix B (No Build Analysis) document the No Build analysis. These outline all of the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. Each mode's needs as well as intersection and streets not meeting applicable standards are noted. Appendix C (20-year Needs Analysis) and Chapters 4 and 5 document the Build analysis. These outline the identified facilities and services needed to meet the identified transportation needs by mode.

(b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSP's shall be consistent with functional classifications of roads in state and regional TSP's and shall provide for continuity between adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-012-0045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address: (A) Extensions of existing streets; (B) Connections to existing or planned streets, including arterials and collectors; and (C) Connections to neighborhood destinations.	Chapter 4 of the *2035 TSP* sets forth the City's general functional classifications for streets. The City's adopted Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways (1999) set forth how existing streets can be modified and new streets can be constructed to accommodate the needs of people with disabilities, riding bicycles, riding transit, walking, driving automobiles and moving freight. In the past, most street design standards were primarily oriented toward moving vehicular traffic, providing rudimentary bike lanes and sidewalks for pedestrians. The 1999 Design Standards and Guidelines for Eugene Street, Sidewalks, Bikeways and Accessways, set forth in Appendix H (Volume 2), serves as the City's current mandatory design standards and advisory guidelines for arterial, collector, and local streets, and provide for safe and convenient bike and pedestrian circulation. These Design Standards and Guidelines will need to be updated to incorporate the *2035 TSP* newer guidance on best practices for bicycle and pedestrian facilities. The policies and action items in *2035 TSP* provide guidance for future updates to street standards. As part of the needs analysis, Eugene's Street Classification Map was reviewed in light of the classifications shown in the *Regional Transportation Plan* (*RTP*), the *Oregon Highway Plan* (OHP), and the criteria set forth in the Eugene Arterial and Collector Street Plan (ACSP). This review identified a number of streets that needed a change in classification to ensure consistency between the various plans governing and providing guidance to the operation and construction of streets and roads within the City's UGB. All streets within the UGB need to be classified under the City's criteria. Attachment B to the *2035 TSP* is the 2016 Street Classification Map that updates the street classification map adopted by the City Council in 1999. In addition to the Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways & Accessways and the adopted Street Classification Map, the City has previously adopted the following documents that further satisfy this requirement: • Street Right-of-Way Map;

	• Public Improvement Design Standards Manual; • Utility and Right-of-way Permits, Construction Within the Use of the Public Way, Policies and Procedures Manual. Additionally, the City's ACSP, adopted as findings in support of the Design Standards and Guidelines for Eugene Streets, Sidwalks, Bikeways & Accessways, illustrate the extensions of existing streets, connections to existing and planned streets, including arterials and collectors, and connections to neighborhood destinations. Consistent with this previously adopted plan, connections to arterials and state highways remain consistent with designated access management categories. Eugene Code Chapter 9 includes street connectivity requirements to ensure that all of the following are met: (a) Streets are designed to efficiently and safely accommodate emergency fire and medical service vehicles. (b) The layout of a street system does not create excessive travel lengths. (c) The function of a local street is readily apparent to the user through its appearance and design in order to reduce non-local traffic on local residential streets. (d) Streets are interconnected to reduce travel distance, promote the use of alternative modes, provide for efficient provision of utility and emergency services, and provide for more even dispersal of traffic. (e) New streets are designed to meet the needs of pedestrians and cyclists and encourage walking and bicycling as transportation modes. (f) The street circulation pattern provides connections to and from activity centers such as schools, commercial areas, parks, employment centers, and other major attractors. (g) Street design is responsive to topography and other natural features and avoids or minimizes impacts to water-related resources and wildlife corridors. (h) Local circulation systems and land development patterns do not detract from the efficiency of adjacent collector streets or arterial streets which are designed to accommodate heavy traffic. (i) Streets identified as future transit routes should be designed to safely and efficiently accommodate transit

	vehicles, thus encouraging the use of public transit as a transportation mode. (j) Where appropriate, the street system and its infrastructure should be utilized as an opportunity to convey and treat storm water runoff. Policies contained in Chapter 2 of the *2035 TSP* address extensions of existing streets; connections to existing or planned streets, including arterials and collectors, as well as connections to neighborhood destinations. The pedestrian and bicycle projects noted in Chapters 4 and 5 also provide connections to neighborhood destinations. Chapter 5 of the TSP includes the planned roadway facilities and associated costs. The identified roadway facility projects and roadway plan are consistent with state and regional transportation plans.
(c) A public transportation plan which: (A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies; (B) Describes intercity bus and passenger rail service and identifies the location of terminals; (C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.	Chapter 2 of the *2035 TSP* includes transit-specific policies and potential action items for transit policies. Appendix J of the *2035 TSP* sets forth the *Lane Transit District Long Range Transit Plan* from which the TSP's transit-related needs, policies and projects were in large part identified. Additionally, Appendix G of the *2035 TSP* sets forth *On the Move: Regional Transportation Option Plan*. Chapter 3 of the *2035 TSP* and Appendix A (Existing Conditions) outline the existing public transportation services and identifies service deficiencies. They also describe existing transit routes, transit ways, terminals and major transfer stations, stops and park-and-ride stations. In addition, they describe intercity bus and passenger rail service and the location of stations and transfer stations. Chapter 4 presents the transit modal element. Based on the needs analysis, the *2035 TSP* focuses on collaboration with LTD to provide service enhancements, capital improvements, and policies that support: • Changes to streets and intersections to facilitate bus movement; • Frequent and reliable transit service, including

	bus rapid transit (*e.g.*, "EmX"-style of transit service) along Key Corridors; • Amenities that also serve pedestrians and people on bikes, and intermodal connections to transit; • Car share and bike share programs that can extend the first and last mile of transit trips; and • Refinements to transit routes and schedules. Additionally, the *2035 TSP* supports Lane Transit District's Frequent Transit Network (FTN), as defined in the Lane Transit District *Long Range Transit Plan*, as a regional initiative to better connect areas of more active development to transit. Chapter 5 of the *2035 TSP* sets forth planned transit facilities and major improvements, including associated costs for all corridor projects.
(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.	On March 12, 2012, the Eugene City Council accepted the 2012 Eugene Pedestrian and Bicycle Master Plan (PBMP) and directed the City Manager to integrate the PBMP into the *2035 TSP*. The 2012 PBMP is set forth in Appendix F (Volume 2 of the *2035 TSP)*. Consistent with the TPR's requirement that transportation system plans include a bicycle and pedestrian plan for a network of bicycle and pedestrian routes and that transportation system plans be designed to increase transportation choices and reduce reliance on the automobile, the PBMP's goals, key policies, and projects are woven throughout the *2035 TSP* and function as an integral part to making walking and cycling highly convenient. As such, in addition to the *2035 TSP* serving as Eugene's location transportation system plan, the *2035 TSP* also serves as Eugene's bicycle and pedestrian master plan. Chapter 2 of the *2035 TSP* includes bicycle-specific and pedestrian-specific policies and potential action items for both the bicycle and pedestrian policies. Chapter 3 and Appendix A (Existing Conditions) document the Existing Conditions Inventory and Analysis. Chapter 3 and Appendix B (No Build analysis) document the No Build analysis. These outline all of

	the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. These outline all of the identified needs associated for pedestrians and bicyclists. Chapter 4 of the *2035 TSP* includes a plan for the bicycle and pedestrian networks. Chapter 5 of the *2035 TSP* includes the planned pedestrian and bicycle facilities and major improvements and associated costs.
(e) An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations;	Chapter 2 of the *2035 TSP* includes rail, freight, pipeline and air transportation policies and potential action items for those policies. Additionally, the *2035 TSP* explicitly recognizes the Eugene Airport Master Plan (adopted by Eugene and Lane County as part of the *Metro Plan*) as the guiding policy document for airport property development, services, and support infrastructure. The Eugene Airport Master Plan is set forth in Appendix L. Chapter 3 and Appendix A (Existing Conditions) document the Existing Conditions Inventory and Analysis. These outline the identified needs associated with today's conditions for air, rail, water and pipelines. Chapter 3 and Appendix B (No Build analysis) document the No Build analysis. These outline all of the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. Chapter 4 of the TSP includes a plan for the air, rail, water, and pipeline networks.
(f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management;	In 2005, the City adopted *Strategies for Transportation System Management and Operations*. The adopted TDM standards are set forth in Appendix K (Volume 2 of the *2035 TSP)*. These standards provide a mechanism to vary the number of required off-street parking spaces by providing a strategy for reducing vehicle use and parking demand and using benchmarks to measure program effectiveness. The *2035 TSP* expands the use of TDM and TSMO practices beyond parking to help address traffic congestion, fossil fuel

	reduction goals, safety, and the financial burden of travel on individuals. Further, the *2035 TSP* includes a policy to "[p]romote transportation demand management programs along the Key Corridors, in downtown, and near the University of Oregon to coordinate the needs and travel options of multiple businesses and residences for purposes of reducing automobile and freight demand at times of peak congestion. These programs could be staffed by either a public agency, a business association, or by training individuals within the affected businesses and housing to perform this work." Chapter 4 of the TSP includes a Transportation System Management and Operations (TSMO) plan and a Transportation Demand Management (TDM) plan. Eugene, in collaboration with the Central Lane MPO, LTD/ Point2point, and the City of Springfield identified the key programs and services through the *Regional Transportation Options Plan* (RTOP). The *2035 TSP* recognizes the RTOP as the regional guidance for programs that reduce reliance on single-occupancy vehicles. Further details of TSMO and TDM strategies that support the *2035 TSP* are provided in the *Regional Transportation Options Plan,* which is set forth as Appendix G (Volume 2).
(g) Parking plan as provided in OAR 660-012-0045(5)(c).	Chapter 2 of the *2035 TSP* includes parking policies and potential action items for the parking policies. Chapter 4 of the TSP outlines a parking plan. The City of Eugene implemented a parking plan after the adoption of *TransPlan*. That implementation measure including updating the Eugene Code towards accomplish the following: (A) Achieve per capita a 10% reduction in the number of parking spaces over the planning period through a combination of restrictions on development of new parking spaces, allowing shared spaces, and allowing some existing parking spaces to be redeveloped to other uses; (B) Aids in achieving the measurable standards set in *TransPlan* (per OAR 660-012-0035(4)), such as reducing the percentage of non-auto trips, increasing

	transit ridership on congested corridors, and encouraging development in 'nodes' by reducing parking requirements for transit-oriented development within nodal development areas; (C) Providing land use and subdivision regulations setting minimum and maximum parking requirements in appropriate locations, and eliminating off-street parking requirements for automobiles in the downtown core; and (D) Is consistent with demand management programs, transit-oriented development requirements and planned transit service. This *2035 TSP* contains policies encouraging frequent review and updates to existing parking standards (updated per *TransPlan*, 2002) to reflect improved alternatives to driving single-occupant vehicles as these alternatives become available, such as improved transit service, bike facilities, car- and bike-share programs, improved neighborhood walkability, and transportation Demand Management programs.
(h) Policies and land use regulations for implementing the TSP as provided in OAR 660-012-0045.	The *2035 TSP* adoption package include amendments to Eugene's land use code that are needed for the *2035 TSP* to be recognized as the City's local transportation system plan and to adopt new levels of service for the City's roadways. Additionally, the policies and potential actions for implementing the TSP that are set forth in Chapter 2 of the *2035 TSP* identify amendments that could be made to the land use code to further the policies set forth in *2035 TSP.*
(i) Transportation financing program as provided in OAR 660-012-0040.	Chapter 6 of the TSP includes the transportation financing plan, including existing and potential new funding sources and a summary of improvement costs by modal category. Chapter 5 of the TSP provides a detailed listing of cost for each individual improvement project, by mode.
(3) Each element identified in subsections (2)(b) – (d) of this rule shall contain: (a) An inventory and general assessment of existing and committed transportation	Chapter 3 and Appendix A (Existing Conditions) document the Existing Conditions Inventory and Analysis and describe the existing and committed facilities and services by function, type and condition

facilities and services by function, type, capacity and condition. (A) The transportation capacity analysis shall include information on: (i) The capacities of existing and committed facilities; (ii) The degree to which those capacities have been reached or surpassed on existing facilities; and (iii) The assumptions upon which these capacities are based. (B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency; (C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g., very good, good, fair, poor, very poor). (b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and performance standards.	for each mode. These outline all of the identified needs associated with today's conditions for each mode as well as those intersections and streets not meeting applicable operating standards. Chapter 3 and Appendix B (No Build analysis) document the No Build analysis. These outline all of the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. These present a transportation capacity analysis of the existing and committed roadway system, including streets and intersections consistent with existing city, county, and state standards; in some instances state adoption of alternative mobility standards will be requested through an OHP amendment. This operational analysis describes the degree to which those capacities have been reached or surpassed on existing facilities, and the assumptions upon which these capacities are based. Chapter 4 summarizes the proposed system of existing and planned transportation facilities, services and major improvements, by functional classification, planned capacities and performance standards. The City maintains a separate inventory of street physical conditions. Concurrent with the adoption of the *2035 TSP* are amendments to the Street Classification Map. Chapter 5 of the *2035 TSP* sets forth a system of planned transportation facilities, services and major improvements, including the type or functional classification of the planned facilities and services.
OAR 660-012-0025 Complying with Goals in Preparing TSPs	
(1) Adoption of a TSP shall constitute a land use decision regarding the need for transportation facilities, services and major improvements and their function, mode and general location.	This will happen automatically upon adoption. This requirement is also included in local regulations.
(2) Findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations shall be developed in conjunction with the adoption of the TSP.	These findings demonstrate compliance with the applicable statewide planning goals, acknowledged comprehensive plan and land use regulations.
OAR 660-012-0025(3)	
The City may defer decisions regarding	There are three actions that may be considered a

function, general location and mode of a refinement plan if findings are adopted that: (a) Identify the transportation need for which decisions regarding function, general location or mode are being deferred. (b) Demonstrate why information required to make final determination cannot be made available within time for TSP preparation. (c) Explain how deferral does not invalidate the assumptions upon which the TSP is based ore preclude implementation of the remainder of the TSP. (d) Describe the nature of the findings which will be needed to resolve issues deferred to a refinement plan; and, (e) Set a deadline for adoption of a refinement plan prior to initiation of the periodic review following adoption of the TSP.	deferral of a decision regarding function and general location of improvements: the Randy Papé Beltline Facility Plan, future studies for improved access across the Willamette River, and multimodal studies of the Key Corridors. The Randy Papé Beltline Facility Plan identifies probable improvements that warrant further analysis through the NEPA process. The *2035 TSP* adopts the facility plan, as noted in Chapter 5, and incorporates reasonable outcomes for purposes of project costs and financing projections. Construction of the largest component of this project, a new local arterial bridge, cannot commence until the NEPA analysis is completed and the project is adopted by the City Council. The NEPA process cannot be completed within the timeframe of the TSP, in part because the Facility Plan must be adopted in the TSP before the NEPA analysis may commence. Improved crossings of the Willamette River were identified as a potentially desirable solution to several needs (e.g., seismic upgrades, improved connectivity, and congestion relief). Completion of such a study could not be completed within the timeframe of the *2035 TSP* because of the large study area, environmental sensitivity of the riverine environment, need for robust public engagement, and need to gather funding for such a large undertaking. The *2035 TSP* assumptions about traffic function did not rely on any additional river crossings; hence the deferral of a decision about additional river crossings does not invalidate the assumptions upon which the *2035 TPS* is based or preclude implementation of the remainder of the *2035 TPS*. The *2035 TSP* identifies a desire to complete detailed land use and multimodal transportation studies for several "Key Corridors" identified in the Envision Eugene Vision Statement (2012). Such a planning process was begun as a joint project by the City of Eugene and Lane Transit District, dubbed "MovingAhead." The areas covered by these studies are substantial: the development corridors along Highway 99, River Road, Coburg Road, mid-Willamette/30th Avenue, and others. Completion of these studies could not be completed within the timeframe of the TSP. The TSP used estimations for

	corridor performances and costs based on realistic, previously completed corridors with enhances transit service; therefore, the deferral of a decision on specific corridor improvements does not invalidate the assumptions upon which the TSP is based or preclude implementation of the remainder of the TSP. No new findings will be needed to resolve issues deferred to these studies. There is no need to set a deadline for adoption of a plan amendment based on the outcome of these studies because the *2035 TSP* is self-sufficient without the results of these studies.
OAR 660-012-0030 Determination of Transportation Needs	
(1) The TSP shall identify transportation needs relevant to the planning area and the scale of the transportation network being planned including: (a) State, regional and local transportation needs (b) Needs of the transportation disadvantaged (c) Needs for movement of goods and services to support industrial and commercial development planned for, pursuant to Goal 9.	Chapter 3 and Appendix A (Existing Conditions) document the Existing Conditions Inventory and Analysis. These outline all of the identified needs associated with today's conditions for each mode as well as those intersections and streets not meeting applicable operating standards. Chapter 3 and Appendix B (No Build analysis) document the No Build analysis. These outline all of the identified year 2035 needs assuming no additional infrastructure beyond that currently funded is added. Each mode's needs as well as intersection and streets not meeting applicable standards are noted. Chapter 3 and Appendices A and B include a determination of the transportation needs, by mode, related to state, regional and local transportation needs, needs of transportation disadvantaged, and needs for goods movement to support industrial and commercial development. Representatives of ODOT, DLCD, the Eugene Area Chamber of Commerce, the transportation disadvantaged, Eugene Human Rights Commission, homebuilders, rail, air travel, and freight participated in the creation of the *2035 TSP.*
(2) Local governments preparing local TSPs shall rely on the analyses of state and regional transportation needs in adopted elements of the state TSP and adopted regional TSPs.	The TSP has been coordinated with the analyses included in applicable state plans, the *Metro Plan, TransPlan*, and the RTP.

(3) Within UGBs, the determination of local and regional transportation needs shall be based upon: (a) Population and employment forecasts and distributions that are consistent with acknowledged com plan. Forecasts and distributions shall be for 20 years and, if desired, for longer periods; and,	Chapter 3 and Appendix B (No Build Analysis) include population and employment forecasts consistent with the *Metro Plan* and coordinated with the Lane MPO for year 2035. The *2035 TSP* addresses the projects, programs, and policies needed to support growth in population and jobs within the Eugene UGB between now and the year 2035. The *2035 TSP* defines the transportation facilities needs within Eugene's adopted UGB, as established by the *Metro Plan*. The needs assessment and resulting projects (set forth in Chapter 4 of the *2035 TSP*) establish a transportation system adequate to meet the identified local transportation needs based upon the land use designations established by the *Metro Plan.* Because the *2035 TSP* is based on the *Metro Plan* land use designations, any zone allowed within the land use designation is consistent with both the *Metro Plan* and this *2035 TSP.* Regarding the population and employment forecasts, the determination of the City's needs assumes that the City will continue to see growth in employment and population between now and the year 2035 in a manner consistent with the existing Comprehensive Plan land use designations, within the existing Urban Growth Boundary (UGB) and consistent with the growth forecast adopted into the *Metro Plan.* Regarding the population and employment distributions, Staff from the cities of Eugene and Springfield, Lane County and Lane Council of Governments (LCOG) worked collaboratively to identify where the estimated year 2035 population and employment growth might occur within the region as well as within individual areas of each city. This interagency collaboration ensures that the needs analyses for Eugene, Springfield, and Coburg start with the same fundamental assumptions and that the population and employment forecasts are "coordinated" for compliance with Oregon transportation and land use planning requirements. This growth was allocated to developable areas within the current UGB consistent with the land use designations shown in the adopted *Metro Plan*.

(b) Measures adopted pursuant to OAR 660-012-0045 to encourage reduced reliance on the automobile.	OAR 660-012-0045(1) requires local government to amend its land use regulations to implement the TSP. Eugene's land use regulations were amended to comply with this rule after *TransPlan* was adopted in 2002. The *2035 TSP* retains those measures and encourages incremental changes to strengthen their effectiveness over time as new travel options become available. Modal Targets are identified in the goals contained in Chapter 2; they triple the percentage of trips made by non-auto modes. Many of the goals, policies, and implementing actions contained in Chapter 2 will help reduce reliance on the automobile. The modal plans, TDM and TSMO plans contained in Chapter 4 and the pedestrian, bicycle, and transit improvement projects contained in Chapter 5 will help reduce reliance on the automobile.
(4) In MPO areas, calculation of local and regional transportation needs also shall be based on accomplishment of the requirement in OAR 660-012-0035(4) to reduce reliance on the automobile.	As discussed in more detail under 0035(4), the *2035 TSP* supports and advances the alternative performance standards approved by LCDC in 2001 and adopted as part of *TransPlan*. In furthering the goals of the 2001 standards, the *2035 TSP* builds upon the lessons learned since 2001, and recognizes that there are new, innovative ways to decrease vehicle miles of travel. Embedded in the needs analysis for the *2035 TSP* is the furtherance of the City's adopted measures that will reduce reliance on the automobile. The *2035 TSP* reflects Eugene policy makers' and community members' priority to maintain existing facilities and provide multiple transportation options for local and regional travel. These priorities are based on the premise that the City can reduce congestion, save money, and provide health benefits for the entire community by providing alternatives to single occupancy vehicle travel and by making existing streets safer and more efficient without costly increases to automobile-oriented infrastructure. The *2035 TSP* supports the land use strategies defined in the *2012 Envision Eugene, A Community Vision for 2032* and prioritizes recommendations that mitigate the strain on roadways by supporting transit service

	and making walking and bicycling trips more practical for working, shopping, and other daily activities; managing congestion; and improving safety. The *2035 TSP* goals, policies, projects, and potential implementing actions are based on analysis by, and input received from, the community, City of Eugene staff, partner agency staff, and City policy-makers. Their review included analysis of, among other things, a multi-step evaluation of the "triple bottom line" (economy, social equity, and natural environment) that included considerations of how possible system improvements will meet the transportation needs for all modes, address the needs of the transportation disadvantaged, and address the need for movement of goods and services to support industrial and commercial development.
OAR 660-012-0035 Evaluation and Selection of Transportation System Alternatives	
(1) The TSP shall be based on evaluation of potential impacts of system alternatives that can reasonably be expected to meet the identified transportation needs in a safe manner and at a reasonable cost with available technology. The following shall be evaluated as components of system alternatives.	The multimodal system improvements were assessed against the goals and policies in Chapter 2 and the evaluation criteria in Chapter 3 to ensure that needs are met with a safe and reasonable manner with available technology.
(a) Improvements to existing facilities or services;	Improvements to existing facilities and services are the fundamental basis and highest priority of the TSP goals, policies and project lists. As iterated in the policies in Chapter 2, the City's priority is to improve system efficiency, safety and management and re-purpose existing rights-of-way to include high-quality facilities for non-auto users before widening streets to expand capacity for motorized vehicles. Specifically, the *2035 TSP*'s Cost Effectiveness and Finance Policy 2, states: "Maintain transportation performance and improve safety by improving system efficiency and management before adding capacity for automobiles to the transportation system by using the following priorities for developing the Eugene Capital Improvement Program (CIP) and Eugene projects in the Metropolitan Transportation Improvement Program (MTIP): a. <u>Protect the existing system</u>. The highest

	priority is to preserve or improve the functionality of the existing transportation system by means such as access management, transportation demand management, improved traffic operations, technologies, accommodating "active transportation" options not previously present, and keeping roads well maintained to avoid reconstruction. b. <u>Improve the efficiency and safety of existing facilities</u>. The second priority is to make minor improvements to existing streets, such as adding turning lanes at intersections, providing and enhancing pedestrian, bicycle and transit facilities, and extending or connecting streets pursuant to existing plans. c. <u>Add capacity to the existing system</u>. The third priority is to make major improvements to existing transportation facilities such as adding general purpose lanes and making alignment corrections to accommodate legal-sized vehicles. d. <u>Add new facilities to the system</u>. The lowest priority is to add new transportation facilities for motorized vehicles, such as new roadways. New streets that are needed and planned for connectivity are a higher priority, as noted in (b), above." In accordance with Appendices A (Existing Conditions), B (No Build), and C (20-year Needs Analysis), improvements to the existing facilities and services were examined through the existing conditions study, needs analysis with a "No Build" scenario, and a scenario that explored improvements and additions to the existing system. Technological and TSMO improvements to the efficiency of the existing system are recommended by the TSP.
(b) New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs.	All new facilities identified in Chapters 4 and 5 were evaluated in their ability to provide for "Complete Streets" and facilities and improvements that increase transportation choices, reduce reliance on the

	automobile, and improve safety. The reasonableness of proposed projects were verified by the following selection criteria (Chapter 3): 1. Is it technically feasible to build this project? 2. Could the project be funded? 3. Could the project receive necessary environmental permits? Potential projects failing these criteria were dropped from the TSP or deferred for future study (i.e., the Randy Papé Beltline Facility Plan, which had already been deemed reasonably feasible).
(c) Transportation system management measures;	The Transportation System Management and Operations (TSMO) Plan, contained in Chapter 4, focuses on increasing the safety and efficiency of the existing street system, promoting safety for all users, supporting the economy and supporting the City's Climate Recovery Ordinance.
(d) Demand management measures; and	The Transportation Demand Management (TDM) Plan, contained in Chapter 4, in coordination with the Regional Transportation Options Plan (RTOP), focus on providing greater travel choices to enhance mobility and accessibility and maximize transportation investments. Transportation Demand Management is a tool already integrated into the Eugene Land Use Code for reducing demand on a facility, reliance on single-occupant motorized vehicles, and parking supply. Further, the city has set targets to triple the percentage of trips made by trips other than the automobile by 2035.
(e) A no-build system alternative required by the NEPA or other laws.	Chapter 3 and Appendix B (No Build) document the No Build system alternative and associated transportation needs in the year 2035.
(3) The following standards shall be used to evaluate and select alternatives:	Chapter 3 and Appendix D (Alternatives Evaluation Process) document the alternatives evaluation and selection process. Goals and policies are included in Chapter 2 and guided the process. The evaluation framework developed for the TSP referenced the Sustainable Transportation Analysis and Rating System (STARS) and reflects the city's commitment to the sustainability triple bottom line. The STARS evaluation

	framework, although more robust, satisfies the TPR requirements as noted below. (TSP Table 3.2)
(a) The transportation system shall support urban and rural development by providing types and levels of transportation facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan;	The *2035 TSP* modeling and needs analysis is based on the Comprehensive Plan land use designations in the *Metro Plan* within the existing UGB and consistent with the growth forecast adopted into the *Metro Plan.* Modeling for the *2035 TSP* used the same land use designation model (or "layer") used for the Envision Eugene buildable lands inventory. Because the *Metro Plan* land use designation map was adopted at a relatively large scale (small geographic representation) of 1:1,500, and no file is maintained by the City of known plan-split lots as is the case for zoning districts, the land use designation layer was created by enlarging the *Metro Plan*'s 11x17 land use designation map and applying a set of rules to resolve split designations on taxlots. A process was used to identify those lots having a substantive portion in two or more differing plan designations versus those that have only a minor portion in an adjoining plan designation. Those lots not identified as candidate split lots were considered designated according to the plan designation found at the geometric center of the lot. Chapter 3 and Appendices B (No Build) and C (20 year Needs Analysis) document the anticipated land uses and the *2035 TSP* projects (types and levels of service) needed to support the land uses depicted on the land use designation layer described above. The TSP supports urban growth as planned for the Eugene UGB area in the acknowledged comprehensive plan (the *Metro Plan*) and regional travel, and restricts facility extension that might encourage inappropriate growth on rural lands. Comparable STARS criteria: • Ensure consistency between transportation investments and all relevant adopted and accepted local plans. • Support redevelopment priorities by promoting compatible transportation investments along key corridors and in core commercial areas, including downtown. • Increase access to employment centers via foot, bike, and transit, while improving the

	quality of the traveling experience.
(b) The transportation system shall be consistent with state and federal standards for protection of air, land and water quality;	Three of the eight STARS evaluation criteria reference air quality, protection of land and water quality. All alternatives considered were evaluated against adopted state and federal standards. Sample STARS criteria that promote consistency with state and federal standards for protection of air, land and water quality: • Support the reduction in quantities of harmful airborne pollutants associated with transportation.

(c) The transportation system shall minimize adverse economic, social, environmental and energy consequences;	The alternatives analysis summarized in Chapter 3 and Appendix D (Alternatives Evaluation Process) include an evaluation of adverse economic, social, environmental and energy consequences. Many of the eight evaluation criteria reference these issues. Further, the goals and policies included in Chapter 2 highlight the importance of minimizing these consequences.
	
	Example STARS criteria that minimize adverse economic, social, environmental and energy consequences:
	• Use future transportation investments to reduce or eliminate disparities between neighborhoods in access, economic benefits, safety, and health.
	• Encourage infrastructure and programs that allow residents to reduce expenditures on fuel and vehicle use.
	• Focus on transportation programs and projects that help to:
	  ○ reduce total community-wide fossil fuel use by 50% by 2030
	  ○ reduce vehicle miles traveled per capita by 10% by the year 2020
	  ○ reduce community-wide greenhouse gas emissions 10% below 1990 levels by 2020
	
	Triple Bottom Line (abbreviated as TBL) is an accounting framework with three parts: social, environmental, and financial. The *2035 TSP* integrated

	TBL sustainability principles in every step of its development. The criteria that were used to prioritize potential projects and programs in this plan were broadened to include public health and safety, community context and neighborhood character, climate and energy, and cost effectiveness to ensure that the plan adequately addresses the many aspects of the economy-equity-environment triple bottom line. The *2035 TSP* supports equity and social prosperities in several ways. This plan supports the provision of complete transportation networks that serve all travelers of all ages, abilities, and incomes. Everybody should have safe and efficient access to employment, education, services, and recreation. The *2035 TSP* promotes the services and projects that will result in sufficient options to meet these needs. This plan also calls for assurances that costs and benefits of transportation improvements are shared equitably over time, both geographically throughout the city and among populations of different economic strata, races, and ethnicities. The *2035 TSP* supports the continued growth and vitality of the local and regional economy. Transportation infrastructure investments on key corridors will support the projected employment base and freight movements as well as improve multimodal access to the airport and train station. The *2035 TSP* removes a barrier to planned growth by adjusting Levels of Service for traffic to more realistic levels, levels that reduce reliance on automobile travel and permit levels of development desired by the comprehensive land use plan.
(d) The transportation system shall minimize conflicts and facilitate connections between modes of transportation; and	The alternatives analysis summarized in Chapter 3 and Appendix D (Alternatives Evaluation Process) include an evaluation of the potential for intermodal connections and minimization of conflicts. Further, the goals and policies included in Chapter 2 are focused on creating a complete, connected transportation system that meets the needs and safety of travelers of all ages, abilities, races, ethnicities and incomes. Sample STARS criteria that minimize conflicts and facilitate connections between modes of transportation:

	• Support redevelopment priorities by promoting compatible transportation investments along key corridors and in core commercial areas, including downtown. • Foster neighborhoods where 90 percent of Eugene residents can meet most daily needs without relying heavily on an automobile. • Improve the comfort and convenience of travel, especially for walking, bicycling, carpooling, and riding transit. • Maintain a network of Emergency Response Streets to facilitate prompt emergency response.
(e) The transportation system shall avoid principal reliance on any one mode of transportation by increasing transportation choices to reduce principal reliance on the automobile. Select transportation alternatives that meet the requirements in section (4) of the rule.	The alternatives analysis summarized in Chapter 3 and Appendix D (Alternatives Evaluation Process) is fundamentally based on the need to decrease reliance on the automobile (see sample criteria, above). Most of the eight STARS evaluation criteria reference this critical need. Further, the goals and policies included in Chapter 2 highlight the importance of tripling the percentage of trips made by transit, cycling and walking by 2035 and increasing transportation choices for all users. The *2035 TSP* plans for significant investment in active transportation over the next 20 years. Of the 276 projects planned in the *2035 TSP* to be built over the next 20 years, 253 of the projects are entirely pedestrian and bicycle projects; those projects include 89 neighborhood greenway projects, 17 shared use paths, 10 protected bike lane projects, and 89 separated path/sidewalk projects. Six of the 276 projects are transit projects, which include improving frequent transit service and multimodal travel along numerous transit corridors. The *2035 TSP* includes a "Complete Streets" policy that will affect how all streets will be planned and maintained in the future. By making streets more inviting to pedestrians and bicyclists, especially for short trips, the City will gain more efficient use of limited available space within the street rights-of-way, provide a healthier environment in neighborhoods, and support the higher density, mixed use Key Corridors championed by the *Envision Eugene, A*

	Community Vision for 2032. Improvements to the sidewalk, bicycle, and transit networks make many more travel options available, providing choices that best fit one's travel needs, financial situation, and location. In furtherance of the goal to increase the number of people choosing active transportation as their travel option, as noted above, there are 245 bicycle, pedestrian and transit projects planned for the next 20 years; these projects representing over 51% of the total transportation dollars that the City plans to spend over the next 20 years. By planning for the active transportation infrastructure that will make active modes of travel more safe and convenient, the *2035 TSP* is designed to achieve its goal of greatly increasing the number of trips made by transit, bicycling and walking. With the 245 bicycle, pedestrian and transit projects (as well as the six complete street projects) planned for the next 20 years, the *2035 TSP* hopes to (at least) triple the number of trips made by transit, bicycling or walking by 2035.
(4) In MPO area, regional and local TSPs shall be designed to achieve adopted standards for increasing transportation choices and reducing reliance on the automobile. Adopted standards are intended as means of measuring progress of metropolitan areas towards developing and implementing transportation systems and land use plans that increase transportation choices and reduce reliance on the automobile. It is anticipated that metropolitan areas will accomplish reduced reliance by changing land use patterns and transportation systems so that walking, cycling, and use of transit are highly convenient and so that, on balance, people need to and are likely to drive less than they do today.	The *2035 TSP* supports and advances the alternative performance standards approved by LCDC in 2001 and adopted as part of *TransPlan*. The Transportation Demand Management Plan, contained in Chapter 4, in coordination with the Regional Transportation Options Plan, focuses on providing greater travel choices to enhance mobility and accessibility and maximize transportation investments. Further, the City has set targets to triple the percentage of trips made by trips other than the automobile by 2035, as iterated in the goals and policies included in Chapter 2 and the evaluation criteria included in Chapter 3. In furthering the goals of the 2001 standards, the *2035 TSP* builds upon the lessons learned since 2001, and recognizes that there are new, innovative ways to decrease vehicle miles of travel. To that end, the *2035 TSP* uses terminology that, at times, slightly differs from the terminology adopted in 2001, but nevertheless advances the achievement of the standards approved by LCDC in 2001. For example, the City no longer uses the term "nodal development" in its land use and transportation planning efforts.

	Instead, the City uses terms such as “key corridors” and “20-minute neighborhoods.” Despite a shift in terminology, the underlying concept, goals, and benefits of nodal development remains unchanged; providing land use patterns so that walking, cycling, and use of transit are highly convenient and so that, on balance, people need to and are likely to drive less than they do today. Most importantly, the *2035 TSP* is designed to increase transportation choices and reduce reliance on the automobile. The *2035 TSP* supports and advances the alternative performance standards approved by LCDC in 2001 and adopted as part of *TransPlan* in the following way: **% Non-Auto Trips**. The *2035 TSP* has goals of tripling trips by walking, biking, and transit and reducing fossil fuel consumption. Of the 264 projects planned in the *2035 TSP* to be built over the next 20 years, 239 of the projects are entirely pedestrian and bicycle projects; those projects include 89 neighborhood greenway projects, 18 shared use paths, 12 protected bike lane projects, and 85 separated path/sidewalk projects. Six of the 264 projects are transit project, which include improving frequent transit service and multimodal travel along numerous transit corridors. These 245 bicycle, pedestrian, and transit projects represent 51% of the total transportation dollars that are planned to be spent over the next 20 years. Of the 19 remaining projects, six of the projects are complete street upgrades to existing roadways; all six of these projects have a significant bicycle and pedestrian component. These complete street projects represent an additional 10% of the total transportation dollars. Establishment of a bike share program is currently underway and is one of the *2035 TSP*’s four bicycle policies. The *2035 TSP* has a policy to encourage walking as the most attractive mode of transportation for short trips (*e.g.*, within .5 miles) within and to activity centers, downtown, key corridors, and major destinations, and as a means of accessing transit. A related policy of the *2035 TSP* is to ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, major destinations, and transit stops and to continually improve walking comfort, safety, and accessibility through design, operations, retrofits, and maintenance.

	% Transit Mode Share on Congested Corridors. The *2035 TSP* has a goal of tripling trips by walking, biking, and transit, and policies that promote planning and improving multimodal access along the Key Corridors (EE Vision) and (the same) Frequent Transit Networks (LTD Long Range Transit Plan). The *2035 TSP* policies promote improved transit services that are integrated through context specific multimodal planning for all Key Corridors. One of the four transit policies in the *2035 TSP* is to collaborate with Lane Transit District to provide a network of high capacity, frequent, and reliable transit services, including consideration of Bus Rapid Transit, to the City's identified Key Corridors and to Frequent Transit Corridors as defined by Lane Transit District's Long Range Transit Plan. Additionally, the *2035 TSP* includes $171.4 million in transit projects that support the transit policies and the identified transit needs. The six multimodal/transit projects planned for the next 20 years include the improvement of frequent transit service and multimodal travel along Coburg Road, River Road, Highway 99, 30th Avenue and Amazon Parkway, new transfer stations, and enhanced pedestrian crossings. Additionally, an identified potential action item is to review City Code and amend it if needed to enable additional opportunities to provide bikeways and improved pedestrian connections between key destinations, transit stops, and residential areas with new development and redevelopment. **Priority Bikeway Miles**. "Priority bikeway" projects are defined in *TransPlan* as: "Bike projects located along an essential core route on which the overall bicycle system depends; *and* (one of the following): 1. Fills in a critical gap in the existing bicycle system; or 2. Overcomes a barrier where no other nearby existing or programmed bikeway alternatives exist; or, 3. Significantly improves bicycle users' safety in a given corridor." The *2035 TSP* sets benchmarks constructing new projects that meet *TransPlan*'s definition of Priority Bikeway Miles. The *2035 TSP* promotes a complete network of various context sensitive bikeways throughout the community (including cycle tracks, bike boulevards, and protected bikeways). As discussed above, of the 264 projects planned in the

	2035 TSP to be built over the next 20 years, 245 of the projects are entirely pedestrian and bicycle projects; those projects include 89 neighborhood greenway projects, 22 on-street bike lanes, 18 shared use paths, 12 protected bike lane projects, and 85 separated path/sidewalk projects. These 245 bicycle, pedestrian, and transit projects represent 51% of the total transportation dollars that are planned to be spent over the next 20 years. One of the *2035 TSP*'s bicycle policies is to "[d]evelop a well-connected and comfortable bikeway network. Ensure that there are safe, comfortable, and direct bikeway connections between residential areas, major destinations, and transit stops and provide secure bicycle parking facilities at these destinations." The related potential action item is: "Maintain a map and project list for desired improvements to the bicycle network within the life of this plan. Provide priorities among these projects, yet provide flexibility among priorities to respond to unforeseen opportunities and development." The list of bicycle projects in support of the policies and the identified needs are shown in Chapter 5. The *2035 TSP* is the City's bicycle and pedestrian plan, providing projects and policies that will create a network of bicycle and pedestrian-friendly routes throughout the planning area. While the map of all potential bicycle system improvements may include some on local streets, only improvements on collector and arterial streets were considered for the *2035 TSP* project list and cost estimates. **Acres of zoned nodal development**. "Nodal development" is defined in *TransPlan* as "a mixed-used, pedestrian friendly land use pattern that seeks to increase concentrations of population and employment in well-defined areas with good transit service, a mix of diverse and compatible land uses, and public and private improvements designed to be pedestrian and transit oriented." The *2035 TSP* promotes the completion of safe, comfortable, and direct sidewalk and bikeway networks between key destinations, transit stops, and residential areas, which supports nodal development. Specifically, the *2035 TSP* does not change the zoning of nodal development areas. Further, the *2035 TSP* sets benchmarks for increasing the number of acres that meet *TransPlan*'s

	definition of nodal development, *i.e.*, mixed use centers, Key Transit Corridors, and 20-minute neighborhoods. **% of dwelling units built in nodes**. This TSP promotes neighborhoods where 90 percent of Eugene residents can meet most daily needs without relying heavily on an automobile. A system-wide policy of the *2035 TSP* is fostering neighborhoods where Eugene residents can meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure. The related potential action item is the creation of a strategy to facilitate 90 percent of Eugene residences to be within 20-minute neighborhoods. Further, the *2035 TSP* sets benchmarks for increasing the percentage of new dwelling units built in areas that meet *TransPlan's* definition of nodal development, *i.e.*, % of new dwelling units built in mixed use centers, 20-Minute Neighborhoods, and along Key Transit Corridors. **% of New "Total" Employment in Nodes**. The TSP supports employment in nodes by increasing access to employment centers via foot, bike, and transit, and promoting compatible transportation investments along key corridors and in core commercial areas, including downtown. Identified potential action items include aligning the City's land use and parking regulating to encourage walking, biking, and use of public transit and periodically reviewing parking needs in the downtown, Federal Courthouse, and riverfront districts and balance supply with other objectives, such as economic vitality; support for transit, walking, and biking; reduced consumption of fossil fuels; and human-scaled urban form. Additionally, for more than 10 years the City has had in place *Standards for Transportation Demand Management Programs* that provide a mechanism to vary the number of required off-street parking spaces by providing a strategy for reducing vehicle use and parking demand and using benchmarks to measure program effectiveness. Further, the 2035 TSP sets aggressive goals for the percentage of new employment located within areas that meet *TransPlan*'s definition of nodal development, *i.e.*, % of new employment in mixed use centers, 20 Minute Neighborhoods, and along Key Transit Corridors.

	Internal VMT. Vehicle Miles Travelled have been on the decline in Eugene. Policies cited above that promote alternatives to driving, mixed use neighborhoods, and reduced consumption of fossil fuels will help reduce VMT. Goal 1 of the *2035 TSP* is to "[c]reate an integrated transportation system that is safe and efficient; supports the *Metro Plan*'s land use diagram and *Envision Eugene, A Community Vision for 2032* (2012), the City of Eugene's target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability." **VMT/Capita**. Per capita VMT has been on the decline in Eugene. Policies cited above that promote alternatives to driving, mixed use neighborhoods, education, and reduced consumption of fossil fuels will help reduce per capita VMT. The *2035 TSP*'s design to increase transportation choices and reduce reliance on the automobile will most likely advance any new regional standards that are adopted as part of the RTSP update, however, if needed, the *2035 TSP* will be amended to address the new regional standards.
(7) Regional and local TSPs shall include benchmarks to assure satisfactory progress towards meeting the approved standard or standards adopted pursuant to this rule at regular intervals over the planning period. MPOs and local governments shall evaluate progress in meeting benchmarks at each update of the regional transportation plan. Where benchmarks are not met, the relevant TSP shall be amended to include new or additional efforts adequate to meet the requirements of this rule.	As discussed above, OAR 660-012-0035(5) requires that MPO areas adopt standards for approval by the Land Conservation and Development Commission (LCDC). The 0035(5) standards developed by the Eugene-Springfield MPO for *TransPlan* were approved by LCDC in 2001, and adopted as part of *TransPlan* in 2002. Because *TransPlan* remains the metro area's regional transportation system plan, the standards adopted by LDCD in 2001 are still in effect, and applicable, today. Therefore, the *Eugene 2035 TSP* retains the LCDC-approved standards as required by the TPR and sets forth benchmarks that advance progress towards increasing transportation choices and reducing reliance on the automobile, and better reflect local targets for bicycle, walking, and transit travel and achieving the land use patterns promoted by *Envision*

	Eugene, A Community Vision for 2032. Attachment D to the *2035 TSP* sets forth benchmarks to assure that the City is making satisfactory progress towards meeting the standards approved by LCDC in 2001. The benchmarks in Attachment D include regular intervals over the *2035 TSP*'s 20-year planning for the City to evaluate its progress toward meeting the Alternatives Performance Measures approved by LCDC in 2001 for the Eugene-Springfield MPO.
(10) Transportation uses or improvements listed in OAR 660-012-0065(3)(d) to (g) and (o) and located in an urban fringe may be included in a TSP only if the improvement project identified in the Transportation System Plan as described in section (12) of this rule, will not significantly reduce peak hour travel time for the route as determined pursuant to section (11) of this rule, or the jurisdiction determines that the following alternatives can not reasonably satisfy the purpose of the improvement project: (a) Improvements to transportation facilities and services within the urban growth boundary; (b) Transportation system management measures that do not significantly increase capacity; or (c) Transportation demand management measures. The jurisdiction needs only to consider alternatives that are safe and effective, consistent with applicable standards and that can be implemented at a reasonable cost using available technology.	The *2035 TSP* includes Project No. MM-3: "Construct local arterial bridge over the Willamette River to the north of the Beltline Highway, connecting Division Avenue to Green Acres Road; construct operational improvements to existing Randy Papé Beltline Highway/Delta Highway ramps consistent with the Beltline Highway Facility Plan." Additionally, the Randy Papé Beltline Facility Plan is adopted as part of the *2035 TSP* (Attachment C). The Facility Plan includes recommended improvements to the Randy Papé Beltline Highway, Delta Highway and adjacent arterial street system to improve safety and the long-term operations of the highway between River Road and Coburg Road. This Facility Plan is a precursor to the National Environmental Policy Act (NEPA) process for the implementation of future Randy Papé Beltline Highway projects. The NEPA analysis will include more detailed and rigorous analysis of project impacts and result in a determination as to whether or not one or more of the improvements options can be constructed and, potentially, result in a recommended preferred project that is eligible for federal funding. If the outcome of the NEPA analysis is that one or more of the improvement options can be constructed, the project description and costs estimates for Project MM-3 will be updated to reflect the improvement option ultimately selected. The City recognizes that construction outside of the urban growth boundary may require a goal exception or UGB amendment. Those land use issues will be resolved together with Lane County. Nevertheless, MM-3 (which may include construction within the urban fringe) can be included in the *2035 TSP* because the project is authorized by provisions of OAR 660-012-0065 other than (3)(d) to (g) and (o).
OAR 660-012-0040 Transportation Financing Program	

(1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation financing program.	Cost estimates for all of the planned facilities and major improvements (i.e., "projects") are included in Chapter 5. Chapter 6 contains a summary of all project costs, by prioritization category, a projection of revenue and a financing and implementation plan.
(2) A transportation financing program shall include the items listed in (a)-(d):	The TSP contains all the required components of the -0040(2) finance plan: (d) policies to guide selection of transportation facility and improvement projects for funding in the short-term to meet the standards and benchmarks established pursuant to 0035(4)-(6). The policies, contained in Chapter 2, consider and include facilities and improvements that support mixed-use, pedestrian friendly development and increased use of alternative (non-automobile) modes of transportation.
(a) A list of planned transportation facilities and major improvements;	Chapter 5 lists all of the planned transportation facilities and major improvements, by mode.
(b) A general estimate of the timing for planned transportation facilities and major improvements;	All of the planned transportation facilities and major improvements are contained in Chapter 5 and are prioritized in the following categories for general timing: projects within 20 years, projects to complete upon development of adjacent lands, projects that could be completed beyond the 20-year planning horizon if conditions change and the TSP is amended, and projects requiring further study prior to establishing a timing for funding and implementation.
(c) A determination of rough cost estimates for the transportation facilities and major improvements identified in the TSP; and	Chapter 5 lists all of the planned transportation facilities and major improvements, by mode and their associated cost estimates.
(d) In metropolitan areas, policies to guide selection of transportation facility and improvement projects for funding in the short-term to meet the standards and benchmarks established pursuant to 0035(4)-(6). Such policies shall consider, and shall include among the priorities, facilities and improvements that support mixed-use, pedestrian friendly	The *2035 TSP* articulates policies and actions that explicitly prioritize facilities and improvements that support mixed-use, pedestrian friendly neighborhoods, increase use of active modes of transportation, and reduce reliance on travel by single-occupant automobile. These priorities include improved convenience and safety for walking, biking, and connections to transit stops; improved transit service

development and increased use of alternative modes.	in Key Corridors; bikeway improvements near the University of Oregon, downtown Eugene, and on streets connecting residential areas to schools and commercial hubs; a railroad quiet zone in the downtown and Whiteaker areas; investments that facilitate job growth in high priority employment opportunity sites; and priority parking and reduced parking fees for non-gasoline powered vehicles. Goal 1 of the *2035 TSP* states: “Create an integrated transportation system that is safe and efficient; supports the *Metro Plan*’s land use diagram and *Envision Eugene, A Community Vision for 2032* (2012), the City of Eugene’s target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability.” The *2035 TSP* contains many policies that prioritize facilities and improvements that support mixed-use, pedestrian friendly development and increased use of alternative modes, including the following: Roadway Policy 1: “Design, construct, maintain, and operate all streets to provide comprehensive and integrated transportation networks that serve people of all ages and abilities, promote commerce, and support the comprehensive land use plan’s vision for growth and development in a responsible and efficient manner. A “complete street” allows safe travel for automobiles and emergency responders, bicycles, walking, transit, and freight. In addition to fulfilling a street’s basic transportation functions and providing access to properties, streets and sidewalks should be designed to be attractive, safe, accessible, sustainable, and healthy components of the City's environment.” Pedestrian Policy 1: “Encourage walking as the most attractive mode of transportation for short trips (*e.g.*, within .5 miles) within and to activity centers, downtown, key corridors, and major destinations, and as a means of accessing transit.” Pedestrian Policy 3: “Coordinate improvements to complement and improve the systems proposed in the Eugene Trails Plan and connections to regional trails.” Bicycle Policy 2: “Develop a well-connected and

	comfortable bikeway network. Ensure that there are safe, comfortable, and direct bikeway connections between residential areas, major destinations, and transit stops and provide secure bicycle parking facilities at these destinations."
(3) The determination of rough cost estimates is intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms. In addition to including rough cost estimates for each transportation facility and major improvement, the transportation financing plan shall include a discussion of the facility provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each transportation facility and major improvement. These funding mechanisms may also be described in terms of general guidelines or local policies.	Chapter 5 lists all of the planned transportation facilities and major improvements, by mode and their associated cost estimates. Chapter 6 includes a summary of cost estimates, by prioritization category, a forecast of revenue based on existing funding mechanisms and potential new mechanisms, and a plan for implementation. Additionally, Chapter 2 includes policies and potential action items specific to cost effectiveness and finance. The planning level cost estimates provided in Chapter 5 of the *2035 TSP* provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan and allow the assessment of the adequacy of existing and alternative funding mechanisms. The transportation financing plan (Chapter 6) includes a discussion of the facility provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each transportation facility and major improvement.
(5) The transportation financing program shall provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities and improvements which would cause premature development of urbanizable lands or conversion of rural lands to urban uses.	The planned transportation facilities and major improvements identified in Chapter 5 prioritize pedestrian, bicycle, and transit improvements in Key Corridors that encourage infill and redevelopment. A system-wide policy of the *2035 TSP* is fostering neighborhoods where Eugene residents can meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure. The related potential action item is the creation of a strategy to facilitate 90 percent of Eugene residences to be within 20-minute neighborhoods. The *2035 TSP* also supports the land use strategies defined in the *2012 Envision Eugene, A Community Vision for 2032* and prioritizes recommendations that mitigate the strain on roadways by supporting transit service and making walking and bicycling trips more

	practical for working, shopping, and other daily activities; managing congestion; and improving safety. One primary focus of both the *Metro Plan* and *Envision Eugene* is on more compact development. As such, significant future residential development is likely to occur in the Downtown and "Key Corridors" (see Volume 2, Appendix E), including: Willamette Street, W 11th Avenue, Highway 99N, River Road, Coburg Road, and Franklin Boulevard. The *2035 TSP* includes projects and programs, and identifies financial resources, that support the growth anticipated over the next 20 years along these key corridors. The transportation financing program (Chapters 5 and 6) provides for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities and improvements which would cause premature development of urbanizable lands or conversion of rural lands to urban uses. The *2035 TSP* does not promote extension of streets outside the UGB that would promote urbanization of rural lands.
OAR 660-012-0060 Plan and Land Use Regulation Amendments	
(1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would: (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan); (b) Change standards implementing a functional classification system; or (c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment	As part of the *2035 TSP* adoption package, section 67 of Ordinance No. 20528 will be deleted, thereby lifting the trip cap imposed on the properties rezoned by that ordinance. Ordinance No. 20528 was adopted in May, 2014, as an Envision Eugene efficiency measure. Ordinance No. 20528 created a new E-2 Mixed Used Employment zone in West Eugene and converted I-1 Campus Industrial zone to the E-1 Campus Employment zone in three areas of the City. Section 67 of Ordinance No. 20528 imposed a trip cap on all of the properties that are subject to a code amendment or zone change that would allow uses that would generate more traffic than is currently allowed on those properties. Specifically, the City imposed trip caps on all of the properties where the currently allowed uses will be expanded, either as a result of the newly-named E-1 zone or a zone change to C-2 or E-2. With the proposed trip caps, traffic generated from the subject properties after the code amendments and zone changes could not have exceed the amount of traffic that could be generated from these properties prior to adoption of the code amendments and zone changes. The trip cap was imposed on a corridor-level, and the

includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment. (A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility; (B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or (C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.	trip cap numbers were aggregate for all the affected lots. The aggregate vehicular trip cap within the West Eugene study area is 4,960 trips. The aggregate vehicular trip cap for the three discrete E-1 Campus Employment zoned areas are as follows: Greenhill Technology Park – 1250, Willow Creek – 1270, and Chad Drive – 1370. As discussed above, in determining the City's transportation needs the *2035 TSP* modeling assumed that the City will continue to see growth in employment and population between now and the year 2035 in a manner consistent with the existing Comprehensive Plan land use designations, within the existing Urban Growth Boundary (UGB) and consistent with the growth forecast adopted into the *Metro Plan.* Regarding the population and employment distributions, Staff from the cities of Eugene and Springfield, Lane County and Lane Council of Governments (LCOG) worked collaboratively to identify where the estimated year 2035 population and employment growth might occur within the region as well as within individual areas of each city. Based on these estimates of future job and household growth and distribution, LCOG developed traffic volume forecasts for the city's collector and arterial street system, using an emme travel demand model. To reflect the efficiency measures adopted by Ordinance No. 20528, the growth and distribution forecasts that served as the basis for the travel demand model included a higher distribution of the employment growth to the newly created E-2 Mixed Used Employment zone in West Eugene and the three areas of the City where I-1 Campus Industrial zone was converted to the E-1 Campus Employment zone. Based on the modeling, to address the increased travel demand resulting, in part, by the higher distribution of employment growth in the newly created E-2 Mixed Used Employment zone in West Eugene and the three areas of the City where I-1 Campus Industrial zone was converted to the E-1 Campus Employment zone, the *2035 TSP* includes the following: 1. Citywide LOS E 2. 1.0 v/c for specified ODOT facilities, including West 11th Avenue from Ed Cone east into

	downtown, Coburg Road in the vicinity of the Beltline Highway interchange as well as from Harlow Road to downtown, Randy Papé Beltline/W 11th Avenue. 3. MM-3, Construct local arterial bridge over the Willamette River to the north of the Beltline Highway, connecting Division Avenue to Green Acres Road; construct operational improvements to existing Randy Papé Beltline Highway/Delta Highway ramps consistent with the Beltline Highway Facility Plan. 4. MM-4, Improve I-5/Randy Papé Beltline Highway interchange (project is currently funded and underway). 5. MM-6, Improve frequent transit service and multimodal travel along Coburg Road and transit connections to Springfield. 6. MM-9, West Eugene EmX extension along W 6th, 7th, and 11th Avenues, Garfield and Charnelton Streets (project is currently funded and under construction) 7. MM-14, Upgrade W 11th Avenue consistent with major arterial standards, including provision of four travel lanes, center median, bike lanes, sidewalks on both sides of the road, and planting strips 8. MM-20, Add lanes on the Randy Papé Beltline Highway and provide intersection improvements at the Randy Papé Beltline Highway/W 11th Avenue and Randy Papé Beltline Highway/Roosevelt Boulevard intersections. Because the *2035 TSP*'s modeling, needs analysis and proposed transportation system recognizes and addresses the increased travel demand anticipated by the newly created E-2 Mixed Used Employment zone in West Eugene and the three areas of the City where I-1 Campus Industrial zone was converted to the E-1 Campus Employment zone, the trip caps imposed by Ordinance No. 20528 can be lifted.

(9) Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met. (a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map; (b) The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and (c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.	The needs assessment and resulting projects (set forth in Chapter 4) that establish a transportation system adequate to meet the identified local transportation needs are based upon the land use designations established by the *Metro Plan.* Because the *2035 TSP* is based on the *Metro Plan* land use designations, any zone allowed within the land use designation is consistent with both the *Metro Plan* and this *2035 TSP*. Looking ahead, when the City adopts a new comprehensive plan, unless the new comprehensive plan changes the current *Metro Plan* land use designations, a zone allowed within the land use designation will be consistent with both the new comprehensive plan and this *2035 TSP.* If adoption of the new comprehensive plan includes an expansion of the UGB, any amendments to the *2035 TSP* that are necessary to address the expansion area will be adopted currently with the UGB amendment.

Goal 13 - Energy Conservation. *To conserve energy.*

The amendments do not impact energy conservation. Therefore, Statewide Planning Goal 13 does not apply.

Goal 14 - Urbanization. *To provide for an orderly and efficient transition from rural to urban land use.*

The City is currently in compliance with Goal 14. The amendments will not change the *TransPlan* and *Metro Plan* provisions adopted to preserve the distinction between urban and rural uses through the development of policies and programs that provide for more efficient urban uses within the UGB, thus preserving rural lands for rural uses.

While the City is in the midst of creating a comprehensive land use plan for 2035 that may include future UGB expansion areas, these amendments are for the *existing Eugene UGB* and do not address any future UGB expansion areas that may occur. If expansion areas are eventually approved, the *2035 TSP* will need to be updated to include those areas. The amendment updates the transportation section of the *Metro Plan* through incorporating the *2035 TSP*. The *2035 TSP* ensures compliance with Oregon Administrative Rule 660-012, which governs transportation system development in the state and requires conformance with the Regional Transportation Plan. The adoption of these amendments does not alter the City's compliance with Goal 14. The amendment is consistent with this goal.

<u>Goal 15 - Willamette River Greenway.</u> To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway.

The Willamette River Greenway area with the Urban Growth Boundary is governed by existing local provisions that have been acknowledged as complying with Goal 15. Those provisions will be unchanged by the amendments. The amendments will not change *TransPlan's* and the *Metro Plan*'s provisions related to the protection and maintenance of the scenic, historical, economic and recreational qualities of lands along the Willamette River. Further, the amendments will not affect *TransPlan*'s and the *Metro Plan*'s compliance with Goal 15.

Nearly all of projects in the Eugene 2035 Transportation System Plan are located outside of the Willamette River Greenway area. Individual transportation projects that are located in the Willamette River Greenway are required to conduct an individual analysis of Goal 15 compliance during the project development phase of work. This proposed amendment is consistent with this goal.

<u>Goal 16 through 19 - Estuarine Resources, Coastal Shorelands, Beaches and Dunes, and Ocean Resources</u>.

There are no coastal, ocean, estuarine, or beach and dune resources related to the property effected by these amendments. Therefore, these goals are not relevant and the amendments will not affect compliance with Statewide Planning Goals 16 through 19.

(2) The proposed amendment does not make the <u>Metro Plan</u> internally inconsistent.

Until now, *TransPlan*, adopted as a functional plan to the *Metro Plan*, served as the City's regional transportation system plan (RTSP), local transportation system plan, and pedestrian and bicycle master plan. While *TransPlan* will continue to serve as the City's RTSP, the *2035 TSP* will serve as the City's local transportation system and as the City's pedestrian and bicycle master plan. Because *TransPlan* will continue to serve as the RTSP for Eugene, Springfield, and Metropolitan Lane County until a new RTSP is adopted, *TransPlan* remains a functional plan of the *Metro Plan*. The *2035 TSP*, also adopted as part of the *Metro Plan*, must be consistent with *TransPlan*. In addition to the findings set forth in Table A (OAR 660-012-0015) and the findings set forth regarding the consistency between the *2035 TSP* and the Transportation Element of the *Metro Plan* (which are incorporated herein by reference), the findings set forth below demonstrate that the *2035 TSP* (and corresponding *Metro Plan* and *TransPlan* amendments) are consistent with both *TransPlan* and the *Metro Plan* and will not make the documents internally inconsistent.

<u>TransPlan</u>

The *2035 TSP* is consistent with *TransPlan*'s goals and policies. The following table (Findings Table B) provides a comparison and consistency evaluation between the goals and policies contained in *TransPlan* and the *2035 TSP*.

***TransPlan* and *2035 TSP* Consistency**	
***TransPlan* Goals**	**Complimentary *2035 TSP* Goals**
Provide an integrated transportation and land use system that supports choices in modes of travel and development patterns that will reduce reliance on the auto and enhance livability, economic opportunity, and the quality of life.	Create an integrated transportation system that is safe and efficient; supports the *Metro Plan*'s land use diagram and *Envision Eugene, A Community Vision for 2032* (2012), the City of Eugene's target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability.
Enhance the Eugene-Springfield metropolitan area's quality of life and economic opportunity by providing a transportation system that is: a) Balanced, b) Accessible, c) Efficient, d) Safe, e) Interconnected, f) Environmentally responsible, g) Supportive of responsible and sustainable development, h) Responsive to community needs and neighborhood impacts, and i) Economically viable and financially stable.	Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and overall well-being. Strengthen community resilience to changes in climate, increases in fossil fuel prices, and economic fluctuations by making the transportation networks diverse, adaptable, and not reliant on any single mode. Address the transportation needs and safety of all travelers, including people of all ages, abilities, races, ethnicities, and incomes. Through transportation investments, respond to the needs of system users, be context sensitive, and distribute the benefits and impacts of transportation decisions fairly throughout the city. By the year 2035 triple the percentage of trips made on foot, by bicycle, and by transit from 2014 levels. [Note: Eugene used the Triple Bottom Line standard for sustainable planning.]
***TransPlan* Policy Topic Areas**	**Complimentary *Eugene TSP* Policy, action summary**
Land Use / Nodal Development	Key Corridor Planning, Services
Transit-Supportive land use patterns	Key Corridor Planning, Services
Multi-modal improvements	Multi-modal improvements, Complete Streets policy
Transportation Demand Management	Transportation Demand Management/TSMO

Congestion Management	TDM, ITS, and new LOS standards
Parking Management	Parking Management, code review
Transportation Infrastructure Protection	Transportation Infrastructure Protection, maintenance
Intermodal connectivity	Intermodal connectivity
Corridor preservation	Rights-of-way preservation, reuse
Neighborhood livability	Walkable neighborhoods, inviting environment, neighborhood context, neighborhood safety, equity between neighborhoods, community engagement, community health
Mobility, LOS	Mobility, travel time reliability, updated LOS
Safety	Safety, Vision Zero's "no loss of life is acceptable"
Emergency Response	Emergency response as important component of a Complete Street
Coordinated roadway network	Complete Streets, connectivity, connections between modes
Access management, Efficiency	Improved circulation, ITS Note: Since *TransPlan* Eugene has adopted and enforces an updated access management program
Improved transit, BRT, HOV priority, park & ride	Improved transit (goal of doubling ridership), BRT, frequent transit networks and Key Corridors. Park and ride facility is in project list. Note: Since *TransPlan* Eugene has adopted an updated code to address park and ride facilities.
Support for bike systems on roadways, especially arterial and collector roadways	Support for complete bike network, improved signage, protections from vehicles, bike share program, bike parking. Note: *2035 TSP* incorporates key components of the 2012 Pedestrian and Bicycle Master Plan
Bikeway connections to new development	Bikeway connections to new development
Pedestrian environment that is safe, comfortable, continuous and direct	"Ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, major destinations, and transit stops. Continually improve walking comfort, safety, and accessibility through design, operations, retrofits, and maintenance. Provide landscaped setback sidewalks of ample width and safe street crossings to encourage people to walk." Note: *2035 TSP* incorporates key components of the 2012 Pedestrian and Bicycle Master Plan
reasonable and reliable travel times for freight	Travel time reliability, recognition of designated freight routes. "Encourage public and private

	partnerships with the freight transport industry."
Supports Cascadia High Speed Rail Corridor	Supports Cascadia High Speed Rail Corridor
Supports Eugene airport, Airport Master Plan	Supports Eugene airport, Airport Master Plan
Supports rail – bus connections	Supports all intermodal connections
Support adequate funding	Supports funding transportation improvements, encourages continued public involvement and support for transportation improvements. Project list is fundable given current funding projections.
Operate and maintain transportation facilities in a way that reduces the need for more expensive future repair.	Operate and maintain transportation facilities in a way that reduces the need for more expensive future repair.
Set priorities for investment of Oregon and federal revenues	Priorities are set by policies.
Maintain transportation performance and improve safety by improving system efficiency and management before adding capacity to the transportation system	Maintain transportation performance and improve safety by improving system efficiency and management before adding capacity for automobiles to the transportation system by using the following priorities for developing the Eugene Capital Improvement Program (CIP) and Eugene projects in the Metropolitan Transportation Improvement Program (MTIP): Protect the existing system. The highest priority is to preserve or improve the functionality of the existing transportation system by means such as access management, transportation demand management, improved traffic operations, technologies, accommodating "active transportation" options not previously present, and keeping roads well maintained to avoid reconstruction. Improve the efficiency and safety of existing facilities. The second priority is to make minor improvements to existing streets, such as adding turning lanes at intersections, providing and enhancing pedestrian, bicycle and transit facilities, and extending or connecting streets pursuant to existing plans. Add capacity to the existing system. The third priority is to make major improvements to existing transportation facilities such as adding general purpose lanes and making alignment corrections to accommodate legal-sized vehicles. Add new facilities to the system. The lowest priority is to add new transportation facilities for motorized vehicles, such as new roadways. New streets that are needed and planned for connectivity are a higher priority, as noted in (b), above.

	Implement higher priority measures first unless a lower priority measure is demonstrated to be more cost-effective or better supports safety, growth management, or other livability and economic considerations. Provide justification for using lower priority measures before higher priority measures.

The manner in which the *2035 TSP* supports and advances the alternative performance standards approved by LCDC in 2001 and adopted as part of *TransPlan* are set forth above in the Goal 12 findings (Findings Table A). Those detailed findings are incorporated herein by reference.

Metro Plan

Chapter III of the *Metro Plan* contains eleven specific elements that address a comprehensive list of topics, including (A) Residential Land Use and Housing Element (B) Economic Element (C) Environmental Resources Element (D) Willamette River Greenway, River Corridors, and Waterways Element (E) Environmental Design Element (F) Transportation Element (G) Public Facilities and Services Element, and (H) Parks and Recreation Facilities Element. Findings for relevant policies from each element are contained in this report. Applicable *Metro Plan* policies are italicized.

The following policies from the *Metro Plan* (identified below in *italics*) are applicable to these amendments. Based on the findings provided below, the amendments are consistent with and supported by the applicable provisions of the *Metro Plan*.

A. *Metro Plan* Residential Land Use and Housing Element

The *2035 TSP* is based on the *Metro Plan*'s land use plan and is consistent with the population projections inherent in that plan. The *2035 TSP* does not change the *Metro Plan*'s land use or housing element, or change the desired mix, location, density, or tenure of the region's housing plan. This Residential Land Use and Housing Element and Residential Land and Housing Needs Analysis contains the following relevant housing policies related to the *2035 TSP*.

A.7 Endeavor to provide key urban services and facilities required to maintain a five-year supply of serviced, buildable residential land.

A.8 Require development to pay the cost, as determined by the local jurisdiction, of extending public services and infrastructure. The cities shall examine ways to provide subsidies or incentives for providing infrastructure that support affordable housing and/or higher density housing.

A.10 Promote higher residential density inside the UGB that utilizes existing infrastructure, improves the efficiency of public services and facilities, and conserves rural resource lands outside the UGB.

The *2035 TSP* contains multiple goals and polices that support the above stated housing policies and land use efficiency measures. These TSP goals and policies include, but are not limited to:

- Goal 1: Create an integrated transportation system that is safe and efficient; supports the *Metro Plan*'s land use diagram and Envision Eugene, A Community Vision for 2032 (2012), the City of Eugene's target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability.

- Policy: Prioritize improved transit service in Key Corridors and other areas with sufficient employment, activities, or residential density that best support transit service and transit services that connect residents to employment centers. If operational funding is sufficient, extend transit to support higher density housing and employment development planned for other areas.

- Policy: Foster neighborhoods where Eugene residents could meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure.

The above stated TSP goal and policies are examples of consistency between the Eugene *2035 TSP* and relevant *Metro Plan* Residential Land Use and Housing policies. The proposed amendments will further support and enhance the *Metro Plan*'s Residential Land Use and Housing Element through strengthening multi-modal connections, enhancing bike, pedestrian and transit facilities and target multi-modal infrastructure in higher density, mixed use areas throughout Eugene. The proposed amendments are consistent with this *Metro Plan* Element.

B. *Metro Plan* Economic Element

The Economic Element of the *Metro Plan* addresses the economic needs of current and future residents of the metropolitan area. The overarching economic goal of the *Metro Plan* Element is to, "Broaden, improve, and diversify the metropolitan economy while maintaining or enhancing the environment."

The Economic Element of the *Metro Plan* contains the following relevant economic policies related to the Eugene *2035 TSP*:

B.11 Encourage economic activities, which strengthen the metropolitan area's position as a regional distribution, trade, health, and service center.

B.14 Continue efforts to keep the Eugene and Springfield central business districts as vital centers of the metropolitan area.

B.17 Improve land availability for industries dependent on rail access.

B.18 Encourage the development of transportation facilities which would improve access to industrial and commercial areas and improve freight movement capabilities by implementing the policies and projects in the Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan) and the Eugene Airport Master Plan.

B.19 Local jurisdictions will encourage the allocation of funds to improve transportation access to key industrial sites or areas through capital budgets and priorities.

B.28 Recognize the vital role of neighborhood commercial facilities in providing services and goods to a particular neighborhood.

The *2035 TSP* does not modify the industrial designation of any lands. The *2035 TSP* contains the goals and polices that support the *Metro Plan*'s economic policies:

- Goal 2: Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and overall well-being.
- Policy: Prioritize improved transit service in Key Corridors and other areas with sufficient employment, activities, or residential density that best support transit service and transit services that connect residents to employment centers. If operational funding is sufficient, extend transit to support higher density housing and employment development planned for other areas.
- Improve travel time reliability between key origins and destinations for transit, regional freight movement, and other trips for which on-time arrivals are important.
- Facilitate efficient access for goods, employees, and customers to and from employment, commercial, and industrial lands, including freight access to designated freight routes, highways, rail yard, and the Eugene Airport. Increase multimodal access for employees to employment centers.
- Support ODOT's efforts to improve Randy Papé Beltline Highway for transportation system efficiency, improved safety, and improved connections for people travelling by foot, bike, and bus. The *Beltline Highway: Coburg Road to River Road Facility Plan* is incorporated into this TSP, contained in Volume 2. The City of Eugene supports completion of the NEPA review, and implementation of the resultant recommended improvements.
- Encourage walking as the most attractive mode of transportation for short trips (e.g., within .5 miles) within and to activity centers, downtown, key corridors, and major destinations, and as a means of accessing transit.
- Promote the efficiency with which freight and deliveries are transported without worsening impacts to the environment, social and neighborhood context, promotion of "Complete Streets," or safety.
- Encourage public and private partnerships with the freight transport industry to develop mutually beneficial strategies and initiatives
- Encourage the use of rail for movement of freight and long distance passenger trips. Support the Eugene Airport as a regional transportation facility.
- Use transportation investments to support industries and employment sectors targeted by City and regional adopted economic development strategies.

The above stated *2035 TSP* goals and policies are examples of consistency between the *2035 TSP* and relevant *Metro Plan* economic policies. The TSP will provide a greater range of transportation options for businesses and employees. The proposed amendments are consistent with this *Metro Plan* Element.

C. Environmental Resources Element

The Environmental Resources Element addresses the natural assets and hazards in the metropolitan area. The policies of this element emphasize reducing urban impacts on wetlands throughout the metropolitan area and planning for the natural assets and constraints on undeveloped lands on the urban fringe.

The Environmental Resources Element of the *Metro Plan* contains the following relevant goal and policies related to the Eugene *2035 TSP* (policies related to forest lands, agricultural lands, and mineral and aggregate resources were omitted because there are no subject lands within the Eugene UGB):

Goal: Provide a healthy and attractive environment, including clean air and water, for the metropolitan population.

C.22 Design of new street, highway, and transit facilities shall consider noise mitigation measures where appropriate.

C.23 Design and construction of new noise-sensitive development in the vicinity of existing and future streets and highways with potential to exceed general highway noise levels shall include consideration of mitigating measures, such as acoustical building modifications, noise barriers, and acoustical site planning. The application of these mitigating measures must be balanced with other design considerations and housing costs.

C.24 Local governments shall continue to monitor, to plan for, and to enforce applicable noise standards and shall cooperate in meeting applicable federal and state noise standards.

The City of Eugene has previously adopted Goal 5 habitat resource protections, stormwater protection measures, and open space plans, none of which will change as a result of this TSP amendment. The *2035 TSP* contains goals and polices which support these environmental policies, including, but not limited to the following:

- Goal 2: Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and overall well-being.
- Goal 3: Strengthen community resilience to changes in climate, increases in fossil fuel prices, and economic fluctuations by making the transportation networks diverse, adaptable, and not reliant on any single mode.
- Create a railroad quiet zone throughout the City. Prioritize implementation of a quiet zone in the downtown and Whiteaker areas.
- Avoid, protect, and enhance habitat in transportation projects where possible. Minimize and

mitigate impacts when needed.

- Support the use of more highly fuel efficient vehicles including electric, hydrogen fuel cell, and non-motorized vehicles.

- Create a strategy that advances the goal of having an integrated transportation system that reduces fossil fuel consumption by 50 percent and reduces reliance on single-occupancy automobiles.

- Prioritize capital projects and programs that will facilitate the achievement of the *2035 TSP's* pedestrian, bicycle and transit policies.

- Continue work to identify possible transportation infrastructure improvements that will make walking, bicycling and the use of transit safe and highly convenient.

- Protect, and enhance habitat in transportation projects where possible. Minimize and mitigate impacts of transportation projects when needed.

- Provide leadership in regional and State coordination efforts that support Eugene's environmental policies.

The above stated TSP goals and policies are examples of consistency between the Eugene *2035 TSP* and relevant *Metro Plan* environmental policies. The proposed amendments will support and enhance the *Metro Plan*'s Environmental Resources Element through strengthening environmentally sound transportation options and an overall more sustainable transportation system. The *2035 TSP* strives to reduce vehicle-related greenhouse gas emissions and look at alternative energy infrastructure. The proposed amendments are consistent with this *Metro Plan* Element.

D. <u>Willamette River Greenway, River Corridors, and Waterways Element</u>

The Willamette River Greenway, River Corridors, and Waterways Element address these specific natural assets in the metropolitan area. The policies of this element emphasize reducing urban impacts on these resources throughout the metropolitan area.

The Willamette River Greenway, River Corridors, and Waterways Element of the *Metro Plan* contain the following relevant policies related to the Eugene *2035 TSP*:

D.2 Land use regulations and acquisition programs along river corridors and waterways shall take into account all the concerns and needs of the community, including recreation, resource, and wildlife protection; enhancement of river corridor and waterway environments; potential for supporting non-automobile transportation; opportunities for residential development; and other compatible uses.

D.9 Local and state governments shall continue to provide adequate public access to the Willamette River Greenway.

D.11 The taking of an exception shall be required if a non-water-dependent transportation facility requires placing of fill within the Willamette River Greenway setback.

As described in the text of the *2035 TSP*, the Willamette River is a major influence on the city's transportation system but riverine travel is not a functioning mode of transportation in modern times. Eugene enjoys a substantial pedestrian-bicycle shared-use path system parallel to the Willamette River. Although the pathway system is extensive, existing needs are related to the width of pathways (the busier sections are too narrow to comfortably accommodate all of the users), lack of connections to some adjacent neighborhoods, and the lack of consistent and regular pathway lighting.

An estimation of future traffic conditions found that all four Willamette River motor vehicle bridge crossings could experience vehicular congestion and long queues at traffic signals.

The *2035 TSP* contains goals and polices which support these Willamette River Greenway, River Corridors, and Waterways policies. These include, but are not limited to:

- Goal: Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and overall well-being.

- Support ODOT's efforts to improve Randy Papé Beltline Highway for transportation system efficiency, improved safety, and improved connections for people travelling by foot, bike, and bus. The *Beltline Highway: Coburg Road to River Road Facility Plan* is incorporated into this TSP, contained in Volume 2. The City of Eugene supports completion of the NEPA review, and implementation of the resultant recommended improvements.

In addition to the Randy Papé Beltline Highway study referenced in the policy above, the *2035 TSP* proposes several potential improvements to the shared use paths within the Willamette Greenway and several studies for potential street or crossing improvements.

The Eugene Code contains provisions for protecting the Willamette Greenway in a manner consistent with the *Metro Plan* (EC 9.8800-9.8825). Should any of the potential projects be moved to the design stage, they must meet the conditions of the Eugene Code before they could proceed further.

The above stated *2035 TSP* goal and policies and Eugene Code protections are examples of consistency between the Eugene *2035 TSP* and relevant *Metro Plan* Willamette River Greenway, River Corridors, and Waterways policies. The proposed amendment will support and enhance the *Metro Plan*'s Willamette River Greenway, River Corridors, and Waterways Element through by providing improved access to waterways. The proposed amendments are consistent with this *Metro Plan* Element.

E. <u>Environmental Design Element</u>

The Environmental Design Element is concerned with that broad process which molds the various components of the urban area into a distinctive, livable form that promotes a high quality of life. This Element is concerned with how people perceive and interact with their surroundings.

The Environmental Design Element of the *Metro Plan* contains the following relevant policies related to the Eugene *2035 TSP*: E.3 and E.4.

E.3 The planting of street trees shall be strongly encouraged, especially for all new developments and redeveloping areas (where feasible) and new streets and reconstruction of major arterials within the UGB.

E.4 Public and private facilities shall be designed and located in a manner that preserves and enhances desirable features of local and neighborhood areas and promotes their sense of identity.

The Eugene *2035 TSP* contains goals and polices which support these Environmental Design policies. These include, but are not limited to:

- Goal 4: Address the transportation needs and safety of all travelers, including people of all ages, abilities, races, ethnicities, and incomes. Through transportation investments, respond to the needs of system users, be context sensitive, and distribute the benefits and impacts of transportation decisions fairly throughout the city.
- Enhance the tree canopy along streets.
- Provide stormwater facilities within street construction projects by incorporating low impact development and green infrastructure practices.
- Design, construct, maintain, and operate all streets to provide comprehensive and integrated transportation networks that serve people of all ages and abilities, promote commerce, and support the comprehensive land use plan’s vision for growth and development in a responsible and efficient manner. A “complete street” allows safe travel for automobiles and emergency responders, bicycles, walking, transit, and freight. In addition to fulfilling a street’s basic transportation functions and providing access to properties, streets and sidewalks should be designed to be attractive, safe, accessible, sustainable, and healthy components of the City's environment.

The above stated *2035 TSP* goals and policies are examples of consistency between the *2035 TSP* and relevant Environmental Design policies. The proposed amendments will further support and enhance the *Metro Plan*’s Environmental Design Element by providing greater flexibility in future street design. The *2035 TSP* will also enhance the bicycle and pedestrian environment for new and redeveloped properties, creating a more liveable community. The proposed amendments are consistent with this *Metro Plan* Element.

F. <u>Transportation Element</u>

The *Metro Plan* Transportation Element addresses surface and air transportation in the metropolitan area. The Eugene-Springfield Metropolitan Area Transportation Plan (*TransPlan*) provides the basis for surface transportation. The goals and policies in the *Metro Plan* Transportation Element are identical to those in *TransPlan*, as *TransPlan* serves as the functional plan for transportation issues in the Metro Area.

Policies in the *Metro Plan* Transportation Element are organized by the following four topics related to transportation: Land Use, Transportation Demand Management, Transportation System Improvements, and Finance.

While all of the *Metro Plan* Transportation Element goals and policies are relevant to the *2035 TSP*, specific *Metro Plan* policies are highlighted in this Finding to illustrate consistency between *Metro Plan* policies and those of the Eugene *2035 TSP*.

- *Metro Plan Land Use Policy F.4: Require improvements that encourage transit, bicycles, and pedestrians in new commercial, public, mixed use, and multi-unit residential development.*

  2035 TSP Policies:
  - ["Complete Streets Policy"] Design, construct, maintain, and operate all streets to provide comprehensive and integrated transportation networks that serve people of all ages and abilities, promote commerce, and support the comprehensive land use plan's vision for growth and development in a responsible and efficient manner. A "complete street" allows safe travel for automobiles and emergency responders, bicycles, walking, transit, and freight. In addition to fulfilling a street's basic transportation functions and providing access to properties, streets and sidewalks should be designed to be attractive, safe, accessible, sustainable, and healthy components of the City's environment.
  - Facilitate efficient access for goods, employees, and customers to and from employment, commercial, and industrial lands, including freight access to designated freight routes, highways, rail yard, and the Eugene Airport. Increase multimodal access for employees to employment centers.
  - Encourage walking as the most attractive mode of transportation for short trips (e.g., within .5 miles) within and to activity centers, downtown, key corridors, and major destinations, and as a means of accessing transit.
  - Create conditions that make bicycling more attractive than driving for most trips of two miles or less.

  2035 TSP Potential Action Items:
  - Articulate a process for implementing the complete streets policy, including responsibilities for decision making, public review, opportunities for appeals of decisions, the means of documenting and justifying decisions, and the collection and reporting of data that allows monitoring the effects of street design changes over time.
  - Update the Eugene *Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways* to implement the "complete streets policy" . . . .

- *Metro Plan TDM Policy F.8: Implement TDM strategies to manage demand at congested locations.*

  2035 TSP Potential Action Items:
  - Periodically review and update the City Code and administrative rules in the

downtown area, neighborhoods near the University of Oregon, mixed-use centers, and in areas experiencing changing conditions, such as where a transit corridor study has been completed, transit routes changed, or major bicycle facilities completed. Examples of possible changes to the code and policies may include:

- Requiring or allowing fewer parking spaces where conditions would allow less driving.
- Disconnecting the price of a residential parking space from a unit's rent.
- Aligning metered parking prices with demand.
- Facilitating conversion of on-street automobile parking spaces to bicycle lanes, bike parking, or expanded pedestrian and ground-level business amenities.
- Aligning land use and design standards at major transit stops to support transit ridership.
- Requiring ongoing transportation demand management (TDM) for large attractions and employment centers at times and locations where such measures are necessary to reduce congestion or optimize limited parking.

- *Metro Plan, Transportation System Improvement: System Wide Policy F.11: Develop or promote intermodal linkages for connectivity and ease of transfer among all transportation modes.*

  2035 TSP Policy

  - Promote connections between modes of transportation to make each mode more efficient, such as by connecting bicycle routes and bus, train, and airport services to each other; and connections to transportation facilities extending outside the City's planning area.
  - Ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, major destinations, and transit stops. Continually improve walking comfort, safety, and accessibility through design, operations, retrofits, and maintenance. Provide landscaped setback sidewalks of ample width and safe street crossings to encourage people to walk.
  - Coordinate improvements to complement and improve the systems proposed in the Eugene Trails Plan and connections to regional trails.
  - Develop a well-connected and comfortable bikeway network. Ensure that there are safe, comfortable, and direct bikeway connections between residential areas, major destinations, and transit stops and provide secure bicycle parking facilities at these destinations.

- Update Eugene's Traffic Impact Analysis review regulations for new development to include review of walking and biking improvements and connections to nearby networks.

- *Metro Plan, Roadway System F.14: Address the mobility and safety needs of motorists, transit users, bicyclists, pedestrians, and the needs of emergency vehicles when planning and constructing roadway system improvements.*

  2035 TSP Policies:

  - Consider safety first when making transportation decisions. Strive for zero transportation-related fatalities by reducing the number and severity of crashes through design, operations, maintenance, education, and enforcement. Prioritize safety improvements for people who walk, bike and use mobility devices because no loss of life or serious injury on our streets is acceptable.
  - Facilitate prompt emergency responses. Ensure that fire and emergency response routes remain passable by design.
  - Plan for, design and construct or reconstruct streets to achieve consistency between motorists' speeds and target speed limits.

  2035 TSP Potential Action Items

  - With Lane County Public Health Department, identify mutual objectives and opportunities to collaboratively promote bicycle and pedestrian activities, reduce injury crashes and fatalities, integrate health considerations into transportation decisions, and improve emergency medical systems.
  - Update city design standards, as necessary, to address emergency vehicle passage on officially recognized emergency response routes and consider accommodations for Fire Department Ladder Operations where tall buildings exist or are planned. Involve emergency responders in changes to street designs.

- *Metro Plan, Transportation System Improvement: Transit System F.18: Improve transit service and facilities to increase the system's accessibility, attractiveness, and convenience for all users, including the transportation disadvantaged population.*

  - Promote the use of public transit and the continued development of an integrated, reliable, regional public transportation system.
  - Prioritize improved transit service in Key Corridors and other areas with sufficient employment, activities, or residential density that best support transit service and transit services that connect residents to employment centers. If operational funding is sufficient, extend transit to support higher density housing and employment development planned for other areas.

- *Metro Plan, Transportation System Improvement: Bicycle System F.22: Construct and improve the region's bikeway system and provide bicycle system support facilities for both new development and redevelopment/expansion.*

  2035 TSP Policies:

- Create conditions that make bicycling more attractive than driving for most trips of two miles or less.
- Develop a well-connected and comfortable bikeway network. Ensure that there are safe, comfortable, and direct bikeway connections between residential areas, major destinations, and transit stops and provide secure bicycle parking facilities at these destinations.
- Continually improve the comfort and safety of bicycling through design, operations, retrofits, and maintenance. Identify and develop "low stress" bikeways to attract new cyclists.

- *Metro Plan, Transit System Improvement: Pedestrian System F.26: Provide for a pedestrian environment that is well integrated with adjacent land uses and is designed to enhance the safety, comfort, and convenience of walking.*

  2035 TSP Policy:
  - Ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, major destinations, and transit stops. Continually improve walking comfort, safety, and accessibility through design, operations, retrofits, and maintenance. Provide landscaped setback sidewalks of ample width and safe street crossings to encourage people to walk.
  - Promote connections between modes of transportation to make each mode more efficient, such as by connecting bicycle routes and bus, train, and airport services to each other; and connections to transportation facilities extending outside the City's planning area.

  2035 TSP Potential Action Items:
  - Amend the Eugene Code (*e.g.*, EC 9.6505) and policies to consistently require sidewalk installation throughout newly divided and developed lands, such as by requiring sidewalk construction concurrent with street improvements or by bonding for completion of the sidewalks if development on individual lots does not fill in the system in a reasonable amount of time.
  - Maintain a sidewalk infill and improvement program that considers new funding sources, credits and loans, and expanded development requirements to complete missing sidewalk segments, to avoid creating gaps in sidewalk networks in new development areas and to upgrade existing sidewalks in high traffic areas to provide needed width, landscaping, removal of barriers, and to implement the City's Americans with Disability Act program.

- *Metro Plan Finance Policy F.34: Operate and maintain transportation facilities in a way that reduces the need for more expensive future repair.*

  2035 TSP Policy:
  - Establish, improve, and maintain transportation facilities in ways that cost-effectively provide desired levels of service, consider facilities' lifecycle costs, and maintain the City's long-term financial sustainability. Favor

transportation systems that move people and goods at lesser total life-cycle cost to the City and its residents.

- Improve system efficiency, safety, and management and re-purpose existing rights-of-way to include high-quality facilities for transit, walking, and bicycling before widening streets to expand capacity for motorized vehicles.

- *Metro Plan Policy F.15: Motor Vehicle Level of Service.*
  - The Levels of Service targets for Eugene will be amended in *TransPlan* and the *Metro Plan* concurrently with adoption of the *2035 TSP* to maintain policy consistency between the documents.

The above stated *Metro Plan* and *2035 TSP* policy sets are examples of the overall consistency between the Eugene *2035 TSP* and the *Metro Plan*'s Transportation Element policies. The proposed amendment will further support multi-modal transportation and its nexus to mixed use development as promoted by the *Metro Plan* and *TransPlan*. The proposed amendments are consistent with this *Metro Plan* Element.

G. Public Facilities and Services Element

This element incorporates the findings and policies in the *Eugene-Springfield Metropolitan Area Public Facilities and Services Plan* (Public Facilities and Services Plan), adopted as a refinement to the *Metro Plan*. The Public Facilities and Services Plan provide guidance for public facilities and services, including planned water, wastewater, stormwater, and electrical facilities. Transportation findings and policies are not part of the *Eugene-Springfield Metropolitan Area Public Facilities and Services Plan,* but rather are located in *TransPlan* and *2035 TSP*. The *2035 TSP* supports the public facilities policies of this element with this policy, as one example: "Reduce stormwater pollution and minimize runoff from streets and multi-use paths in a manner prescribed by Eugene's *Comprehensive Stormwater Management Plan*."

Other relevant *Metro Plan* policies are discussed in the previous Transportation Element section. The proposed amendments are consistent with this *Metro Plan* Element.

H. Parks and Recreation Facilities Element

This *Metro Plan* Element addresses Parks and Recreation Facilities in the Metro Area. There are no transportation-specific Parks and Recreation Facilities Element policies in the *Metro Plan* that directly relate to the 2035 Eugene Transportation System Plan. However, some TSP multiuse path projects overlap with recreational needs and were coordinated with City parks planners.

One example of consistency between this Eugene *2035 TSP* and the *Metro Plan* Parks and Recreation Facilities Elements are these policies that recognize and support recreational use of the transportation system:

- Improve community health by designing streets and paths to encourage increased physical activity by the public.

- Promote connections between modes of transportation to make each mode more efficient, such as by connecting bicycle routes and bus, train, and airport services to each other; and connections to transportation facilities extending outside the City's planning area.
- Coordinate improvements to complement and improve the systems proposed in the Eugene Trails Plan and connections to regional trails.

The amendments do not alter compliance with, and are consistent with, the Parks and Recreation Facilities Element of the *Metro Plan*.

I. <u>Historic Preservation Element</u>

This Element of the *Metro Plan* is written to preserve historic structures in the Metro area. There are no transportation specific Historic preservation Element policies in the *Metro Plan* that directly relate to the 2035 Eugene Transportation System Plan. However, individual projects in the TSP that use Federal funding must go through a National Environmental Policy Act (NEPA) process during project development. The NEPA process includes requirements for historic preservation that the City will adhere to.

The proposed amendments are consistent with this *Metro Plan* Element.

J. <u>Energy Element</u>

The Energy Element of the *Metro Plan* deals with the conservation and efficient use of energy in the metropolitan area and is meant to provide a long-range guide to energy-related decisions concerning physical development and land uses.

The Energy Element of the *Metro Plan* contains the following relevant policies related to the Eugene *2035 TSP*:

J.2 Carefully control, through the use of operating techniques and other methods, energy related actions, such as automobile use, in order to minimize adverse air quality impacts. Trade-offs between air quality and energy actions shall be made with the best possible understanding of how one process affects the other.

J.7 Encourage medium- and high-density residential uses when balanced with other planning policies in order to maximize the efficient utilization of all forms of energy. The greatest energy savings can be made in the areas of space heating and cooling and transportation. For example, the highest relative densities of residential development shall be concentrated to the greatest extent possible in areas that are or can be well served by mass transit, paratransit, and foot and bicycle paths.

J.8 Commercial, residential, and recreational land uses shall be integrated to the greatest extent possible, balanced with all planning policies to reduce travel distances, optimize reuse of waste heat, and optimize potential on-site energy generation.

The Eugene *2035 TSP* contains goals and polices that support these Energy Element policies. These include, but are not limited to:

- Goal 1: Create an integrated transportation system that is safe and efficient; supports the Metro Plan's land use diagram and Envision Eugene, A Community Vision for 2032 (2012), the City of Eugene's target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability.
- Goal 3: Strengthen community resilience to changes in climate, increases in fossil fuel prices, and economic fluctuations by making the transportation networks diverse, adaptable, and not reliant on any single mode.
- Policy: Support the use of more highly fuel efficient and electric, hydrogen cell, and non-motorized vehicles.

The proposed amendment will further support and enhance the *Metro Plan*'s Energy Element by considering environmental impacts and energy usage when planning and implementing Eugene's transportation system. The *2035 TSP* also supports higher densities for new and redeveloped properties, creating a more livable community and supporting frequent transit service. The proposed amendment are consistent with this *Metro Plan* Element.

K. <u>Citizen Involvement Element</u>

The Citizen Involvement Element of the *Metro Plan* recognizes that active, on-going, and meaningful citizen involvement is an essential ingredient to the development and implementation of any successful planning program. A Public Involvement Program for the update of the 2035 Eugene Transportation System Plan was developed in preparation of the project. This program was reviewed and endorsed by the Committee for Citizen Involvement (i.e. the Eugene Planning Commission). The program outlined the information, outreach methods, and involvement opportunities available to the citizens during the process. Details of the process are included in the Statewide Planning Goal 1 finding of this report. The proposed amendment is consistent with the *Metro Plan* Element.

<u>Conclusion</u>**:**
Based on the above findings, the proposed *Metro Plan* amendments, *TransPlan* amendments and *2035 TSP* adoption are all consistent with EC 9.7730 and Lane Code 12.225.

II. <u>Repeal of the Central Area Transportation Study</u> (CATS)

Ordinance No. 20322 (May 24, 2004), adopted the policies in the 2003 Central Area Transportation Study (CATS) as a refinement to the Eugene-Springfield Metropolitan Area General Plan. The adoption of the CATS update in 2004 was part of an ongoing process to improve Eugene's transportation system. CATS was intended to further refine *TransPlan* for a specific geographic boundary within Eugene. The *2035 TSP* updates and replaces the policies and proposed implementation strategies set forth in CATS. With an up-to-date Eugene-specific transportation system plan, CATS is no longer needed and should be repealed. Eugene's approval criteria for Refinement Plan amendments is set forth in Eugene Code 9.8424:

9.8424 **<u>Refinement Plan Amendment Approval Criteria</u>.** The planning commission shall evaluate proposed refinement plan amendments based on the criteria set forth below, and forward a recommendation to the city council. The city council shall decide whether to act on the application. If the city council decides to act, it shall approve, approve with modifications or deny a proposed refinement plan amendment. Approval, or approval with modifications shall be based on compliance with the following criteria:

(1) The refinement plan amendment is consistent with all of the following:
- (a) Statewide planning goals.
- (b) Applicable provisions of the *Metro Plan*.
- (c) Remaining portions of the refinement plan.

(2) The refinement plan amendment addresses one or more of the following:
- (a) An error in the publication of the refinement plan.
- (b) New inventory material which relates to a statewide planning goal.
- (c) New or amended community policies.
- (d) New or amended provisions in a federal law or regulation, state statute, state regulation, statewide planning goal, or state agency land use plan.
- (e) A change of circumstances in a substantial manner that was not anticipated at the time the refinement plan was adopted.

As demonstrated by the findings set forth above, the adoption of the *2035 TSP*, which renders CATS unnecessary, is consistent with the statewide planning goals, applicable provisions of the *Metro Plan* and *TransPlan*. Those findings are incorporated herein by reference as the basis for repealing CATS. The repeal of CATS is intended to recognize the new community policies set forth in the *2035 TSP*. In 2004, when the City adopted CATS, the City did not have a Eugene-specific local transportation plan; the adoption of the *2035 TSP* renders CATS unnecessary.

III. Amendments to Eugene Code Chapter 9

Conforming amendments to Eugene Code Chapter 9 are needed to reflect the adoption of the *2035 TSP* as the City's local transportation system plan and to update the *TransPlan* policies set forth in Chapter 9 that are being concurrently amended through the proposed ordinance.

Eugene's approval criteria for code amendment is set forth in EC 9.8065.

9.8065 Code Amendment Approval Criteria. If the city council elects to act, it may, by ordinance, adopt an amendment to this land use code that:
- (1) Is consistent with applicable statewide planning goals as adopted by the Land Conservation and Development Commission.
- (2) Is consistent with applicable provisions of the *Metro Plan* and applicable adopted refinement plans.
- (3) In the case of establishment of a special area zone, is consistent with EC 9.3020 Criteria for Establishment of an S Special Area Zone.

As demonstrated by the findings set forth above, the amendments to the *Metro Plan* and *TransPlan* and the adoption of the *2035 TSP* are consistent with the statewide planning goals and are consistent with applicable provisions of the *Metro Plan* and *TransPlan*. Those findings are incorporated herein by reference as the basis for adopting the conforming amendments to Chapter 9.

Exhibit B to Ordinance Concerning Long Range Transportation Planning

Eugene 2035 Transportation System Plan

Volume 1

February 2017

Acknowledgements

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The City of Eugene wishes to acknowledge and sincerely thank the members of the Transportation Community Resource Group (TCRG), whose guidance was critical to the development of this plan.

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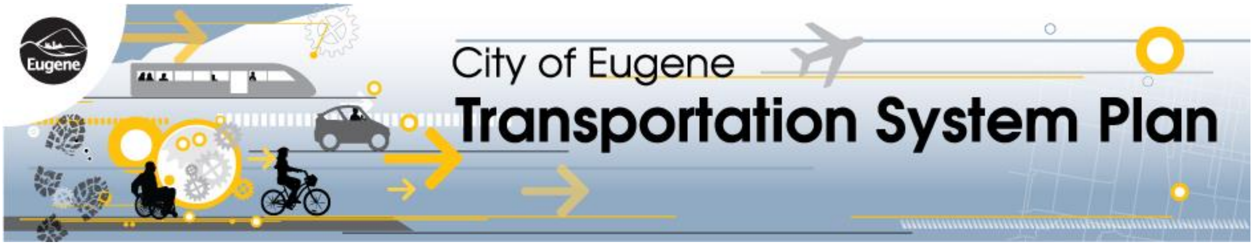

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Table of Tables

Acronyms, Abbreviations and Select Definitions

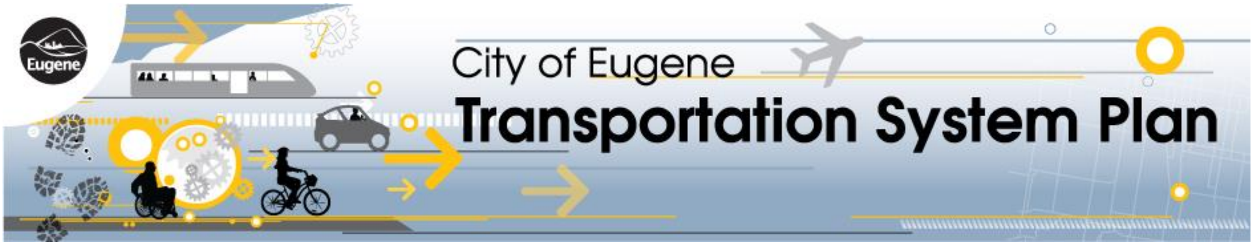
Transportation planning relies on many acronyms, abbreviations and technical terms. A few of these are included below for reference.

2035 TSP	*Eugene 2035 Transportation System Plan*
ACSP	Arterial and Collector Street Plan
ADA	American with Disabilities Act
ADA Transition Plan	The Americans with Disabilities Act Transition Plan for Accessibility in Public Rights-of Way is the City of Eugene's plan to address accessibility specifically within the City's public rights-of-way for persons with disabilities. It was adopted in 2015.
ADT	Average Daily Traffic
APD/APS	Accessible Pedestrian Device/Accessible Pedestrian Signals: pedestrian activated device that communicates information about Walk and Don't Walk phase through non-visual formats (i.e. audible tones).
APM	Analysis and Procedures Manual: ODOT's methods and instructions for how to forecast future transportation conditions.
ARTS	All Roads Transportation Safety Program: program that provides funding for infrastructure and non-infrastructure projects that improve safety on all public roads.
BRT	Bus Rapid Transit (known as EmX in Eugene)
CIP	City of Eugene's Capital Improvement Program
Complete Streets	Streets designed and operated to enable safe access for all users regardless of age, ability or mode of travel.
CTR	Commute Trip Reduction
DLCD	Oregon Department of Land Conservation and Development
EmX	Emerald Express Bus Rapid Transit
Envision Eugene	Envision Eugene (EE) is the City's draft comprehensive plan. When adopted, it will replace MetroPlan.
EWEB	Eugene Water and Electric Board
FTA	Federal Transit Administration
FTN	Frequent Transit Network: Lane Transit District's desired network of frequent bus routes.

HAWK	High intensity Activated Crosswalk beacon: pedestrian-activated signal used to stop traffic midblock or at unsignalized intersections and allow pedestrians to cross safely.
HSIP	Highway Safety Improvement Program
I-5	Interstate 5
IOF	Immediate Opportunity Fund: ODOT fund created to support primary economic development in Oregon through the construction and improvement of streets and roads.
ITS	Intelligent Transportation System: the use of advanced technologies to improve mobility and enable people to make smarter transportation choices. These may include variable message signs, dynamic car sharing programs or other ways of using wired and wireless technology to improve mobility.
Key Corridors	The six corridors – Highway 99, River Road, Coburg Road, South Willamette, Franklin Boulevard, and West 11th Avenue – that are intended to have frequent transit service connecting downtown to numerous core commercial areas.
Lane ACT	Lane Area Commission on Transportation: an advisory body chartered by the Oregon Transportation Commission responsible for addressing all aspects of transportation (surface, marine, air, and transportation safety) in Lane County with primary focus how the regional system will influence the broader state-wide system.
LCDC	Land Conservation and Development Commission: Oregon's governor-appointed commission charged policy-making related to the state's land use goals
LCOG	Lane Council of Governments
LID	Local Improvement District
LOS	Level of Service: represents a classification of the operational conditions experienced by users of a specified roadway. LOS is determined using a volume to capacity ratio (or degree of saturation) for a given roadway or intersection. LOS categories are designated on an A to F scale with A representing free-flow conditions and F representing a breakdown in vehicular flow.
LRTP	Long Range Transit Plan: Lane Transit District's long range policy plan.
LTD	Lane Transit District
MetroPlan	Regional comprehensive plan (Envision Eugene will replace this plan in Eugene)
MOU	Memorandum of Understanding
MovingAhead	Program initiated by City of Eugene and Lane Transit District to plan and prioritize transportation improvements in Key Corridors.
MPO	Metropolitan Planning Organization (*Central Lane MPO*)
MPU	Master Plan Update for the Eugene Airport

MTIP	Metropolitan Transportation Improvement Program
NEPA	National Environmental Policy Act
NHS	National Highway System
Node	A complete, compact, mixed-use community that includes places to live, work, learn, play, shop and access services. These communities act as nodes, or hubs, for both residents living in the center and people in nearby communities.
ODOT	Oregon Department of Transportation
OHP	*Oregon Highway Plan*
ORS	Oregon Revised Statutes
OTIB	Oregon Transportation Infrastructure Bank
OTP	*Oregon Transportation Plan*
PBMP	Eugene's Pedestrian and Bicycle Master Plan (2012)
PMT	Project Management Team
RRFB	Rectangular Rapid Flashing Beacon: pedestrian-activated signal located at unsignalized intersections or midblock crosswalks that alerts drivers to the presence of pedestrians and their intention to cross the roadway.
RTP	*Regional Transportation Plan*
RTSP	*Regional Transportation System Plan*
SDC	Systems Development Charge
Smart*Trips*	Program to reduce congestion by increasing the number of trips made by walking, biking, busing and carpooling.
SOV	Single-occupancy vehicle
SRTS	Safe Routes to School: program that improves walking and biking routes to schools.
SSM	Supplemental Safety Measures
STIP	Statewide Transportation Improvement Program
STIP-U	Statewide Transportation Improvement Program-Urban
STP-U	Surface Transportation Program-Urban
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program
TBL	Triple Bottom Line: a decision making framework that considers social equity, economic, and environmental factors.

TCRG	Transportation Community Resource Group: a group of local volunteers that advised on the preparation of this Transportation System Plan.
TDM	Transportation Demand Management: strategies and policies created to reduce or redistribute travel demand on transportation systems, specifically single-occupancy vehicles.
TGM	Transportation and Growth Management: Oregon-based grant program to assist in the planning of streets and land use to create more livable and sustainable communities.
TIF	Tax Increment Financing
TOD	Transit Oriented Development
TPR	Transportation Planning Rule: Oregon policy that dictates that all jurisdictions provide safe, convenient and economic transportation system by reducing per capita vehicle miles traveled through the creation of a TSP.
TransPlan	*The Eugene-Springfield Transportation System Plan*, last amended in 2002
TSAP	Oregon Department of Transportation's Transportation Safety Action Plan, last amended in 2015
TSM	Transportation System Management: tools that use technology to increase the efficiency of the transportation system to minimize the effects of vehicle congestion.
TSMO	Transportation System Management and Operations: programs to optimize the performance of multi-modal infrastructure, preserve capacity, and improve the security, safety, and reliability of transportation systems.
TSP	*Transportation System Plan*
UGB	Urban Growth Boundary
UP	Union Pacific Railroad
V/C	Volume to capacity ratio: this ratio represents the sufficiency of an intersection to accommodate vehicular demand where volume is the peak quantity of vehicles and capacity is the maximum rate at which vehicles can pass through a given point in an hour under prevailing conditions.
Vision Zero	Safety policy that aims to achieve a transportation system with no fatalities or serious injuries.



Chapter 1: Introduction

Transportation: the Backbone of a Community

Welcome to the *Eugene 2035 Transportation System Plan*, or "*2035 TSP*." This document establishes a system of transportation facilities and services that will serve the needs of Eugene residents over the next 20 years. The *2035 TSP* is the transportation element of Eugene's comprehensive land use plan and was designed to support the *Envision Eugene* project, the community's evolving plan for how Eugene will grow for the next 20 years. The *2035 TSP's* planned transportation infrastructure, goals, and policies support an economically vital, healthy, and equitable community.

Put simply, transportation is the movement of people and goods from one place to another. Our transportation systems affect nearly every aspect of city life. We import the basic necessities of life – food, clothing, and building materials – to our homes. A constant flow of freight supplies many aspects of our lives. We travel to work and school, and move about to socialize and play. Streets, rail lines, rivers, and airports create the framework around which our cities are built and help define a city's livability. Our personal choices about how we travel affect our daily lives and our physical and mental well-being. Transportation is truly the backbone that supports a community as it grows and evolves.

> The Transportation System Plan defines how the transportation system should change **over the next 20 years** to address the needs of residents, businesses, and visitors.
> The plan addresses:
> - Roadway, bicycle, pedestrian, transit, air and rail networks
> - Transportation project lists and funding
> - Transportation policies

A long-term plan for transportation improvements serves community needs efficiently and effectively. For decades the Eugene-Springfield metropolitan area had a shared regional comprehensive plan and regional transportation system plan, known as the *Metro Plan* and *TransPlan* (last comprehensively updated in 2010 and 2002, respectively). These plans guided transportation decisions for both Eugene and Springfield inside a shared urban growth boundary. For both cities, *TransPlan* functioned as the Local Transportation System Plan and the Regional Transportation System Plan. In 2007, the Oregon Legislature passed House Bill 3337, which required Eugene and Springfield to develop separate urban growth boundaries. As a result, Eugene began preparation of a local comprehensive land use plan, the *Envision Eugene* project, and this *Eugene 2035 TSP*. These will be the first comprehensive land use and transportation plans adopted unilaterally by Eugene.

By articulating policies, priorities, and providing a list of construction projects and programs, the *2035 TSP* ensures that Eugene's transportation system meets this community's needs, communicates the City's aspirations, and conforms to state and regional policies. The *2035 TSP* must remain relevant and responsive over time. The City will revisit this *TSP* when *Envision Eugene Comprehensive Plan* is adopted and when conditions change, as evidenced through a monitoring program.

TSP Organization

The City of Eugene's 2035 TSP is comprised of two Volumes: Volume 1, the main document with attachments; and, Volume 2, technical reports, data, and related transportation plans that enhance and support Volume 1.

Volume 1 (this document) includes the items that will be of interest to the broadest audience.

Volume 1 includes:

- Chapter 1: A brief overview of the planning context for the *2035 TSP*
- Chapter 2: Goals, policies and actions that express the City's long-range vision for the transportation system
- Chapter 3: Description of the transportation system deficiencies and needs and the process to develop the TSP's list of planned capital improvements and transportation programs
- Chapter 4: An overview of the recommended projects for the multimodal system
- Chapter 5: A list of the multimodal projects and the costs estimated for their construction
- Chapter 6: A summary of transportation funding and implementation, including estimated revenue stream, cost of 20 year needs, and potential funding sources
- Attachment A: TSP Project Maps
- Attachment B: Street Classification Map (amended)
- Attachment C: Beltline Highway: Coburg Road to River Road Facility Plan
- Attachment D: Alternative Performance Measure Benchmarks
- Attachment E: Freight Maps

Volume 2 includes:

- Appendix A: Existing Conditions Inventory and Analysis
- Appendix B: No Build Analysis
- Appendix C: 20-year Needs Analysis
- Appendix D: Alternatives Evaluation Process
- Appendix E: Key Corridors map
- Appendix F: Eugene Pedestrian and Bicycle Master Plan (2012)
- Appendix G: On the Move: Regional Transportation Options Plan (2014)
- Appendix H: Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways (1999)
- Appendix I: Eugene Transportation System Plan: Public Involvement Plan
- Appendix J: Lane Transit District Long Range Transit Plan (2014)

- Appendix K: Strategies for Transportation System Management and Operations (TSMO)
- Appendix L: Eugene Airport Master Plan Update (2010)

While not all of Volume 2 is adopted as part of the *2035 TSP*, all of the documents provide useful information regarding the basis for the decisions represented in Volume 1.

Purpose

Envision Eugene, A Community Vision for 2032 recognizes that a future in which people must drive cars for most trips – to work, school, errands and recreation – does not support community goals and values.

The purpose of the *Eugene 2035 Transportation System Plan* (*2035 TSP*) is to establish a system of transportation facilities and services that supports both the City's adopted comprehensive land use plan and *Envision Eugene, A Community Vision for 2032,* articulated in 2012*,* by providing a long-term community approach to accommodate new growth while maintaining and improving transportation facilities for all system users over the next 20 years consistent with the comprehensive plan.

The *2035 TSP* is a resource for future transportation decision-making by articulating the preferred vision for Eugene's future multimodal transportation system. In addition to establishing Eugene's transportation infrastructure with 264 projects planned for the next 20 years, the *2035 TSP* helps future decision making by providing:

- Solutions to address existing and future transportation needs for biking, walking, using transit, driving, freight, and rail;
- A blueprint for investments in transportation projects and programs that provide "complete streets" and improved safety and access for all travelers, reduce the community's contribution to climate change, and improve community resilience in the face of unforeseen changes and an unpredictable future;
- A tool for coordination with regional and local agencies and governments;
- Information to ensure prudent land use and transportation choices;
- Order of magnitude cost estimates for improvements needed to support economic development and growth, and possible sources of funding these improvements;
- Function, capacity and location of future streets, sidewalks, bikeways, high-capacity transit, and other transportation facilities; and
- Potential programs to help improve opportunities to travel by walking, bicycling and transit in the future.

What are Complete Streets?

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. **Complete Streets make it easy to cross the street, walk to shops, and bicycle to work.** They allow buses to run on time and make it safe for people to walk to and from train stations.

The *2035 TSP* satisfies the state's requirements for a local transportation system plan as prescribed by Oregon Statewide Planning Goal 12: Transportation.

Regional Coordination

Because traffic and mobility needs do not stop at a city's borders, several methods of coordinating transportation plans within the Eugene-Springfield Metropolitan area are employed. Staff from Eugene, Springfield, Lane Transit District, and Lane County are advisors on each other's transportation planning committees. Consistency between the transportation system plans of Eugene, Springfield, Coburg, LTD, and Lane County will be assured through the development of an updated *Regional Transportation System Plan* (*RTSP*) to replace the current Eugene-Springfield Transportation System Plan (*TransPlan*). The current *RTSP* considers linkages between the cities', LTD's, and Lane County's transportation systems and will be updated after Eugene adopts its local transportation system plan (Springfield and Coburg having already done so). Among other required elements, in accordance with OAR 660-012-0035, the updated *RTSP* will include new standards to demonstrate how the region is increasing transportation choices and reducing reliance on the automobile.

Sunday Streets is a popular event that invites people to travel without cars.

Source: City of Eugene

In addition to the state-required *RTSP*, the Central Lane Metropolitan Planning Organization (MPO) is responsible for maintaining a federally required *Regional Transportation Plan (RTP).* Central Lane MPO updates the *RTP* every four years. It represents the region's stated transportation investment priorities. Consistency is maintained between Eugene's *2035 TSP* and the *RTP* as each plan is updated periodically.

Public and Agency Involvement

The *2035 TSP* was collaboratively developed by the City and community members, businesses, neighboring cities, ODOT, Central Lane MPO, Lane County, and Lane Transit District. Opportunities for engagement included:

- Project website, www.EugeneTSP.org, that included web-based surveys and all technical reports, draft goals and policies, meeting summaries, a document library stocked by members of the public, and links to other planning activities in the region;
- Twelve Transportation Community Resource Group (TCRG) meetings;
- Public open houses, as well as attending meetings hosted through the *Envision Eugene* process;
- Targeted outreach with local community, neighborhood and social service organizations; and

The TCRG met 12 times to support development of the TSP.

Source: CH2M

- City of Eugene Planning Commission, City Council, and Lane County Board of Commissioners work sessions and public hearings.

Through these public involvement activities, the City provided community members with a variety of forums to identify their priorities for future transportation projects, programs, and policies.

Guiding Principles and Context

The *2035 TSP* provides a flexible, adaptable framework for making transportation decisions in an increasingly unpredictable and financially constrained future. Decisions about the City of Eugene's transportation system will be guided by the goals and policies contained in Chapter 2, but ultimately the decisions will be made within the overall context of the City's land use plans, commitments to address climate recovery, and support for economic vitality. These guiding plans and principles, described in the following sections provide a long-standing foundation for the *2035 TSP's* goals, policies, and potential actions.

Relationship to the *Metro Plan* and *Envision Eugene*

The *2035 TSP* is consistent with the *Metro Plan*, the City's adopted comprehensive land use plan, and supports *Envision Eugene, A Community Vision for 2032,* the 2012 product of a thorough and collaborative planning process that clearly articulates an updated community vision. Both plans promote compact urban development, enhanced neighborhood livability, ample economic opportunities, efficient transportation options, and the means to implement the plans in an adaptable, flexible, and collaborative manner. Like *Envision Eugene, A Community Vision for 2032,* this *2035 TSP* promotes movement toward a sustainable future, one that squarely faces climate change, energy resiliency, and uncertainty.

Envision Eugene, A Community Vision for 2032 provides a framework for the future that promotes new growth along or near Key Corridors and core commercial areas, respects neighborhood character, and increases access to services for all residents. *Envision Eugene, A Community Vision for 2032* provides these seven pillars for future planning:

- Provide ample economic opportunities for all community members;
- Provide housing affordable to all income levels;
- Plan for climate change and energy resiliency;
- Promote compact urban development and efficient transportation options;
- Protect, repair, and enhance neighborhood livability;
- Protect, restore, and enhance natural resources; and
- Provide for adaptable, flexible and collaborative implementation.

What are "Key Corridors"?

Key corridors are defined in the *Envision Eugene, A Community Vision for 2032 (2012)* as "streets that have, or are planned to have, frequent transit service (approximately every 15 minutes or less). This frequent transit service is often accompanied by nearby amenities such as parks, commercial attractions or employment centers, and higher density housing that enable shorter trips and less reliance on the automobile."

Key Corridors identified in *Envision Eugene, A Community Vision* include portions of W 11th Avenue, Highway 99, River Road, 6th and 7th Avenues, Coburg Road, Franklin Boulevard, and South Willamette Street.

The *2035 TSP* updates the City's transportation goals and policies in a manner that is consistent with both its current comprehensive land use plan and with *Envision Eugene, A Community Vision for 2032.*

Triple-Bottom Line Planning

The City of Eugene has a recent history of pursuing sustainable and equitable practices in all its operations. In 2000, the City Council adopted Resolution 4618, which committed the City "to promoting a sustainable future that meets today's needs without compromising the ability of future generations to meet their needs." This resolution states that the "City will ensure that each of its policy decisions and programs are interconnected through the common bond of sustainability as expressed in these principles."

Triple Bottom Line (abbreviated as TBL) is an accounting framework with three parts: social, environmental, and financial. Sometimes called the "three pillars of sustainability," the TBL is a decision-making framework the City of Eugene uses to reach its sustainability goals. This holistic view is grounded in the notion that we must advance social equity, environmental health, and economic prosperity to build a sustainable future for all members of the community. Applying TBL requires that the City explore potential impacts and trade-offs in each of these three areas for a fuller, more complete understanding of how decisions contribute to long-term sustainable development. The *2035 TSP* integrated TBL sustainability principles in every step of its development. The criteria that were used to prioritize potential projects and programs in this plan were broadened to include public health and safety, community context and neighborhood character, climate and energy, and cost effectiveness to ensure that the plan adequately addresses the many aspects of the economy-equity-environment triple bottom line.

Triple Bottom Line planning looks for actions that meet economic, social, and environmental needs.

Source: www.airportsustainability.org

The *2035 TSP*'s expanded view also brought to light other important attributes of the transportation systems, such as perceptions of safety, livability, and compatibility with neighborhood plans.

Equitable Planning and Transportation Services

The *2035 TSP* supports equity and social prosperities in several ways. This plan supports the provision of complete transportation networks that serve all travelers of all ages, abilities, and incomes. Everybody should have safe and efficient access to employment, education, services, and recreation. For example, the ability to afford a car should not be the determining factor in whether a person can be employed. The *2035 TSP* promotes the services and projects that will result in sufficient options to meet these needs. This plan also calls for assurances that costs and benefits of transportation improvements are shared equitably over time, both geographically throughout the City and among populations of different economic strata, races, and ethnicities. The *2035 TSP* empowers community members by encouraging the City to work with local residents, businesses, and other stakeholders to cooperatively develop context sensitive projects that foster the community's active use and sense of ownership of public rights-of-way.

Support for Economic Development

The *2035 TSP* supports the continued growth and vitality of the local and regional economy. Transportation infrastructure investments on key corridors will support the projected employment base and freight movements as well as improve multimodal access to the airport and train station. The *2035 TSP* supports the creation of enhanced transportation corridors by seeing streets as inviting places for people biking, walking, and driving, and as key support for commerce. In this way, "complete streets" will provide integrated transportation networks throughout the City that connect people walking, biking, and taking transit to work, as well as serve cars and the movement of freight.

The *2035 TSP* removes a barrier to planned growth by adjusting Levels of Service for traffic to more realistic levels, levels that reduce reliance on automobile travel and permit levels of development desired by the comprehensive land use plan.

Commitment to Address Climate Change

The City is committed to address climate recovery and reducing fossil fuel consumption. In July 2014, the Eugene City Council adopted a Climate Recovery Ordinance that codified a Council goal of achieving a 50 percent citywide reduction of fossil fuel use by 2030. The goal of reducing fossil fuel use by 50 percent is also a stated goal of the *2035 TSP*.

In addition to the City's adoption of the Climate Recovery Ordinance, from 2013 to mid-2015 the City participated in a scenario planning process led by the Central Lane MPO. The scenario planning process examined how transportation policies might affect equity, public health, economic vitality, and greenhouse gas emissions in the region. The state required the project partners to examine at least one scenario that would achieve a 20 percent reduction (below 2005 emissions levels) in greenhouse gas emissions from light vehicles. Generally, the 20 percent greenhouse gas emission reduction target of the scenario planning study is consistent with the goal of the Climate Recovery Ordinance.

While the preferred scenario selected by the Central Lane MPO is not a statement of regional policy and the strategies are not intended to be directive or regulatory, the *2035 TSP* incorporates and advances many of the strategies identified by the Central Lane MPO as a way of achieving the preferred scenario. Some specific examples of how the *2035 TSP* advances the preferred scenario strategies are as follows:

> According to the Environmental Protection Agency, transportation accounts for **28%** of greenhouse gas (GHG) emissions nationally.

1. The *2035 TSP* plans for significant investment in active transportation over the next 20 years. (Active transportation strategies #1 & #2.)
    - Of the 264 projects planned in the 2035 TSP to be built over the next 20 years (excluding those to be built upon development), 239 of the projects are entirely pedestrian and bicycle projects; those projects include 89 neighborhood greenways, 22 on-street bike lanes, 18 shared use paths, 12 protected bike lanes, and 85 separated path/sidewalk projects.
        - Six of the 264 projects are transit projects, which include improving frequent transit service and multimodal travel along numerous transit corridors.
        - These 245 bicycle, pedestrian, and transit projects represent 51% of the total transportation dollars that are planned to be spent over the next 20 years.

- Of the 19 remaining projects, 6 of the projects are complete street upgrades to existing roadways; all 6 of these projects have a significant bicycle and pedestrian component. These complete street projects represent an additional 10% of the total transportation dollars.
- Not counting the three rail projects (which amount for 6% of the total transportation dollars), only three projects planned for the next 20 years have no explicit bicycle, pedestrian, or transit component contained in their project descriptions. These three projects represent approximately 8% of the total transportation dollars that are planned to be spent over the next 20 years.

2. Establishment of a bike share program is currently underway and is one of the *2035 TSP*'s four bicycle policies. (Active transportation strategy #3.)
3. Identified potential action items for meeting *2035 TSP* policy objectives include providing education and awareness programs, such as *SmartTrips* and school-based transportation options (including Safe Routes to School) to improve safety for all travelers and providing support for Safe Route to School programs and other programs that create safe walking conditions between residences and schools and other neighborhood destinations. (Active transportation strategy #5, Education and marketing strategy #1.)
4. A system-wide policy of the *2035 TSP* is fostering neighborhoods where Eugene residents can meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure. The related potential action item is the creation of a strategy to facilitate 90 percent of Eugene residences to be within 20-minute neighborhoods. (Active transportation strategy #6.)
5. The *2035 TSP* policies promote improved transit services that are integrated through context specific multimodal planning for all Key Corridors. One of the four transit policies in the *2035 TSP* is to collaborate with Lane Transit District to provide a network of high capacity, frequent, and reliable transit services, including consideration of Bus Rapid Transit, to the City's identified Key Corridors and to Frequent Transit Corridors as defined by Lane Transit District's Long Range Transit Plan. Additionally, the *2035 TSP* includes $171.4 million in transit projects that support the transit policies and the identified transit needs. (Transit strategies #3 and #4.)
6. The six multimodal/transit projects planned for the next 20 years include the improvement of frequent transit service and multimodal travel along Coburg Road, River Road, Highway 99, 30th Avenue and Amazon Parkway, new transfer stations, and enhanced pedestrian crossings. Additionally, an identified potential action item is to review City Code and amend it if needed to enable additional opportunities to provide bikeways and improved pedestrian connections between key destinations, transit stops, and residential areas with new development and redevelopment. (Transit strategies #5 and #7.)
7. Identified potential action items include aligning the City's land use and parking regulating to encourage walking, biking, and use of public transit and periodically reviewing parking needs in the downtown, Federal Courthouse, and riverfront districts and balance supply with other objectives, such as economic vitality; support for transit, walking, and biking; reduced consumption of fossil fuels; and human-scaled urban form. Additionally, for more than 10 years the City has had in place *Standards for Transportation Demand Management Programs* that provide a mechanism to vary the number of required off-street parking spaces by providing a

strategy for reducing vehicle use and parking demand and using benchmarks to measure program effectiveness. (Parking management strategy #2.)

8. The 2035 TSP recognizes the Regional Transportation Options Plan (RTOP) adopted by the Central Lane MPO as the regional guidance for programs that reduce reliance on single-occupancy vehicles and identifies seven key programs and services, including: SmartTrips individualized marketing programs to encourage active transportation choices; School-Based Transportation Options: Build off existing Safe Routes to School programs to include coordinated program with ridesharing and transit promotion and expand the program to middle and high schools; Rideshare (carpooling and vanpooling); and, LTD's Group Bus Pass program. (Education and marketing strategies #1, 3, and #6.)

The scenario planning studies indicate that, in addition to the steps being taken by the *2035 TSP* to reduce fossil fuel consumption and advance the achievement of the preferred scenario, a wide variety of additional measures will likely be needed to meet the Climate Recovery Ordinance's 50 percent fossil fuel reduction goal; including, additional investment in active transportation (bicycling, walking, and transit); fleet and fuel changes; changes to the pricing structure of fossil fuels, insurance, and parking; additional management of the parking supply; and additional education and marketing efforts.

At the time of this TSP adoption there is significant uncertainty about the tools that will be available for the City to meet this challenge – State consideration of new taxing mechanisms, emergence of self-driving cars and delivery vehicles, advances in electric vehicle technologies, real time information feeds to drivers about alternate routes and available parking spaces, safer street designs, and intelligent traffic control devices are just some of the trends that may impact travel behaviors, fuel consumption, traffic congestion, and emissions. The City will work with community partners and stakeholders to identify and implement the needed strategies for reducing fossil fuel consumption so the strategies will complement and expand upon those already contained in the *2035 TSP*.

Emphasis on Active Transportation

What is Active Transportation?

Active transportation refers to any form of human-powered transportation – **walking, cycling, using a mobility device, in-line skating or skateboarding.** People engage in active transportation in many ways, whether it is walking to the bus stop, or biking to school or work. For some, driving a car is not possible.

Because transit users begin or end their trips on foot or bike, the *2035 TSP* considers transit an active mode, too.

The City's transportation systems should be designed and operated with the needs and safety of all travelers in mind, including people of all ages and abilities, especially the most vulnerable, who are walking, driving, bicycling, using transit, or traveling with mobility aids, some out of necessity.

Toward this end, the *2035 TSP* includes a "Complete Streets" policy that will affect how all streets will be planned and maintained in the future. By making streets more inviting to pedestrians and bicyclists, especially for short trips, the City will gain more efficient use of limited available space within the street rights-of-way, provide a healthier environment in neighborhoods, and support the higher density, mixed use Key Corridors championed by *Envision Eugene, A Community Vision for 2032*.

Improvements to the sidewalk, bicycle, and transit networks make many more travel options available, providing choices that best fit one's travel needs, financial situation, and location. In furtherance of the goal to increase the number of people choosing active transportation as their travel option, as noted above, there are 245 bicycle, pedestrian and transit projects planned for the next 20 years; these projects representing over 51% of the total transportation dollars that the City plans to spend over the next 20 years.

By planning for the active transportation infrastructure that will make active modes of travel more safe and convenient, the *2035 TSP* is designed to achieve its goal of greatly increasing the number of trips made by transit, bicycling and walking. With the 245 bicycle, pedestrian and transit projects (as well as the six complete street projects) planned for the next 20 years, the *2035 TSP* hopes to (at least) triple the number of trips made by transit, bicycling or walking by 2035.

Active transportation like walking, biking, and taking transit provide healthy alternatives to driving for many trips.

Source: City of Eugene

Public Health

Transportation affects our individual health in many ways: through exposure to air pollution, by affecting the amount of exercise we get, through traumatic crashes, and, all too often, by adding stress. Cumulatively, poor health conditions and injuries create an economic burden on society. Local studies showed significant health benefits when the community invested more in active transportation, transit, education, and marketing programs designed to help people avoid single occupant auto trips.[1]

In November 2015, the City Council adopted Resolution No. 5143 setting as official policy for the City the Vision Zero goal that no loss of life or serious injury on our transportation system is acceptable. In its resolution, the City Council explicitly gave its support to "efforts by the City of Eugene and our regional partner agencies to prioritize safety improvements for people walking, bicycling, and using mobility devices" and to "efforts by the City of Eugene and our regional partners to eliminate deaths and serious injuries on our transportation system, with an emphasis on the most vulnerable users."

Each of the planned projects advance, in some way, the Vision Zero goal by improving the safety of the subject transportation facility for the users. In addition to the many bicycle and pedestrian projects that will improve the user's safety, such as the grade separated path/sidewalk projects and the protected bike lane projects, proposed improvements to our current roadways will also advance user safety goals. For example, the complete street upgrade projects will improve the roadway for all users and the adoption and construction of the Randy Papé Highway Facility Plan recommendations for improvements to the Randy Papé Beltline Highway and Delta Highway will improve the safety of those facilities, both of which have segments identified by ODOT as having Safety Priority Index System (SPIS) scores in the top 10 percent. (ODOT's SPIS score is based on crash rate, frequency and severity over the prior three years.) In all, implementation of the *2035 TSP* will result in improved safety from crashes, safer sidewalks and bike facilities, slower vehicular speeds, and better pedestrian crossings on busy streets.

[1] Central Lane Scenario Planning, 2015.

Regulatory Framework and Relationship to Other Plans and Policies

Oregon Transportation Planning Rule

The Oregon Transportation Planning Rule (TPR), Oregon Administrative Rule 660-012-0000, implements Statewide Planning Goal 12: Transportation, "To provide and encourage a safe, convenient and economic transportation system." The purpose of the TPR is to direct transportation planning in coordination with land use planning. One requirement of the TPR is that cities adopt local transportation system plans for the lands within a city's planning jurisdiction that establish a coordinated network of transportation facilities and services adequate to meet identified local transportation needs. In establishing that coordinated network of facilities and services, local transportation system plans must include a number of elements such as a road plan for a system of arterial and collector streets and a bicycle and pedestrian plan.

Eugene-Springfield Transportation System Plan (*TransPlan*)

Until now, *TransPlan*, adopted as a functional plan to the Eugene-Springfield Metropolitan Area General Plan (*Metro Plan*), served as the City's regional transportation system plan (RTSP), local transportation system plan, and pedestrian and bicycle master plan. While *TransPlan* will continue to serve as the City's RTSP, the *2035 TSP* will serve as the City's local transportation system plan.[2] As discussed further below, the *2035 TSP* will also serve as the City's pedestrian and bicycle master plan.

In satisfaction of the TPR's requirement to increase transportation choices and reduce reliance on the automobile (OAR 660-012-0035), the *2035 TSP* supports and advances the alternative performance standards approved by LCDC in 2001 and adopted as part of *TransPlan*. In furthering the goals of the 2001 standards, the *2035 TSP* builds upon the lessons learned since 2001, and recognizes that there are new, innovative ways to decrease vehicle miles of travel. To that end, the *2035 TSP* uses terminology that, at times, slightly differs from the terminology adopted in 2001, but nevertheless advances the achievement of the standards approved by LCDC in 2001.[3] For example, the City no longer uses the term "nodal development" in its land use and transportation planning efforts. Instead, the City uses terms such as "key corridors" and "20-minute neighborhoods." Despite a shift in terminology, the underlying concept, goals, and benefits of nodal development remain unchanged; providing land use patterns so that walking, cycling, and use of transit are highly convenient and so that, on balance, people need to and are likely to drive less than they do today. Most importantly, the *2035 TSP* is designed to increase transportation choices and reduce reliance on the automobile.[4]

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[2] The *2035 TSP*, including the project lists set forth in Chapter 5, does not have any legal or regulatory effect on land or transportation facilities that the City does not own. However, in order to adequately evaluate system alternatives, the City's planning process evaluated some facilities that are not under the City's jurisdiction. As such, the *2035 TSP* includes proposed improvements to non-City facilities. Without additional action by the governmental entity that owns the subject facility or land (*e.g.*, Lane County or State of Oregon) any project in this *2035 TSP* that involves a non-City facility or land is merely a recommendation. As in most facility planning efforts, moving towards, and planning for, a well-connected network depends on the cooperation of multiple jurisdictions; the *2035 TSP* is intended to facilitate discussions between the City and its governmental partners as we work together to achieve a well-connected network. The *2035 TSP* does not, however, obligate its governmental partners to take any action or construct any projects.

[3] In accordance with OAR 660-012-0035(7), the *2035 TSP* includes benchmarks to assure that the City is making satisfactory progress toward meeting the standards approved by LCDC in 2001. Those benchmarks are set out in Attachment D.

[4] The *2035 TSP*'s design to increase transportation choices and reduce reliance on the automobile will most likely advance any new regional standards that are adopted as part of the RTSP update, however, if needed, the *2035 TSP* will be amended to address the new regional standards.

Comprehensive Plan

While reflective of Eugene's current planning work, the 2035 TSP is a component of the *Metro Plan* and is being concurrently adopted as part of the *Metro Plan*. Because preparation of the *2035 TSP* was originally a part of the larger planning process that will eventually result in the adoption of Envision Eugene Comprehensive Plan (EECP), it is anticipated that the *2035 TSP* will eventually serve as a component of the EECP and will be adopted, with amendments, as the transportation chapter of the EECP.

Pedestrian and Bicycle Master Plan

On March 12, 2012, the Eugene City Council accepted the 2012 Eugene Pedestrian and Bicycle Master Plan (PBMP) and directed the City Manager to integrate the PBMP into the *2035 TSP*. Consistent with the TPR's requirement that transportation system plans include a bicycle and pedestrian plan for a network of bicycle and pedestrian routes and that transportation system plans be designed to increase transportation choices and reduce reliance on the automobile, the PBMP's goals, key policies, and projects are woven throughout the *2035 TSP* and function as an integral part to making walking and cycling highly convenient. As such, in addition to the *2035 TSP* serving as Eugene's local transportation system plan, the *2035 TSP* also serves as Eugene's bicycle and pedestrian master plan.

Related Plans, Manuals, and Rules

The *2035 TSP* is the City's long-range planning document that establishes a system of transportation and services that will meet the identified needs of the City over the next 20 years. In addition to the *2035 TSP,* the City has adopted a number of plans, manuals, and administrative rules that relate the provision of transportation facilities to the public.[5] The City's current transportation-related plans, manuals, and administrative rules, include (but are not limited to):

- Street Classification Map;
- Street Right-of-Way Map;
- Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways & Accessways;
- Public Improvement Design Standards Manual;
- Utility and Right-of-Way Permits, Construction Within and Use of the Public Way, Policies and Procedures Manual;
- 2010 Airport Master Plan;
- Standards for Traffic Impact Analysis Review; and,
- Standards for Transportation Demand Management Program.

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[5] Some of the listed documents satisfy specific provisions of the TPR and are explicitly discussed in the *2035 TSP*. For example, the City's Street Classification Map, Street Right-of-Way Map, and *Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways & Accessways* collectively satisfy the required road plan setting forth a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. *See* OAR 660-012-0020(2)(b) and Appendix H in Volume 2.

The *2035 TSP* recognizes that certain transportation-related regulations need updating. Some of the above-listed documents will be amended concurrently with the adoption of the *2035 TSP* (such as the Street Classification Map); other documents will undergo a longer update process and will be amended after the adoption of the *2035 TSP* (such as the *Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways & Accessways*).

There are other City-adopted plans and policies that, while not solely related to the provision of transportation facilities to the public, nevertheless play an important role in the City's long-range transportation planning. Some of those other plans and policies, such as the Climate Recovery Ordinance and the Triple Bottom Line framework, are explicitly discussed in the *2035 TSP.* Also recognized and incorporated into the *2035 TSP* is the City Council's adoption of Resolution No. 5143 which sets as official policy for the City the Vision Zero goal that no loss of life or serious injury on our transportation system is acceptable.

In addition to the multi-jurisdictionally adopted Eugene-Springfield Transportation System Plan (*TransPlan*), there are a number of regional transportation planning documents and planning documents adopted by one of the City's governmental partners that inform, guide, and, in some cases, have regulatory significance to the City's transportation planning efforts. Those other transportation planning documents include (but are not limited to):

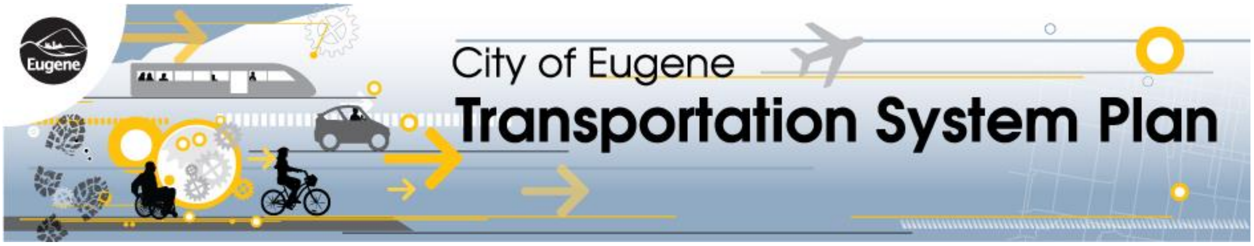
- Central Lane MPO Regional Transportation Plan (RTP);
- Lane County Transportation System Plan;
- Springfield 2035 Transportation System Plan;
- Oregon Highway Plan;
- Regional Transportation Options Plan; and,
- LTD Long Range Transit Plan.

Financial Environment

A combination of federal, state, county, city, and private funds have traditionally supported transportation capital improvements. While this remains the case, the funding arrangements at both the state and national levels are less predictable than in the past. The recent national recession, reduction of federal subsidies for timber counties, state-legislated revenue dedicated to discrete projects, the overhaul of the State Transportation Improvement Program (STIP), and Congress' move away from federal earmarks for infrastructure have all combined to make revenue forecasting an uncertain exercise. Today, as in the past, revenue streams are insufficient to address both the backlog of maintenance needs across Oregon and future transportation investments that support the economic growth, health, and wellbeing of its communities. Given these funding uncertainties, it is nearly impossible to forecast accurately how much funding is likely to be available for transportation investments over the 20-year life of this plan.

In this context of future uncertainties, Eugene's *2035 TSP* provides a prudent list of construction projects, emphasis on lower cost methods of improving personal mobility within the City, and increased reliance on technologies that will improve the efficiencies of our streets. The project lists in Chapter 5 allow the City the flexibly to make wise investments and to leverage opportunities as they arise, such as when there are:

- Changes in policy or funding at the federal, state, or local level;
- Different local development priorities;
- Future conditions that differ from predictions in the *Metro Plan*; *Envision Eugene, A Community Vision for 2032*; this *2035 TSP;* or regional plans; or
- New public-private or public-public partnerships.



Chapter 2: Goals, Policies, and Actions

The *2035 TSP* is an internal policy document that provides the City of Eugene with a coordinated guide for changes to its transportation infrastructure and operations over a 20 year period of time. The *2035 TSP* was crafted to conform to the *Metro Plan*'s land use diagram and *Envision Eugene, A Community Vision for 2032* (2012).

A basic assumption in the development of this policy document is that transportation systems do more than meet travel demand: they have a significant effect on the physical, social, and economic characteristics of the areas they serve. Transportation planning must be viewed in terms of regional and community goals and values such as protection of the environment, impact on the regional economy, and maintaining the quality of life that area residents enjoy and expect.

A major component of this policy document is the goals, policies, and lists of possible action items. These terms are defined below.

- **Goals** are broad statements of philosophy that describe the hopes of the people of the community for the future of the community. A goal is aspirational and may not be fully attained within the 20-year planning horizon of this plan.
- **Policies** are statements adopted to provide a consistent course of action and move the community toward attainment of its goals. Policies in the *2035 TSP* guide the work of the City Manager and staff in formulating proposed changes to the Eugene Code and other regulatory documents, to guide other work programs and long range planning projects, and preparation of the budget and capital improvement program. These policies will not be used in determining whether the City shall approve or deny individual land use applications. Each set of policies may be followed by action items that could be employed to help implement one or more of the policies within the set.
- **Potential Actions** offer direction to the City about steps that could implement adopted policies. Not all policies include action items and not all potential actions are listed. Rather, the identified potential actions outline specific projects, standards, or courses of action that the City or its partner agencies could use to implement the *2035 TSP*. These actions can provide guidance for decision-makers and will be updated over time.

Goals

Goal 1: Create an integrated transportation system that is safe and efficient; supports the *Metro Plan*'s land use diagram, *Envision Eugene, A Community Vision for 2032* (2012), the City of Eugene's target for a 50 percent reduction in fossil fuel consumption, and other City land use and economic development goals; reduces reliance on single-occupancy automobiles; and enhances community livability.

Goal 2: Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and overall well-being.

Goal 3: Strengthen community resilience to changes in climate, increases in fossil fuel prices, and economic fluctuations by making the transportation networks diverse, adaptable, and not reliant on any single mode.

Goal 4: Address the transportation needs and safety of all travelers, including people of all ages, abilities, races, ethnicities, and incomes. Through transportation investments, respond to the needs of system users, be context sensitive, and distribute the benefits and impacts of transportation decisions fairly throughout the City.

Goal 5: By the year 2035 triple the percentage of trips made on foot, by bicycle, and by transit from 2014 levels.

System-Wide Policies

LTD buses include bike racks to allow users to combine modes of travel.

Source: Lane Transit District

1. Foster neighborhoods where Eugene residents could meet most of their basic daily needs without an automobile by providing streets, sidewalks, bikeways, and access to transit in an inviting environment where all travelers feel safe and secure.
2. Consider safety first when making transportation decisions. Strive for zero transportation-related fatalities and severe injuries by reducing the number and severity of crashes through design, operations, maintenance, education, and enforcement. In furtherance of the City Council's adopted Vision Zero goal (Resolution No. 5143), prioritize safety improvements for people who walk, bike and use mobility devices because no loss of life or serious injury on our streets is acceptable.
3. Improve community health by designing streets and paths to encourage increased physical activity by the public.
4. Promote connections between modes of transportation to make each mode more efficient, such as by connecting bicycle routes and bus, train, and airport services to each other; and connections to transportation facilities extending outside the City's planning area.
5. The Regional Transportation Options Plan (RTOP) adopted by the Central Lane MPO Metropolitan Policy Committee is recognized as the regional guidance for programs that reduce reliance on single-occupancy vehicles.

Potential Actions for System-Wide Policies

A. Create a transportation work plan that prioritizes implementation and funding for transportation projects and programs within the *2035 TSP* 20-year planning period.

B. Review and amend City codes where needed to enable additional opportunities to provide bikeways and improved pedestrian connections between key destinations, transit stops, and residential areas with new development and redevelopment. Create opportunities for public review of new development and new or redeveloped schools at early stages of site development to improve multimodal access and circulation.

C. Create a strategy to facilitate 90 percent of Eugene residences to be within "20-minute neighborhoods." The strategy might include methods to improve proximity of residences to services and prioritizing projects that improve convenience and safety for walking, biking, and connections to transit stops.
D. Develop local metrics that may be applied when the land use and transportation system characteristics would indicate a tendency for a development or area to generate fewer motorized vehicle trips than would be predicted by using national standards, such as for mixed-use development, areas served by frequent transit, and areas with Transportation Demand Management agreements.
E. With Lane County Public Health Department, identify mutual objectives and opportunities to collaboratively promote bicycle and pedestrian activities, reduce injury crashes and fatalities, integrate health considerations into transportation decisions, and improve emergency medical systems.
F. Develop a Memorandum of Understanding (MOU) with Lane County Public Health Department for sharing data and analysis on traffic-related injuries and traumas.
G. Focus police traffic enforcement efforts on Driving Under the Influence of Intoxicants, failure to stop for red lights and stop signs and obey traffic control devices, violation of posted speed limits, distracted driving (*e.g.*, texting while driving), failure to wear seatbelts, and failure to stop for pedestrians in crosswalks.
H. Work with the Oregon Department of Motor Vehicles (DMV) to revise driver's license tests to be more inclusive of rules pertaining to walking and biking.
I. Implement the *ADA Transition Plan for Public Right of Way* to bring all pedestrian access routes within sidewalks and other pedestrian circulation paths in the right-of-way into compliance with Americans with Disabilities Act (ADA) requirements.
J. Continue to review and amend standard conditions for traffic control, permit approval procedures, and design standards, as necessary, to ensure safe, barrier-free passage through and adjacent to construction zones.
K. Evaluate City streets for opportunities to lower speed limits when doing so will make the street safer for one or more modes of transportation and not make it less safe for any other mode.
L. Strengthen the City's traffic calming program by increasing the annual funding amount. Continue to consider input from the Fire Department regarding acceptable traffic calming treatments.
M. Create and regularly use a robust, systemic method of measuring trips made by walking, biking, and driving.
N. Promote transportation demand management programs along the Key Corridors, in downtown, and near the University of Oregon to coordinate the needs and travel options of multiple businesses and residences for purposes of reducing automobile and freight demand at times of peak congestion. These programs could be staffed by either a public agency, a business association, or by training individuals within the affected businesses and housing to perform this work.

O. Create "Mobility Hubs" near transit stations.

P. Provide education and awareness programs, such as Smart*Trips* and school-based transportation options (like Safe Routes to School), to improve safety for all travelers and encourage use of active transportation.

Q. Align the City's land use and parking regulations to encourage walking, biking, and use of public transit; more efficient use of land; and lower transportation and housing costs while accommodating the growth and economic prosperity espoused by the comprehensive land use plan.

What is a "Mobility Hub"?

Mobility hubs are a concentration of transportation services near transit stations that may include Wi-Fi technologies, pocket maps/brochures, secure bicycle parking, car- and bike-share services, shuttle service, and other assistance for the traveling public.

R. Monitor advancement toward achieving the goals of this plan. Coordinate progress reports with scheduled updates to the Regional Transportation Plan made by the Central Lane MPO. Make progress reports available to the public.

S. Collect and report crash data for all travel modes and use the data to inform capital and maintenance projects to enhance safety and engineering changes to existing infrastructure.

T. Support programs recommended in the Regional Transportation Options Plan.

U. Prepare an assessment of the City's current safety efforts, recommendations for actions to take to improve transportation safety, and an implementation plan for those actions. The assessment should include a framework for screening all transportation projects for consistency with adopted policies.

V. Translate educational materials to other languages to broaden their effectiveness.

W. Complete a Vision Zero Action Plan to achieve the goal of zero transportation-related fatalities and severe injuries by a target date to be recommended by the Vision Zero Task Force.

Transit Policies

1. Promote the use of public transit and the continued development of an integrated, reliable, regional public transportation system.
2. Prioritize improved transit service in Key Corridors and other areas with sufficient employment, activities, or residential density that best support transit service and transit services that connect residents to employment centers. If operational funding is sufficient, extend transit to support higher density housing and employment development planned for other areas.
3. Align transit services with community needs by engaging the broader community in determining the role transit service will play in Eugene's future; creating strategies that leverage capital investment to deliver the desired services and facilities; and identifying and pursuing the most effective, stable, and equitable sources of local funding for transit operations.
4. Collaborate with Lane Transit District to provide a network of high capacity, frequent, and reliable transit services, including consideration of Bus Rapid Transit, to the Key Corridors as identified in *Envision Eugene, A Community Vision for 2032* (2012) and to Frequent Transit Corridors as defined by Lane Transit District's *Long Range Transit Plan*.

Potential Actions for Transit Policies

A. The actions anticipated to implement Key Corridors and regional Frequent Transit Networks include the following:

- Describe a comprehensive process to be used for planning Key Corridors.
- Analyze Key Corridors and Frequent Transit Network routes, as identified in *Envision Eugene, A Community Vision for 2032* (2012) and *Long-Range Transit Plan*, for their potential to provide frequent transit service and identify transit's role in supporting development within each corridor.[6] In each Key Corridor, bus rapid transit (*e.g.*, "EmX"-style of transit service) should be considered as an option.
- Engage members of the community in establishing neighborhood travel needs and priorities within each corridor, leading to proposed context sensitive solutions that meet these needs.
- Conduct coordinated land use and transportation studies for each Key Corridor to determine the appropriate balance of transportation access for each mode of travel, location and density of new development, location of activity centers, right-of-way needs, building setbacks, and locations of major transit stops.
- Review and amend parking standards, as necessary, for each corridor to reflect the presence of frequent transit service and reduced demand for automobile trips.
- Design standards should be created for the pedestrian zone and for properties adjacent to the corridor to encourage pedestrian- and transit-oriented development and to provide safe and convenient pedestrian and bicycle access to transit stops.

EmX Stations include amenities to make taking transit more comfortable and convenient.

Source: Lane Transit District

What is Bus Rapid Transit?

Bus Rapid Transit (BRT) is the highest level of service available within Lane Transit District's Frequent Transit Network. **Locally BRT service is known as "EmX."**

BRT is a permanent, integrated system that uses buses on roadways or in dedicated lanes to efficiently transport passengers. BRT system elements include bus only lanes, stations, vehicles, fare collection, intelligent transportation systems, and branding elements that can be easily customized to community needs, and result in higher ridership and less delay.

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[6] In 2015, the MovingAhead program was initiated by the City of Eugene and the Lane Transit District to plan and prioritize transportation improvements in the Key Corridors. Each corridor will be examined individually to understand what types of investments are needed for people using transit, biking, and walking to meet their transportation needs and support vibrant places.

B. Coordinate with Lane Transit District (LTD) to expand the park-and-ride system within Eugene's commute shed with an emphasis on developing partnerships to share existing parking facilities.

C. Consider transit-preferential measures at intersections to improve travel time reliability and reduce delays. These include transit signal priority, queue jump lanes, curb extensions for loading, and other such practices. These options should be balanced against the potential interference with bike lanes, delays to pedestrian crossings, and safety for all travelers. Work with LTD to provide safe and convenient pedestrian and bicycle access and amenities by transit stops, including bike share stations and secure bike parking.

D. Work with LTD to evaluate opportunities to use SDCs and other local funding sources to support transit improvements.

What is the Frequent Transit Network?

Lane Transit District's Long Range Transit Plan (2014) describes the Frequent Transit Network (FTN), as a **regional initiative to better connect areas of more active development to transit.** The FTN will have the following characteristics:

- A well-connected network that provides regional circulation.
- Compatible with and supportive of adjacent urban design goals.
- Operates seven days a week in select corridors.
- Service hours are appropriate for the economic and social context of the area served.
- Coverage consists of at least 16 hours a day and most area riders' trip origins or destinations are within ¼ of a mile straight line distance.
- Average frequency of 15 minutes or better.
- Transit stops and stations are of high quality with amenities, including bicycle and pedestrian connections to stations and end-of-trip facilities, such as bike parking.

Roadway and Parking Policies

1. ["Complete Streets Policy"] Design, construct, maintain, and operate all streets to provide comprehensive and integrated transportation networks that serve people of all ages and abilities, promote commerce, and support the comprehensive land use plan's vision for growth and development in a responsible and efficient manner. A "complete street" allows safe travel for automobiles and emergency responders, bicycles, walking, transit, and freight. In addition to fulfilling a street's basic transportation functions and providing access to properties, streets and sidewalks should be designed to be attractive, safe, accessible, sustainable, and healthy components of the City's environment.
2. Improve connectivity and address deficiencies in the street network, both inside the Urban Growth Boundary and connecting to neighboring cities, with the understanding that connectivity needs may differ based on an area's planned land uses (*e.g.*, large lot industrial areas may have different needs than residential areas).
3. Improve travel time reliability between key origins and destinations for transit, regional freight movement, and other trips for which on-time arrivals are important.

4. Facilitate prompt emergency responses. Ensure that fire and emergency response routes remain passable by design.
5. Plan for, design and construct or reconstruct streets to achieve consistency between motorists' speeds and target speed limits. Use motor vehicle Level of Service (LOS) standards to evaluate acceptable and reliable vehicular performance on the City's and County's local, collector and arterial streets. Recognize ODOT's mobility targets (based on volume to capacity or V/C) for state facilities. Because mobility targets from the Oregon Highway Plan (OHP) are applied on state facilities, the City will seek Oregon Transportation Commission (OTC) amendment of the OHP to include alternative mobility targets at the locations identified in the local standards.
6. Continually optimize the efficiency of the transportation system through transportation system management (TSM) improvements, connectivity improvements, multimodal improvements, parking management and supply, and Transportation Demand Management (TDM) strategies, in combination with the projects identified in this TSP.
7. Facilitate efficient access for goods, employees, and customers to and from employment, commercial, and industrial lands, including freight access to designated freight routes, highways, rail yard, and the Eugene Airport. Increase multimodal access for employees to employment centers.
8. Support ODOT's efforts to improve Randy Papé Beltline Highway for transportation system efficiency, improved safety, and improved connections for people travelling by foot, bike, and bus. The *Beltline Highway: Coburg Road to River Road Facility Plan* is incorporated into this TSP, contained in Volume 1. The City of Eugene supports completion of the NEPA review, and implementation of the resultant recommended improvements.
9. Prior to moving forward with a capital project including Complete Street Upgrades of Existing Streets and in addition to conducting public engagement activities, staff will also consider a neighborhood's character (the built and natural environment) and other elements of community context when designing the project.

What is "travel time reliability"?

Travel time reliability is a consistency or dependability in travel times as measured from day to day or across different times of day. Travelers want to know that a trip will take a half-hour today, a half-hour tomorrow, and so on.

Actions for Roadway Policies

A. Amend the City's adopted Traffic Impact Analysis code and administrative rule provisions to expand the measurement of a proposed development's traffic impacts beyond the level of service measurement and, correspondingly, expand potential mitigation measures beyond measures that address only vehicular delay.

B. Amend the Traffic Impact Analysis provisions to require a review of safety at intersections through a comparison of the actual crash rate experienced during the past 3-5 years versus the expected crash rate for similar facilities to determine whether improvements may be needed.

C. Require all developments and employers of a certain size and type to prepare, implement and monitor Transportation Demand Management (TDM) plans.

Potential Actions for Roadway and Parking Policies

A. Consider roundabouts for new development in any situation where capacity, congestion, delay, crash history, or turning conflicts would otherwise support traffic signal installation. Roundabouts should be actively considered for retrofit at existing signal locations when major reconstruction is planned.
B. Preserve rail corridors, alleys, accessways, and pedestrian and bicycle easements that can provide desired connections within the transportation network or have potential to serve transportation purposes in the future.
C. Continue to maintain and implement the Street Classification Map, the Right of Way Map and the *Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways*.
D. Update City design standards, as necessary, to address emergency vehicle passage on officially recognized emergency response routes and consider accommodations for Fire Department Ladder Operations where tall buildings exist or are planned. Involve emergency responders in changes to street designs.
E. Articulate a process for implementing the complete streets policy, including responsibilities for decision making, public review, opportunities for appeals of decisions, the means of documenting and justifying decisions, and the collection and reporting of data that allows monitoring the effects of street design changes over time.
F. Update the Eugene *Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways* to implement the “complete streets policy” by:
   - Recognizing these attributes as integral parts of the planning, design, and programming for public streets and rights-of-way:
     - The safety for those traveling in the public right-of-way, including the most vulnerable people of all ages and abilities.
     - The convenience of all users of the transportation system.
     - The importance of making walking and biking the most efficient, convenient, safe, and comfortable method of travel for trips of up to half a mile and up to 2 miles, respectively.
     - Adopted plans that state a preference for a mode of travel in a specific location, such as transit in Frequent Transit Corridors, emergency services on Emergency and Fire Response routes, trucks on designated freight routes, and bicycles on facilities described in Chapter 5.
     - Balancing traffic flow with the street experience, safety, and needs of other users within the streetscape.
   - Articulating circumstances that may require that the complete streets policy be achieved incrementally through a sequential series of smaller improvements rather than by incorporating all elements into a single construction project.
   - Articulating a process for determining when conditions inherent to a specific project may make application of the complete streets policy difficult or superfluous, such as when all

modes of travel are adequately served in an area by separate, complementary networks, or where a mode of travel is prohibited.

G. Work with developers to complete the major street network as shown in the Arterial and Collector Street Map. The City will fund its share of these improvements through System Development Charges and other funding sources.

Shared roadways are one type of facility that serve both cyclists and drivers.

Source: City of Eugene

H. Expand methods of providing real-time traveler information to the public, such as by:
   - A smartphone application to alert drivers of travel time delays and alternate routes.
   - Informational reader board signs along freight routes.
   - Increased awareness of existing programs and services (*e.g.,* through rideshare campaigns, Sunday Streets events, transportation fairs, and community events).
   - Enhanced online rideshare platforms for multiple networks, including closed rideshare networks to serve targeted groups (*e.g.*, Kidsports and special events) and dynamic ridesharing options that serve the general public.
   - Centralized data pool for emerging technologies that require public transportation data (*e.g.,* transit real-time information) and infrastructure data (*e.g.,* street and parking data) that is available for use by public and private sectors.
   - An app that directs drivers to open parking spaces.

I. Implement Intelligent Transportation Systems (ITS) and other technologies to improve traffic safety, such as:
   - Upgraded signal coordination and abilities for signals to adjust to real-time traffic conditions.
   - Upgraded traffic signals to include accessible pedestrian devices (APD).
   - Ramp metering (by ODOT).
   - Variable speed limits that respond to increasing congestion.

J. Review and update procedures for incident/crash detection and clearing roads to reduce traffic delay while maintaining a safe environment for incident responders.

K. Review and update as necessary the Eugene Code and policies for access management and street connectivity standards to enhance safety and operational efficiency for all modes of travel on streets and sidewalks.

L. Periodically review and update the City Code and administrative rules in the downtown area, neighborhoods near the University of Oregon, mixed-use centers, and in areas experiencing changing conditions, such as where a transit corridor study has been completed, transit routes changed, or major bicycle facilities completed. Examples of possible changes to the code and policies may include:

- Requiring or allowing fewer parking spaces where conditions would allow less driving.
- Disconnecting the price of a residential parking space from a unit's rent.
- Aligning metered parking prices with demand.
- Facilitating conversion of on-street automobile parking spaces to bicycle lanes, bike parking, or expanded pedestrian and ground-level business amenities.
- Aligning land use and design standards at major transit stops to support transit ridership.
- Requiring ongoing transportation demand management (TDM) for large attractions and employment centers at times and locations where such measures are necessary to reduce congestion or optimize limited parking.

M. Change the configuration of some streets to encourage slower vehicle speeds.

N. Work with ODOT to provide sufficient access along Highway 99 to facilitate redevelopment of adjacent properties as a Key Corridor.

O. Collaborate with ODOT on the implementation of the Beltline Facility Plan and NEPA project. Amend the *2035 TSP* to reflect the recommended policies and projects of these efforts.

P. Explore methods of describing multimodal levels of service that address the City's desire for a safe and convenient multimodal transportation system.

Q. Work with ODOT to seek alternative mobility targets that align with City policies.

R. Consider converting to two-way traffic Charnelton Street between 11th and 13th Avenues, Lincoln Street from 5th Avenue to 11th Avenue, and Lawrence Street from 6th Avenue to 13th Avenue.

S. Periodically review parking needs in the downtown, Federal Courthouse, and riverfront districts and balance supply with other objectives, such as economic vitality; support for transit, walking, and biking; reduced consumption of fossil fuels; and human-scaled urban form.
Expand the definition of LOS to include volume-to-capacity ratio, queuing, and traffic control changes.

Pedestrian Policies

1. Encourage walking as the most attractive mode of transportation for short trips (*e.g.*, within one half miles) within and to activity centers, downtown, key corridors, and major destinations, and as a means of accessing transit.
2. Ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, major destinations, and transit stops. Continually improve walking comfort, safety,

and accessibility through design, operations, retrofits, and maintenance. Provide landscaped setback sidewalks of ample width and safe street crossings to encourage people to walk.

3. Coordinate improvements to complement and improve the systems proposed in the Eugene Trails Plan and connections to regional trails.

Midblock crossing assist pedestrian in safely crossing roads. All intersections contain crosswalks, whether they are marked or not.

Source: City of Eugene

Potential Actions for Pedestrian Policies

A. Maintain a map and project list for desired improvements to the pedestrian network within the life of this plan. Provide priorities among these projects, yet provide flexibility among priorities to respond to unforeseen opportunities and development.

B. Provide street crossing enhancements and expanded crosswalk education and enforcement programs.

C. Provide support for Safe Routes to School programs and other programs that create safe walking conditions between residences and schools and other neighborhood destinations.

D. Review the Eugene Code for additional opportunities to require sidewalk connections between new development and redevelopment and existing sidewalks and transit.

E. Amend the Eugene Code (*e.g.*, EC 9.6505) and policies to consistently require sidewalk installation throughout newly divided and developed lands, such as by requiring sidewalk construction concurrent with street improvements or by bonding for completion of the sidewalks if development on individual lots does not fill in the system in a reasonable amount of time.

F. Maintain a sidewalk infill and improvement program that considers new funding sources, credits and loans, and expanded development requirements to complete missing sidewalk segments, to avoid creating gaps in sidewalk networks in new development areas and to upgrade existing sidewalks in high traffic areas to provide needed width, landscaping, and removal of barriers, and to implement the City's Americans with Disability Act program.

G. Continue to ensure that Systems Development Charges (SDCs) consider walking and pedestrian improvements as important components of the overall, integrated transportation system.

H. Update Eugene's Traffic Impact Analysis review regulations for new development to include review of walking and biking improvements and connections to nearby networks.

Bicycle Policies

Eugene aims to accommodate bicyclists of all riding abilities and levels of comfort on city streets and facilities.

Source: City of Eugene

1. Create conditions that make bicycling more attractive than driving for most trips of two miles or less.
2. Develop a well-connected and comfortable bikeway network. Ensure that there are safe, comfortable, and direct bikeway connections between residential areas, major destinations, and transit stops and provide secure bicycle parking facilities at these destinations.
3. Continually improve the comfort and safety of bicycling through design, operations, retrofits, and maintenance. Identify and develop "low stress" bikeways to attract new cyclists.
4. Support a Eugene bike share system.

Potential Actions for Bicycle Policies

What are "Low-stress" bikeways?

Low-stress bikeways are facilities that **feel safe and inviting to many people, including children and the elderly,** who may choose to bike. Low stress bikeways are generally separated from heavy vehicular traffic or share the road with motorists only on very low-volume residential streets, are well signed, and connected to popular destinations.

A. Maintain a map and project list for desired improvements to the bicycle network within the life of this plan. Provide priorities among these projects, yet provide flexibility among priorities to respond to unforeseen opportunities and development.

B. Support Safe Routes to School programs and other programs that create safe bicycling conditions between residences and schools and other neighborhood destinations.

C. Ensure that Systems Development Charges (SDCs) consider biking and bicycle improvements as important components of the overall, integrated transportation system.

D. Evaluate and adjust traffic control systems to balance bicycle travel with other modes along strategically chosen bicycle routes.

E. Provide high quality, flexible and secure bicycle parking, and ensure through project design and standards that bicycle parking is considered when parks, schools, and other public facilities are planned.

F. Review Eugene Code parking and redevelopment standards for opportunities to improve requirements for support facilities for employees who are commuting by bike, such as by providing showers, lockers, and secure covered bike parking.

G. Provide incentives for businesses and other entities to add or upgrade bicycle parking facilities and amenities beyond minimum code requirement requirements (or to bring them up to code in cases where properties were developed under previous standards) or to provide bike share facilities.

H. On a case-by-case basis reallocate space within street rights-of-way to enhance bikeways and pedestrian environments (*e.g.*, converting parking or travel lanes). Priority areas for bikeway improvements include areas near the University of Oregon, downtown Eugene, streets connecting residential areas to schools and commercial hubs, and streets. It is expected that ODOT facilities and Key Corridors will be analyzed under separate comprehensive planning processes than other streets.

Rail, Freight, and Pipeline Policies

1. Promote the efficiency with which freight and deliveries are transported without worsening impacts to the environment, social and neighborhood context, promotion of "Complete Streets," or safety.
2. Encourage public and private partnerships with the freight transport industry to develop mutually beneficial strategies and initiatives.
3. Encourage the use of rail for movement of freight and long distance passenger trips.
4. Support higher-speed and higher-frequency passenger rail service and use of the historic Eugene Depot in downtown Eugene as a passenger rail station.
5. Reduce conflicts between rail and street traffic.
6. Create a railroad quiet zone throughout the City. Prioritize implementation of a quiet zone in the downtown and Whiteaker areas.
7. Support projects and regulations that reduce transportation inefficiencies or risk to local populations from the transportation of hazardous materials.

Eugene Station

Source: City of Eugene

Potential Actions for Rail, Freight, and Pipeline Policies

A. Promote truck loading facilities at the train yard.

B. Monitor travel time reliability on state and federal freight routes and prioritize improvements to these corridors when chronic delays are projected to become a detriment to regional economic development strategies.

C. Improve the safety and efficiency of trucking through information technological means such as telematics, signing, urban freight information and maps.

D. Implement the Eugene Depot Master Plan.

E. Construct a passenger platform and rail spur at the Eugene Depot to enhance passenger rail service and separate passenger rail from freight rail.
F. Implement the recommendations of the Oregon Passenger Rail Study (pending at the time the *2035 TSP* was adopted).
G. Coordinate with rail providers to upgrade at-grade rail crossings to improve traffic safety and manage conflict points while maintaining access for non-rail travel where possible.
H. Install supplemental safety measures (SSMs), such as quad gates and medians, at railroad crossings, as necessary, starting in the downtown and Whiteaker areas, to implement a railroad quiet zone.
I. Support rail-related infrastructure improvements that help retain and improve passenger and freight rail services in Eugene.
J. Support projects that reduce the number of times materials are transferred between pipes, trains, planes or trucks.
K. Reduce environmental impacts and the risk of accidents involving trucking through infrastructure improvements, road design and layout, and promoting the use of environmentally-friendly vehicles.
L. Work with Lane County to investigate creating a railroad quiet zone that addresses the rail crossings of Irving Road and Irvington Drive.

Air Transportation Policy

1. Support the Eugene Airport as a regional transportation facility.
2. Recognize the *Eugene Airport Master Plan* as the guiding policy document for airport property development, services, and support infrastructure.

Potential Actions for Air Transportation Policy

A. Periodically review and update the *Airport Master Plan*.
B. Review and update land use designations and zoning, as needed, to support development recommended by the *Airport Master Plan*.
C. Promote freight transfer facilities at the airport.
D. Expand alternatives to private automobile trips for airport patrons.

Eugene Airport

Source: City of Eugene

Greenhouse Gas, Climate Change, and Natural Environment Policies

1. Support the use of more highly fuel efficient vehicles including electric, hydrogen fuel cell, and non-motorized vehicles.
2. Create a strategy that advances the goal of having an integrated transportation system that reduces fossil fuel consumption by 50 percent and reduces reliance on single-occupancy automobiles.

3. Prioritize capital projects and programs that will facilitate the achievement of the *2035 TSP's* pedestrian, bicycle and transit policies.
4. Continue work to identify possible transportation infrastructure improvements that will make walking, bicycling and the use of transit safe and highly convenient.
5. Protect, and enhance habitat in transportation projects where possible. Minimize and mitigate impacts of transportation projects when needed.
6. Provide leadership in regional and State coordination efforts that support Eugene's environmental policies.

Potential Actions for Greenhouse Gas, Climate Change, and Natural Environment Policies:

A. Support programs aimed at reducing reliance on single occupancy vehicle travel.
B. Enhance the tree canopy along streets.
C. Reduce stormwater pollution and minimize runoff from streets and multi-use paths in a manner prescribed by Eugene's *Comprehensive Stormwater Management Plan*.
D. Increase supply of charging stations for electric vehicles.
E. Support legislation that updates the State building code to require basic electric vehicle charging infrastructure in new development.
F. Provide priority parking and reduced parking fees for non-gasoline powered vehicles.
G. Create a program that encourages properties adjacent to streets and alleys to replace paved areas with usable open space, permeable surfaces, plantings, stormwater retention areas, and other amenities for the public benefit (*e.g.*, a "green alleys" program).
H. Provide stormwater facilities within street construction projects by incorporating low impact development and green infrastructure practices.
I. Identify City Code amendments that will facilitate the achievement of the *2035 TSP's* pedestrian, bicycle and transit policies.

Stormwater treatment can be an attractive part of the streetscape.

Source: CH2M

Cost Effectiveness and Finance Policies

1. Establish, improve, and maintain transportation facilities in ways that cost-effectively provide desired levels of service, consider facilities' lifecycle costs, and maintain the City's long-term financial sustainability. Favor transportation systems that move people and goods at lesser total life-cycle cost to the City and its residents.
2. Maintain transportation performance and improve safety by improving system efficiency and management before adding capacity for automobiles to the transportation system by using the

following priorities for developing the Eugene Capital Improvement Program (CIP) and Eugene projects in the Metropolitan Transportation Improvement Program (MTIP):

- Protect the existing system. The highest priority is to preserve or improve the functionality of the existing transportation system by means such as access management, transportation demand management, improved traffic operations, use of technologies, accommodating "active transportation" options not previously present, and keeping roads well maintained to avoid reconstruction.
- Improve the efficiency and safety of existing facilities. The second priority is to make minor improvements to existing streets, such as adding turning lanes at intersections, providing and enhancing pedestrian, bicycle and transit facilities, and extending or connecting streets pursuant to existing plans.
- Add capacity to the existing system. The third priority is to make major improvements to existing transportation facilities such as adding general purpose lanes and making alignment corrections to accommodate legal-sized vehicles.
- Add new facilities to the system. The lowest priority is to add new transportation facilities for motorized vehicles, such as new roadways. New streets that are needed and planned for connectivity are a higher priority, as noted in (b), above.

Implement higher priority measures first unless a lower priority measure is demonstrated to be more cost-effective or better supports safety, growth management, or other livability and economic considerations. Provide justification for using lower priority measures before higher priority measures.

3. In collaboration with ODOT and Lane County, develop criteria that trigger logical phased jurisdictional transfer of streets and highways.
4. Operate and maintain transportation facilities in a manner that reduces the need for more expensive future repair, to the extent practical and affordable. Consider the City's ability to fund both implementation and ongoing maintenance before initiating or requiring new transportation capital projects. Explore opportunities to upgrade all utilities during street reconstruction.

Potential Actions for Cost Effectiveness and Finance Policies

A. Seek new, stable sources for funding street renovation and ongoing maintenance, including landscaping and other amenities in the public rights-of-way.
B. Develop a mechanism for calculating life cycle costs, including maintenance costs, of transportation projects.
C. Discuss with the public the potential cost savings for household transportation choices, such as savings in health care, fuel and auto insurance, etc., for choosing not to drive for some trips.
D. Continue and expand efforts to quantify and explain the total life-cycle costs of transportation options.
E. Regularly adjust Systems Development Charges to remain fair, legal, and aligned with adopted goals and policies.

F. Update and maintain Transportation System Development Charges to support the construction of pedestrian, bicycle and transit facilities in addition to roadway projects that meet the above policies.
G. Approve memoranda of understanding (MOU) with Lane County and ODOT that establish the circumstances under which streets would be transferred to City jurisdiction.
H. Engage the community in exploring new potential funding sources for on-going pavement preservation needs.

Equity, Economy, and Community Engagement Policies

1. Be fair and equitable: ensure that transportation facilities are provided for people of all ages, races, ethnicities, abilities, incomes, and in all neighborhoods.
2. Reduce or eliminate disparities between neighborhoods in safety and access to essential destinations. Ensure that the costs and benefits of transportation improvements are equitably shared over time. Favor historically underserved communities if equitable solutions are not possible within a single project or action.
3. Build and maintain public support for the *2035 TSP* through open information, public participation, public discussion of the plan's effects on the community, and periodic reassessment of the plan's goals and policies.
4. Encourage local residents, businesses, City staff, and other stakeholders to cooperatively develop context sensitive projects that foster the community's active use and sense of ownership of public rights-of-way over time.
5. Use transportation investments to support industries and employment sectors targeted by City and regional adopted economic development strategies.

Potential Actions for Operational Policies

A. Identify and collaborate with potentially impacted populations during and after project scoping, with special attention to disadvantaged or traditionally underserved populations (*e.g.*, lower income, minority, English language learners, and people with disabilities).
B. Target public outreach before transportation spending priorities are established so that people who may be most affected by proposed projects will be involved in the discussion.
C. Create procedures that support parklets (*i.e.*, commercial uses, greenery, or seating in converted on-street parking spaces), bike corrals, intersection repair (*i.e.*, citizen-led conversion of an intersection into a public square), and similar projects that are responsive to the needs of neighborhood stakeholders.
D. Regularly consult with industry stakeholders to determine industry and employment transportation needs and trends. Update the *2035 TSP* project list, as appropriate, to reflect changing needs and trends.
E. Periodically review and collaboratively update as necessary the Regional Prosperity Economic Plan (or successor) and the *2035 TSP* to keep the two plans aligned.
F. Prioritize transportation investments that facilitate job growth in commercial or industrial areas.

Chapter 3: Needs Assessment and Evaluation

The *2035 TSP* goals, policies, projects, and potential implementing actions are based on analysis by, and input received from, the community, City of Eugene staff, partner agency staff, and City policy-makers. Their review included analysis of existing transportation conditions for all modes of travel, forecasted deficiencies in the transportation system, a multi-step evaluation of the "triple bottom line" (economy, social equity, and natural environment) that included considerations of how possible system improvements will meet the transportation needs for all modes, address the needs of the transportation disadvantaged, and address the need for movement of goods and services to support industrial and commercial development. The *2035 TSP* list of recommended projects and programs was identified based on an analysis of the City's transportation needs, potential transportation system alternatives, and a detailed review of relevant state, regional, and local plans, policies, and funding opportunities. The following sections outline the key findings from the existing and future needs analyses that helped shape the recommendations.

Existing Transportation System Conditions

Existing local transportation needs, opportunities, and constraints reflect an inventory of the multimodal transportation system characteristics conducted in 2010. This inventory included all major transportation-related facilities and services within the Urban Growth Boundary (UGB) at that time. Key roadway features, traffic conditions, safety performance, bicycle and pedestrian facilities, and transit service, among other topics, were analyzed. Detailed findings of the technical analysis are summarized in Volume 2, Appendix A: Existing conditions inventory and analysis. Key findings of this review are outlined below.

- Downtown Eugene and adjacent neighborhoods are well-served by sidewalks. In other areas of the City, sidewalks are frequently missing on one or both sides of the roadway. Some sidewalks are located adjacent to curbs on high traffic streets, without a buffer of landscaping or parked cars next to traffic, which can discourage walking. The citywide pedestrian system is also interrupted by a lack of street lighting, lack of pedestrian crossing treatments at some intersections, and long distances between protected crossings on busy streets. Walking can be improved by filling gaps in the sidewalk network, improving buffers from traffic, and providing improved crossings and other safety measures.

- A number of arterial roadway corridors and key intersections could benefit from strategic capital improvements to the existing system. These may include:

  - Better connectivity;

  - Improved safety measures, especially where walking and bicycling are introduced within the street rights-of-way; and

- Implementation of Transportation System Management and Operations (TSMO) strategies that increase the efficiency of the arterial system. TSMO strategies (more fully described in Appendix K in Volume 2) might include ramp meters along highways, coordinated and more responsive traffic signals, and educational programs that encourage travel without single-occupant automobiles and at less congested times of day.

Using technology to improve transportation

Transportation System Management and Operations (TSMO) strategies provide **money-saving, multi-modal solutions that relieve congestion, optimize infrastructure investments, promote travel options, and reduce greenhouse gas emissions.** They can include intelligent transportation system solutions such as traffic responsive signals, real-time traveler information, and services that respond quickly to traffic incidents or help people make informed travel choices.

- Eugene enjoys a substantial pedestrian-bicycle shared-use path system, especially parallel to the Willamette River and Amazon Creek. Although the pathway system is extensive, the existing needs are related to the width of pathways (the busier sections are too narrow to comfortably accommodate all of the users), lack of connections to some adjacent neighborhoods, and the lack of consistent and regular pathway lighting. There are also some locations where the lack of wayfinding signs and pathway markings provide challenges to some users unfamiliar with the path system.

- The City's on-street bikeway system is extensive. The existing deficiencies relate to:
  - Lack of connections between existing routes;
  - Lack of consistent pavement markings;
  - Need for better separation from motorized vehicular traffic;
  - Integration of bicycle movements into signal phases;
  - Additional street lighting;
  - Additional wayfinding signage; and
  - Poor quality of some existing street surfaces.

Basis of Needs Assessment

The following sections describe the assumptions used to develop the assessment of needs for the *2035 TSP*.

Planning Area and Land Use Assumptions

The *2035 TSP* addresses the projects, programs, and policies needed to support growth in population and jobs within the Eugene UGB as well as the travel associated with regional and state economic growth between now and the year 2035. The *2035 TSP* defines the transportation facilities needs within Eugene's adopted UGB, as defined in the *Mero Plan*, Eugene's adopted comprehensive plan. Over time, the City, Lane County, and ODOT will monitor the multimodal transportation needs and can update the *2035 TSP* to respond to changing conditions.

The *2035 TSP* also supports the land use strategies defined in *Envision Eugene, A Community Vision for 2032* (2012) and prioritizes recommendations that mitigate the strain on roadways by supporting transit service and making walking and bicycling trips more practical for working, shopping, and other daily activities; managing congestion; and improving safety. One primary focus of both the *Metro Plan* and *Envision Eugene* is on more compact development. As such, significant future residential development is likely to occur in the Downtown and "Key Corridors" (see Volume 2, Appendix E), including:

- Willamette Street;
- W 11th Avenue;
- Highway 99;
- River Road;
- Coburg Road;
- Franklin Boulevard.

The *2035 TSP* includes projects and programs, and identifies financial resources, that support the growth anticipated over the next 20 years along these Key Corridors.

The needs assessment and resulting projects (set forth in Chapter 4) that establish a transportation system adequate to meet the identified local transportation needs are based upon the land use designations established by the *Metro Plan.* Because the *2035 TSP* is based on the *Metro Plan* land use designations, any zone allowed within the land use designation is consistent with both the *Metro Plan* and this *2035 TSP*.[7] The *2035 TSP* reflects Eugene policy makers' and community members' priority to maintain existing facilities and provide multiple transportation options for local and regional travel. These priorities are based on the premise that the City can reduce congestion, save money, and provide health benefits for the entire community by providing alternatives to single occupancy vehicle travel and by making existing streets safer and more efficient without costly increases to automobile-oriented infrastructure.

2035 Population and Employment Forecasts

Forecast of year 2035 traffic volumes informed the identification of future transportation needs. The 2035 traffic volumes reflect estimates of household and job growth within the adopted UGBs of Springfield, Eugene, and Coburg as well as in Lane County and the overall region. These population and employment forecasts were "coordinated" for compliance with Oregon transportation and land use planning requirements.

The Eugene UGB shown in Attachment A, Figure 1, was used as the basis for the 2035 land use forecasts. Table 1 shows household and job growth forecasts within this UGB. This growth was allocated to developable areas within the current UGB consistent with the land use designations shown in the adopted *Metro Plan*.

Table 3.1: City of Eugene Land Use Estimates

	Year 2010	Year 2035	Growth
Population Forecast	177,332	219,060	41,728 (23%)
Households	74,950	92,580	17,630 (23%)
Employees	80,900	114,460	33,560 (42%)

[7] Looking ahead, when the City adopts a new comprehensive plan, unless the new comprehensive plan changes the current *Metro Plan* land use designations, a zone allowed within the land use designation will be consistent with both the new comprehensive plan and this *2035 TSP.* If adoption of the new comprehensive plan includes an expansion of the UGB, any amendments to the *2035 TSP* that are necessary to address the expansion area will be adopted currently with the UGB amendment.

Traffic Volume Development

Based on the geographic allocations of future job and household growth within the UGB, Lane Council of Governments (LCOG) developed traffic volume forecasts for the City's collector and arterial street system using an "emme" travel demand model. This model is calibrated to traffic volumes measured on streets and highways within the City. In addition to land use and street network inputs, the model also relies on information about existing traveler behavior and trip-making characteristics derived from surveys, and from research that forecasts how people might use the transportation system in the future.

Based on information obtained from LCOG, coupled with measured traffic counts at 50 intersections within the City, year 2035 intersection and roadway volumes were analyzed using a procedure consistent with guidance from ODOT's Analysis and Procedures Manual (APM). This analysis provided one method of identifying future transportation needs within the City's UGB.

Baseline Analysis

Previously adopted City of Eugene plans, *TransPlan,* and the *Regional Transportation Plan* (*RTP*) all identified a variety of street, pedestrian, bicycle, and transit projects that could be implemented in the future. A Baseline Analysis (also known as a "no build alternative") was performed for the *2035 TSP* to help identify multimodal projects and programs needed to support growth through the year 2035. This analysis informs the development of the 2035 project list reflected in Chapter 4.

The Baseline Analysis assumes the 2035 population and employment forecast and that the existing street, pedestrian, bicycle, and transit system will not change by 2035 except for the construction of transportation improvements that have already been started or for which funding is already allocated. At the time the analysis was prepared, there were no guaranteed funding sources for any major projects that will materially affect traveler behaviors and traffic volumes on the City's street network in the future, with the exception of the extension of EmX transit service to west Eugene.

With this baseline estimate of future travel conditions founded on the current transportation system, different transportation improvement strategies under consideration could be compared to each other and to the baseline. In this way the *2035 TSP* project list was constructed anew by reassessing unbuilt projects contained in previous plans and comparing these to new ideas for meeting our transportation needs.

Identified Transportation Needs

The results of the year 2035 Baseline Analyses are summarized in Volume 2, Appendix B: No Build analysis. Per this analysis, key corridors that could experience vehicular congestion and long queues at traffic signals include:

- The W 11th Avenue corridor from the UGB into downtown (even with the implementation of the EmX project).
- The Highway 99 corridor, particularly south of the Randy Papé Beltline and towards downtown.
- The River Road/Chambers Street corridor within the vicinity of the Randy Papé Beltline and south of the Northwest Expressway. River Road at Randy Papé Beltline Highway is a critical link in the regional and emergency response network since, without it, there would be 2.5 miles between other grade-separated crossings.

- The 6th Avenue/7th Avenue corridor, west of I-105, which provides a key vehicular and freight connections from points west of downtown to the Ferry Street Bridge and Coburg Road.
- Franklin Boulevard corridor between I-5 and downtown.
- Randy Papé Beltline Highway between Coburg Road and River Road. ODOT, Lane County, and the City of Eugene will participate in a project to identify future solutions for this segment of the corridor. *2035 TSP* will be updated to reflect these ongoing efforts, as appropriate.
- Randy Papé Beltline Highway between Roosevelt Boulevard and W 11th Avenue.
- Coburg Road between downtown and the bridge over the McKenzie River near I-5.
- The East 30th Avenue/Amazon Parkway corridor between E 18th and 27th Avenues and between Hilyard and Agate Streets.
- All four Willamette River motor vehicle bridge crossings.

In addition to the roadway needs identified by the traffic model and by the analysis of existing transportation system conditions, the Transportation Community Resource Group (TCRG), participants at community workshops, Technical Advisory Committee (TAC), and agency staff identified these following needs to be addressed by the TSP:

- Improved range of transportation choices, especially for the transportation disadvantaged and connections between residents and employment.
- Improved safety for all travelers.
- Reliable freight movement, which is important to the national, state, and local economy, especially on designated freight routes.
- From the *2012 Bicycle and Pedestrian Master Plan*: filling gaps in the sidewalk system, gaps in the designated bikeway system, and need for improved pedestrian and bicycle facilities that will encourage greater use.

A word about "capacity"

One way to measure the performance of the transportation system is to compare the demand for travel on the system with the system's capacity to accommodate that demand. The demand for travel comes in many different forms, including motorized vehicles (autos, trucks), transit riders, and pedestrians and bicycles. The capacity of the system to accommodate these different forms of travel is expressed in similar terms.

Another way to measure the performance of the transportation system is to assess how well it is performing from a traveler's perspective. This is referred to as the quality of service or "level of service" (LOS) that is provided and it is typically summarized in a scale from A (representing the best quality of service) to F (representing the worst quality of service). A variety of factors affect the quality of service traveler's experience, and each of the different forms of travel is affected by different factors.

As an example, the quality of service for a bicyclist can be influenced by the volume and speed of vehicular traffic, the number of heavy vehicles, the potential for conflicts with pedestrians, and the pavement condition. On the other hand, the quality of service for vehicles is influenced by the delay experienced at intersections and the speed of travel along a roadway.

- From the *Long Range Transit Plan* and *Envision Eugene, A Community Vision for 2032 (*2012): a need for frequent, reliable transit services along Key Corridors.
- From the *Climate and Energy Action Plan* and Climate Recovery Ordinance: a desire to reduce community-wide greenhouse gas emissions 10 percent below 1990 levels by 2020, reduce community-wide fossil fuel use 50 percent by 2030, and adapt to a changing climate and increasing fossil fuel prices.
- Equitable distribution of improvements geographically and for economical and other social strata.

Evaluation of Transportation System Alternatives to Address Identified Needs

The Transportation Community Resource Group (TCRG), participants at community workshops, Technical Advisory Committee (TAC), and agency staff identified a number of transportation system alternatives that had the potential to address existing and future transportation needs. These alternatives address all modes of travel and also include programs that would reduce vehicular travel demand. Further, these potential system alternatives avoid principal reliance on any one mode of transportation and increase transportation choices, and reflect Eugene's commitment to the sustainability triple bottom line (environment, equity, and economy). City staff developed these ideas into a potential project list that was screened by the TCRG and Project Management Team (PMT) against a set of evaluation criteria established by the TCRG. This multistep process is described below.

Evaluation Framework

Early in the TSP process, the PMT, TCRG, and TAC developed an evaluation framework for screening potential projects. This framework referenced the Sustainable Transportation Analysis and Rating System (STARS)[8] and is reflective of the City's commitment to the Triple Bottom Line. Table 3.2 presents the evaluation criteria applied to the potential project list. Some criteria, noted as "key criteria," proved most useful and effective in comparing project and program ideas. While the "key criteria" often served as differentiators between potential projects, all criteria listed below were used to perform a preliminary screen of potential projects that address existing and future needs. All of the criteria were also used for a more detailed review of those ultimately identified for the 20 year list of projects reflected in Chapter 5.

[8] www.transportationcouncil.org

Table 3.2: Evaluation Criteria

Evaluation Criteria	Key criteria
1. Safety and Health	
Double the percentage of pedestrian, bicycle, and transit trips by the year 2035.	
Improve community health by increasing physical activity as part of the transportation system.	
Support the reduction in quantities of harmful airborne pollutants associated with transportation.	
Improve safety and security for all users, especially for the most vulnerable; strive for zero fatalities.	x
2. Social Equity	
Use future transportation investments to reduce or eliminate disparities between neighborhoods in access, economic benefits, safety, and health.	x
3. Access and Mobility for All Modes	
Foster neighborhoods where 90 percent of Eugene residents can meet most daily needs without relying heavily on an automobile.	x
Improve the comfort and convenience of travel, especially for walking, bicycling, carpooling, and riding transit.	
Maintain a network of Emergency Response Streets to facilitate prompt emergency response.	
Complete safe, comfortable, and direct sidewalk and bikeway networks between key destinations, transit stops, and residential areas.	
Support Lane Transit District's efforts to provide high-capacity, frequent transit service, on the Frequent Transit Network.	
4. Community Context	
Ensure consistency between transportation investments and all relevant adopted and accepted local plans.	
5. Economic Benefit	
Support redevelopment priorities by promoting compatible transportation investments along key corridors and in core commercial areas, including downtown.	x
Encourage infrastructure and programs that allow residents to reduce expenditures on fuel and vehicle use.	
Support predictable travel times between key origins and destinations for high priority trips such as transit and regional freight movement.	
Increase access to employment centers via foot, bike, and transit, while improving the quality of the traveling experience.	x
Support access and visibility of businesses that rely on drive-by traffic by balancing congestion with economic development goals.	
6. Cost Effectiveness	
Optimize benefits relative to public, private, and social costs over the plan's time horizon.	x
Maximize the efficiency and life of the current transportation system.	
Favor transportation investments that have potential funding for both implementation and ongoing maintenance.	

Evaluation Criteria	Key criteria
7. Climate and Energy	
Focus on transportation programs and projects that help to: • reduce total community-wide fossil fuel use by 50% by 2030 • reduce vehicle miles traveled per capita by 10% by the year 2020 • reduce community-wide greenhouse gas emissions 10% below 1990 levels by 2020	x
8. Ecological Function	
Improve water quality and lower the rate of stormwater runoff from transportation infrastructure.	
Reduce the urban heat island caused by paving that absorbs and re-radiates heat.	
Foster transportation investments that avoid damaging and improve habitat areas, where possible.	x

Initially, the potential project ideas identified to serve existing and future multimodal needs were presented to the TCRG, PMT, and TAC as conceptual “fat lines” on maps to denote areas of concern. These maps grouped potential ideas by geographic areas of the City to ensure that every neighborhood’s needs were addressed.

Based on feedback on the conceptual idea maps, the PMT culled the list of potential project ideas against the following questions:

1. Does the project address an identified transportation problem or opportunity?
2. Is the project within the City of Eugene’s Urban Growth Boundary or planning area? Is it within the City’s control, or the control of its partnering agencies, to implement?
3. Is it technically feasible to build this project?
4. Could the project be funded?
5. Could the project receive necessary environmental permits?

If the answer to any question was “no,” the project idea was not considered further. Those remaining ideas were identified as projects and evaluated by City staff against the criteria shown in Table 3.2. The staff evaluation was then presented to the PMT and TCRG for further review.

The TCRG and PMT reviewed and refined this evaluation to define a 20-year project list that could address the identified transportation needs, and meet the draft *2035 TSP* goals and criteria contained on ORS 660-012-0035. In addition, City staff, working with the PMT, TCRG, and public input, identified additional projects that would be needed to support a specific residential or employment development area, those that would require more study prior to being added to the 20-year list, and those that were not needed to support the identified needs but could be considered if changes occurred in the future. City staff also identified operational projects, such as intersection modifications and signal system improvements that are critical to the successful implementation of City transportation goals and policies.

The screened projects were advanced for inclusion in this TSP as the “20-year list,” “Study Projects”, “Projects to Complete Upon Development”, and “Operational Projects”, respectively. The PMT performed a qualitative and quantitative evaluation of these projects relying on the key criteria shown in Table 3.2. The draft project lists and a map of the project locations were posted to the project’s public website for three years prior to adoption. The project lists are provided in Chapter 5.

Chapter 4: Creating Multimodal Systems

The *2035 TSP* is fundamentally a set of policies, programs, and projects that address the transportation needs within Eugene's UGB over the next 20 years with a coordinated multimodal transportation system. This chapter provides an overview of these programs and projects. Policies and potential programs are provided in Chapter 2, whereas the detailed project list is shown in Chapter 5. Planning for a network of "Complete Streets" that can serve the City's identified transportation needs is an integral part of the *2035 TSP.* Although automobiles will continue to be a primary mode of travel, and preservation and improvement of the existing street system remains important, the *2035 TSP*'s projects, policies, and programs highlight improvements that are designed to increase transportation choices, reduce reliance on the automobile by better accommodating and encouraging travel by foot and bike for short trips, improve safety for all street users, and provide for more reliable transit service on Key Corridors. It is this focus of the *2035 TSP*, together with the City's adopted land use plans and regulations, that will ultimately result in land use patterns and transportation systems that make walking, cycling, and use of transit highly convenient so that, on balance, people need to and are likely to drive less than they do today.

It is a goal of this plan to triple the percentage of trips made on foot, by bicycle, and by transit from 2014 levels. Through a combination of transportation system improvements and land use measures, walking and biking could become the preferred methods of travel for trips under 0.5 miles and 2 miles, respectively.

Achieving Complete Streets

Achieving a network of "Complete Streets" and helping more Eugene residents and visitors **shift their travel towards walking, bicycling, and transit** will provide many benefits to individuals and the community at large, including:

- Reduced traffic congestion and exposure to crashes and injury;
- Higher levels of individual health and wellness;
- Healthy business districts and more dollars staying in the local economy;
- Better air quality and lower levels of greenhouse gases and noxious emissions;
- Available options for lower cost travel;
- Lower costs for roadway maintenance;
- More equitable access to community resources; and
- More options for all people, and especially youth and seniors, to travel independently throughout the community.

Pedestrian System

The *2035 TSP's* pedestrian-oriented projects and programs are aimed at serving different types of walking trips for people of all ages and abilities. To ensure that walking will constitute most of the trips of less than half a mile within Eugene, pedestrians must feel safe and comfortable, and have convenient access to their desired destinations. The pedestrian capital projects and operational programs in the *2035 TSP* focus on components of transportation system alternatives that address the following needs identified through analysis of the existing and future system deficiencies:

- Filling gaps in the sidewalk network between neighborhoods, schools, parks, recreational areas, activity centers, and major transit stops, and to regional facilities;
- Arterial and collector street crossings and safety enhancements;
- Widening the shared use pathway system in the busiest sections; and
- Education about walking safety and access to key routes.

The *2035 TSP* also calls for an update in the City's street design standards, development of a sidewalk infill program, and improved enforcement of laws that improve pedestrian safety.

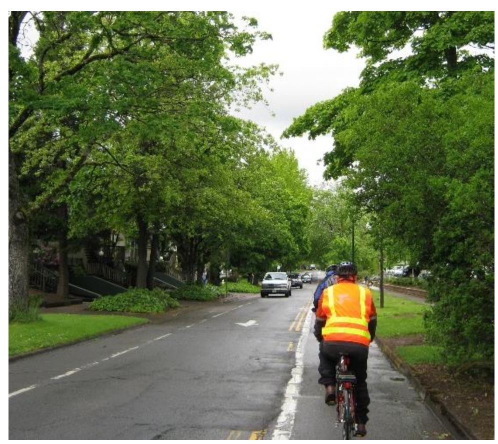
The City has updated its *2015 Americans with Disabilities Act Transition Plan for Accessibility in Public Rights-of-Way*[9] to better identify existing transportation facility deficiencies, such as curb ramps and accessible pedestrian devices, and develop a phased plan to eliminate these deficiencies.

The list of pedestrian projects in support of the policies and the identified needs are shown in Chapter 5. These were largely pulled from a 2012 pedestrian and bicycle master planning effort. Appendix F of Volume 2 provides the outcome of that March 2012 Pedestrian and Bicycle Master Plan. While the map of all potential pedestrian system improvements include some on local streets, only improvements on collector and arterial streets were considered for the *2035 TSP* project list and cost estimations.

Bicycle System

To encourage increased travel by bicycle, the *2035 TSP* provides a list of projects and programs that will improve safety, convenience, and direct connections for people traveling by bike. Bicycling promotes the health of individuals, has a low impact on the environment, and allows people to move independently throughout the community without motorized vehicles, including many who cannot or choose not to drive. The bicycle-oriented capital projects and operational programs in the *2035 TSP* focus on components of transportation system alternatives that address the following needs identified through the analysis of existing and future system deficiencies:

- Completing the bicycle route network throughout the City;
- Street designs that slow speeds on neighborhood greenways;
- Increasing the quantity of bike lanes that are separated or buffered from motorized traffic or parked cars;
- A convenient bike share system;
- Better wayfinding signage;
- Educational programs;



Separate bike facilities can be useful in busy locations.

Source: CH2M

[9] In 2015, the City of Eugene conducted an evaluation of its public rights-of-way, and developed a transition plan that outlines in detail how the city will ensure safe access to all of its facilities for all individuals. As part of this new draft companion transition plan, Public Works collected detailed data on over 15,000 sidewalk ramps and 250 pedestrian signals to develop transition schedules specific to these facilities. In addition to the inventory of ramps and pedestrian signals and schedules, the transition plan for the public rights of way also includes a system of barrier removal prioritization, information on how to request barrier removals from right-of-way facilities, and an appeals process.

- Expanded bike storage on buses and at transit stops and stations; and
- Improved bicycle connections to transit hubs.

The list of bicycle projects in support of the policies and the identified needs are shown in Chapter 5. The *2035 TSP* is the City's bicycle and pedestrian plan, providing projects and policies that will create a network of bicycle and pedestrian-friendly routes throughout the planning area. The identified bicycle needs, as well as the bicycle policies and projects set forth in the *2035 TSP*, were largely pulled from a March 2012 pedestrian and bicycle master planning effort, the outcomes of which are provided in Appendix F of Volume 2. While the map of all potential bicycle system improvements may include some on local streets, only improvements on collector and arterial streets were considered for the *2035 TSP* project list and cost estimates.

Transit System

The City's comprehensive land use plan and *Envision Eugene, A Community Vision for 2032* vision articulated in 2012, rely on frequent, reliable transit service to serve major streets, known as "Key Corridors," where higher density and mixed-use development is encouraged. The *2035 TSP* policies promote improved transit services that are integrated through context specific multimodal planning for all Key Corridors. The provision of high-quality, available, and reliable transit service fundamentally supports the environment, economic development, and equity for all travelers.

Based on the needs analysis, the *2035 TSP* focuses on collaboration with LTD to provide service enhancements, capital improvements, and policies that support:

- Changes to streets and intersections to facilitate bus movement;
- Frequent and reliable transit service, including bus rapid transit (*e.g.*, "EmX"-style of transit service) along Key Corridors;
- Amenities that also serve pedestrians and people on bikes, and intermodal connections to transit;
- Car share and bike share programs that can extend the first and last mile of transit trips; and
- Refinements to transit routes and schedules.

The *2035 TSP* supports Lane Transit District's Frequent Transit Network (FTN), as defined in the Lane Transit District *Long Range Transit Plan*, as a regional initiative to better connect areas of more active development to transit.

The list of transit projects in support of the policies and the identified needs are shown in Chapter 5. Appendix J of Volume 2 of the *2035 TSP* provides LTD's Long Range Transit Plan from which the TSP's transit-related needs, policies, and projects were in large part identified.

Street-related Projects and Programs

The needs analysis identified arterial and collector streets that experience or are projected to experience traffic congestion and delay, lack of pedestrian and bicycle facilities that comfortably serve a broad range of prospective users, and conditions that hinder implementation of frequent, reliable transit services in a cost effective manner. The following corridors were identified as strategic areas of focus: West 11th Avenue, Highway 99, River Road/Chambers Street, 6th and 7th Avenues, Franklin Boulevard, Randy Papé Beltline, Coburg Road, East 30th Avenue/Amazon Parkway, and each of the

Willamette River bridges. In addition, the following streets are also defined as Key Corridors by *Envision Eugene, A Community Vision for 2032,* articulated in 2012, where higher density and mixed-use development is encouraged: Willamette Street, West 11th Avenue, Highway 99, River Road, Coburg Road, and Franklin Boulevard.

To meet the identified street system needs, the *2035 TSP* focuses strategies that improve connections between existing neighborhoods, employment, and commercial areas; provide connections to newly developed areas; improve safety for all travelers, and increase the use of Transportation Demand Management (TDM) and Transportation System Management and Operations (TSMO) programs that increase the efficiency of the existing system. The policies and potential actions contained in Chapter 2 promote the preparation of comprehensive multimodal and land use plans for each Key Corridor, which will help identify context-appropriate design solutions and a prioritized list of improvements for each corridor.

The list of street-related projects and programs are provided in Chapter 5. Appendices B and D of Volume 2 detail the existing and future needs and deficiencies from which these projects, policies, and programs are based.

Functional Classification of Streets

Most of the City is served by an established network of streets. It is expected that automobiles will continue to be the primary method of personal travel for the next 20 years. The street system is also important for the conveyance of freight, public transit, and for emergency responses. The *2035 TSP* focuses on projects that improve safety and increase the efficiency of the existing street system as well as the provision of new streets to serve newly developing areas within the UGB.

The City of Eugene street functional classification system organizes the roadway network as a balanced hierarchy of mobility and access to, through and between different types of land uses. Some factors that are considered in setting a roadway's functional classification are average daily traffic (ADT) volumes, street connectivity, spacing of streets, the mix and amounts of different travel modes on a typical segment (*e.g.*, bikes and cars), etc. Over time, as the community continues to grow and mature, functional classifications are periodically revisited to insure that particular street classifications are still appropriate.

Functional classifications are defined below.

- **Major arterials** continue through cities and towns, and become the primary "arteries" for intra-urban movement within larger cities, as well as providing for through traffic and for travel from the city to outside destinations. One of the key characteristics of urban major arterials is therefore the high degree of connectivity they provide within cities. These streets and highways typically connect various parts of the region with one another and with the "outside world" beyond the city, and serve as major access routes to regional destinations such as downtowns, universities, airports, regional shopping centers, and similar major focal points within the urban area. In Eugene, major arterials typically have four or more vehicular travel lanes and, with the exception of freeways and expressways, typically have (or are designed to have in the future) sidewalks and planting strips, striped bicycle lanes, and raised median islands or two-way left turn lanes.
- **Minor arterials** function as conduits for a large proportion of intra-urban trips. These streets provide the next level of urban connectivity below major arterials. Minor arterials sometimes provide a fairly high degree of intraregional connectivity. In Eugene, a typical minor arterial contains two vehicular

lanes plus a center turn lane, bike lanes, planting strips (in some cases), and sidewalks. A few minor arterials are wider and contain up to 4 vehicular travel lanes plus left-turn lanes or median islands.

- **Collector streets** connect vehicles, pedestrians, and bikes from the interior of a neighborhood or employment area and deliver it to the nearest arterial street. Collectors are also designed to provide access to properties. They usually serve shorter trip lengths and have lower traffic volumes than arterial streets. Collector streets are important emergency response routes and are frequently transit routes. While the function of major and neighborhood collectors is essentially the same, the neighborhood collector classification is applied only in residential neighborhoods and on rural streets. Standards for neighborhood collectors provide additional design flexibility to preserve the livability and character of residential areas.
    - **Major collectors** can be found in residential, commercial and industrial areas. Typically, major collectors have greater right-of-way and paving widths, and wider traffic lanes than neighborhood collectors. Major collectors frequently have continuous left turn lanes and normally include sidewalks, planting strips, and striped bike lanes whereas provision for on-street parking varies by location. Major collectors may be designed with raised medians to reduce conflicts, provide a pedestrian refuge, restrict turning movements, limit land access, or to furnish an aesthetic separation between traffic lanes.
    - **Neighborhood collectors** are found only in residential neighborhoods and provide a high degree of access to individual properties. This street type does not apply to commercial and industrial areas, or to most areas with a concentration of multifamily residential buildings. As a rule, both right-of-way and paving widths are narrower than for major collectors. Left turn lanes are infrequently used on neighborhood collectors, and then only at intersections with higher volume streets. Neighborhood collector design provides for a great deal of flexibility for on-street parking. On most neighborhood collectors, bicycles share the travel lane with motor vehicles, eliminating the need for striped bicycle lanes. Exceptions to this can occur in situations where traffic volumes or speeds, roadway geometry, or other factors suggest that striped lanes will provide a safer design.

As part of the needs analysis, *Eugene's Street Classification Map* was reviewed in light of the classifications shown in the *Regional Transportation Plan* (*RTP*), the *Oregon Highway Plan* (OHP), and the criteria set forth in the *Eugene Arterial and Collector Street Plan* (*ACSP*). This review identified a number of streets that needed a change in classification to ensure consistency between the various plans governing and providing guidance to the operation and construction of streets and roads within the City's UGB. All streets within the UGB need to be classified under the City's criteria. Attachment B is the 2016 Street Classification Map that updates the street classification map adopted by the City Council in 1999.

Street Design Standards

Street design standards provide information on how streets within each of the functional classifications "look and feel." The City's adopted *Design Standards and Guidelines For Eugene Streets, Sidewalks, Bikeways and Accessways* (1999) set forth how existing streets can be modified and new streets can be constructed to accommodate the needs of people with disabilities, riding bicycles, using transit, walking, driving automobiles and moving freight. See Appendix H in Volume 2 for further details on the design standards.

In the past, most street design standards were primarily oriented toward moving vehicular traffic, providing rudimentary bike lanes and sidewalks for pedestrians. The *1999 Design Standards and Guidelines for Eugene Street, Sidewalks, Bikeways and Accessways* serves as the City's current mandatory design standards and advisory guidelines for arterial, collector, and local streets, and provide for safe and convenient bike and pedestrian circulation. These *Design Standards and Guidelines* will need to be updated to incorporate the *2035 TSP's* newer guidance on best practices for bicycle and pedestrian facilities. The policies and action items in *2035 TSP* provide guidance for future updates to street standards. For example, application of the *2035 TSP's* Complete Streets policy will advance the provision of streets that are designed and constructed to provide comprehensive and integrated transportation networks that serve all modes of transportation and create quality facilities that invite people of all ages and abilities to pursue active transportation. It is through the provision of these comprehensive and integrated networks that the City will make walking, bicycling and use of transit highly convenient for those who choose not to drive as well as serving the needs of the transportation disadvantaged.

Bicycle and Pedestrian Facility Types

The following bicycle and pedestrian facility types are used in the City of Eugene.

Sidewalks	
	Sidewalks are paved walkways adjacent to roadways. Sidewalks are particularly important for basic mobility of people with disabilities. Setback sidewalks (featuring a planted barrier between the sidewalk and travel way) can create more comfort and safety for people walking.
Accessways	
	An accessway is a connector that provides a direct route between residential areas, retail and office areas, institutional facilities, industrial parks, transit streets, and neighborhood activity centers. An accessway will often provide connection between a shared use path and adjacent neighborhood streets.

Neighborhood Greenway

A neighborhood greenway is a bike route on a low-volume, low-speed street that has been optimized for bicycle travel. Neighborhood greenways contain different features depending on adjacent land uses, however all neighborhood greenways in Eugene will contain wayfinding signs, pavement markings, and intersection treatments. Neighborhood greenways may also feature diversion to reduce automobile volumes and traffic calming to slow motor vehicle speeds.

Shared Use Paths

Shared-use paths are paved paths separate from the roadway network that are designed for both walking and bicycling. Where space allows, high use corridors may be developed with redundant paths to separate people walking from people biking. The paths for people walking or running may be unpaved depending on intended use.

Sidewalk Paths

A sidewalk path, sometimes called a “sidepath”, is a separated facility for walking and bicycling adjacent to a roadway. Sidewalk paths most closely resemble a wide sidewalk. Due to user conflicts at intersections this type of facility is used sparingly in locations with few driveway entrances. Sidewalk paths are primarily used to connect segments of the bicycle network.

Bike Lane

A bike lane is a marked space along a length of roadway that is designated for use by people bicycling. Wheelchair users and some motorized scooters are allowed in bike lanes.

Some bike lanes will feature a buffer strip to provide space between the bike lane and the auto lane or parked cars.

Bike lanes may also use green colorant where an auto lane crosses the bike lane.

Protected Bike Lane	
	A protected bike lane, sometimes called a “cycle track”, is an exclusive bicycle facility adjacent to, but separated from, the roadway. Separation is generally achieved using planters, parked cars, curbs, or posts to separate people biking from people driving. They are best on roads with few cross streets and driveways, particularly on roadways with high auto volumes and speeds. A protected bike lane provides a logical extension of a shared use path because it provides the sensation of riding on a path due to the separation from motorized traffic.
Grade Separated Crossings	
	A grade separated crossing occurs where an at-grade crossing is unsafe, such as crossing an interstate highway, or not practical. Grade separation in an urban context generally means that a facility for walking or bicycling is constructed below or above and existing roadway. Bridges across waterways are also considered grade separated crossings in Eugene.

Vehicular Performance Measurement

The City uses motor vehicle level of service (LOS) standards to evaluate acceptable vehicular performance on the City’s local, collector and arterial streets. LOS standards are presented as grades A (free flow traffic conditions) to F (congested traffic conditions). ODOT uses mobility targets based on volume to capacity (V/C) ratios to evaluate acceptable vehicular performance on state facilities. As V/C ratios approach 1.0, traffic congestion increases.

These standards and targets are used to:

- Identify vehicular capacity deficiencies on the roadway system;
- Evaluate the effects of amendments to transportation plans, acknowledged comprehensive plans and land-use regulations pursuant to the Transportation Planning Rule (TPR; Oregon Administrative Rules [OAR] 660-12-0060) on the city and state roadways;
- Evaluate the traffic impacts of development applications for consistency with the land-use regulations.

In some cases, it may not be possible or desirable to meet the designated mobility target or LOS standard. In those cases, an alternative mix of strategies such as land use, transportation demand management, safety improvements or increased use of active modes may be applied.

The use of mobility standards for roadways identifies the maximum amount of congestion that an agency has deemed to be acceptable. Such standards are commonly used to assess the impacts of proposed land use actions on vehicular operating conditions and are one measure staff uses to determine transportation improvement needs for project planning. Mobility standards are typically expressed as Volume-to-Capacity (V/C) Ratios and/or Level of Service (LOS), which are defined below.

- **V/C** represents a facility's level of saturation (i.e., what proportion of capacity is being used), with values ranging from 0.01 to 1.00. A lower ratio indicates smooth vehicular operations and minimal delays. As the ratio approaches 1.00, congestion and vehicular delays increase. At a ratio of 1.00, the intersection, travel lane, or automotive movement is saturated resulting in longer queues and delays.
- **LOS** is a performance measure that is similar to a "report card" rating based on average vehicle delay. LOS A, B, and C indicate conditions where traffic moves without significant delays. LOS D and E indicate progressively worse operating conditions and more delay. LOS F represents conditions where average vehicle delay has become excessive and demand is near capacity. This condition is typically evident by long queues and delays, with intersection delays that may be difficult to measure because congestion may extend into and be affected by adjacent intersections. The table shows the average delay value (in seconds) corresponding to each LOS designation.

LOS	Signalized Intersections	Unsignalized Intersections
A	≤10 sec	≤10 sec
B	10–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	35–55 sec	25–35 sec
E	55–80 sec	35–50 sec
F	>80 sec	>50 sec

Table 4.1 presents mobility targets and LOS standards to be applied in the City of Eugene. Because mobility targets from the Oregon Highway Plan (OHP) are applied on state facilities, the City will seek ODOT amendment of the OHP to include alternative mobility on the identified ODOT facilities. ODOT performance standards are reflected in Table 4.1 for city streets near highway interchanges; this interchange influence area is generally defined as one-quarter mile from a ramp terminal or as the area between the ramp terminal and the first public street intersection.

Table 4.1: City of Eugene Vehicular Performance Measures

Jurisdiction	Roadway	Standard (peak hour, unless noted)
City	Citywide (unless otherwise specified)	LOS E
City	Eugene Downtown Traffic Impact Analysis Exempt Area	LOS F
ODOT	Randy Papé Beltline/Highway 99 ramp termini	1.0 V/C
ODOT	Randy Papé Beltline/Roosevelt Boulevard intersection	1.0 V/C
ODOT	Highway 99/Roosevelt Boulevard intersection	1.0 V/C
ODOT	Highway 99 from Roosevelt Boulevard to 5th Avenue; 6th and 7th Avenues to Garfield Street	1.0 V/C
ODOT	6th Avenue/Garfield Street intersection	1.0 V/C
ODOT	6th Avenue/Madison Street intersection	1.0 V/C

Jurisdiction	Roadway	Standard (peak hour, unless noted)
ODOT	6th Avenue/Chambers Street intersection	1.0 V/C (2 hour)
ODOT	7th Avenue/Chambers Street intersection	1.0 V/C
ODOT	6th and 7th Avenues from Madison Street to Lincoln Street	1.0 V/C
ODOT	Randy Papé Beltline/W 11th Avenue intersection	1.0 V/C (2 hour)
ODOT	River Road from Irving Road to River Avenue (Randy Papé Beltline Highway interchange influence area)	1.0 V/C
ODOT	Delta Highway from Green Acres Road to Goodpasture Island Road	1.0 V/C
ODOT	Coburg Road from Chad Drive to Elysium Avenue (Randy Papé Beltline Highway interchange influence area)	1.0 V/C
ODOT	Franklin Boulevard from Walnut Street to I-5	1.0 V/C

Some of the intersection and corridor locations listed in Table 4.1 are part of ODOT's Beltline Facility Plan and the related National Environmental Policy Act (NEPA) project. At the time the *2035 TSP* was drafted, the Facility Plan was complete but the NEPA project had not commenced. The recommended target threshold for the affected intersections/corridors will be refined to reflect NEPA findings. The *2035 TSP* recognizes the need to coordinate with these efforts and will be updated accordingly.

Truck Routes

Both the *2035 TSP* and the *Oregon Transportation Plan* (OTP, 2006) recognize the important role that an efficient and reliable transportation system plays in supporting the region's economy, growth, and quality of life. Within the Eugene-Springfield area, highways, city streets, airports, pipelines, and railways provide freight mobility. Trucks, rail, and air service must function together to ensure the efficient and timely movement of freight to, within, and through the community.

Discussions with the TCRG, TAC, Lane Area Commission on Transportation (Lane ACT), and other public stakeholders, identified a concern that freight movement would be hindered by delays in traffic congestion.

As part of the needs analysis, changes to the existing freight and truck routes were identified to ensure consistency with state and federal designations and guidance. One way in which this need is being address is an amendment to the Street Classification Map to change the classification of the Northwest Expressway (from the northern UGB to River Road) from a Minor Arterial to a Major Arterial. The *2035 TSP* policies support technological and information systems that will make freight delivery times more reliable.

A map of the state highway freight system from the 1999 Oregon Highway Plan is provided as Attachment E, Figure 1, State Highway Freight System.

Transportation System Management and Operations (TSMO) and Transportation Demand Management (TDM)

Transportation Demand Management (TDM) are strategies and policies to reduce travel demand (specifically that of private single-occupancy vehicles), or to redistribute this demand in space or in time.

The *2035 TSP* Goals and Policies rely on providing cost effective, multimodal solutions that increase the safety and efficiency of the existing street system, promote travel options for all users, support the economy, and support the Climate Recovery Ordinance. Transportation System Management and Operations (TSMO) and Transportation Demand Management (TDM) strategies are a key part of achieving these goals.

TSMO and TDM strategies enhance people's choices to bike, walk, take transit, share rides, and telecommute. Expansion of these strategies provides individuals with flexible options regarding how, when, where, and how often they travel. TSMO and TDM strategies do not encourage one mode of travel over another, but rather offer greater travel choices to enhance mobility and accessibility and to maximize transportation investments. Appendix K in Volume 2 contains a range of potential TSMO strategies that could be used by the City in the future.

TDM and TSMO strategies encompass commute and school-based trips, as well as casual trips to the grocery store, shopping mall, recreational sites, and special events.

In 2005, the City adopted *Standards for Transportation Demand Management Programs*. These standards provide a mechanism to vary the number of required off-street parking spaces by providing a strategy for reducing vehicle use and parking demand and using benchmarks to measure program effectiveness. The *2035 TSP* proposes to expand the use of TDM and TSMO practices beyond parking to help address traffic congestion, fossil fuel reduction goals, safety, and the financial burden of travel on individuals.

Eugene, in collaboration with the Central Lane MPO, LTD/ Point2point, and the City of Springfield identified the following key programs and services through the *Regional Transportation Options Plan*:

- Traveler Information and Coordination Tools: Continued outreach and education, "Sunday Streets," transportation fairs, community wide commute challenges etc.;
- Smart*Trips* individualized marketing programs to encourage active transportation choices;
- School-Based Transportation Options: Build off existing Safe Routes to School programs to include coordinated program with ridesharing and transit promotion. Expand program to middle and high schools;
- Rideshare (carpooling and vanpooling);
- Transportation Options Resource Program: Transportation Options Development Workshops and Training;
- Mobility Hubs: provide Wi-Fi technologies, pocket maps/brochures, secure bicycle parking, car- and bike-share services, shuttle service, and other assistance near several transit stations;
- LTD's Group Bus Pass program.

In addition to supporting these programs, the *2035 TSP* recommends intersection and corridor-based improvements that improve the efficiency of the existing traffic signal system (Intelligent Transportation

Systems, or ITS) and improvements to travel efficiencies, safety, and reliability with coordinated and responsive signal timing, bus and freight priority treatments, ramp metering, incident management, traffic monitoring, improved street lighting, and other safety-based measures.

Further details of TSMO and TDM strategies that support the *2035 TSP* are provided in the *Regional Transportation Options Plan* in Appendix G of Volume 2 and in the City's *Standards for Transportation Demand Management Programs*.

Parking

For people traveling by bike and by car, parking is an essential feature needed at the beginning and end of each trip. While the presence of adequate parking is an important factor in ensuring a city's economic vitality, especially in the downtown, retail and employment areas, surface parking lots are typically associated with significant areas of impervious surfaces dedicated solely for car storage and maneuvering room. The use of surface parking lots can conflict with providing desired urban form and densities. Multi-level parking garages, which use land more efficiently, are expensive to build.

The Eugene Code contains key parking provisions as:

- Minimum and maximum parking requirements for cars and bikes;
- Reduction of minimum parking requirements with an approved strategy according to the *Standards for Transportation Demand Management Program (2005)*;
- Parking exemptions in the downtown, West University Neighborhood, and Blair Boulevard Historic commercial area;
- Provisions for the shared use of parking spaces;
- Inclusion of on-street parking toward meeting off-site parking needs in some circumstances.

These code provisions can be further supported by enforcement and permitting practices, management of future parking supply in key employment areas, enhanced public information, improving multimodal access into the downtown and to the University of Oregon, regular revision of the City's *Bicycle Parking and Motor Vehicle Parking and Loading Standards* to reflect current needs and circumstances, and other operational strategies promoted by the *2035 TSP* policies and potential actions.

Rail

The needs analysis identified rail as an important, energy efficient mode of freight transportation. The *2035 TSP* supports the continued use of freight rail tracks and service provided in Eugene by Burlington-Northern Santa Fe (BNSF), Central Oregon and Pacific (COPR), Union Pacific (UP), and Portland and Western (P&W).

The needs analysis also identified passenger rail as an important strategy for providing energy efficient passenger travel between Eugene and other regional destinations. ODOT is currently studying improvements to allow higher speed, more frequent, and reliable passenger rail between Eugene-Springfield and Vancouver, Washington. The *2035 TSP* supports continued, regional passenger service by Amtrak to the Eugene Amtrak Station in downtown, the construction of two rail sidings and a new passenger platform that will enhance passenger rail service and separate passenger rail from freight at the Eugene Depot. These projects are shown in Chapter 5.

Federal law requires trains to sound their horns prior to entering at-grade crossings to warn motorists, bicyclists, and pedestrians that the train is approaching. Since February 2008, the Eugene City Council has supported establishing a "railroad quiet zone" to reduce friction between rail activity and the areas' residential and commercial activities. In downtown Eugene and the Whiteaker neighborhood, the neighborhoods closest to the station and where trains blow horns most frequently, the use of train horns would be reduced through the use of supplemental safety measures at street crossings of the UP railroad tracks. While a citywide railroad quiet zone is a long term objective, the Downtown-Whiteaker project is identified as a 20 year priority in this TSP.

Eugene Airport

The Eugene-Springfield region is served by the City of Eugene's Airport at Mahlon Sweet Field (EUG). This airport is located north of the Eugene UGB. The *2035 TSP* supports continued use of the airport for freight and passenger travel as well as for military use, Civil Air Patrol, the Lane Community College Aviation Academy, and as a base of operations for the aerial suppression of large-scale fires by specially-modified aircraft. Typically, such aircraft are contracted by the Oregon Department of Forestry or the U.S. Forest Service.

Eugene Airport Terminal

Source: City of Eugene

The roadway improvements proximate to the airport included in Chapter 5 will enhance opportunities for industrial development and employment opportunities that support airport activity. Further, to provide transportation options for the transportation disadvantaged, the *2035 TSP* encourages improved transit connections to the airport.

The Federal Aviation Administration (FAA) requires the creation of an Airport Master Plan to assist airports with expansion and improvement plans over a 20-year planning period. The 2010 Airport Master Plan Update for the Eugene Airport, adopted by the City and Lane County as a refinement to the *Metro Plan*, provides a development and expansion framework for the 20-year planning period starting from base year 2006. The *2035 TSP* recognizes the 2010 Airport Master Plan Update and incorporates its findings and goal by reference. The Master Plan Update is included in Appendix L of Volume 2. A master plan update process is underway and will be completed by the end of 2017.

Waterways

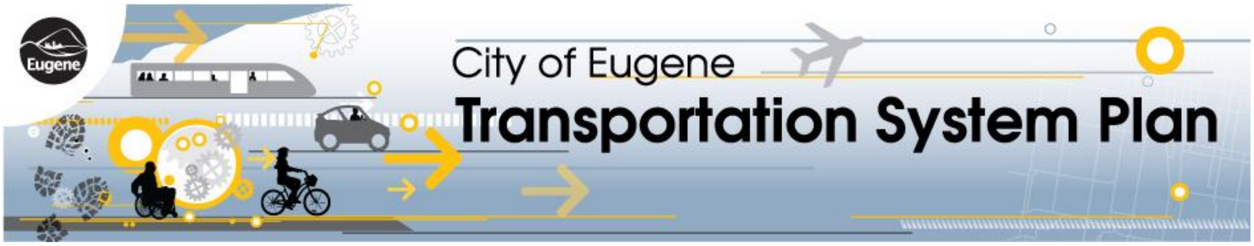
Over time, waterways have significantly shaped the evolution of Eugene's transportation and land uses. However, their influence as an active component of the transportation network is limited today.

Although the Willamette River is considered a navigable waterway for the purposes of determining public ownership, it is too shallow to be navigable for commercial purposes. Today, there are no ports or navigational facilities within Eugene, nor are any planned.

The Willamette River is a designated water trail that extends from Portland to south of Eugene. Water trail improvements that may be proposed for recreational purposes would be reviewed by policies contained in the Eugene *Parks, Recreation and Open Space Comprehensive Plan*, *Metro Plan*, *Envision Eugene Comprehensive Plan* (future), and other applicable City policy documents and codes.

Pipeline Facilities

Pipelines provide transportation opportunities in Eugene by moving liquids and gases throughout the community. Connections to trains or trucks for local distribution are required. Maintenance and operations of the major pipelines are outside the jurisdiction of the City; therefore no policies or projects directly related to the pipelines are proposed. The *2035 TSP* includes policies that support projects and regulations that reduce transportation inefficiencies and risks from the transportation of hazardous materials, such as when natural gas or oil is transferred between pipelines, trucks, and trains for local distribution.



Chapter 5: Transportation Priorities and Project Categories

The *2035 TSP* recommends transportation programs and infrastructure improvements to fulfill the plan's goals and policies. These are organized into the following five categories that suggest timeframes for implementation based on complexity, likely available funding (including potential funding sources), and assessment of need:

- Projects to be completed within 20 years;
- Operational projects (on-going);
- Projects to complete upon development;
- Projects to be completed beyond 20 years;
- Study projects.

Achieving *2035 TSP* goals and the City's commitment to creating a transportation plan that supports the **Triple Bottom Line** were assessed using eight evaluation criteria:

1. Safety and health
2. Social equity
3. Access and mobility for all modes
4. Community context
5. Economic benefit
6. Cost effectiveness
7. Climate and energy
8. Ecological function

Inclusion of a project in the next 20-years or beyond 20 years does not represent commitment to complete the project during that timeframe. It is expected that some projects may be accelerated and others postponed due to changing conditions, funding availability, public input, or more detailed study performed during programming and budgeting processes. Also, the projects described in these lists represent the best estimation for appropriate design available at time of TSP adoption. Since the TSP was drafted at a high-level citywide scale, project design may change before construction commences as public input, available funding, and unique site conditions are taken into consideration.

Prior to commencing a capital transportation project, the City staff does their best to reach out to and engage the community. In determining the appropriate amount of public involvement for a particular project, the City considers the scale, scope and potential impacts of the project.

Project Costs

Costs for each 20-year priority project and projects to complete upon development are provided in the subsequent tables. These costs are order-of-magnitude or planning-level estimates that include an estimate of right-of-way, design engineering and construction; these costs generally include a 30 percent contingency. All costs are rounded and provided in 2014 dollars.

Costs for individual transit corridors are not provided. Given that a community process will be required to determine the types of improvements necessary to support transit in identified multimodal corridors, transit corridor capital costs were consolidated, assuming a mix of bus rapid transit (EmX), enhanced bus corridors, and frequent bus service. Transit projects are estimated to cost a total of $171.4 million for all corridor improvements.

Projects within 20 Years

The projects shown in Tables 5.1 and 5.2 represent the City's current priorities for implementation in the next 20 years (up to the year 2035). Projects in this category may be funded through a variety of sources including federal, state, or local transportation funds, system development charges (SDCs), through partnerships with private developers, or a combination of these sources. Roadway, multimodal, transit, and rail projects to be completed within 20 years can be seen on a project map in Attachment A, Figure 2. Pedestrian project can be seen on Attachment A, Figure 3 and bicycle projects can be seen on Attachment A, Figure 4.

Table 5.1: Roadway, Multimodal, Transit, and Rail Projects to be Completed Within 20 Years[10]

Project No.	Name/Location	Extent	Length (miles)	2014 Cost Estimate
River Road				
MM-1	Improve frequent transit service and multimodal travel along River Road	Hunsaker Lane to West 11th Avenue	Included in transit/multimodal corridor bundle[11]	
MM-2	Future Santa Clara Community Transit Center: new transfer station at River Road and Hunsaker Lane to facilitate bus transfers, park and ride, bike parking	River Road and Hunsaker Lane	Included in transit/multimodal corridor bundle	
Randy Papé Beltline Highway Facility Plan Recommendations				
MM-3	Construct multimodal local arterial bridge over the Willamette River to the north of the Beltline Highway, connecting Division Avenue to Green Acres Road; construct operational improvements to existing Randy Papé Beltline Highway/Delta Highway ramps consistent with the Beltline Highway Facility Plan	River Road to Coburg Road	0.95	$83M
I-5/Beltline				
MM-4	Improve I-5/Randy Papé Beltline Highway interchange (project is currently funded and underway)	I-5/Randy Papé Beltline Highway interchange	Funded and under construction[12]	
Highway 99				
MM-5	Improve frequent transit service and multimodal travel along Highway 99	Downtown to Barger Drive	Included in transit/multimodal corridor bundle	

10 The cost estimates for all Key Corridor projects shown in Table 5.1 are based on previous corridor improvements completed in the City of Eugene. Average improvement costs were used based on past local transit corridor improvement costs and assumptions about the level of transit improvements that may be appropriate for each corridor within a 20 year period. These costs will be refined as individual corridor studies provide more accurate estimates.

11 Costs for multimodal corridors are not provided for each corridor because additional work must be done prior to determining the appropriate transit, bike and pedestrian treatments. A combination of bus rapid transit (EmX) and enhanced bus service was assumed in developing the multimodal corridor project bundle cost provided below.

12 Costs and mileage for projects under construction are not included as funding has already been programmed.

Project No.	Name/Location	Extent	Length (miles)	2014 Cost Estimate
Coburg Road				
MM-6	Improve frequent transit service and multimodal travel along Coburg Road and transit connections to Springfield	Eugene Station to I-5/Crescent Avenue	Included in transit/multimodal corridor bundle	
Martin Luther King Jr. Boulevard				
MM-7	Improve frequent transit service and multimodal travel along Martin Luther King Jr. Boulevard to Centennial Boulevard in Springfield	Coburg Road to I-5	Included in transit/multimodal corridor bundle	
MM-8	Add center turn lane on Martin Luther King Jr. Boulevard	Leo Harris Parkway West and Centennial Loop West	0.21	$6.7M
West Eugene EmX				
MM-9	West Eugene EmX extension along W 6th, 7th, and 11th Avenues, Garfield and Charnelton Streets (project is currently funded and under construction)	Commerce Street to Eugene Station	Funded; under construction	
30th Avenue/Amazon Parkway				
MM-10	Achieve frequent transit service and improved multimodal travel along the 30th Avenue and Amazon Parkway corridor; enhance pedestrian crossings and provide protected bikeways in the corridor (note: only the portion of the project within Eugene's UGB is included in the TSP)	Downtown to Lane Community College	Included in transit/multimodal corridor bundle	
Complete Street Upgrades of Existing Streets				
MM-11	Upgrade Hunsaker Lane/Beaver Street consistent with major collector/urban collector standards	River Road to Division Avenue	1.1	$9.3M
MM-12	Upgrade the north/south section of County Farm Road consistent with major collector standards	Wildish Lane/County Farm Road to Coburg Road	0.7	$4.4M
MM-13	Upgrade Bethel Drive consistent with neighborhood collector standards	Highway 99 to Roosevelt Boulevard	1.7	11.8M
MM-14	Upgrade W 11th Avenue consistent with major arterial standards	Terry Street to Green Hill Road	1	$12.3M
MM-15	Upgrade Jeppesen Acres Road consistent with its designation as a bike boulevard and neighborhood collector	Gilham Road to Providence Street	0.7	$3.9M
MM-16	Upgrade Bertelsen Road consistent with minor arterial standards.	18th Avenue to Bailey Hill Road	0.57	$3.9M

Project No.	Name/Location	Extent	Length (miles)	2014 Cost Estimate
Other Projects				
MM-19	Reconstruct Franklin Boulevard pursuant to the Walnut Station Plan (for purposes of cost estimating a multiway boulevard design from this plan was used); make streetscape improvements including new sidewalks on the south side and a shared use path on the north side between Onyx and Alder Streets	Walnut Street to Onyx Street	0.6	$27.7M
MM-20	Add lanes on the Randy Papé Beltline Highway and provide intersection improvements at the Randy Papé Beltline Highway/W 11th Avenue and Randy Papé Beltline Highway/Roosevelt Boulevard intersections	Roosevelt Boulevard to W 11th Avenue	1.1	$28.1M
MM-21	Widen Barger Drive to provide a second through lane in each direction	West of Primrose Street to where the street widens to two lanes in each direction west of Randy Papé Beltline Highway	0.14	$1.9M
MM-22	Convert 8th Avenue to two-way street	High Street to Jefferson Street	0.7	$3.9M
MM-26	Neighborhood traffic calming to address speeding problems on residential streets including collector streets	Various locations	N/A	$2.0M
MM-27	Upgrade North Gilham Road consistent with neighborhood collector standards	Ayres Road to Ashbury Drive	0.3	$1.5M
MM-28	Extend Shadowview to Coburg Road (or beyond to Park View Drive) via Spectrum Avenue to serve future development consistent with neighborhood collector standards	Shadowview Road to Coburg Road (may extend to Park View Drive)	0.3	$3.2M
Rail Improvements				
MM-23	Improve passenger platform and construct new rail sidings to enhance passenger rail service and separate passenger rail from freight rail at the Eugene Depot	Eugene Depot	N/A	$20.3M
MM-24	Establish Railroad Quiet Zone; assumes 10 crossings	Downtown and Whiteaker neighborhoods	N/A	$5M

Project No.	Name/Location	Extent	Length (miles)	2014 Cost Estimate
MM-25	Relocate highway-railroad crossing in alignment with the existing 8th Avenue improvements including track panels, lights, relocated signal, gates, audible warning devices, upgraded railroad track detection as required by ODOT Rail and/or Union Pacific Railroad, and an accessway to establish a walking and bicycling connection to the South Bank Path	Near 8th Avenue with connection to South Bank Path	0.03	$3.1M
Transit/Multimodal Corridor Bundle (Projects MM-1, 2, 5, 6, 7 and 10)			15.2	$171.4M
20-year total for all projects			**25.9**	**$406.6M**

Table 5.2: Pedestrian and Bicycle Projects to be Completed Within 20 Years

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
Accessways				
PB-196	Avalon Street Accessway	Candlelight Dr to N Danebo Ave	0.10	$87,000
PB-197	Lane County Fairgrounds Accessway	W 13th Ave to W 16th Ave	0.27	$186,000
PB-218	Hansen Lane Accessway	River Rd to West Bank Path	0.12	$98,000
PB-220	McClure Lane Accessway	McClure Ln to West Bank Path	0.05	$45,000
PB-221	Arbor Drive Accessway	Denis Dr to West Bank Path	0.06	$46,000
PB-230	Murin Street Accessway	Murin St to Fern Ridge Path	0.02	$16,000
PB-250	W 11th Avenue Accessway	W 11th Ave to Fern Ridge Path at Quaker	0.06	$53,000
PB-255	W 27th Avenue Accessway	Madison St to Jefferson St	0.07	$61,000
PB-256	Lincoln Street Accessway	W 30th Ave to W 31st Ave	0.08	$66,000
PB-258	Spyglass Accessway	Spyglass Dr to Greenview St	0.08	$64,000
PB-259	Holly Avenue Accessway	Delta Oaks Dr to Holly Ave	0.04	$31,000
PB-472	E 25th Avenue Accessway	University St to E 25th Ave	0.01	$9,000
PB-560	Wallis Street Path	W 13th Avenue to Peppertree Accessway	0.06	$48,000
		20-Year Total	**1.02**	**$810,000**
Neighborhood Greenways				
PB-53	Grove Street	Silver Ln to Howard Ave	0.53	$66,000
PB-60	W Amazon Drive	Snell Dr to N of Martin St	0.38	$47,000
PB-73	N Danebo Avenue	Barger Dr to Avalon St	0.50	$63,000
PB-74	Devos Street	Jessen Dr to Barger Dr	0.50	$62,000
PB-75	Avalon Street	N Danebo Ave to Haven St	0.21	$32,000
PB-77	Spyglass Drive	Cal Young Rd to Greenview St Accessway	0.69	$87,000
PB-85	Honeywood Street	Gilham Rd to Honeywood St	0.23	$34,000

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
PB-86	Honeywood Street	Honeywood St to Honeywood St Accessway	0.05	$7,200
PB-95	Monroe Street	Clark St to W 13th Ave	0.99	$124,000
PB-105	University Street	E 13th Ave to E 24th Ave	0.83	$104,000
PB-107	W 15th Ave	Jefferson Alley to Kincaid St	1.16	$117,000
PB-109	Willamette Street	Amtrak Station to W 6th Ave	0.12	$18,000
PB-110	W Broadway	McKinley St to Charnelton St	1.70	$170,000
PB-111	Broadway	Charnelton St to High St	0.38	$47,000
PB-114	Lawrence Street	Cheshire Ave to W 19th Ave	1.49	$151,000
PB-124	Greenview Street	Spyglass Accessway to Fair Oaks Dr	0.15	$23,000
PB-125	Fairoaks Drive	Bedford Way to Greenview St	0.07	$10,000
PB-126	Lariat Drive	Oakway Rd to Lariat Meadows Dr	0.24	$34,000
PB-127	Tandy Turn	Accessway to Coburg Rd	0.23	$35,000
PB-128	Tandy Turn	Coburg Rd to Firwood Way	0.26	$33,000
PB-129	Firwood Way	Tandy Turn to Ascot Dr	0.07	$11,000
PB-130	Palomino Drive	Harlow Rd to Sorrel Way	0.37	$45,000
PB-131	Bailey Lane	Harlow Rd to Willakenzie Rd	0.85	$106,000
PB-134	Delta Oaks Drive	Green Acres Rd to Holly Ave Accessway	0.08	$12,000
PB-135	Holly Avenue	Tabor St to Gilham Rd	0.53	$66,000
PB-136	Snelling Drive	Cal Young Sports Park to Erin Way	0.37	$46,400
PB-137	Erin Way	Snelling Dr to Chad Dr	0.06	$8,200
PB-138	Chad Drive	Erin Way to Coburg Rd	0.14	$21,000
PB-139	Jeppesen Acres Road	Gilham Rd to Coburg Rd	0.69	$86,000
PB-141	Bond Ln	Fir Acres Dr to Norkenzie Rd	0.41	$52,000
PB-146	Copping Street	Owosso Dr to E Howard Ave	0.28	$35,000
PB-153	Ruby Avenue	Canterbury St to River Rd	0.89	$111,000
PB-155	N Park Avenue	Skipper Ave to Maxwell Rd	0.49	$61,000
PB-157	N Park Avenue	Howard Ave to Northwest Expressway	1.14	$134,000
PB-159	Lake Drive	Howard Ave to Horn Ln	0.43	$54,000
PB-161	Horn Lane	Maclay Dr to River Rd	0.93	$115,000
PB-162	Arbor Drive	River Rd to Denis Dr	0.18	$27,000
PB-163	Hillard Lane	N Park Ave to Eastern Terminus	1.07	$131,000
PB-167	Berntzen Road	Royal Ave to Elmira Rd	0.25	$32,000
PB-168	Waite Street	Elmira Rd to Roosevelt Path	0.18	$27,000
PB-374	Robin Hood Ave	Accessway to Willagillespie Rd	0.22	$32,000
PB-381	E 13th Avenue	Agate St to Franklin Blvd	0.17	$26,000
PB-386	Adkins Street	Coburg Rd to Willakenzie Rd	0.37	$52,000
PB-387	N Clarey Street	Barger Dr to Cubit St	0.75	$93,000
PB-388	Gay Street	Crescent Ave to Snelling Dr	0.13	$16,000
PB-389	Sarah Lane	Lakeview Dr to Crescent Ave	0.37	$46,000

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
PB-397	Portland Street	W 24th Ave to W 27th Ave	0.31	$38,000
PB-398	W 24th Avenue	Portland St to Willamette St	0.06	$9,000
PB-446	W 12th Ave	Fern Ridge Path Accessway to Hilyard Street	1.17	$115,000
PB-449	Ascot Drive	Ascot Park to Harlow Rd	0.23	$35,000
PB-451	Fair Oaks Drive	Bedford Way to Southwood Ln	0.55	$70,000
PB-452	Dapple Way	Sorrel Way to Dapple Accessway	0.84	$105,000
PB-453	Westward Ho Ave/Sunshine Acres	Harlow Rd to N Garden Way	0.75	$98,000
PB-458	E 27th/28th/29th Ave/High St	Willamette St to E 29th	0.43	$60,000
PB-458	South Pearl Street	Willamette St across 29th to Amazon Pkwy	0.47	$59,000
PB-460	Alder Street	E 24th Ave to E 30th Ave	0.64	$80,000
PB-461	Park Avenue	Northwest Expressway to River Rd	0.78	$98,000
PB-486	Willamette Street	7th Ave to 13th Ave	0.46	$58,000
PB-488	Mill Street/E 10th Ave	High St to E 19th Ave	0.76	$91,000
PB-492	W 22nd Avenue	Polk St to Friendly St	0.34	$42,000
PB-503	High Street	Cheshire St to E 6th Ave	0.34	$42,000
PB-505	Stephens Drive	Stephens Dr Accessway to West Bank Path	0.08	$11,000
PB-528	W 27th Pl	Washington Street to Lincoln Street	0.19	$24,000
PB-542	Fair Oaks Drive	Greenview St to Oakway Rd	0.11	$18,000
PB-544	Calvin Street	Western Dr to Harlow Rd	0.16	$25,000
PB-545	Monterey Lane	Larkspur Lp to Long Island Dr	0.06	$9,000
PB-546	Monterey Lane	Norkenzie Rd to Larkspur Lp	0.07	$10,000
PB-547	Long Island Drive	Minda Dr to Monterey Ln	0.23	$35,000
PB-548	Shadow View Dr	Crescent Ave to Chad Dr	0.18	$27,000
PB-576	Westleigh Street	Bailey Hill Rd to Private Road	0.12	$14,000
PB-577	Jay Street	Willhi Street to southern terminus	0.31	$39,000
PB-578	Cubit Street	Jessen Dr to Wagner St	0.37	$46,000
PB-579	Western Drive	Van Duyn St/Satre St to Calvin St	0.25	$31,000
PB-587	Rio Glen Drive	Wilagillespie Rd to Debrick Rd	0.19	$29,000
PB-588	17th Avenue	Alder St to Jefferson St	1.04	$104,000
PB-591	Garden Avenue	Millrace Dr to E 15th Ave	0.41	$52,000
PB-593	Alder Street	E 30th Ave to E 39th Ave	0.87	$108,000
PB-595	Grant Street	W 5th Ave to W 15th Ave	0.80	$100,000
PB-597	Grant Street	W 17th Ave to W 22nd Ave	0.40	$49,000
PB-598	W 22nd Avenue	Grant St to Chambers St	0.12	$18,000
PB-599	W 22nd Ave	Grant St to City View St	0.41	$52,000
PB-600	City View St	W 22nd Ave to W 21st Ave	0.07	$10,000
PB-601	W 21st Ave	City View St to Hawkins Ln	0.34	$42,000

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
PB-605	Hyacinth Street	Irvington Rd to River Rd	0.90	$135,000
PB-606	Spring Creek Drive	River Rd to Scenic Dr	0.54	$68,000
PB-607	Scenic Drive	Eugene City Limits to Spring Creek Rd	0.43	$55,000
PB-608	Scenic Drive	Spring Creek Dr to Wilkes Dr	0.71	$89,000
PB-609	Throne Drive	Royal Ave to Avalon St	0.60	$75,000
PB-614	Hyacinth Street	Irvington Rd to Irving Rd	0.91	$113,000
		20-Year Total	**41.13**	**$5,097,800**
Protected Bike Lanes				
Project No	**Name/Location**	**Extent**	**Length (miles)**	**2014 Cost Estimate**
PB-18	High Street	E 6th Ave to E 19th Ave	0.99	$2,267,000
PB-46	E Amazon Drive	Hilyard St to Snell St	1.21	$2,209,000
PB-391	Oakway Road	Cal Young Rd to Coburg Rd	0.96	$2,184,000
PB-392	Cal Young Road	Willakenzie Rd to Oakway Rd	0.22	$508,000
PB-393	Willakenzie Road	I-5 Path to Cal Young Rd	1.38	$3,141,000
PB-526	River Road	Division Ave to Northwest Expressway	2.49	$4,441,000
PB-556	13th Avenue Cycle Track	Kincaid St to Lincoln St	0.93	$3,280,000
PB-571	Lincoln Street	W 5th Ave to W 13th Ave	0.61	$1,419,000
PB-580	Hilyard Street	E 8th Ave to E Broadway	0.12	$330,000
PB-582	E Broadway	Hilyard St to Alder St	0.10	$265,000
PB-583	8th Ave	Lincoln St to E Broadway	0.53	$1,221,000
PB-589	E 24th Avenue	Willamette St to Alder St	0.52	$1,189,000
		20-Year Total	**10.06**	**$22,454,000**
Bike Lane (On-Street)				
Project No	**Name/Location**	**Extent**	**Length (miles)**	**2014 Cost Estimate**
PB-31	Willamette Street	23rd Ave to 32nd Ave	0.85	$115,000
PB-38	Fox Hollow Rd	Donald St to UGB	0.85	Urban*
PB-39	W 11th Avenue	Green Hill Rd to Terry St	1.05	Urban*
PB-41	Garfield Street	Roosevelt Blvd to W 6th Ave	0.68	$93,000
PB-42	Beaver Street	Lone Oak Dr to Division Ave	0.23	Urban*
PB-43	Hunsaker Lane	River Rd to Lone Oak Ave	0.91	Urban*
PB-44	Wilkes Drive	River Rd to River Loop 1	0.93	$126,000
PB-45	S Bertelsen Rd	W 18th Ave to Bailey Hill Rd	0.57	Urban*
PB-54	W 7th Place	Bailey Hill Rd to Garfield St	1.26	$136,000
PB-59	Prairie Rd	Maxwell Rd to Hwy 99	0.11	$19,000
PB-61	Bethel Drive	Hwy 99N to Roosevelt Blvd	1.66	Urban*
PB-63	Highway 99	5th Ave to Garfield St	0.67	$72,000
PB-66	Dillard Road	E Amazon Dr to Skyhawk Way	2.22	Urban*
PB-71	Bailey Hill Road	W 11th Ave to 7th Ave (northbound)	0.19	$20,000
PB-158	N Park Ave	Maxwell Rd to Howard Ave	0.16	$26,000

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
PB-226	W 13th Avenue	Washington Street to Lincoln Street	0.15	$24,747
PB-229	County Farm Road (north-south section)	Wildish Ln to Coburg Rd	0.66	$107,235
PB-400	Royal Avenue	Green Hill Rd to Patriot Way	0.82	Urban*
PB-445	City View Street	W 11th Ave to W 18th Ave	0.50	$68,000
PB-447	Highway 99	Prairie Rd to Barger Dr	0.33	$44,000
PB-455	Oak Patch Road	W 11th Ave to W 18th Ave	0.46	$63,000
PB-482	Gilham Road	Northern Terminus to Ayres Rd	0.61	Urban*
PB-523	Polk Street	W 5th Ave to W 24th Ave	1.14	$200,000
PB-554	W 2nd Avenue	Garfield St to Chambers St	0.27	$36,000
PB-561	W 13th Avenue	Commerce St to Dani Street	0.99	$133,000
PB-564	Commerce Street	W 11th Ave to W 13th Ave	0.22	$36,000
PB-568	Roosevelt Boulevard	Hwy 99 to Railroad Tracks	0.12	$20,000
PB-572	W 5th Avenue	W 6th Ave to W 7th Ave	0.08	$8,000
PB-574	High Street	6th Ave to 4th Ave	0.15	$16,500
PB-575	County Farm Road (east-west section)	Coburg Rd west to Wildish Ln	0.54	$59,000
PB-592	E 40th Ave	Willamette St to Donald St	0.26	$36,000
		20-Year Total	**19.64**	**$1,458,482**
Shared Use Path				
Project No	**Name/Location**	**Extent**	**Length (miles)**	**2014 Cost Estimate**
PB-21	E 30th Ave	Hilyard St to Agate	1.16	$2,749,000
PB-211	Spring Boulevard Accessway	Central Blvd to E 30th Ave	0.23	$554,000
PB-222	W 7th Ave	W 5th Ave to Garfield St	0.40	$951,000
PB-223	Jessen Path	Ohio St to Beltline Path	1.41	$3,350,000
PB-231	Berkeley Park Path	Fern Ridge Path to Wilson St	0.13	$298,000
PB-243	Beltline Path	Roosevelt Blvd to W 11th Ave	1.02	$2,016,000
PB-376	Franklin Boulevard Path	South Bank Path to Riverview St	0.32	$639,000
PB-394	Amazon Roosevelt Connector	Hilyard Community Center Path to Amazon Path	0.16	$261,000
PB-395	Fern Ridge West Connector	Royal Street to Fern Ridge Path	0.08	$125,000
PB-459	Hilyard Street	E 34th Ave to Dillard Rd	0.44	$866,000
PB-462	I-5 Path	Old Coburg Rd to 1-5 Path	0.21	$412,000
PB-464	I-5 Path	Harlow Rd to I-5 Path	0.17	$334,000
PB-465	I-5 Path	I-5 Path to Westward Ho Ave	0.52	$1,030,000
PB-475	W Amazon Drive	Martin St to southern section of W. Amazon Drive	0.36	$709,000
PB-494	Amazon Park East-West Path	27th Avenue/Amazon Parkway to the Amazon Path	0.16	$816,000
PB-552	UGB Path	Wilkes Dr to Division Ave	1.62	$3,209,000

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimate
PB-555	Kincaid St Path	E 39th Ave to Potter St	0.13	$209,000
PB-610	Roosevelt Boulevard	Maple St to Hwy 99	0.28	$805,000
		20-Year Total	**8.64**	**$19,333,000**

Sidewalk Path

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimates
PB-481	Division Avenue sidewalk path	Lone Oak Ave to Beaver St	0.54	$701,000
PB-508	Franklin Boulevard sidewalk path	Alder St to Millrace Park Path	0.18	$273,000
PB-565	Commerce Street	Commerce St to W 11th Ave	0.1	$157,000
PB-615	W 7th Ave	Garfield St to Grant St	0.13	$207,000
PB-495	W 5th Avenue sidewalk path	Highway 99 to McKinley Street	0.04	$74,000
		20-Year Total	**0.99**	**$1,412,000**

Grade Separated Path or Sidewalk

Project No	Name/Location	Extent	Length (miles)	2014 Cost Estimates
PB-12	Park Avenue Overpass	Ruby Ave to Skipper Ave	0.18	$4,110,000
PB-216	Buck Street Bridge	Fern Ridge Path to Buck St	0.02	$2,145,000
PB-245	Commerce Street Bridge	Fern Ridge Path to Commerce Street, including .22 miles of accessway	0.04	$1,550,000
PB-249	Amazon Drive Footbridge	W Amazon Drive to E Amazon Drive	0.01	$75,000
PB-390	Jay Street bridge	Marshall Street to Marshall Path	0.01	$125,000
PB-463	I-5 Path Crossing	Beltline crossing West of I-5	0.29	$1,000,000
PB-559	Wallis Street Bridge	Fern Ridge Path to W 12th Ave	0.02	$2,145,000
PB-596	Grant Street bridge	Grant Street to Grant Street over Amazon Creek	0.02	$900,000
PB-612	Amazon and 36th Drive Footbridge	W Amazon to E Amazon Drives	0.01	$75,000
PB-613	Amazon and Dillard Footbridge	W Amazon to E Amazon Drives	0.01	$75,000
		20-Year Total	**0.61**	**$12,200,000**

Sidewalks

Project No	Name/Location	Extent	Street Side	Length (miles)	2014 Cost Estimate
PB-217	Grant Street	W 15th Ave to Fern Ridge Path	West side	0.03	$15,000
PB-267	Spring Creek Drive	River Road to Scenic Drive	South side	0.39	Urban*
PB-33	Spring Creek Drive	River Road to Scenic Drive	North side	0.51	Urban*
PB-268	W 24th Street	Gap at Adams Street	South side	0.07	$44,000

Sidewalks					
Project No	**Name/Location**	**Extent**	**Street Side**	**Length (miles)**	**2014 Cost Estimate**
PB-269	W 2nd Avenue	Gap west of Chambers Street	South side	0.05	$30,000
PB-271	W 24th Avenue	Friendly Street to Madison Street	North side	0.13	$81,000
PB-272	Hunsaker Lane/Beaver Street	River Road to Division Avenue	South side	1.05	Urban*
PB-275	Maxwell Road	Gap over NW Expressway to Prairie Road	South side	0.16	$100,000
PB-276	Maxwell Road	Labona Drive to Prairie Road	North side	0.50	$263,000
PB-277	Prairie Road	Maxwell Road to Highway 99	West side	0.04	$23,000
PB-278	Howard Avenue	N Park Avenue to River Road	South side	0.89	$471,000
PB-279	Howard Avenue	N Park Avenue to River Road	North side	0.85	$452,000
PB-280	Gilham Road	Mirror Pond Way to Ayres Road	West side	0.53	$272,000
PB-284	Crescent Avenue	Coburg Road to midblock gap	North side	0.27	$144,000
PB-285	Bertelsen Road	W 18th Avenue to city limits	West side	1.27	Urban*
PB-286	Bertelsen Road	W 18th Avenue to city limits	East side	1.26	Urban*
PB-287	W 18th Avenue	Bertelsen Road to Wester Drive	South side	1.00	$424,000
PB-288	Fox Hollow Road	Donald Street to UGB	East side	0.83	Urban*
PB-292	Bertelsen Road	W 1st Avenue to Henry Court	West side	1.11	$470,000
PB-293	Bertelsen Road	W 1st Avenue to W 13th Avenue	East side	0.84	$445,000
PB-294	N Bertelsen Road	Cross Street to Roosevelt Boulevard	West side	0.14	$92,000
PB-297	N Danebo Avenue	Gap south of Roosevelt Boulevard	West side	0.02	$12,000
PB-298	N Danebo Avenue	Gap south of Roosevelt Boulevard	East side	0.16	$99,000
PB-299	N Danebo Avenue	Railroad tracks to Fern Ridge Path	East side	0.69	$366,000
PB-300	N Danebo Avenue	Pacific Avenue to Fern Ridge Path	West side	0.42	$223,000
PB-301	W 29th Avenue	Washington Street to Lincoln Street	North side	0.06	$36,000
PB-302	W 29th Avenue	Washington Street to Lincoln Street	South side	0.08	$47,000

Sidewalks					
Project No	**Name/Location**	**Extent**	**Street Side**	**Length (miles)**	**2014 Cost Estimate**
PB-305	Goodpasture Island Road	East side of overpass to Happy Lane	North side	0.31	$300,000
PB-306	W 11th Avenue	West of Obie Street	South side	0.03	$20,000
PB-307	W 11th Avenue	West of Obie Street	North side	0.24	$156,000
PB-308	W 11th Avenue	Near Bertelsen Road	North side	0.18	$117,000
PB-309	W 11th Avenue	Gap between Commerce Street and Bertelsen Road	South side	0.15	$95,000
PB-310	W 11th Avenue	Green Hill Road to Terry Street	North side	1.01	Urban*
PB-311	W 11th Avenue	Green Hill Road to Terry Street	South side	1.03	Urban*
PB-314	Bethel Drive	Highway 99 to Roosevelt Boulevard	South side	1.60	Urban*
PB-315	Bethel Drive	Highway 99 to Roosevelt Boulevard	North side	1.01	Urban*
PB-322	Chambers Street	North of Em Ray Drive	East side	0.02	$12,000
PB-327	W 11th Avenue	Gap west of Bailey Hill Road	North side	0.03	$21,000
PB-334	Seneca Road	Gap south of 5th Avenue	East side	0.31	$165,000
PB-335	Seneca Road	North of W 7th Place	West side	0.06	$36,000
PB-336	N Terry Street	Trevon Street to Trevon Street	East side	0.20	$126,000
PB-337	Prairie Road	Irving Road to Highway 99	East side	0.92	$485,000
PB-338	Prairie Road	Kaiser Avenue to Federal Lane	East side	0.30	$158,000
PB-339	Valley River Drive	Valley River Way to Goodpasture Island Road	South side	0.23	$146,000
PB-340	Goodpasture Island Road	Happy Lane to Stonecrest Drive	North side	0.18	$117,000
PB-341	Norkenzie Road	Linda Avenue to Donovan Drive	West side	0.04	$23,000
PB-342	Amazon Parkway	E 20th Avenue to E 26th Avenue	West side	0.47	$248,000
PB-344	Amazon Parkway	E 27th Avenue to sidewalk north of E 29th Avenue	South side	0.21	$134,000
PB-347	E Amazon Drive	Snell Street gap	East side	0.08	$52,000
PB-348	W Amazon Drive	Snell Street to Martin Street	West side	0.33	$176,000
PB-349	W Amazon Drive	Snell Street to Larch Street	West side	0.09	$55,000

Sidewalks					
Project No	**Name/Location**	**Extent**	**Street Side**	**Length (miles)**	**2014 Cost Estimate**
PB-351	Hilyard Street	E 36th Place to Dillard Road	East side	0.17	$106,000
PB-352	Donald Street	Gap at E 34th Avenue	West side	0.05	$32,000
PB-353	Donald Street	Gap south of E 34th Place	West side	0.03	$19,000
PB-354	Donald Street	E 35th Avenue to E 39th Avenue	West side	0.32	$167,000
PB-355	Jefferson Street	North of W 28th Avenue	West side	0.03	$19,000
PB-356	Jefferson Street	W 25th Place to W 26th Place	East side	0.05	$30,000
PB-357	Jefferson Street	North of W 25th Place	West side	0.02	$12,000
PB-358	Jefferson Street	North of W 25th Avenue	East side	0.07	$47,000
PB-359	Jefferson Street	South of W 24th Avenue	West side	0.03	$16,000
PB-360	Jefferson Street	North of train tracks to 1st Avenue	East side	0.11	$69,000
PB-362	Polk Street	South of W 2nd Avenue	East side	0.03	$20,000
PB-427	Hyacinth Street	Irvington Drive to Irving Road	West side	0.22	$117,000
PB-428	Holly Avenue	Tabor Street to Gilham Road	South side	0.35	$186,000
PB-429	E Tandy Turn/Firwood Way	East side of Tandy Turn, north side of Firwood	East side/ north side	0.13	$86,000
PB-432	Hilliard Lane	Lund Drive to River Road	South side	0.25	$131,000
PB-434	Park Avenue	Howard Avenue to Northwest Expressway	East side	0.49	$261,000
PB-436	N Danebo Avenue	Gap north of Souza Street	East side	0.11	$70,000
PB-437	N Danebo Avenue	Gap south of Barger Drive	East side	0.08	$53,000
PB-438	N Danebo Avenue	Barger Drive to Souza Street	West side	0.16	$99,000
PB-440	W 15th Avenue	Chambers Alley to Chambers Street	North side	0.03	$20,000
PB-441	Friendly Street	W 17th Avenue to W 18th Avenue	West side	0.05	$30,000
PB-442	Friendly Street	Gap north of W 17th Avenue	West side	0.02	$13,000
PB-515	Augusta Street	Gap south of 16th Avenue	East side	0.05	$34,000

Sidewalks					
Project No	**Name/Location**	**Extent**	**Street Side**	**Length (miles)**	**2014 Cost Estimate**
PB-516	16th Avenue	Riverview Street to Augusta Street	North side	0.05	$30,000
PB-519	16th Avenue	Riverview Street to Augusta Street	South side	0.05	$30,000
PB-532	Acorn Park Street	Acorn Park to Buck Street	West side	0.13	$81,000
PB-535	Queens Way	Cal Young Road to Buena Vista Elem.	East side	0.06	$36,000
PB-541	N Garden Way	Various locations south of Harlow	West site	0.15	$95,000
PB-493	W 1st Avenue	Seneca Road to Bertelson Road	North side	0.69	$311,000
MM-11	Hunsaker Lane/Beaver Street	River Road to Division Avenue	North side	1.10	Urban*
MM-12	County Farm Road	Wildish Ln to Coburg Rd (north-south section)	East side	0.70	Urban*
MM-12	County Farm Road	Wildish Ln to Coburg Rd (north-south section)	West side	0.70	Urban*
MM-13	Bethel Drive	Highway 99 to Roosevelt Boulevard	East side	1.70	Urban*
MM-13	Bethel Drive	Highway 99 to Roosevelt Boulevard	West side	1.70	Urban*
PB-23	Jeppesen Acres Road	Gilham Rd to Providence Street	North side	0.32	Urban*
PB-22	Jeppesen Acres Road	Gilham Rd to Providence Street	South side	0.25	Urban*
PB-25	Awbrey Lane	Prairie Rd to Highway 99	North side	1.31	Upon Development*
PB-24	Awbrey Lane	Prairie Rd to Highway 99	South side	1.31	Upon Development*
PB-26	Beacon Drive East	River Road to Scenic Drive	North side	0.74	Upon Development*
PB-27	Beacon Drive East	River Road to Scenic Drive	South side	0.66	Upon Development*
PB-29	Scenic Drive	River Loop #2 to East Beacon Drive	East side	0.76	Upon Development*
PB-32	Scenic Drive	River Loop #2 to East Beacon Drive	West side	.76	Upon Development*
PB-34	River Loop #2	River Road to Burlwood Street	North side	0.98	Upon Development*
PB-35	River Loop #2	River Road to Burlwood Street	South side	0.93	Upon Development*
PB-37	Wilkes Drive	River Road to River Loop #1	North side	0.17	Upon Development*

Sidewalks					
Project No	**Name/Location**	**Extent**	**Street Side**	**Length (miles)**	**2014 Cost Estimate**
PB-36	Wilkes Drive	River Road to River Loop #1	South side	0.87	Upon Development*
PB-40	River Loop #1	River Road to Dalewood Street	North side	0.23	Upon Development*
PB-47	River Loop #1	River Road to Dalewood Street	South side	0.23	Upon Development*
PB-48	County Farm Road	Wildish Ln to Coburg Rd (east-west section)	North side	0.51	Upon Development*
PB-49	County Farm Road	Wildish Ln to Coburg Rd (east-west section)	South side	0.51	Upon Development*
PB-57	Royal Avenue	Terry Street to Greenhill Road	North side	0.82	Upon Development*
PB-56	Royal Avenue	Terry Street to Greenhill Road	South side	0.99	Upon Development*
PB-62	Willow Creek Road	W 18th Avenue to UGB	South/east side	1.05	Upon Development*
PB-64	Willow Creek Road	W 18th Avenue to UGB	North/eest side	1.06	Upon Development*
PB-65	Dillard Road	43rd Avenue to UGB	East side	1.45	Upon Development*
PB-78	Hunsaker Lane	Ross Lane to River Road	North side	0.51	Upon Development*
			20-Year Total	**47.99**	**$8,971,000**
			20-Year Total for Pedestrian and Bicycle Projects	**130.08**	**$71,736,282**

Notes: *Urban indicates that costs are incorporated into other projects along the same roadway in the Table 5.1.
*Upon development indicates that costs are incorporated into other projects along the same roadway in the Table 5.3.

Traffic Signal System Improvements

Traffic signal system improvements (sometimes categorized as "operational projects") are typically related to modifications to intersections that are lower in cost than a typical roadway project and are ones that generally do not require right-of-way acquisition. The *2035 TSP* is not inclusive of all of the traffic signal projects or intersection projects that the City will pursue over the life of the *TSP*. Rather, the projects highlighted are those that the City can pursue to strategically improve the operational efficiency of specific intersections and important roadways. These projects can enhance system operations and can be completed as opportunities arise. These projects may be funded by City maintenance and operations funds, SDCs, and other local, regional and state funding sources.

Below are the list of operational projects for inclusion in the TSP.

- **New Traffic Signals** – Installation of new traffic signals at intersections meeting one or more signal warrant(s). There are currently 25 intersections that have been identified as meeting warrants today. All of these intersections are on arterial and collector streets. The estimated cost to install a new traffic signal system is $350,000 per intersection.

- **Strain Pole/Span Wire Replacement** – Citywide, 24 traffic signals today are constructed using strain poles/span wires. Over time, the City will need to modify these intersections with mast arms and traffic signal equipment that conforms to current standards. Retrofitting all of the intersections will cost approximately $3,000,000. Of the 24 locations, 21 are at arterial and collector intersections.
- **Accessible Pedestrian Signals (APS)** – There are 228 signalized intersections within the UGB that do not have accessible pedestrian signal devices. Of these, 131 are located in Priority 1 areas and 83 are located in Priority 2 areas as identified in the ADA Transition Plan for Public Right of Way. The estimated cost of installation of APS devices ranges from $20,000 to $50,000 per intersection depending on the existing signal system being retrofitted.
- **Master Traffic Communications Plan** – Implementing a master plan will upgrade the existing communications infrastructure to increase the overall efficiency of the transportation system. This plan will support future improvements (*e.g.* new traffic signals, cameras, dynamic message boards and weather stations) and provide infrastructure to ensure that all traffic signals are coordinated on the same communication system. Today, 15 percent of the traffic signals are not part of an overall system. The communications project list includes nine phases of fiber trunk lines with a total estimated cost of $9,500,000 (2008 dollars).

Upon Development Projects

As properties develop or redevelop, the following projects would be completed to serve new development. The timing of these projects is uncertain and they are unlikely to be advanced by the City in the absence of specific private development activities. Typically, these projects address only localized transportation needs associated with newly developing or redeveloping areas.

The list of projects to be completed upon development reflects the City's current understanding of likely priorities in these areas. At the time that development or land use applications are submitted, additional or different provisions may be required as conditions of approval based on the specifics of the actual development application and the applicable land use regulations. The projects in this category may also be funded through a variety of sources, such as urban renewal, private funds, SDCs, or proportionate sharing (based on level of anticipated impact of a specific development). Table 5.3 shows the projects to be completed upon development.

Projects to be completed upon development can be seen on a project map in Attachment A, Figure 5.

The Complete Street Upgrades of Existing Streets section of Table 5.3 (Projects to be Completed Upon Development) also includes streets that are primarily lined with single family residential development. In the absence of redevelopment, Complete Street projects on these streets could be implemented as capital projects and are considered secondary in priority to the Complete Street Upgrade of Existing Streets projects in Table 5.1 (Roadway, Multimodal, Transit and Rail Projects to be Completed Within 20 Years).

Table 5.3: Projects to be Completed Upon Development

Project No.	Name/Location	Extent	Length (miles)	Cost
Local Connectivity				
UD-1	Provide connection with major collector standards	Enid Road to Awbrey Lane	0.8	$7.4M
UD-2	Connect Hyacinth Street consistent with neighborhood collector standards	Irvington Drive to Lynnbrook Drive	0.1	$700,000
UD-3	Provide connection between Gilham Road and County Farm Road consistent with neighborhood collector standards	Gilham Road to County Farm Road	0.4	$2.8M
UD-5	Extend Legacy Street south past Royal Avenue to connect to Roosevelt Boulevard (Roosevelt extension)	Adelman Loop to Roosevelt Boulevard	1.4	$17.5M
UD-6	Extend Colton Way south past Royal Avenue to connect with the future extension of Legacy Street consistent with neighborhood collector standards	Royal Avenue to future extension of Legacy Street	0.6	$3.7M
UD-7	Construct collectors and other facilities within Crow Road/West 11th Avenue/Pitchford area needed to serve future development	Crow Road/West 11th/Pitchford	1.3	$21.3M
UD-8	Extend W 13th Avenue consistent with major collector standards	Bertelsen Road to Dani Street	0.3	$3.6M
Urbanization of Existing Streets				
UD-9	Upgrade Awbrey Lane consistent with major collector standards	Prairie Road to Highway 99	1.3	$8.7M
UD-10	Upgrade Beacon Drive East consistent with neighborhood collector standards	River Road to Scenic Drive	0.7	$3.5M
UD-11	Upgrade Scenic Drive consistent with neighborhood collector standards	River Loop #2 to East Beacon Drive	0.8	$4.3M
UD-12	Upgrade Spring Creek Drive consistent with neighborhood collector standards	River Road to Scenic Drive	0.5	$2.6M
UD-13	Upgrade River Loop #2 consistent with neighborhood collector standards	River Road to Burlwood Street	1	$6.4M
UD-14	Upgrade Wilkes Drive consistent with major collector standards	River Road to River Loop #1	1	$7M
UD-15	Upgrade River Loop #1 consistent with neighborhood collector standards	River Road to Dalewood Street	0.3	$1.5M
UD-19	Upgrade County Farm Road, west to east section	Wildish Lane to Coburg Road	0.5	$3.2M
UD-20	Upgrade Royal Avenue consistent with minor arterial standards	Terry Street to Green Hill Road	1	$11.2M
UD-21	Upgrade Willow Creek Road south consistent with neighborhood collector standards	W 18th Avenue to the UGB	1	$5.1M
UD-22	Upgrade Bailey Hill Road south consistent with minor arterial standards	Warren Street to the UGB	1.6	$9.9M
UD-23	Upgrade Dillard Road consistent with major collector standards	43rd Avenue to the UGB	1.4	$8.1M
UD-24	Upgrade Fox Hollow Road consistent with major collector standards	Donald Street to the UGB	0.9	$5.7M
		20-Year Total	**16.9**	**$134.2M**

Projects Beyond 20 Years

Projects that would be implemented after 20 years are still important to consider because they could be needed to address future transportation issues, or are simply not able to be funded within the 20 year planning horizon of the *2035 TSP*. Inclusion of projects in the beyond 20 year category provides the City flexibility to re-evaluate priorities and to pursue a variety of funding opportunities that may arise over the life of the *2035 TSP*. Table 5.4 shows the projects expected to be completed beyond the 20 year planning horizon. The City has not identified cost estimates for these long term projects.

Projects to be completed beyond 20 years can be seen on a project map in Attachment A, Figure 6. Pedestrian projects to be completed beyond 20 years are shown on a project map in Attachment A, Figure 7 and bicycle projects to be completed beyond 20 years are shown in Attachment A, Figure 8.

Table 5.4: Projects to be Completed Beyond 20 Years

Project No.	Project Description
Northwest Expressway	
B-2	Provide improvements to facilitate vehicle movement along the Northwest Expressway corridor
Randy Papé Beltline Corridor	
B-3	Improve frequent transit service along the Randy Papé Beltline Highway corridor with a possible Crescent Avenue route
B-4	Improve Randy Papé Beltline Highway from River Road to Coburg Road consistent with the Beltline Highway Facility Plan (arterial bridge and some improvements to Delta Highway/Beltline Highway interchange are included in 20 year project list)
Intersection Projects	
B-5	Provide improvements to address safety and delay at the Highway 99/Roosevelt Boulevard intersection
Complete Street Upgrades of Existing Streets	
B-6	Upgrade Summit Avenue from Fairmont Boulevard to Floral Hill Drive consistent with neighborhood collector standards
B-7	Upgrade Van Duyn Street from Western Drive to Harlow Road consistent with neighborhood collector standards
I-5 from I-105 to South Urban Growth Boundary	
B-8	Improve I-5 to six lanes; improve ramps and upgrade bridges

Table 5.5: Pedestrian and Bicycle Projects to be Completed Beyond 20 Years

Project No	Name/Location	Extent	Length (miles)
Accessways			
PB-522	Augusta Street Accessway	Sylvan St to Augusta St	0.15
PB-225	Avalon Street Accessway	Fern Ridge Path Extension to Legacy St	0.16
PB-261	Awbrey Park Elementary School Accessway	Lynnbrook Dr to Spring Creek Dr	0.32
PB-553	Dibblee Ln Accessway	Dibblee Ln to UGB Path	0.14
PB-585	E 8th Ave Accessway	Hilyard St to Ruth Bascom South Bank Path	0.07
PB-477	Hendricks Park Accessway	Elk Ave to Hendricks Park	0.03
PB-537	Hilyard Sidewalk Path Accessway	High St to Hilyard Sidewalk Path along Railroad	0.07
PB-611	Maynard Accessway	Maynard to Formac	0.21
PB-227	Valley River Way Accessway	Valley River Way to North Bank Path	0.01
PB-448	W 16th Avenue Accessway	Fern Ridge Path to W 16th Ave	0.06
PB-536	W 28th Avenue Accessway	Lincoln St to McMillan St Accessway	0.15
PB-573	W 35th Accessway	W 35th Pl to Accessway	0.02
Project No	**Name/Location**	**Extent**	**Length (miles)**
Neighborhood Greenways			
PB-5	Crocker Road	Irvington Dr to Irving Rd	1.55
PB-80	Dale Avenue	Downing St to County Farm Rd	0.20
PB-81	Dale Avenue	Riverbend Ave to Downing St	0.17
PB-104	E 15th Avenue	University St to E 15th Ave Accessway	0.82
PB-145	Owosso Drive	River Rd to Copping St	0.38
PB-151	Ferndale Drive	Crocker Rd to River Rd	0.57
PB-152	Donegal Street	Irving Rd to Ruby Ave	0.39
PB-156	Kourt Drive	Grove St to River Rd	0.58
PB-166	Avalon Street	Juhl St to Malabon Elem.	0.50
PB-169	Stewart Road	S Bertelsen Rd to Bailey Hill Rd	0.72
PB-407	Ferry Street	E 30th Ave to E 33rd Ave	0.22
PB-476	W Amazon Drive	Ridgeline Trail to Fox Hollow Rd	0.41
PB-483	Silver Lane	N Park Ave to Grove St	0.28
PB-485	Scout Access Road	Northern Terminus to Martin Luther King Jr Blvd	0.10
PB-510	Orchard Street	E 15th Ave to E 19th Ave	0.30
PB-539	Howard Avenue	N Park Ave to River Rd	0.96
PB-590	Emerald St	E 18th Ave to E 24th Ave	0.44
PB-602	Broadview Street	Hawkins Ln to Ellen Ave	0.14
PB-603	Ellen Avenue	Broadview St to Brittany St	0.35

Project No	Name/Location	Extent	Length (miles)
Protected Bicycle Lanes			
PB-484	Coburg Road	Oakway Rd to Oakmont Way	0.29
PB-584	E 8th Ave	E Broadway to Hilyard St	0.17
Project No	**Name/Location**	**Extent**	**Length (miles)**
Bike Lanes			
PB-4	W 24th Avenue	Friendly St to Jefferson St	0.21
PB-28	Bailey Hill Rd	S Bertelsen Rd to UGB	0.85
PB-30	Chambers Street	Graham Dr to Crest Dr	0.66
PB-50	Washington Street	W 5th Ave to W 13th Ave	0.61
PB-51	Jefferson Street	W 5th Ave to W 28th Ave	1.87
PB-58	Green Hill Road/Airport Rd	Airport Rd to Crow Rd	4.48
PB-164	Avalon Street	Legacy St to N Terry St	0.75
PB-594	Garfield Street	W 6th Ave to W 14th Ave	0.62
Project No	**Name/Location**	**Extent**	**Length (miles)**
Shared Use Path			
PB-17	E 30th Avenue	Agate St to Gonyea Rd	1.63
PB-199	Fern Ridge Path Extension	West of Green Hill Rd to Green Hill Rd	0.95
PB-213	Ruth Bascom West Bank Path	Owosso Bridge to West Bank Path	0.38
PB-224	Jessen Path	Green Hill Rd to Ohio St	0.48
PB-232	Fern Ridge Path Extension	Green Hill Rd to Royal Ave	0.28
PB-233	Fern Ridge Path Extension	Green Hill Rd to Royal Ave	0.70
PB-242	Moon Mountain Path	Moon Mountain Dr to E 30th Ave	0.77
PB-265	Central Boulevard Accessway	Central Blvd to Central Blvd	0.05
PB-454	Scout Access Path	Oakmont Way to I-105 Crossing	0.12
PB-513	Ruth Bascom West Bank Path	Stults Gap	0.13
PB-549	Hwy 99 Path	Roosevelt Blvd to W 5th Ave	0.69
PB-557	Green Hill Road Path	Fern Ridge Path to W 11th Ave	0.84
Project No	**Name/Location**	**Extent**	**Length (miles)**
Sidewalk Path			
PB-55	Valley River Way	Valley River Dr to Southern Terminus	0.36
Project No	**Name/Location**	**Extent**	**Length (miles)**
Grade Separated Path			
PB-8	Alder Street Rail Crossing	South Bank Path to Alder St	0.11
PB-14	Avalon Street Bridge	Haven St to Juhl St over Beltline Rd	0.16
PB-15	I-105 crossing at Sorrel Way	I-105 Crossing to Scout Access Rd (Sorrel Park)	0.24

Project No	Name/Location	Extent	Street Side	Length (miles)
Sidewalks				
PB-228	Arrowhead Street	Irvington Drive to Barstow Avenue	East side	0.20
PB-281	Gilham Road	Mirror Pond Way to Honeywood Street	East side	0.58
PB-282	County Farm Road	Wildish Lane to Coburg Road	West side	0.73
PB-283	County Farm Road	Wildish Lane to Coburg Road	East side	0.64
PB-289	Dillard Road	Amazon Drive to Hidden Meadows Drive	North side	1.43
PB-295	Bertelsen Road	Roosevelt Boulevard to W 1st Avenue	East side	0.31
PB-313	Highway 99	Roosevelt Boulevard to Garfield Street	North/East side	0.99
PB-324	Bailey Hill Road	Bertelsen Road to east of S Louis Lane	South side	0.63
PB-325	Bailey Hill Road	W 5th Avenue to W 7th Avenue	West side	0.15
PB-328	Roosevelt Boulevard	N Danebo Avenue to N Bertelsen Road	South side	0.72
PB-331	Seneca Road	Roosevelt Boulevard to railroad	East side	0.19
PB-332	Seneca Road	W 1st Avenue to gap south of W 5th Avenue	West side	0.36
PB-333	Seneca Road	W 1st Avenue to railroad	East side	0.07
PB-346	Agate Street/Kimberly Drive	E 31st Avenue to Dogwood Drive	North side	0.21
PB-367	Hawkins Lane	S Lambert Street to W 18th Avenue	West side	0.36
PB-435	Avalon Street	Echo Hollow Road to eastern terminus	South side	0.23
PB-530	Warren Street	Timberline Drive to Summit Terrace Drive	East side	0.31

Study Projects

The *2035 TSP* has identified a number of potential projects that need more study before the community considers specific recommendations. This *TSP* cannot cover the issues and level of detail that would be needed to create project recommendations for these concepts. Therefore, the City would need to create individual neighborhood-scaled refinement or design plans for each project as timing allows and funding becomes available. These plans can identify specific recommendations, cost estimates, potential funding sources, and the timing for implementation. These projects are not included on the City’s SDC list and would only be added if the *2035 TSP* were amended to reclassify one or more of these projects as those to be completed within 20 years. Study projects are shown in Table 5.6.

Table 5.6: Study Projects

Project No.	Project Description
11th and 13th Avenues	
S-1	Study the need for enhanced transit service along 11th and 13th Avenues between downtown and Garfield Street
Local Connectivity	
S-2	Extend Beaver Street north to Wilkes Drive (which is outside the UGB) as a joint project with Lane County either as a major collector or a pedestrian and bicycle connection; street extension would require obtaining a "Goal Exception" to Oregon's Statewide Planning Goals
Improvements to North-South Travel/Circulation South of Downtown	
S-3	Evaluate north/south circulation options on the Oak/Pearl Streets and Hilyard/Patterson Streets couplets
River Crossings	
S-4	Study ways to increase capacity over the Willamette River to address bridge crossing congestion issues
S-5	Address an aging Ferry Street Bridge structure
S-6	Investigate transit route options for access into downtown via or around the Ferry Street Bridge in conjunction with either Martin Luther King Jr. Boulevard or Coburg Road transit improvements
University of Oregon	
S-7	Explore ways to provide better multimodal connections between the University of Oregon/Franklin Boulevard area and the Autzen Stadium/Duck Village/Chase Gardens area
I-105 Ramps	
S-8	Analyze options to address weaving, operational and safety considerations at the I-105 southbound off-ramp onto W 6th Avenue
NW Expressway	
S-9	Study opportunities to improve the safety and functionality of Northwest Expressway as a major arterial street including by making intersection improvements at the Randy Pape Beltline Highway ramp termini and other locations, by improving signage, and by making other changes to the street
Alton Baker Park	
S-10	Develop lighting and width standards for shared use paths in East Alton Baker Park, particularly east-west routes and connections to the pedestrian and bicycle bridges.
Randy Papé Beltline Highway	
S-11	Study options to address congestion and local connectivity needs in the vicinity of the Coburg Road/Beltline Highway interchange
Coburg Road	
S-12	Connect Eugene to the planned Coburg Loop Trail by providing a walking and bicycling facility on Coburg Road. The study must be coordinated with Lane County and the City of Coburg.
Franklin Boulevard	
S-13	Examine options for improving bicycle and pedestrian access along Franklin Boulevard from the city limits to Alder Street and will be accomplished through planning and development of a multiway boulevard on Franklin as called for in the Walnut Station Mixed Use Center Plan.
Morse Family Farm Path	

S-14	Create recommendations for bicycle and pedestrian circulation through the Morse Family Farm to existing and planned routes that connect to the perimeter of the site
Rail Alignment Westbound	
S-15	Examine the feasibility of a rails-with-trails project for the Union Pacific (UPRR) rail line within the city limits. The study must be coordinated with UPRR and take into consideration plans for continued and expanded rail service to area businesses. The study should examine existing right-of-way, path alignment options, track crossing issues, connections to adjacent sidewalks and bikeways, and next steps for negotiating with UPRR.
West Bank Path	
S-16	Examine the feasibility of extending the West Bank Path north to Hileman Landing. Right-of-way ownership and environmental concerns should be addressed in the final recommendation.
Willamette McKenzie Path	
S-17	Examine options for creating a path north along the east side of the Willamette River and east along the McKenzie River as called for in the Regional Transportation Plan. The study should build on the work done by the Willamette River Open Space Vision and Action Plan and look at land ownership, alignment alternatives, environmental issues, and recreational and scenic value.
South Bank Gap	
S-18	Examine options and develop a recommended facility for completing the South Bank Path gap between the Frohnmayer and Knickerbocker Pedestrian and Bicycle Bridges. The plan must consider the existing railroad line.
Westmoreland Park Paths	
S-19	Examine options to create paths through Westmoreland Park to connect to existing on-street walking and bicycling routes that connect to the park.

Randy Papé Beltline Facility Plan

The Randy Papé Beltline Facility Plan is adopted as part of the *2035 TSP* (Attachment C). The Facility Plan includes recommended improvements to the Randy Papé Beltline Highway, Delta Highway and the adjacent arterial street system to improve safety and the long-term operations of the highway between River Road and Coburg Road. This Facility Plan is a precursor to the National Environmental Policy Act (NEPA) process for the implementation of future Randy Papé Beltline Highway projects. The NEPA analysis will include more detailed and rigorous analysis of project impacts and result in a determination as to whether or not one or more of the improvements options can be constructed and, potentially, result in a project that is eligible for federal funding.[13]

[13] If the outcome of the NEPA analysis is that one or more of the improvement options can be constructed, the project description and costs estimates for Project MM-3 will be updated to reflect the improvement option ultimately selected. The City recognizes that construction outside of the urban growth boundary may require a goal exception or UGB amendment. Those land use issues will be resolved together with Lane County.

The Randy Papé Beltline Facility Plan identifies concerns regarding safety, operation, and capacity of Beltline Highway and its interchanges at Delta Highway, River Avenue/Division Avenue, and River Road in both objective and subjective ways. The Facility Plan describes four potential improvement options: No Build, Improve Existing, Auxiliary Lane, and Collector Distributor.

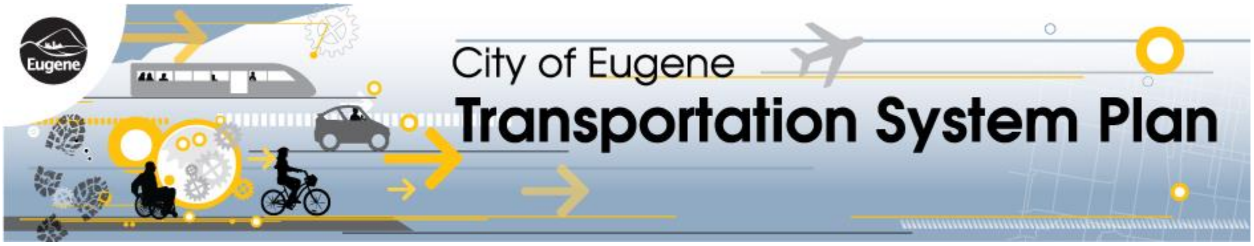
Both the Improve Existing and Auxiliary Lane options provide auxiliary lanes and improved, safer access to the existing Beltline mainline, and provide a local arterial street connection parallel (to the north) to the existing bridge. Both options meet the project objectives and can provide better facilities for walking, biking, and transit. The Collector Distributor option, however, was found to be inconsistent with the direction espoused by the TSP. Compared to the Improve Existing and Auxiliary Lane options, the Collector Distributor option has significantly higher costs with only a marginal improvement to corridor operational performance, inability for phased construction, likelihood of greater impacts to the surrounding community, and would be less hospitable for walking, biking, and transit. Thus, based on City Council direction provided on September 30, 2015, adoption of the Randy Papé Beltline Facility Plan as part of this TSP does not include the Collector Distributor option. Only the No Build, Improve Existing, and Auxiliary Lane options will be subject to NEPA review.

What is NEPA?

The **National Environmental Policy Act (NEPA)** is a United States environmental law (enacted in 1970) that promotes the enhancement of the environment and establishes the broad national framework for protecting our environment. NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions.

Traffic on Beltline Highway at River Avenue during evening rush hour.

Source: City of Eugene



Chapter 6: Transportation Funding and Implementation

The *2035 TSP* includes projects under the jurisdiction and ownership of ODOT, Lane County, the City of Eugene, and Lane Transit District (LTD), as well as projects that will be implemented by private developers. Individual TSP projects will be funded through a different combination of federal, state, City, county, SDC revenue, and or private sources. This chapter discusses current and possible new funding mechanisms that may be available to implement projects during the life of the *2035 TSP.* A complete list of the multimodal projects included in the *2035 TSP* is provided in Chapter 5 (Tables 5.1-5.6). Chapter 5 also provides planning-level cost estimates for each of the projects.

Today's fiscal environment is beset by uncertainty about future federal, state and local funding for transportation projects. This uncertainty provides challenges to accurately forecast the amount of funding available for transportation investments, and what projects or programs will receive funding. In this context, the *2035 TSP* provides a prudent and conservative list of capital construction projects, an emphasis on lower cost methods of improving personal mobility within the City, and an increased reliance on technologies that can improve the efficiencies of our streets.

The *2035 TSP* articulates policies and actions that explicitly prioritize facilities and improvements that support mixed-use, pedestrian-friendly neighborhoods, increase use of active modes of transportation, and reduce reliance on travel by single-occupant automobile. These priorities include improved convenience and safety for walking, biking, and connections to transit stops; improved transit service in Key Corridors; bikeway improvements near the University of Oregon, downtown Eugene, and on streets connecting residential areas to schools and commercial hubs; a railroad quiet zone in the downtown and Whiteaker areas; investments that facilitate job growth in commercial or industrial areas; and priority parking and reduced parking fees for non-gasoline powered vehicles.

The highest priority projects in the *2035 TSP*, the Eugene Capital Improvement Program (CIP) and Eugene projects in the Metropolitan Transportation Improvement Program (MTIP) are those that (1) protect the existing system and (2) improve the efficiency and safety of existing facilities. These projects are to be implemented first unless a lower priority measure is demonstrated to be more cost-effective or is one that better supports safety, growth management, or other livability and economic considerations.

The *2035 TSP* promotes a series of projects that make streets safer and more efficient with use of emerging technologies. These actions increase the capacity and safety of the streets without adding general purpose lanes. Examples of technological improvements could include: traffic signal upgrades and communications, traffic monitoring cameras, dynamic message boards, and weather stations.

While the *2035 TSP* prioritizes projects for implementation, the City may advance projects in a different manner than anticipated in the TSP to take advantage of unforeseen opportunities. These opportunities could include changes in policy or funding at the federal, state, or local level; changes in local development priorities; or the formation of public-private or public-public partnerships. The prioritization of projects identified as within 20 years are intended to be interpreted flexibly with those that are identified as "beyond 20 years" to allow the City to make wise investment decisions consistent with the overall vision contained in the *2035 TSP*.

Transportation Revenue

Revenue forecasts from the Central Lane Metropolitan Planning Organization Regional Transportation Plan (RTP) (December 2011 and reviewed by Central Lane Metropolitan Planning Organization and ODOT staff in 2015) provided a basis for extrapolating an estimate of revenues that might be available for transportation projects in the City of Eugene over the next twenty years. The RTP, per federal guidance, includes sources of funds that can be reasonably expected, rather than just those sources currently available to the region and/or used for capital projects. These RTP funding projections are coordinated with ODOT and other Metropolitan Planning Organization in the state. Because the funding picture in the region is constantly evolving and some indications from state forecasts suggest that funding levels might decline, this chapter also outlines a potential scenario where funding is more constrained than the RTP forecast might suggest.

Safe Routes to School events encourage parents and children to use active modes to reach schools.

Source: Scott Woods-Fehr, Flickr

Regional Transportation Plan Forecasts

The 2035 Central Lane MPO RTP (2011) forecasts constrained costs and revenues for the transportation system in the Central Lane MPO through Fiscal Year 2035. These forecasts include the following capital revenue and cost categories:

- Local system improvements;
- Pedestrian and bicycle system improvements;
- Lane Transit District system improvements;
- ODOT system improvements.

The RTP forecasts assume a variety of sources for each category. For the City of Eugene, a variety of federal, state and local revenue sources contribute to each category, as shown in Table 6.1 below.

Approximate Transportation Revenues for the City of Eugene

Setting aside expected revenues for operations, maintenance, and preservation and transit system improvements, the RTP estimates approximately $650 million (in 2014 dollars) in funding for roadway system, bike, and pedestrian capital improvements through Fiscal Year 2035. Assuming that approximately 65 percent[14] of all transportation investments (including ODOT funding) are spent on city, county or state projects within Eugene, the RTP forecasts that between $398 and $415 million (in 2014 dollars)[15] in transportation revenues will be available for City of Eugene roadway system, bike, and pedestrian improvement projects through Fiscal Year 2035.

---

[14] Approximately 65 percent of the population within the Central Lane Metropolitan Planning Organization boundary is within the City of Eugene.

[15] Approximately $385 to $400 million in 2011 dollars. Assumed 3.1 percent annual inflation to determine 2014 dollars.

The state and federal funding picture is changing rapidly. In this light, ODOT may have less revenue to invest in major roadway projects in the future. In a reduced revenue scenario, ODOT may have only $60-80 million (in 2014 dollars) available for projects on ODOT facilities in Eugene. This change would minimally impact revenues for local system improvements. If this is the case, Eugene could expect $260-$280 million in revenues for transportation projects identified in the *2035 TSP*. Both revenue scenarios are shown in Table 6.1.

Table 6.1: Forecast revenue and potential sources for capital projects in Eugene

Project category	RTP forecast (2014$, millions)	Potential reduced funding scenario (2014$, millions)
Local system improvements (roadway, on and off-street pedestrian and bike)	$200	$200
<u>Sources include</u>: System development charges Federal highway trust fund (MPO allocation: STIP-U and Transportation Alternatives) State Transportation Enhancement program General Obligation Bonds Developer contributions Special federal programs or earmarks		
ODOT discretionary improvements (range)	$198-214	$60-80
<u>Sources include</u>: State Transportation Enhancement program Federal highway trust fund (not sub-allocated to MPOs, counties or cities) State gas tax (not sub-allocated to MPOs, counties or cities) State legislative actions Special federal programs or earmarks		
Total revenue	$398-414	$260-280

Note: under state law, state gas tax revenues can only be used for projects within a road right-of-way (including pedestrian and bike projects).

Project Costs

Chapter 5 includes order-of-magnitude costs for projects anticipated in the next 20 years, including:

- Projects within 20 years (transit, roadway and multimodal);
- Pedestrian and bicycle projects;
- Those projects anticipated upon development/redevelopment;
- Traffic signal system improvements.

The costs are in 2014 dollars and include right-of-way, design engineering, and construction costs. A summary of costs for the 20 year system is shown in Table 6.2.

Capital funding for transit is not included in the cost and funding analysis. Given that a community process will be required to determine the types of improvements necessary to support transit in identified multimodal corridors, the transit corridor capital costs were consolidated, assuming a mix of bus rapid transit (EmX), enhanced corridor, and frequent bus service. Transit projects are estimated to cost a total of $171.4 million for all corridor improvements.

Table 6.2: 20 year system cost

Project category	Cost ($2014)
Projects within 20 Years	
Roadway and multimodal projects	$161,200,000
Complete streets upgrades to existing streets	$45,600,000
Rail projects	$28,400,000
Pedestrian and bicycle projects	$72,000,000
Transit projects in multimodal corridors (multimodal corridor bundle)	$171,400,000
Upon Development Projects	$134,200,000 (total) / $67,100,000 (city-funded)
Traffic Signal System Improvements	$21,200,000
Total 20 Year System Cost	**$634,000,000**
Total ODOT and City-Funded Cost (excluding transit and 50% of upon development projects)	**$395,500,000**

Note: (1) City-funded share of 'upon development' project costs is an estimate for use in comparing costs to forecast revenues. Assessments for development will be developed separately. (2) Often, operational projects are not included in system plans. Some are included in this funding estimate, however, due to the reliance on operational improvements to address system performance needs.

Funding Gap

Forecasts of the likely funding gap looks at street, pedestrian, bicycle and traffic signal system improvements expected to be completed in 20 years. Traditionally only about half of the cost of projects anticipated upon development are borne by private developers; the remaining portion is often City funded. Transit projects are not included in this gap analysis as they are expected to be constructed by the Lane Transit District with a mix of local contributions and Federal Transit Administration (FTA) grants. Depending on the funding plan for individual transit projects, the City may be asked to contribute.

With transit and a half of upon development projects set aside, the total cost of projects to be completed in 20 years is $395.5 million while forecast revenues are $398-$415 million (RTP forecast) or $260-280 million (reduced forecast). With the RTP scenario, Eugene can reasonably expect the forecasted revenues needed to construct its 20 year system of projects. With the more conservative scenario, the City would need new sources of funds to construct its 20 year priority system. Some options for new funds could include increased system development charges, one or more local bond measures, or a local option vehicle registration fee (only available at the county level). The City could also increase the local option gas tax or choose to spend local option gas tax or state gas tax revenues on these projects instead of directing those revenues to preservation, operations, and maintenance. Finally, the state legislature could identify additional funding for transportation projects.

Potential Funding Sources

While highway user taxes and fees, including Oregon State fuel taxes, licensing, and registration fees, as well as local fuel taxes, are available to fund transportation-related projects in the City, per local policy these sources have increasingly been devoted to operations, maintenance, and preservation. This practice diverts funds away from capacity development or expansion projects. The City will need to develop a strategy to fund the improvements listed in the *2035 TSP*. Possible elements of this strategy are outlined below.

Local Funding Mechanisms

At the local level, the City can draw on a number of potential funding mechanisms. Table 6.3 outlines potential funding sources at the local level that either can currently be used to fund future projects or that the City Council may want to consider adopting as a new funding source. The City has used some of these funding mechanisms in the past; others would be new. Inclusion of Table 6.3 in the *2035 TSP* does not create a new funding source but rather is intended to the various funding sources that local governments throughout Oregon utilized. In general, local funding sources are more flexible than funding obtained from state or federal grant sources.

Table 6.3: Potential Local Funding Mechanisms

Funding Source	Description	Potential Application in Eugene
Street Utility Fees (also called road maintenance fees)	A fee based on the number of automobile trips a particular land use generates; usually collected through a regular utility bill. Fees can also be tied to the annual registration of a vehicle to pay for improvements, expansion, and maintenance of the street system.	System-wide transportation facilities including streets, sidewalks, bike lanes, and shared use paths.
Transportation Systems Development Charge (SDC)	SDCs are impact fees assessed to development for the capacity demand it creates on public infrastructure systems. SDCs may be an improvement fee, a reimbursement fee, or a combination thereof. Reimbursement fee revenues are dedicated to capital projects that increase capacity to meet the needs of growth. SDC credits are provided to developers for public improvements they construct which add capacity to the system beyond that required to serve their development. SDC credits may also be given for development provisions that reduce vehicular capacity demand on the transportation system, such as providing end-of-trip bike facilities within the new development.	The City is updating its Transportation System Development Charge to reflect eligible components of the *2035 TSP* project list.
Stormwater SDCs, grants, and loans	SDCs, grants, loans, and stormwater improvement fees can be obtained for improving stormwater management facilities constructed as part of transportation system improvements.	SDCs may only be used for that portion of transportation improvements which generate additional stormwater management capacity related to growth.
Local gas tax	A local tax can be assessed on the purchase of gas within the City. This tax is added to the cost of gasoline at the pump, along with the state and federal gas taxes.	System-wide transportation facilities including streets, sidewalks, and bike lanes.

Funding Source	Description	Potential Application in Eugene
Parking in-lieu fees	Parking in-lieu fees are developer fees paid if they cannot or do not want to provide on-site parking for the development. The idea behind these fees is to decrease the amount of off-street, private parking and consolidating parking supplies on-street or in parking garages as a way to decrease parking demand on the development site. In-lieu fees may benefit developers by reducing costs and allowing more intensive development on a site.	System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.
Incentives	The City provides an enticements such as bonus densities and flexibility in design in exchange for a public benefit. Examples might include a commute trip reduction (CTR) program or transit facilities in exchange for bonus densities. Incentives may be used with SDC methods to reduce transportation impacts from new development.	System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.
Public/private partnerships	Public/private partnerships have been used around the country to provide public transportation amenities within the public right-of-way in exchange for operational revenue from the facilities. These partnerships could be used to provide services such as vehicle charging stations, public parking lots, bicycle lockers, or car share facilities.	System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.
Tax Increment Financing (TIF)	TIF is a tool that cities may use to create special districts (tax increment areas) where public improvements are made in order to generate private-sector development. During a defined period, the City freezes the tax base at the pre-development level. Property taxes for that period can be waived or paid, but taxes derived from increases in assessed values (the tax increment) resulting from new development can go into a special fund created to retire bonds issued to originate the development or leverage future improvements. A number of small-to-medium sized communities in Oregon have implemented, or are considering implementing, urban renewal districts that will result in a TIF revenue stream.	System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.
Streets District	Oregon state law (Oregon Revised Statute [ORS] 371) allows for the formation of special streets taxing districts for purposes of constructing and maintaining streets within the taxing district boundaries. A Streets District would be a separate entity from the City of Eugene, with its own property tax levy rate and an elected board of commissioners. Those within the potential district boundaries must vote on the creation of a Streets District.	Roadway improvement projects.

Funding Source	Description	Potential Application in Eugene
Revenue and general obligation bonds	Bonding allows municipal and county government to finance construction projects by borrowing money and paying it back over time, with interest. Financing requires smaller regular payments over time compared to paying the full cost at once, but financing increases the total cost of the project by adding interest. General obligation bonds are often used to pay for construction of large capital improvements and must be approved by a public vote. These bonds add the cost of the improvement to property taxes over time.	Construction of major capital improvement projects within the city, street maintenance and incidental improvements.
Reimbursement Districts	Also called Zones of Benefit or Advance Financed Districts, a city determines the boundary of the district. Property owners of new development or large redevelopment permits pay a fee for the installation of public improvements. They then recover some portion of the cost over a period of years (often 15).	Construction of major capital improvement projects within the city (possibly in Study Areas). A local code amendment is needed to permit Reimbursement Districts in Eugene.

State and Federal Grants

In addition to local funding sources, the City of Eugene can seek to leverage opportunities for funding from grants at the state and federal levels for specific projects. Table 6.4 outlines state and federal sources and their potential applications.

Potential state funding sources are extremely limited, with some having significant competition. Any future improvements that rely on state funding may require City and regional consensus that these improvements are more important than transportation needs elsewhere in the region and the state. It will likely be necessary to combine multiple funding sources to pay for a single improvement project (*e.g.*, combining state, regional, or City bicycle and pedestrian funds to pay for new bike lanes and sidewalks).

Table 6.4: Potential State and Federal Grants

Funding Source	Description	Potential Application in Eugene
Statewide Transportation Improvement Program (STIP)	STIP is the State of Oregon's four-year transportation capital improvement program. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP.
Statewide Transportation Improvement Program-Urban (STIP-U)	STIP-U is the State of Oregon's four-year transportation capital improvement program for urban areas. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP-U.
Transportation and Growth Management (TGM) Grants	TGM Grants are planning grants administered by ODOT and awarded on an annual basis. The TGM grants are generally awarded to projects that will lead to more livable, economically vital, transportation efficient, sustainable, and pedestrian-friendly communities. The grants are awarded in two categories: transportation system planning and integrated land use/transportation planning.	Refinement of any identified study projects.

Funding Source	Description	Potential Application in Eugene
Transportation Alternatives Program (TAP)	TAP is a federal program that provides funding for pedestrian and bicycle facilities, projects for improving public transit access, safe routes to schools, and recreational trails. Local governments, regional transportation authorities, transit agencies, school districts or schools, natural resource or public land agencies, and tribal governments are all eligible to receive TAP funds. TAP funds are programmed both by ODOT and the Central Lane MPO.	Bicycle and pedestrian facilities, shared use paths.
All Roads Transportation Safety Program (ARTS)	The federal Highway Safety Improvement Program is administered as ARTS in Oregon. ARTS provides funding to infrastructure and non-infrastructure projects that improve safety on all public roads. ARTS requires a data-driven approach and prioritizes projects in demonstrated problem areas.	Areas of safety concerns within the city, consistent with Oregon's Transportation Safety Action Plan.
Immediate Opportunity Fund (IOF)	This fund is discretionary and provides funding for transportation projects essential for supporting site-specific economic development projects. These funds are distributed on a case-by-case basis in cooperation with the Oregon Economic and Community Development Department. These funds can only be used when other sources of financial support are insufficient or unavailable. These funds are reserved for projects where a documented transportation problem exists or where private firm location decisions hinge on the immediate commitment of road construction. A minimum 50 percent match is required from project applications.	Any identified projects that would improve economic development in Eugene and where there are documented transportation problems.
Connect Oregon	Lottery-backed bonds distributed to air, marine, rail, transit, and pedestrian and bicycle projects statewide. No less than 10 percent of Connect Oregon IV funds must be distributed to each of the five regions of the state, if there are qualified projects in the region. The objective is to improve the connections between the highway system and other modes of transportation.	System-wide transportation facilities including, shared use paths, and transit.
Oregon Parks and Recreation Local Government Grants	Oregon Parks and Recreation Department administers this program using Oregon Lottery revenues. These grants can fund acquisition, development, and major rehabilitation of public outdoor parks and recreation facilities. A match of at least 20 percent is required.	Trails and other recreational facility development or rehabilitation.
Oregon Transportation Infrastructure Bank (OTIB)	A statewide revolving loan fund is available to local governments for many transportation infrastructure improvements, including highway, transit, and non-motorized projects. Most funds made available through this program are federal; streets must be functionally classified as a major collector or higher to be eligible for loan funding.	Infrastructure improvements to major collectors or higher classified roads for vehicle, transit, and non-motorized travel.
State highway gas tax increase or user fee	ODOT is currently researching a state user fee for drivers to address steady or declining state gas tax revenues. An increase in the state gas tax or a user fee would need to pass through state legislation and would increase the state's transportation funds.	System-wide transportation facilities including streets, sidewalks, bike lanes, and transit.

Relationship of the TSP and the Capital Improvement Program, City Code, and Design Standards

The *Eugene 2035 TSP* is implemented through coordinated actions with the Capital Improvement Program (finance), City Code (land use regulations), and street design standards.

The Capital Improvement Program (CIP) forecasts the City's capital funding needs over a six-year period based on various adopted long-range plans, goals and policies. The CIP plans for land acquisition, construction, and major preservation of public facilities necessary for the safe and efficient provision of municipal services identified from adopted master plans. The major transportation-related projects contained in the CIP are derived from the projects and needs identified in the *2035 TSP*. All transportation projects contained in the CIP must be consistent with the goals, objectives, policies, and needs identified in the Eugene Transportation System Plan.

In addition to the CIP funding mechanism, the tenets of the *2035 TSP* are implemented through various transportation- and land use-related sections of the Eugene City Code. The code dictates the process and standards by which development and street improvements are proposed, reviewed, and approved. The City Code also sets the standards for new development locations, bulk, and appearance; car and bike parking availability; pedestrian amenities; street connectivity; location of transit improvements; and the appearance of street rights-of-way.[16]

Street design standards are the basis for the design of all capital construction projects. Pursuant to policies contained in this TSP, street design standards will be updated to reflect best practices for expanding safety and convenience of the community's pedestrian, bicycle, and transit systems.

Monitoring and Reporting

Through its goals, policies, potential action items and projects, the 2035 TSP is designed to increase transportation choices and reduce reliance on the automobile. While the benchmarks set out in Attachment D will assure the City is making satisfactory progress toward meeting the standards approved by LCDC in 2001 for the entire Eugene-Springfield metro area, the City will also undertake Eugene-specific monitoring and reporting. Specifically, the City will periodically compile information that will be analyzed to measure the performance of the City's transportation system, including safety and congestion, and to evaluate the effectiveness of the 2035 TSP's goals, policies and programs. Further, transportation-specific monitoring is included in the policies for growth management monitoring that are being prepared as part of the Envision Eugene Comprehensive Plan.

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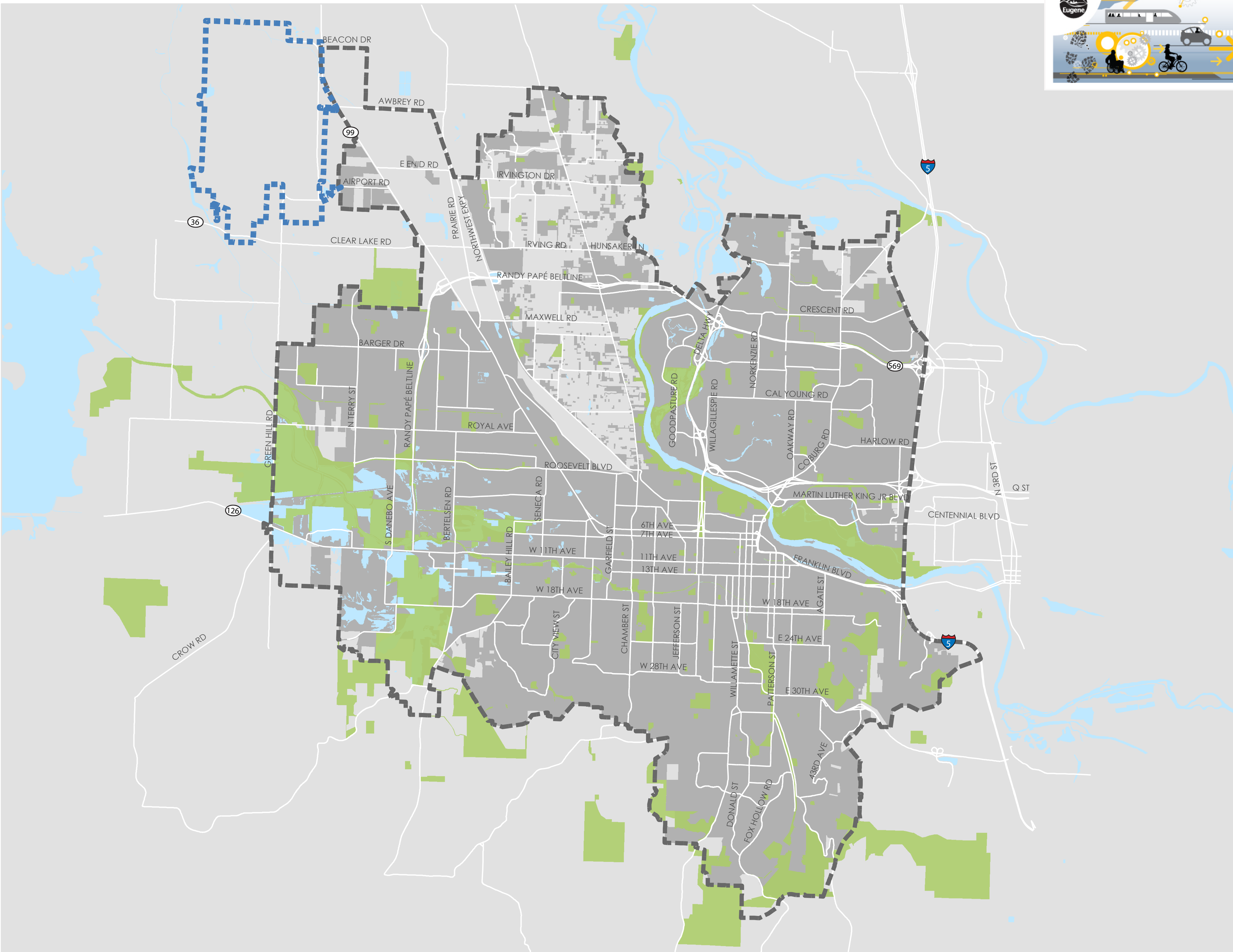
[16] As discussed at the beginning of Chapter 2, the *2035 TSP* is an internally-directed document that provides a coordinated guide for City's changes to its transportation infrastructure and operations over the next 20 years. The *2035 TSP* is not an externally-applicable document, *i.e.*, no part of the *2035 TSP* serves as a "requirement" to which land use (or other) applicants must demonstrate compliance and the City will not use the policies of the *2035 TSP* in determining whether to approve or deny individual land use applications.

Attachment A: TSP Project Maps

City of Eugene
Transportation System Plan

02.15.17



Legend

- Major Streets
- Eugene City Limits
- Eugene Airport Master Plan
- Urban Growth Boundary
- Water Body
- Parks

N

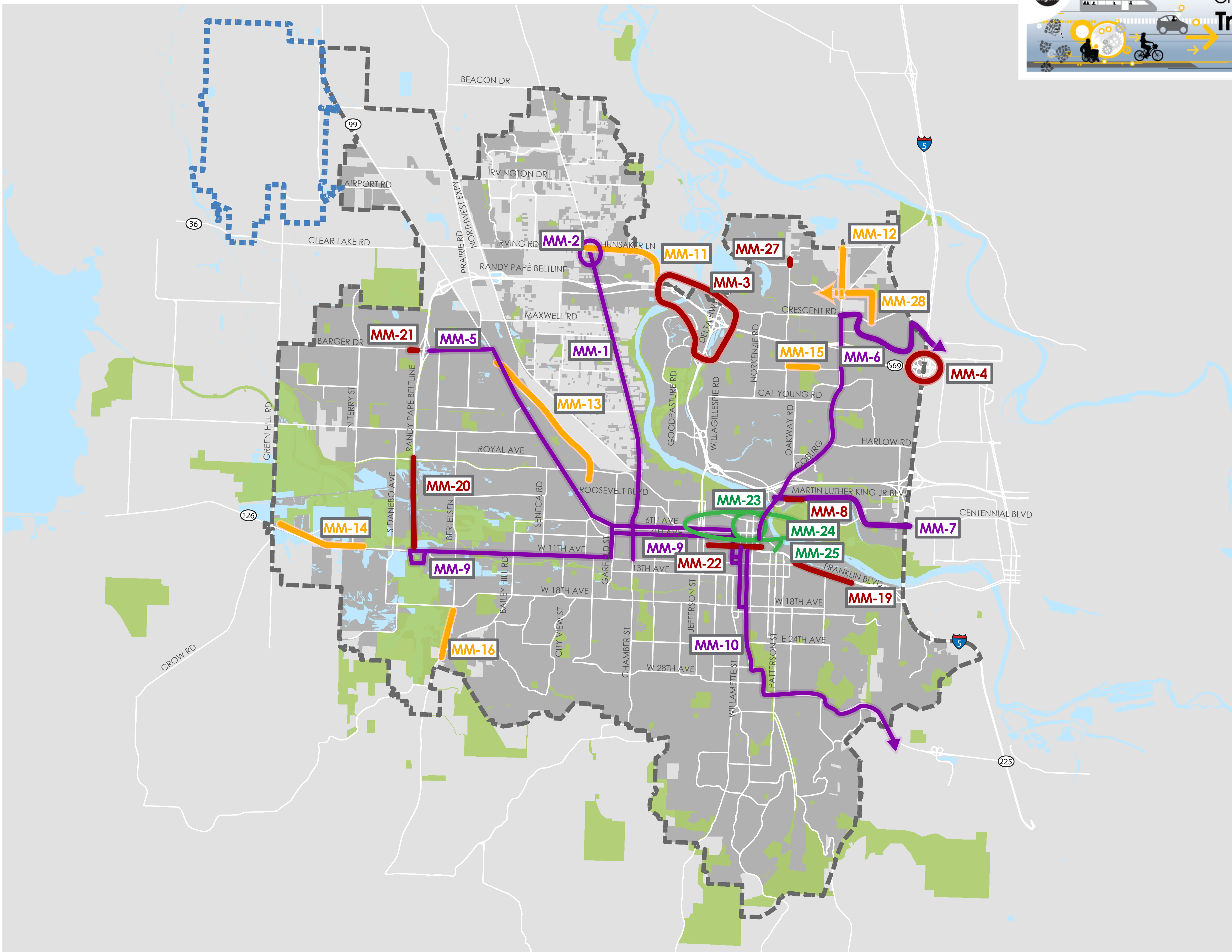
0 0.5 1
Miles

FIGURE 1
TSP Study Area

Transportation System Plan
Eugene, OR

City of Eugene
Transportation System Plan

02.15.17



Legend

- Urbanization of Existing Streets
- Rail Improvement
- Roadway Project
- Transit and Multimodal Project
- Transit Project
- Specific route to be determined later
- Major Streets
- Eugene City Limits
- Eugene Airport Master Plan
- Urban Growth Boundary
- Water Body
- Parks

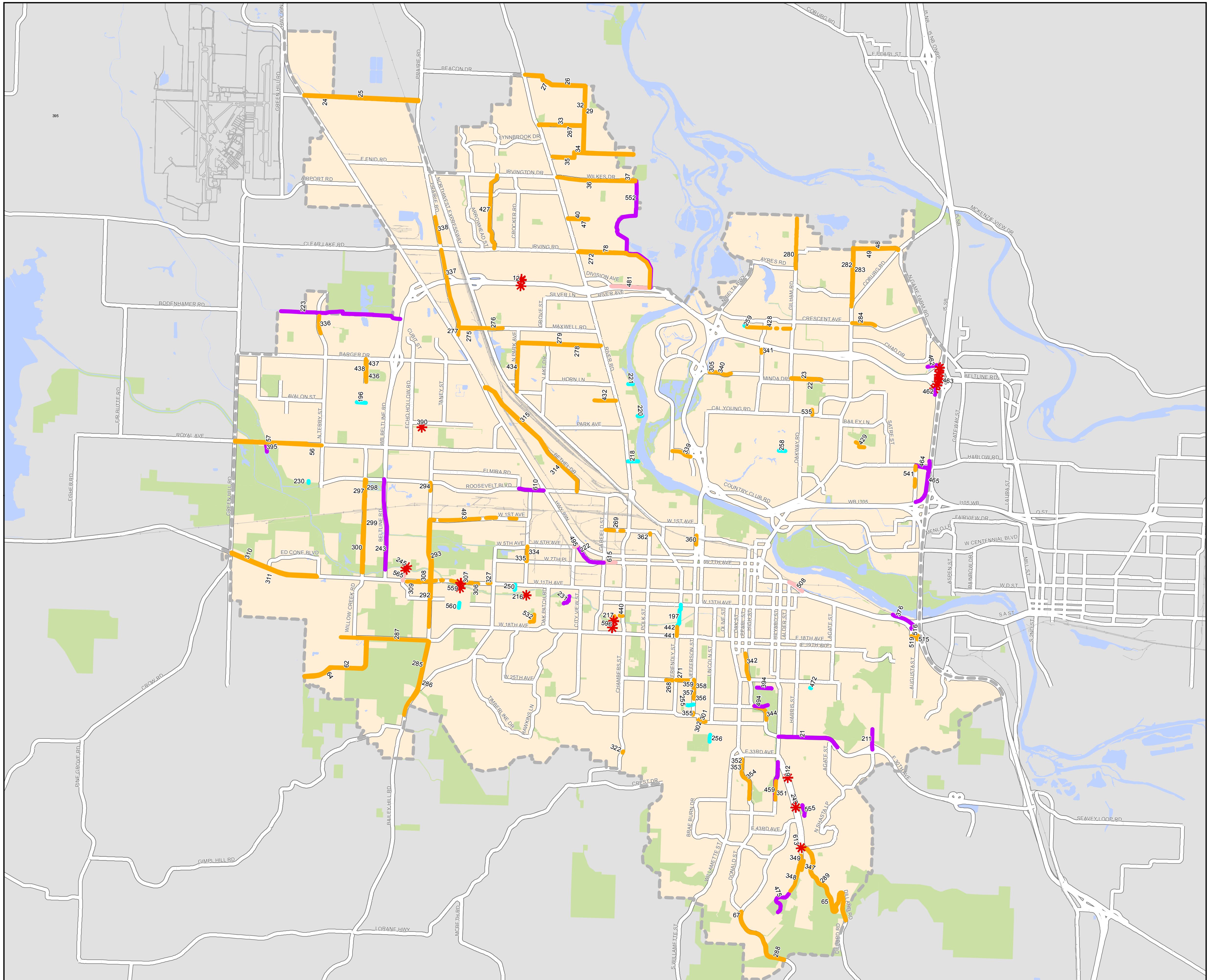
0 0.5 1
Miles

NOTE:
All new alignments are conceptual. Actual alignments will be determined during project development.

* MM-26 is a city-wide project that is not mapped above.

FIGURE 2
Projects Within 20 Years

Transportation System Plan
Eugene, OR



City of Eugene

Transportation System Plan

Pedestrian Facility Projects

Legend to Map Symbols

Proposed Pedestrian Improvements

- Shared Use Path
- Sidewalk Path
- Sidewalks
- Accessways
- Grade Separated Crossing
- Streets
- Railroad
- Water
- Parks & Open Space
- Urban Growth Boundary

Project Numbers shown correspond to PB-XXX projects described in Table 5.2

1 inch = 1.07 miles

0 1 2 Miles

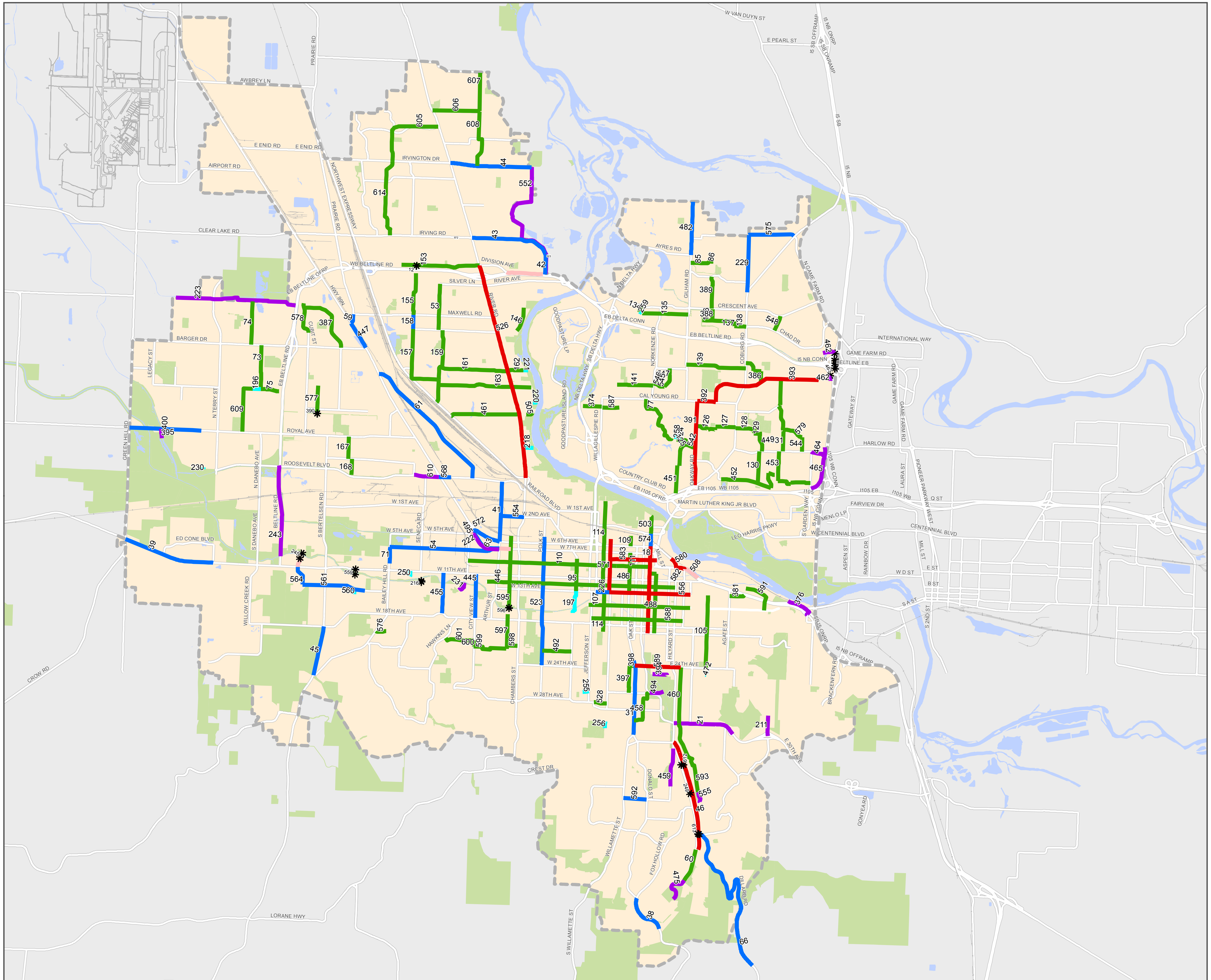
FIGURE 3.

Projects Completed Within 20 Years

Transportation System Plan
Eugene, OR

City of Eugene

Transportation System Plan



Bicycle Facility Projects

Legend to Map Symbols

Proposed Bicycle Improvements

- Bike Lane
- Protected Bike Lane
- Shared Use Path
- Sidewalk Path
- Neighborhood Greenways
- Accessways
- Grade Separated Crossing
- Streets
- Railroad
- Waterbodies
- Parks & Open Space
- Urban Growth Boundary

Project Numbers shown correspond to PB-XXX projects described in Table 5.2

1 inch = 1.07 miles

0 1 2 Miles

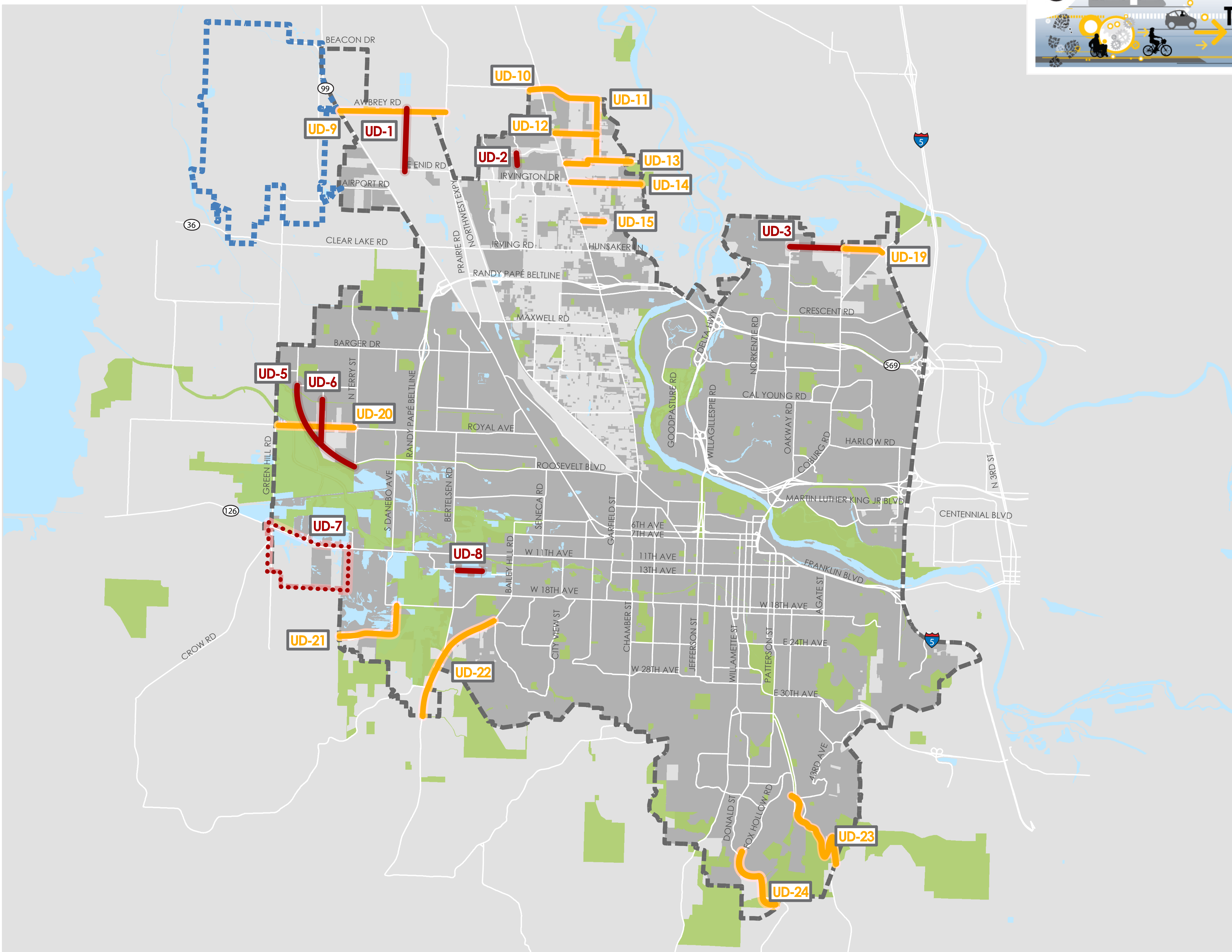
FIGURE 4.

Projects Completed Within 20 Years

Transportation System Plan
Eugene, OR

City of Eugene
Transportation System Plan

02.15.17



Legend

- Urbanization of Existing Streets
- Roadway Project
- Specific route to be determined later
- Major Streets
- Eugene City Limits
- Eugene Airport Master Plan
- Urban Growth Boundary
- Water Body
- Parks

N

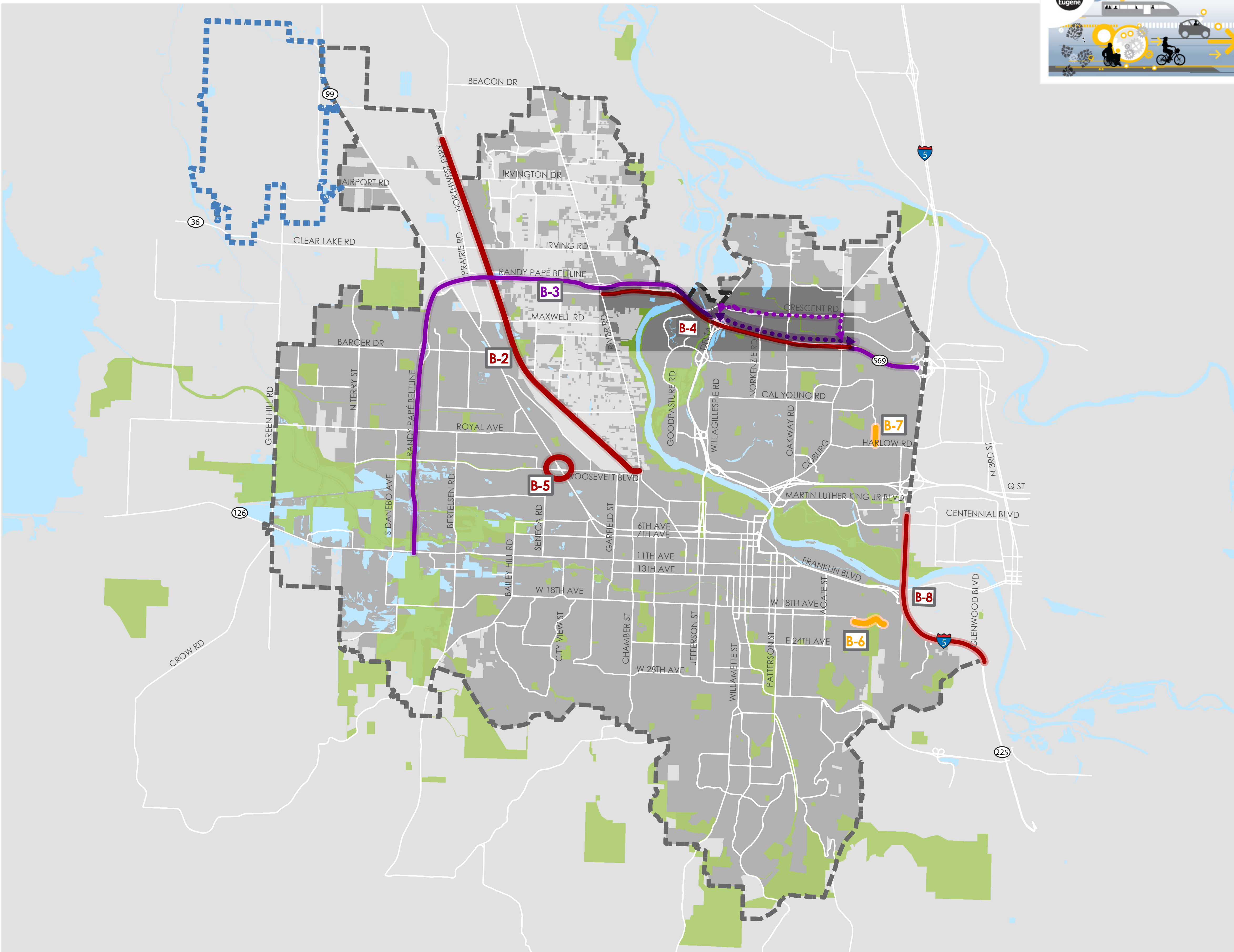
0 0.5 1
Miles

NOTE:
All new alignments are conceptual. Actual alignments will be determined during project development.

FIGURE 5
Projects to be Completed Upon Development
Transportation System Plan
Eugene, OR

City of Eugene
Transportation System Plan

02.15.17



Legend

- Urbanization of Existing Streets
- Roadway Project
- Roadway Project
- Transit Project
- Specific route to be determined later
- Major Streets
- Eugene City Limits
- Eugene Airport Master Plan
- Urban Growth Boundary
- Water Body
- Parks

N

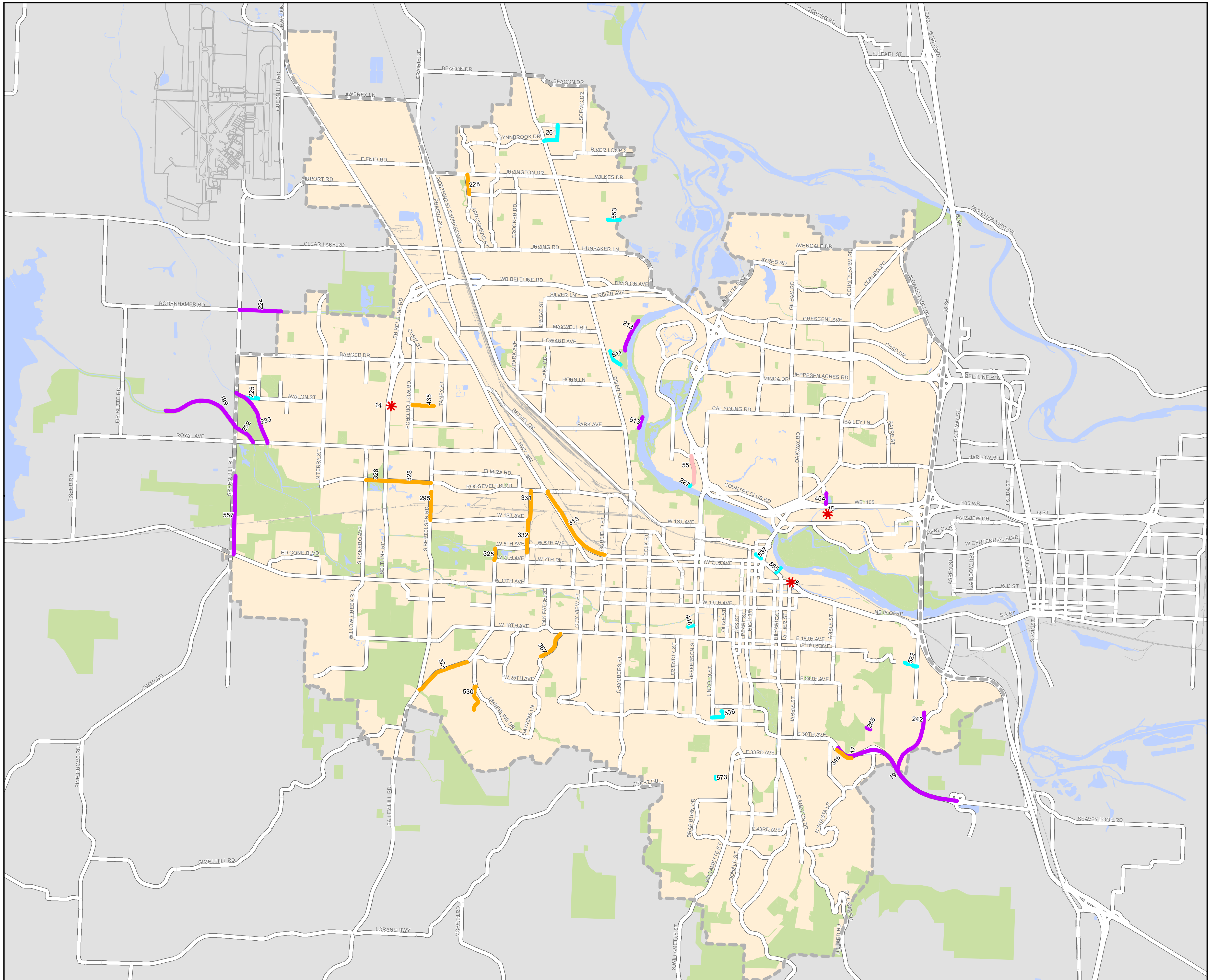
0 0.5 1
Miles

NOTE:
All new alignments are conceptual. Actual alignments will be determined during project development.

FIGURE 6
Projects Beyond 20 Years

Transportation System Plan
Eugene, OR

ETSP2_110_Beyond20Proj_19



City of Eugene

Transportation System Plan

Pedestrian Facility Projects

Legend to Map Symbols

Proposed Future Pedestrian Improvements

- Shared Use Path
- Sidewalk Path
- Sidewalks
- Accessways
- Grade Separated Crossing
- Streets
- Railroad
- Water
- Parks & Open Space
- Urban Growth Boundary

Project Numbers shown correspond to PB-XXX projects described in Table 5.2

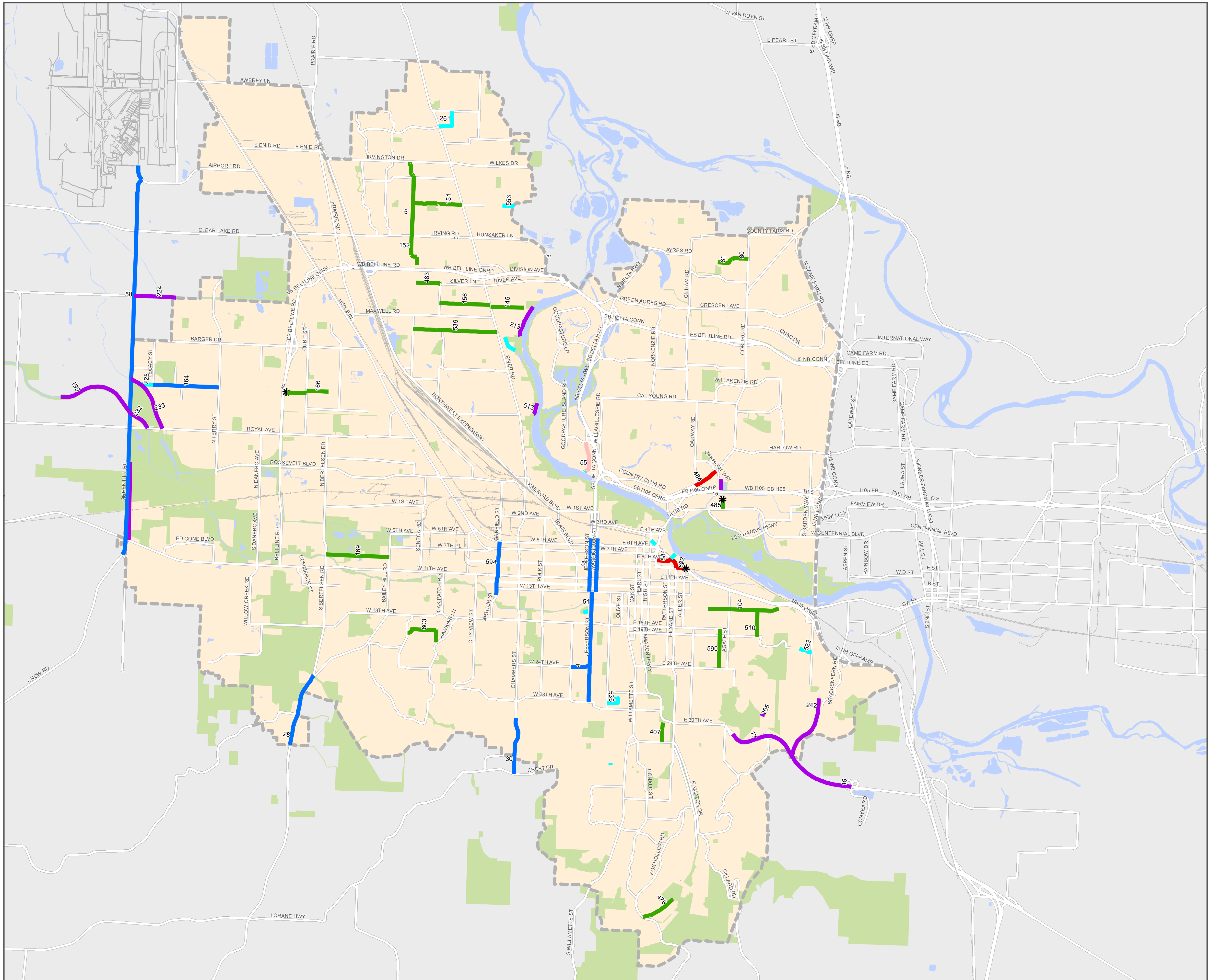
1 inch = 1.07 miles

0 1 2 Miles

FIGURE 7.

Pedestrian Projects Beyond 20 Years

Transportation System Plan
Eugene, OR



City of Eugene

Transportation System Plan

Eugene

Bicycle Facility Projects

Legend to Map Symbols

Proposed Future Bicycle Improvements

- Bike Lane
- Protected Bike Lane
- Shared Use Path
- Sidewalk Path
- Neighborhood Greenways
- Accessways
- Grade Separated Crossing
- Streets
- Railroad
- Waterbodies
- Parks & Open Space
- Urban Growth Boundary

Project Numbers shown correspond to PB-XXX projects described in Table 5.4

N
W E
S

1 inch = 1.07 miles

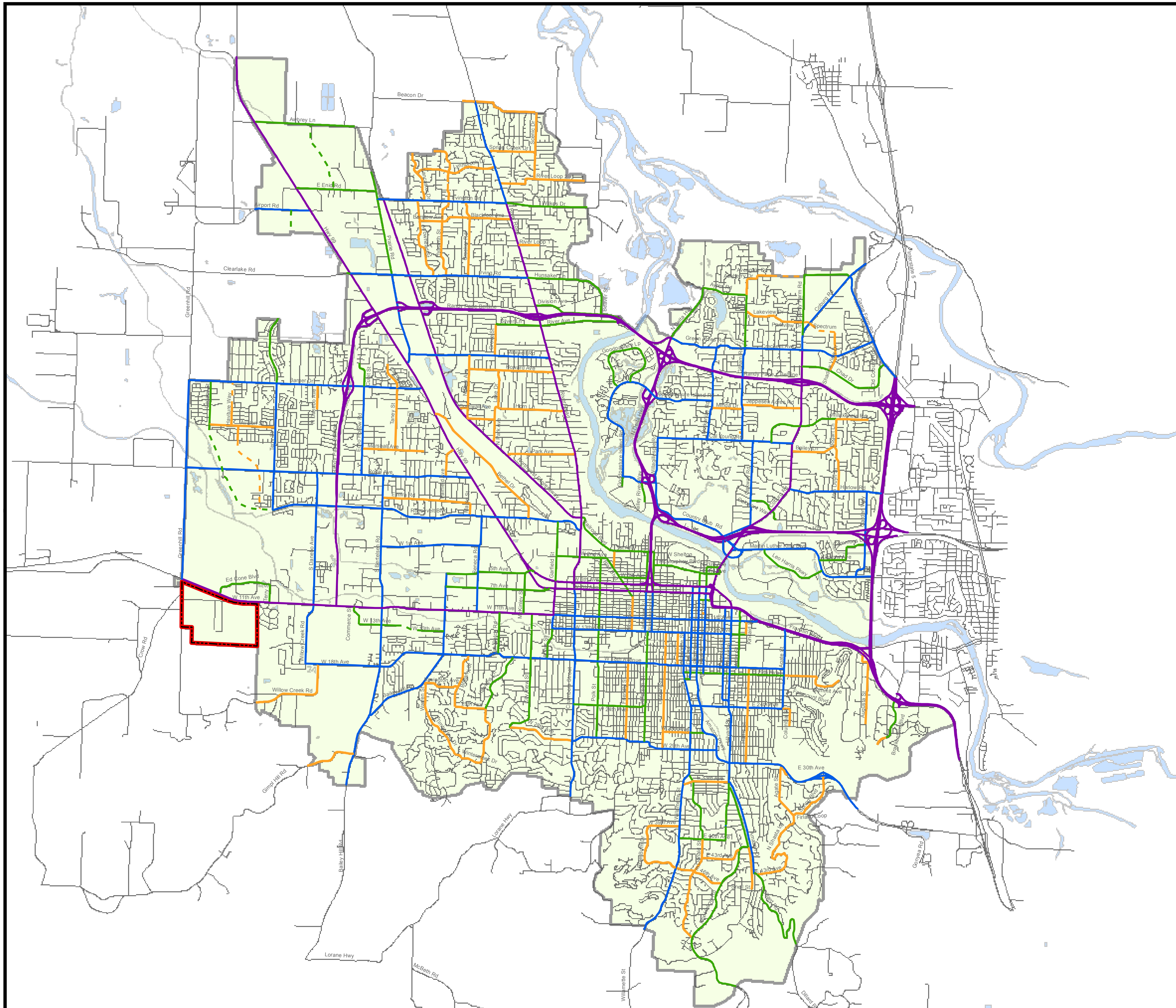
0 1 2 Miles

FIGURE 8.

Bicycle Projects Beyond 20 Years

Transportation System Plan
Eugene, OR

Attachment B: Street Classification Map (amended)



City of Eugene

Figure 60

Street Classification Map

Legend

- Major Arterial
- Minor Arterial
- Major Collector
- Neighbor Collector
- Local
- Future Major Collector
- Future Neighbor Collector
- Specific route to be determined later
- Eugene UGB

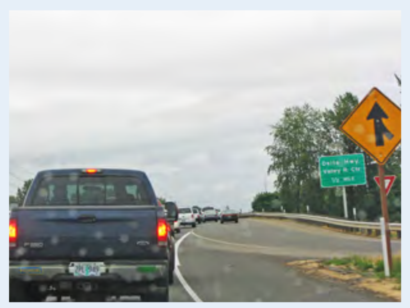
N
W E
S

0 1,500 3,000 6,000 Feet

THIS MAP IS BASED ON IMPRECISE SOURCE DATA WHICH IS SUBJECT TO CHANGE; IT IS FOR GENERAL GRAPHICAL REFERENCE AND IS NOT INTENDED FOR LEGAL, ENGINEERING, OR SURVEYING PURPOSES.

City of Eugene PWE Info Team Adhoc 2014-1704 May 2016

Attachment C: Beltline Highway: Coburg Road to River Road Facility Plan



Beltline Highway:

COBURG ROAD TO RIVER ROAD FACILITY PLAN

VOLUME I

PREPARED FOR

Oregon Department of Transportation

WITH SUPPORT FROM

City of Eugene
Lane County
Lane Council of Governments
Lane Transit District

JULY 2014

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1 Introduction and Background

Organization of Facility Plan

The Beltline Highway: Coburg Road to River Road Facility Plan includes five chapters and five appendixes, as follows:

- *Chapter 1 Introduction and Background:* Explains the purpose of the facility plan, the background, and Problem Statement this plan addresses.
- *Chapter 2 Planning Process:* Describes the planning process and provides an overview of the alternative development, and the public involvement process.
- *Chapter 3 Recommendations:* Describes the recommendations endorsed by the advisory and technical committees.
- *Chapter 4 Interchange Area Management Plans:* Describes the interchange area management plans for the three study area interchanges and high level policies to support the interchange recommendations.
- *Chapter 5 Next Steps:* Describes how this facility plan will be used, and the expected further environmental work based on the recommended alternatives.
- *Appendix A Existing Conditions:* Describes the existing plan and policy review, environmental and land use inventory, traffic operations, safety, and geometric conditions. These conditions were documented in Phase 1 of the project.
- *Appendix B Problem Statement:* Describes the issues on the Beltline Highway and the need for the facility plan. The problem statement was documented in Phase 1 of the project.
- *Appendix C Public Involvement Process:* Includes information, agendas, and summaries of project public involvement meetings and outreach.
- *Appendix D Evaluation Framework:* Describes the framework for evaluating alternatives based on the project's goals and objectives.
- *Appendix E Policy Framework:* Contains policies and language to support the facility plan and move the plan into the next phase.

Introduction

Oregon 569 (the Randy Pape Beltline Highway) is a state facility located in Eugene, Oregon. The Beltline Highway is an east-west connection between Interstate 5 (I-5) and Oregon 99 and north-south between Oregon 99 and Oregon 126. Lane County constructed the highway in the 1960s to serve the largely rural land uses and low density suburban areas. It transferred the highway to the Oregon Department of Transportation (ODOT) in 1978. In the 40 years since the county designed and constructed the highway, the surrounding community has grown with more intense land uses and increased density causing a disconnect between the expected traffic when the highway was built and the current traffic volumes. ODOT currently classifies the Beltline Highway as a Statewide Highway on the National Highway System (NHS) and also as an Expressway, Bypass, and Freight Route.

The segment of Beltline Highway between River Road and Coburg Road has become increasingly congested during peak travel times. Vehicle conflicts on Beltline Highway at River Road, River Avenue/Division Avenue, the bridge over the Willamette River, Delta Highway, and Coburg Road result in safety and operational issues. Traffic congestion is expected to continue to increase with development of north and west Eugene and surrounding areas. Local roadways in the study area are also congested.

This facility plan addresses the Beltline Highway between River Road and Delta Highway, milepost (MP) 8.47 to 10.20. It includes three interchanges: River Road, River Avenue/Division Avenue, and Delta Highway. The Beltline Highway Facility Plan study area also includes Delta Highway (Lane County facility) between Green Acres Road/Crescent Avenue and Goodpasture Island Road, as they immediately contribute to the operations of the Beltline Highway.

Initially, the facility plan also included the Coburg Road interchange. Because the Coburg Road interchange was not a primary source of congestion, and ODOT made safety improvements at this interchange in 2009, the project team removed Coburg Road from the study area to allow more focus on the critical portions of the facility.

Background

This facility plan addresses the following issues:

- Variety of trip types using the Beltline Highway – This section of the highway serves regional, statewide, cross-town, and local cross-river trips. Due to the limited connections over the Willamette River, some drivers use the Beltline Highway as a local roadway to cross the river.

- Outdated highway design – The Beltline Highway was designed in the 1960s for lower speeds and less traffic than it currently carries. On- and off-ramps are closely spaced, and there is insufficient acceleration, deceleration and through lanes, which can contribute to congestion and crashes in the study area.

- Deteriorating traffic operations – As traffic volumes increase, so does the intensity and duration of congestion experienced along both the Beltline Highway mainline and ramp terminal intersections.

- Roadway safety – Safety concerns associated with the design and operations of the Beltline Highway are documented in the crash history and trends within the study area.

The facility plan was completed in three phases. Phase 1 included analyzing existing conditions on the highway and study area intersections, and creating the problem statement. In Phase 2, the project team defined the study area boundaries, developed the evaluation framework, developed a range of alternatives, worked with the advisory committees and PMT to develop recommendations, and created a policy framework to support the plan. Phase 3 included interchange area management plans and preparation for future project development. This document will help guide future work by providing a narrow range of alternatives for future study.

Problem Statement

Beltline Highway

The Beltline Highway within the study area has four through travel lanes carrying between 55,000 and 90,000 cars and trucks each day. The roadway was not designed to carry this volume of traffic resulting in congestion, especially at peak periods. This congestion along with short merge and diverge areas contributes to a higher frequency of crashes than other similar facilities in the state. Congestion and crashes are prevalent between River Road and Delta Highway.

The Delta Highway and River Avenue/Division Avenue interchanges, and the River Avenue/Division Avenue and River Road interchanges are closely spaced (0.3 and 0.6 miles apart respectively). This close spacing, the short ramp lengths, and inadequate weaving distances increase congestion and potential for crashes.

Delta Highway Interchange

The ¾ cloverleaf design of this interchange results in short distances between loop ramps which contribute to increased congestion and are one factor that contributes to the potential for crashes. Both the Beltline Highway and Delta Highway are congested near this interchange. A large number of vehicles change lanes in a short distance as they enter and exit both highways resulting in a high incidence of crashes in this area.

- Development increased over the last 40 years in this area and will continue to occur resulting in increased traffic volumes at this interchange. This interchange was not constructed to accommodate current or future traffic volumes.
- Stakeholders observe frequent crashes on the northbound Delta Highway, near and at the eastbound and westbound Beltline Highway ramp connections.

River Avenue/Division Avenue Interchange

This interchange carries heavy peak period traffic volumes and is adjacent to the system bottleneck of the Willamette River bridge crossing, contributing to congested conditions. The interchange has a higher crash rate than similar facilities in the state. This interchange provides access to an aggregate mining business located immediately north of the highway. The proximity to industrial land uses requires the interchange to accommodate heavy trucks that need longer distances to accelerate to highway speeds and merge with through traffic. Compounding the existing congestion and the prevalence of large trucks, the interchange design creates limited sight-distance for drivers entering or exiting the Beltline Highway.

- A regional north-south bike path passes underneath the Beltline Highway near this interchange, which means that cyclists with destinations north of the Beltline Highway travel through this congested area resulting in conflicts between auto and bike traffic.
- Pedestrians cross under the Beltline Highway at this location.
- The close proximity of this interchange to the Willamette River bridge forces eastbound merging and westbound diverging to occur in a short distance.

River Road Interchange

There is peak period congestion due to the current configuration and limited turn lanes for vehicles approaching the Beltline Highway along River Road under existing conditions. The congestion is compounded by the close proximity of signals and local accesses on River Road south of Beltline, beyond the first traffic signal.

The interchange provides important access to businesses and residents in the Santa Clara and River Road neighborhoods.

- The northeast, southeast and southwest quadrants are flanked by concentrated development that is expected to continue and could result in increased traffic volumes at this interchange.
- Bike movements on the regional north-south bike lanes in this busy area create conflicts between auto and bike traffic.
- There are conflicts between pedestrians crossing River Road and vehicles turning onto the ramps.
- Lane Transit District buses accessing the park and ride facility slow traffic in the right lane of the eastbound on-ramp to the Beltline Highway.

2 Planning Process

Study Area

The project team defined the study area for the Beltline Highway Facility Plan to capture existing and future operational and safety deficiencies in the corridor between MP 8.47 and 10.05 which correlates roughly to Beltline Highway between River Road and Coburg Road. Figure 1 shows the study area.

The study area for the Beltline Highway Facility Plan is bounded to the north by Irvington Drive starting at Hyacinth Street, and continues east along Wilkes Drive. It includes areas outside of the Eugene Urban Growth Boundary (UGB) between Wilkes Drive, over the Willamette River, and reconnects with the northern UGB east of the river. Starting at the intersection of Coburg Road and North Game Farm Road, the study area follows Game Farm Road southeast to Interstate 5. The eastern edge of the study area follows I-5 south to OR 126, which forms the southern boundary until Delta Highway. The southern edge of the study area follows the north bank of the Willamette River along Valley River Way and then cuts across near the bike bridge to the Northwest Expressway. The study area boundary turns north along Park Avenue to Irving Road, heads west to Hyacinth Street, and then north to Irvington Drive.

There are a number of multi-use paths for bicyclists and pedestrians in the study area, most notably along the south side of River Avenue near the River Avenue/Division Avenue interchange, passing underneath the Beltline Highway on the west side of the Willamette River. Multi-use paths on the east side of the river include a connection between Green Acres Road underneath Beltline Highway to a riverfront path on the east side of the Willamette River. These paths are connected by the Owosso Bike Bridge south of the Beltline Highway. Both paths within the study area connect to the riverfront path system that runs along the Willamette River into downtown Eugene. Figure 2 shows the existing bicycle and pedestrian path system within the study area.

The study area includes a range of land uses; single and multifamily housing, small-scale retail, large-scale retail, and industrial activity. Most of the land on either side of the Beltline Highway is zoned for community commercial or low-density residential development. The area south of the Beltline Highway between the Delta Highway and the Willamette River has higher intensity uses including housing and retail. The area north of the highway between the Delta Highway and Division Avenue is home to a large aggregate mining operation. There is some limited land zoned for agriculture and publicly-owned open space in the corridor. As currently planned, these land uses could produce higher traffic volumes than can be accommodated by the existing roadway network. The project team developed the Beltline Facility Plan in coordination with Envision Eugene, Eugene's comprehensive plan. The Beltline Facility Plan will be revisited once Envision Eugene is complete to ensure that the two plans are compatible.

Project Leadership

Project Management Team

A project management team (PMT) consisting of staff from the City of Eugene, Oregon Department of Transportation (ODOT), Lane Council of Governments (LCOG), Lane County, Federal Highway Administration (FHWA), and Lane Transit District (LTD) provided regular guidance and policy direction throughout the process. The PMT reviewed and provided comments on all materials, participated in agency and public meetings, and supported the Steering Committee. The PMT met 16 times over the course of the project. Appendix C: Public Involvement includes summaries and agendas of PMT meetings.

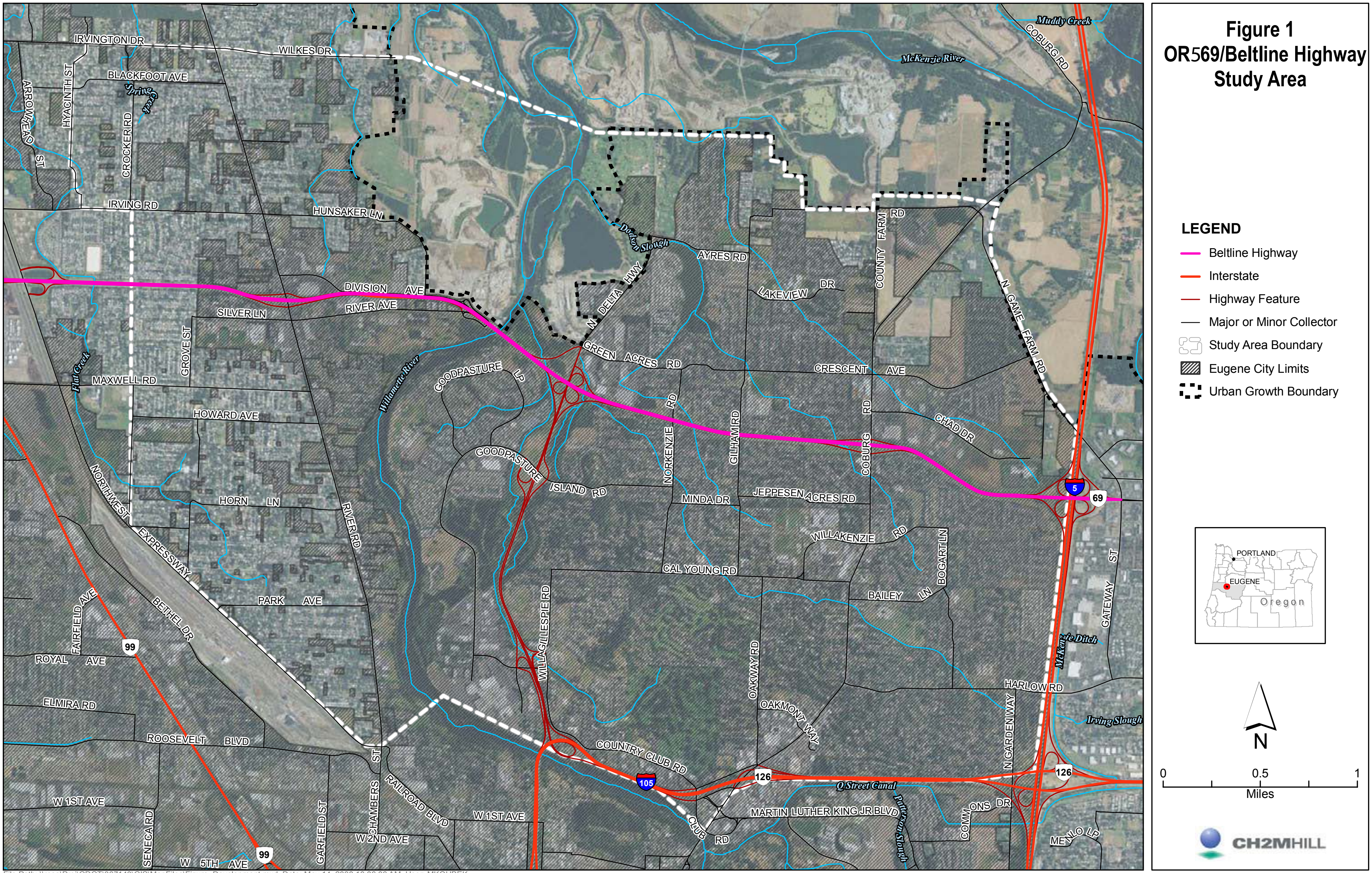

Figure 1
OR569/Beltline Highway Study Area

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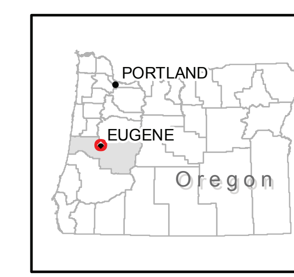
Figure 2
Beltline Facility Plan Pedestrian and Bicycle Facilities

LEGEND

- Beltline Highway
- Highway
- Major or Minor Arterials and Collectors
- Bike Lanes
- Shared Use Paths or Wide Sidewalks
- Popular Bicycling Routes
- Eugene City Limits
- Urban Growth Boundary



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Steering Committee

The Steering Committee, comprised of officials representing the City of Eugene, Lane County, and ODOT, was responsible for making facility plan decisions. The Steering Committee met 13 times between July 2008 and April 2014. The Steering Committee reviewed input from the PMT and the Stakeholder Advisory Committee (SAC) prior to making decisions.

Steering Committee meetings were open to the public, and the committee included time for public comment at each meeting.

Appendix C: Public Involvement Process includes full Steering Committee meeting agendas and summaries.

Public Involvement

Stakeholder Advisory Committee

The Stakeholder Advisory Committee (SAC) included business leaders, neighborhood representatives and community members who met to provide input and advice on the plan and potential solutions. The SAC met 11 times between April 2009 and April 2014. They provided input on the study area, helped suggest solutions, and recommended concepts to carry forward for further study. SAC meetings were open to the public and each meeting included two public comment opportunities.

Appendix C: Public Involvement Process includes full SAC meeting agendas and summaries.

Public Open Houses

The general public was encouraged to provide input on the facility plan through a series of open houses. There were five open houses over the three phases of the project:

Phase 1 Open House #1 and #2: The project team hosted two open houses on August 4 and August 6, 2008 to gather public input on the current conditions and deficiencies found on the Beltline Highway. Attendees were encouraged to share their ideas about the issues affecting Beltline Highway within the project area. The project team collected comments on wall displays, maps, and via a comment form.

Phase 2 Open House #1: This open house, held in July 2009, provided attendees an opportunity to help identify solutions for the Beltline Highway, and collected information from attendees on which evaluation criteria was the most important to the community.

Phase 2 Open House #2: This open house, held in March 2010, presented the proposed solutions for the Beltline Highway. The project team presented ten concepts to improve the Beltline Highway, and gathered input on which concepts community members would like the project team to study further.

Phase 3 Open House: This open house, held in May 2014, presented the draft Beltline Highway Facility Plan for review and comment. It included the final concepts moving forward into the NEPA phase and the next steps for making a decision and implementing changes on the Beltline Highway.

Appendix C: Public Involvement Process includes more detailed summaries and displays of each of the open houses.

Project Website

ODOT hosted and presented all relevant information relating to the Beltline Highway Facility Plan to the public website: www.beltlineplan.com. The project team shared summaries for both the SAC meetings and open houses on the website, along with the open house displays and all technical documents for the project. For three of the open houses, the comment form was available for community members to complete online.

Existing Conditions

Phase 1 evaluated the existing conditions within the study area. This analysis included an existing environmental and land use inventory, a plan and policy review, and traffic operations and safety analysis of existing conditions. This traffic analysis identified areas where there are deficiencies including congestion, safety, roadway geometry, and delay on the highway. At the Phase 1 open house, attendees added community concerns to this analysis to capture areas of concern in both the technical analysis and community.

Existing Traffic Conditions

The existing conditions analysis shows that two eastbound segments of the Beltline Highway do not meet Oregon Highway Plan (OHP) mobility targets during the afternoon peak hour. On westbound Beltline Highway, there is one section that does not meet OHP mobility targets. Two ramps at Delta Highway and Goodpasture Island Road do not meet Lane County mobility standards. Additionally, two of the seven on-ramps for Beltline Highway, and three of seven off-ramps do not meet applicable mobility targets.

There are also a number of geometric design features that negatively influence traffic operations on the highway and interchanges. The ramps at Delta Highway and the River Avenue/Division Avenue interchanges are closely spaced, there are insufficient acceleration and deceleration lanes along the corridor that negatively affect operations and can contribute to crashes.

Off the highway, six of 31 intersections on city and county roadways experience delay and congestion inconsistent with applicable standards. Additionally, queues extend between intersections along River Road near the Beltline Highway westbound and eastbound ramps, the Silver Lane intersection, and the Santa Clara Avenue intersection. The northbound queue on River Road extends south of the Silver Lane/River Avenue intersection and also blocks some of the access driveways east of River Road. Figures 3 and 4 show existing operational and geometric deficiencies on the Beltline Highway.

Traffic Safety

The study area crash rate is highest near the Delta Highway and River Road interchanges. The crashes are mostly rear end crashes occurring during the morning and evening commute when traffic volumes are highest and congestion is most acute.

Additionally, ODOT identifies areas with high crash rates with their Safety Priority Index System (SPIS), and prioritizes areas with high crash rates by region. Two segments of the Beltline Highway are identified as top 10 percent on ODOT’s 2012 SPIS list: the Beltline Highway/Delta Highway (MP 9.78 to 9.87), and the Beltline Highway/Delta Highway (MP 9.99 to 10.12). A higher rate of crashes was also reported at the Delta Highway/Green Acres Road (westbound Beltline on-ramp) intersection relative to other study intersections. Figure 5 shows safety issues on the Beltline Highway.

Adaptive Ramp Signals

Between Phase 2 and Phase 3 of the Beltline Highway Facility Plan Process, ODOT implemented adaptive ramp signals on the Beltline Highway ramps to reduce traffic delays, improve safety, and decrease fuel consumption and air pollution during peak morning and afternoon travel times. The signals are triggered by congestion on the highway mainline, and reduce traffic flow rates onto the highway at the ramps. In more congested conditions, the ramp meters slow the rate of cars entering the highway, and as congestion reduces, the signal timing adjusts to allow more cars to enter the highway. When the highway is not congested, the meters are not activated. Over time, the ramp meters will continue to be adjusted to traffic flow, but the eastbound meters are expected to be operational during the weekday morning peak (approximately 6:30 - 9:30 a.m.), and westbound ramp meters are likely to be operational in the weekday afternoon peak (approximately 3:00-6:45 p.m.). Additionally, metering may occur during other times when traffic is congested such as during traffic incidents or during events.

ODOT installed adaptive signals in July 2013 for four ramps in the project study area: Green Acres Road on-ramp to westbound Beltline Highway, River Road on-ramp to eastbound Beltline Highway, River Avenue on-ramp to eastbound Beltline Highway, and Coburg Road on-ramp to westbound Beltline. ODOT will continue to monitor and adjust these signals based on operational analysis and testing to verify traffic flow benefits on the Beltline Highway.

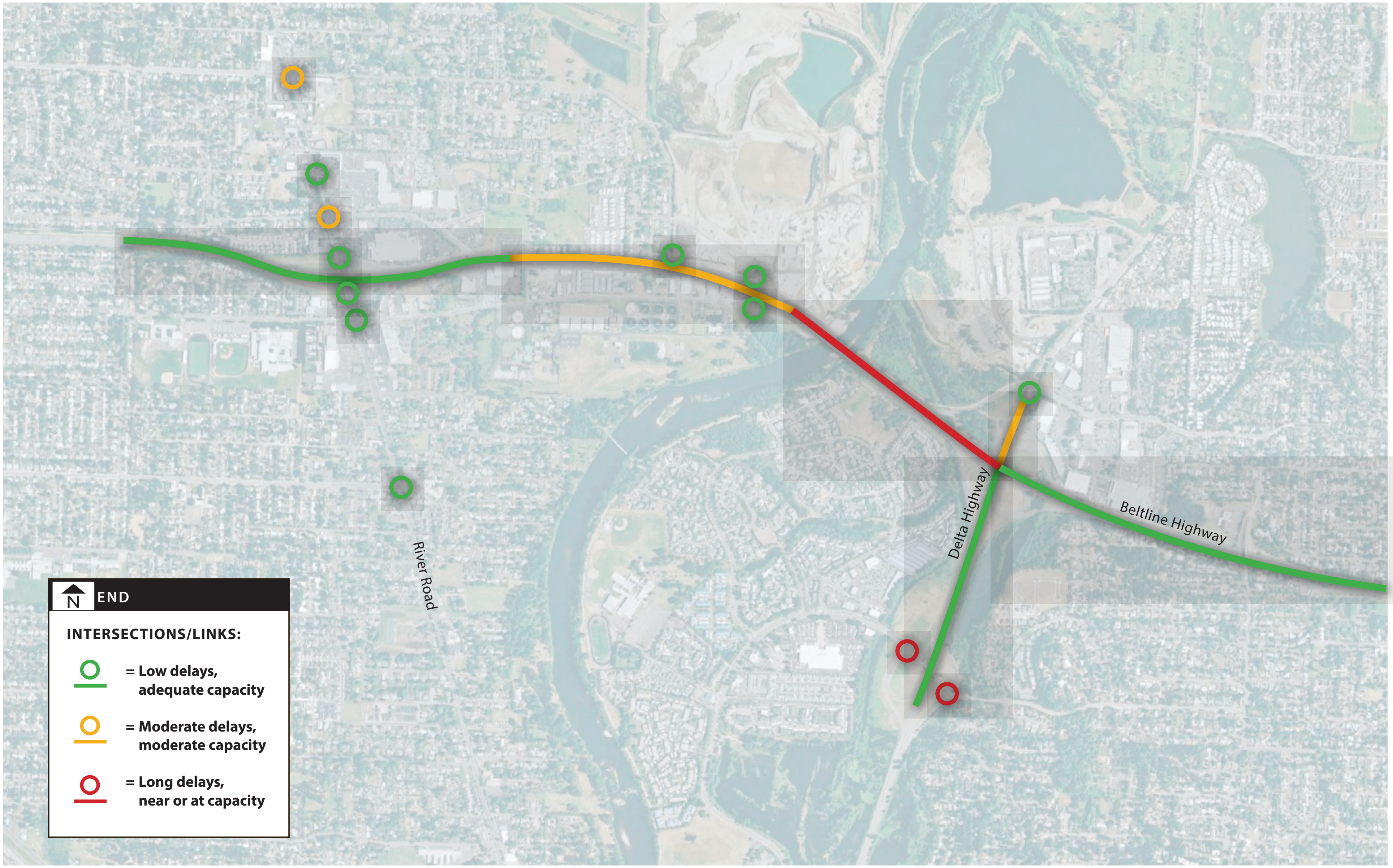

FIGURE 3
Beltline Traffic Conditions 2008 Existing PM Peak Hour
Beltline Highway: Coburg Road to River Road Facility Plan

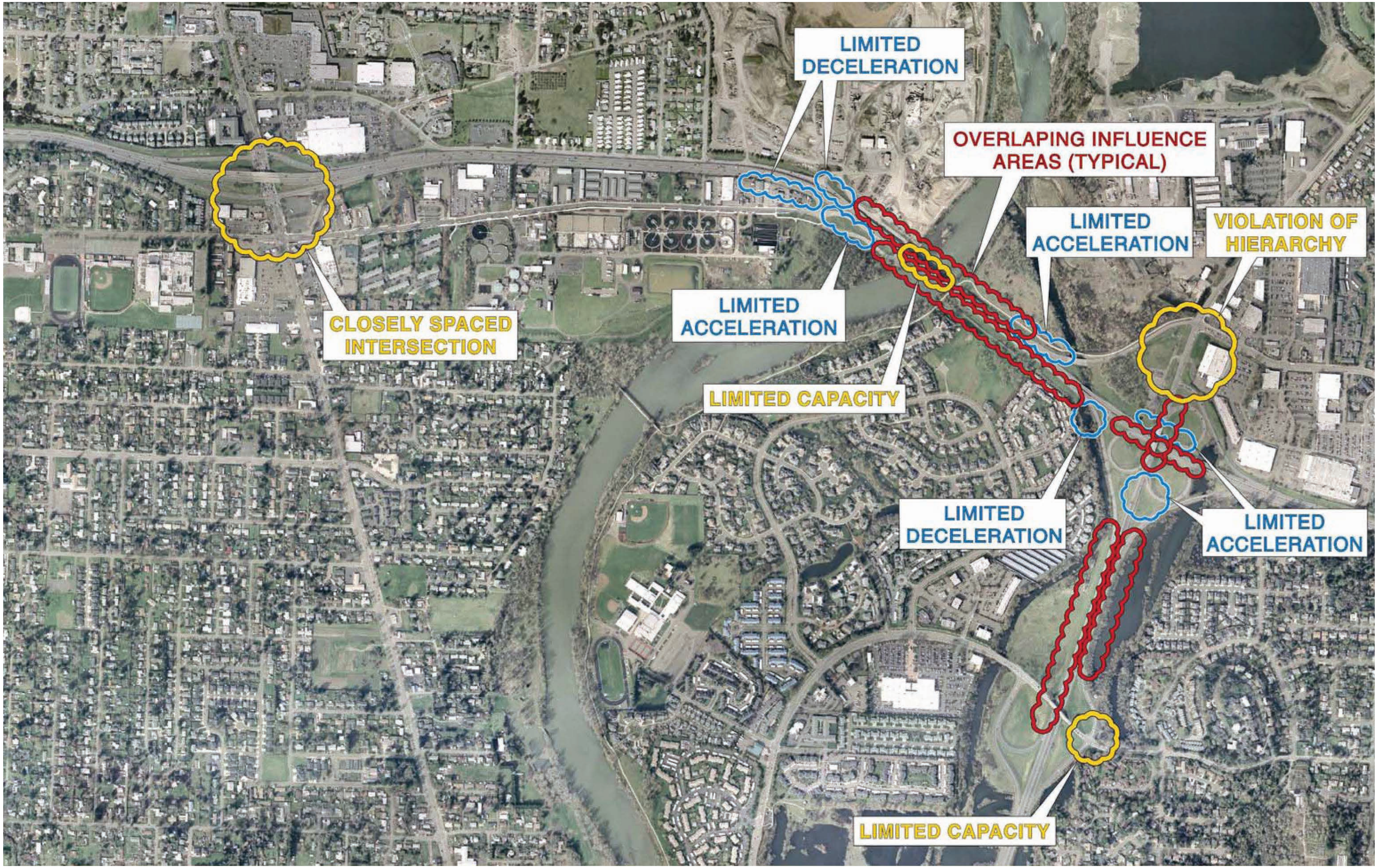

FIGURE 4
Deficiencies on Beltline
Beltline Highway: Coburg Road to River Road Facility Plan

Environmental and Land Use Conditions

The study area is in the Willamette River basin resulting in hydrological, floodplain/floodway, wetland, and fish habitat considerations. Land uses near the Beltline Highway are generally single-family residential, large retail and office developments, and smaller-scale retail along the local roads. There are a number of neighborhood organizations including Cal Young Neighborhood Association, Northeast Neighbors[1], River Road Community Organization, the Santa Clara Community Organization, and the Active Bethel Citizens. Zoning and comprehensive plan zoning are consistent with the existing land use. There may also be some historical and archeological resources within the study area which would be determined during the environmental review process. Figure 6 shows existing environmental and community context near the Beltline Highway.

Plan and Policy Review

The project team analyzed and determined the relevance of state, regional, and local goals to the Beltline Highway Facility Plan. The State Transportation Improvement Plan (STIP) includes projects with funding to support the planning and safety/modernization of study area interchanges, along with bicycle and pedestrian paths. A number of other regional and local plans include mention of projects related to the Beltline Highway.

Appendix A: Existing Conditions includes more detail about applicable plans and policies.

[1] Prior to 2013, Northeast Neighbors was part of the Harlow Neighborhood Association.

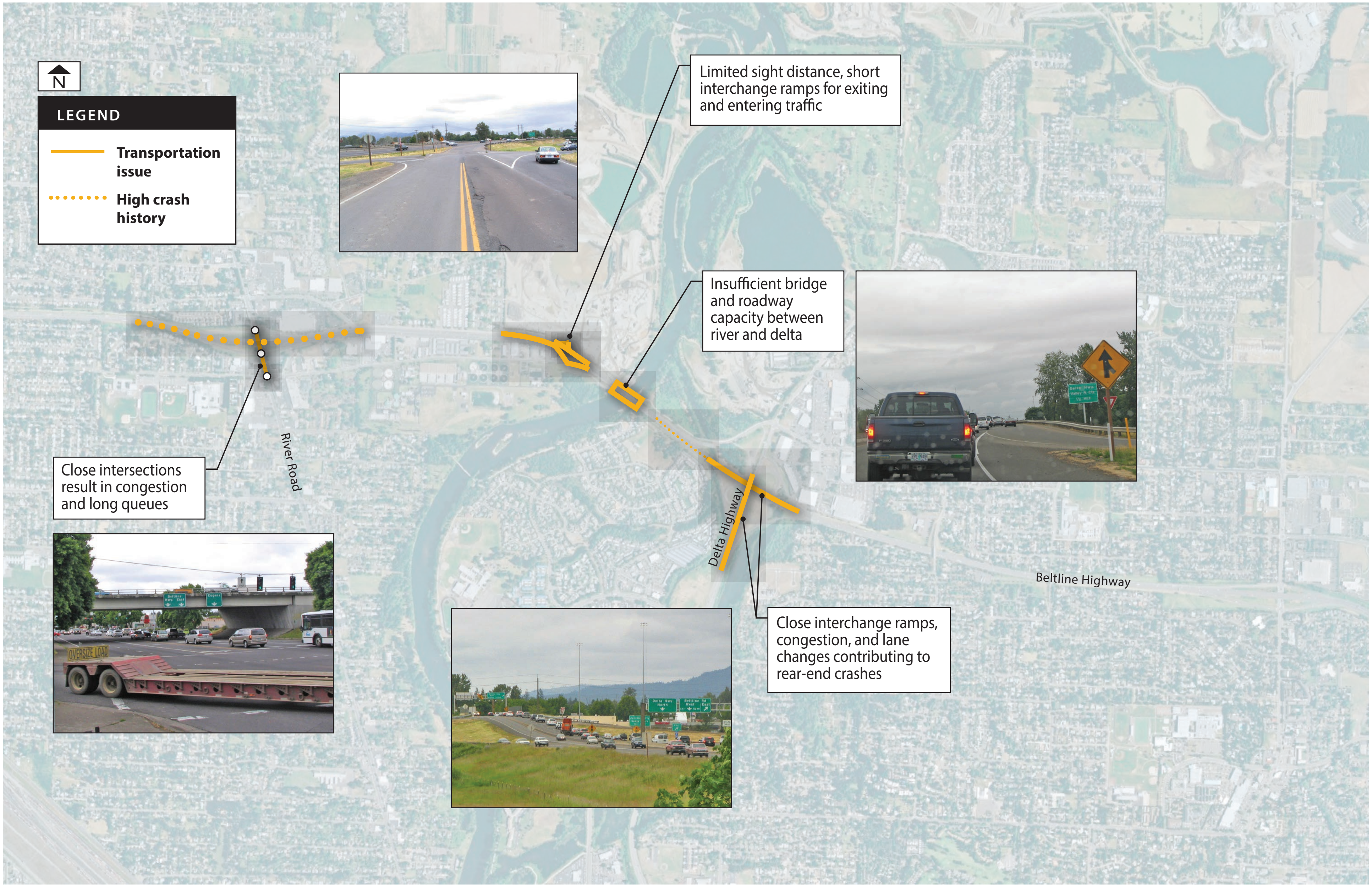

FIGURE 5
Safety Issues on Beltline
Beltline Highway: Coburg Road to River Road Facility Plan

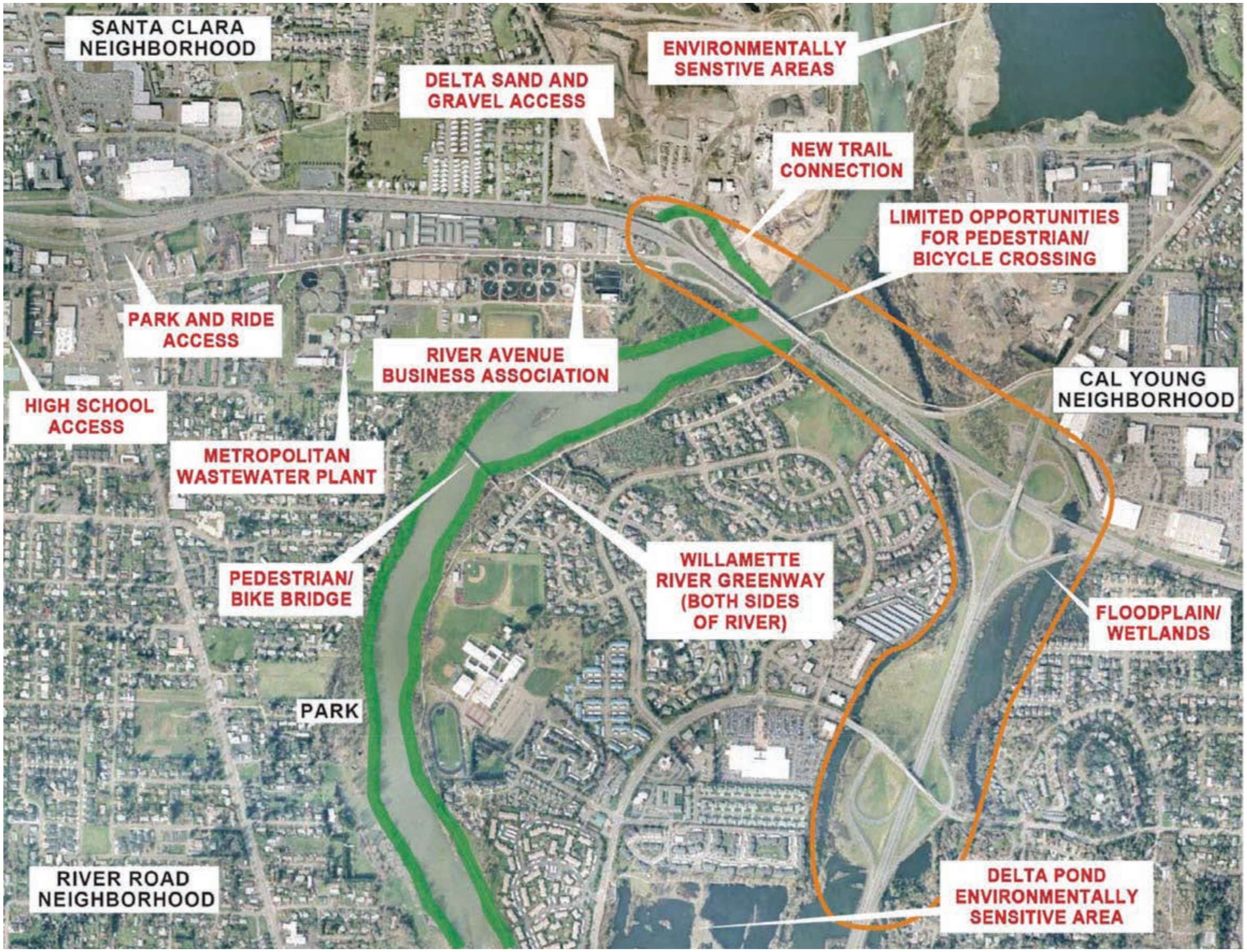

FIGURE 6
Environmental and Community Context
Beltline Highway: Coburg Road to River Road Facility Plan

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Evaluation Framework

The PMT, SAC, and Steering Committee provided input on project goals and objectives during the problem statement phase of the project. From these goals, the project team developed an evaluation framework shown in Table 1. The project team established this framework to assure that the recommended alternatives respond to community values and technical needs. The team developed and subsequently evaluated draft alternatives based on these criteria. The criteria were not weighted or prioritized.

The PMT, SAC and Steering Committee reviewed the evaluation framework and agreed to use it to evaluate the proposed alternatives.

Table 1: Evaluation Framework

Criteria	Objectives	Measures
Mobility, reliability and connectivity	• Design for projected future traffic volumes as a result of future growth and land use changes • Minimize congestion and optimize traffic flow on the mainline, in the interchange areas, and on critical study area roadways • Provide transportation improvements to reduce trip length and potential travel times for all modes • Provide improved connectivity across the Willamette River for motorists, bicyclists, and pedestrians	• Demand-to-capacity (D/C) – planning-level analysis regarding the ability of the transportation system to accommodate potential demand on the mainline and on other critical study area roadways • Traffic operations for study area ramps and ramp terminal interchanges. Based on-ramp spacing and/or eliminating or improving merge, diverge, and weaving maneuvers • Trip length and travel time between key origins and destinations for all modes in the study area • Improve local connectivity for all modes
Safety	• Improve the highway and interchange areas to increase safety for users and reduce crash frequency, thereby improving reliability • Consider the needs of emergency response vehicles	• Places in the study are where the Beltline Highway or interchanges violate known engineering best practices or design guidelines • Reduce conflict points for motorists and between motorists and bicyclist or pedestrians • Provide system redundancy and/or enhanced mobility for emergency response routes and vehicles
Community livability and economic vitality	• Support local and regional goals for mode choices • Consider positive and negative effects on adjacent residential and business areas • Serve existing and planned land uses • Accommodate freight movement • Create a facility design that instills	• Minimize residential impacts • Consistent with community and neighborhood goals • New or improved multimodal facilities • Minimize business displacements • Access to the interchange area businesses that is both safe and convenient

Criteria	Objectives	Measures
	community pride	• Consistent with state planning goals
Environmental impacts	• Avoid or minimize impacts to the natural environment including rivers and water bodies, riparian zones, wetlands and habitat areas • Minimize impacts to the community environment as described in the community livability and economic vitality goals • Support local sustainability and greenhouse gas reduction goals • Design features that enhance aesthetic appearance and augment the visual environment where possible • Identify opportunities to increase or enhance park and recreational areas or natural resources	• Changes to system-wide vehicle miles traveled (proxy for GHG impact) • Changes to system-wide vehicle delay (proxy for GHG impact) • Impacts to wetlands and known habitats • Impacts to parks and trails • Impacts to Willamette Greenway • Opportunity to integrate state sustainability goals into facility (e.g. construction reuse of materials) • Impacts to cultural and historic resources
Cost effectiveness	• Provide solutions that can be implemented in phases that provide incremental benefit • Provide timely and cost-effective project solutions that perform as designed throughout their expected design life • Minimize ongoing operations and maintenance costs	• Can be constructed in phases that provide incremental benefits • Construction cost • Operation and maintenance cost

Policy Framework

To reinforce the evaluation framework and recommendations for further study included in this facility plan, the project team, with input from the PMT, SAC, and community, developed the following policies to ensure the future success of the project:

Policy 1: Coordination with Lane Transit District (LTD)

- The City of Eugene, LCOG, ODOT, LTD through point2point solutions program shall coordinate development of the Regional Transportation Options Plan to support reduction of single occupant trips on the Beltline Highway.
- The City of Eugene, ODOT and LTD shall explore the feasibility of adding EmX service in north Eugene in coordination with projects outlined in the Beltline Highway Facility Plan.

Policy 2: Bicycle and Pedestrian Planning Coordination

- ODOT shall coordinate with the City of Eugene to maintain a comprehensive bicycle and pedestrian system throughout the Beltline Highway corridor.

Policy 3: Future Land Use and Transportation Planning Coordination

- ODOT shall develop, in coordination with the City of Eugene, Lane County and the affected property owners, an interchange area management plan (IAMP) to address safety and operations for each new or substantially modified interchange.[2]
- To address land use and transportation coordination, project-level planning should be coordinated with the city and county's comprehensive plans and transportation system plans.

Policy 4: Future Transit Oriented Land Use

- The City of Eugene and LTD shall coordinate land use and transit plans and policies to encourage future Transit Oriented Development (TOD) through planning processes identified in the forthcoming comprehensive plan.

Policy 5: Maintain River Access for Users

- The Beltline Highway Facility Plan shall consider sensible opportunities to provide river access through design.

Policy 6: Recognize Alternate Modes as Important Considerations

- The City of Eugene and ODOT will continue to work together to develop a local network that serves local trips by walking, biking, auto and transit in concert with the identified highway improvements.

Policy 7: Recognize Importance of Improving Safety

- Improvements to the Beltline Highway have the potential to improve safety in the corridor by addressing areas of existing and future congestion and geometric deficiencies.

Policy 8: Recognize Importance of Improving Mobility

- Improvements to the Beltline Highway will improve mobility in the corridor even if the highway does not meet mobility standards outlined in the Oregon Highway Plan for the 20-year planning horizon.

Policy 9: Coordination to Maintain Optimal Function of All Roadway Facilities

- ODOT, Lane County and the City of Eugene will work together to maintain the optimal function of all roadways in the study area.

Policy 10: Promote Local and Regional Connectivity in North Eugene

- ODOT, Lane County and the City of Eugene will work collaboratively to improve connectivity in North Eugene for those making short local trips and those making long trips including regional and intrastate trips.

[2] The IAMPs included in this facility plan reference the no-build condition. If ODOT advances a project to modify any interchanges in the study area, ODOT would prepare new IAMPs for each new or substantially modified interchange.

Alternatives Development

Once the committees and stakeholders agreed upon the evaluation framework, the project team developed high level, "textbook" solutions and shared these solutions with the PMT, SAC, and Steering Committee. From those textbook solutions, and based on the conversations with the advisory groups and community members, the project team developed more refined families of concepts that could specifically be applied to Beltline Highway. The public provided feedback on these families at the open house in July 2009 and the project team further refined the families into alternative concepts. Figure 7 shows the concept narrowing process.

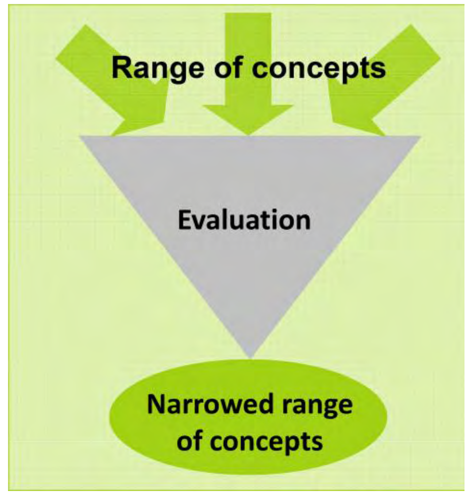

Figure 7 Alternates Development Process

The project team evaluated the following range of alternative concepts:

Transportation Demand Management/Transportation System Management (TDM/TSM)

TDM techniques could include:

- Increased transit service
- Bicycling and pedestrian facility improvements
- Park and rides
- Ridesharing
- Teleworking programs

TSM techniques could include:

- Signal timing optimization
- Striping
- Signage and lighting
- Ramp metering
- Variable signage
- Traveler information

Low Build Concept 1

Low Build 1 Concept[3] would:

- Extend the westbound off-ramp to the Delta Highway from westbound Beltline Highway.
- Extend the eastbound off-ramp to the Delta Highway from eastbound Beltline Highway.

Fiaure 8 Low Build Concept 1

Low Build Concept 2

In addition to the features of Low Build 1 Concept, Low Build 2 Concept would:

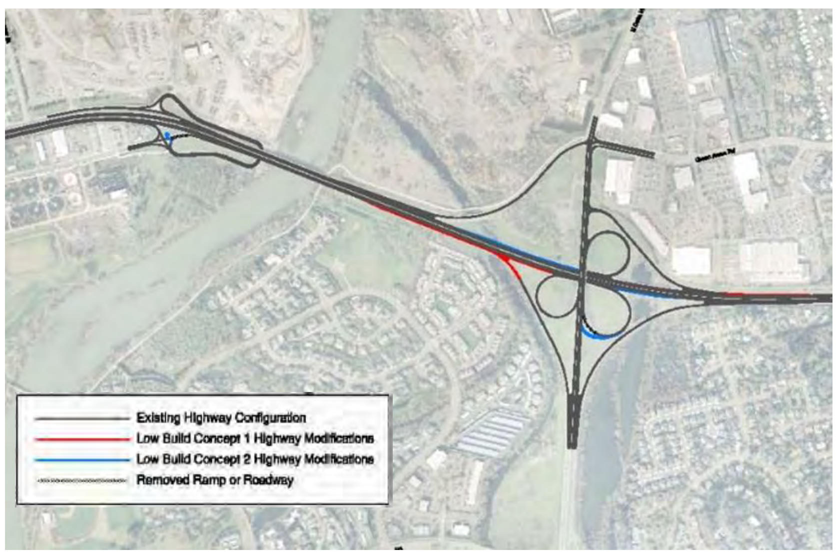

Figure 9 Low Build Concept 2

- Extend the eastbound auxiliary lane to Beltline Highway from the Delta Highway eastbound loop ramp.
- Extend the distance for westbound acceleration to westbound Beltline Highway from the Delta Highway westbound loop ramp.
- Rebuild the northbound loop ramp terminal intersection to Delta Highway northbound to improve the sight-distance.
- Close the eastbound on-ramp from River Avenue in the peak period, decreasing congestion related to the short distance for merging and diverging.

[3] All concepts initially included closing Ruby Avenue at River Road to reduce congestion at River Road. Subsequent analysis showed that this change would result in increased congestion in other areas. As a result, the project team updated all concepts to show that the intersection of Ruby Avenue and River Road would remain open.

Low Build Concept 3

In addition to the features of Low Build 1 and 2 Concepts, Low Build 3 Concept would:

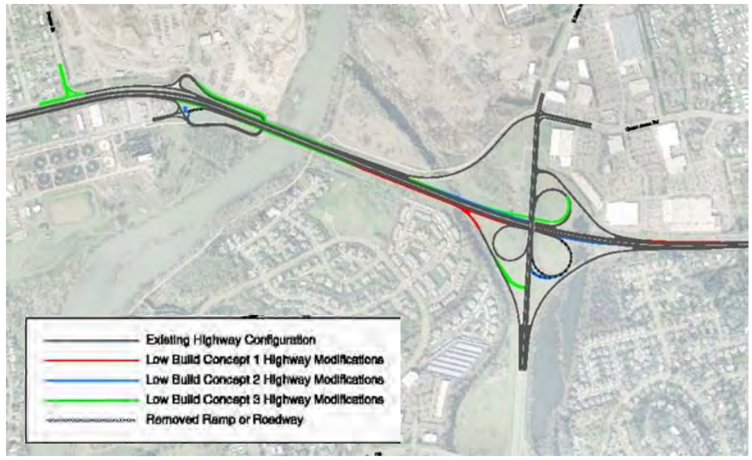

Figure 10 Low Build Concept 3

- Change the northeast loop ramp at the Delta Highway/Beltline Highway interchange, to increase the acceleration distance onto the westbound Beltline Highway.
- Remove the loop ramp from eastbound Beltline Highway to northbound Delta Highway. Northbound traffic would exit with southbound traffic, and then pass through a controlled intersection (signal or other control) to continue northbound on Delta Highway.
- Add auxiliary lanes across the river in both directions between the Delta Highway and the River Avenue/Division Avenue ramps and rebuild the connection between River Avenue and Division Avenue under the Beltline Highway. This would require replacing the Willamette River bridges.
- Improve the Division Avenue/Beaver Street intersection to facilitate right turns to access the Santa Clara Neighborhood.

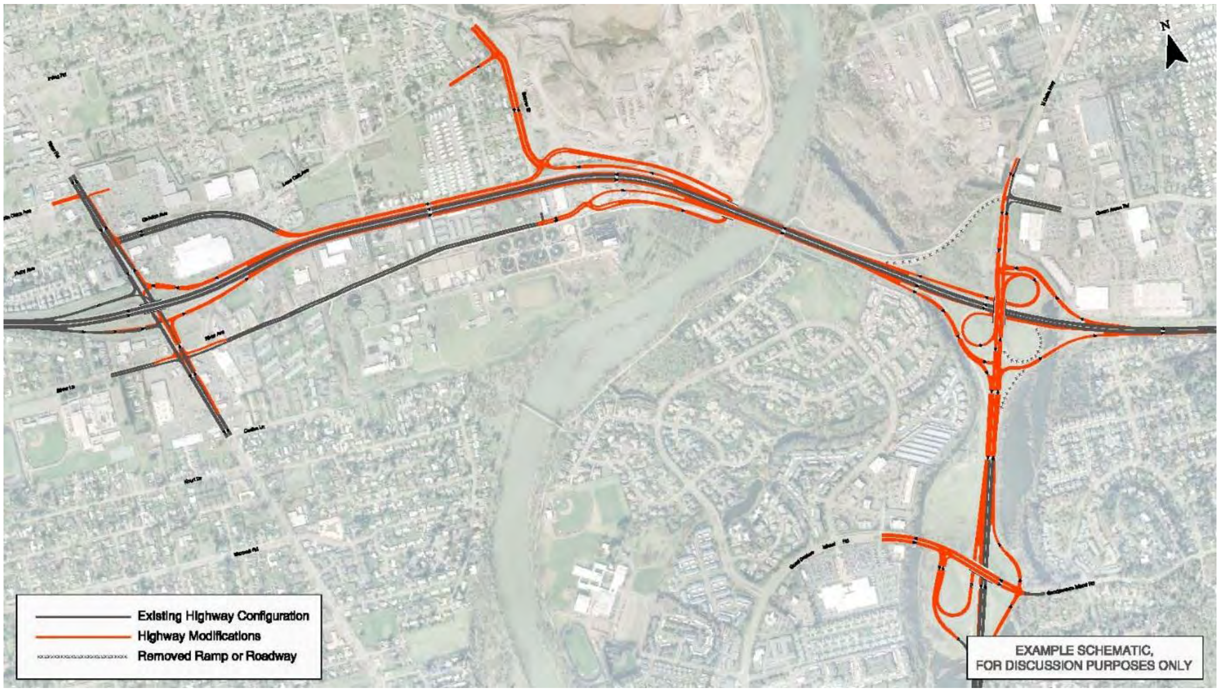

Figure 11 Improve Existing Concept

Improve Existing Concept

This concept keeps the highway design similar to the current configuration, but upgrades areas on the Beltline Highway to improve safety and mobility.

The Improve Existing Concept would:

- Remove the southeast loop ramp at the Delta Highway/Beltline Highway interchange and serve this traffic from the modified eastbound off-ramp to Delta Highway.
- Add auxiliary lanes on both directions of Beltline Highway between River Road and the Delta Highway. This would require replacing the Willamette River bridges.
- Expand Delta Highway southbound by one auxiliary lane until it would exit north of Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and the on and off-ramps would be expanded to two lanes to accommodate traffic.
- Expand the westbound off-ramp to Delta Highway from one lane to two.
- Remove the Green Acres Road connection to west bound Beltline Highway and serve this movement via a southbound left turn to the reconstructed loop ramp in the north east quadrant.
- Reconstruct the underpass between Division Avenue and River Avenue.
- Upgrade the intersection of Division Avenue and Beaver Street to facilitate traffic movement.

- Improve Division Avenue between Beaver Street along Beltline Highway.
- Upgrade the intersection with Lone Oak Road and Beaver Road to enhance connectivity.
- Lengthen the River Avenue/Division Avenue ramps and reconfigure to improve the acceleration to and from the Beltline Highway.
- Modify and improve other ramps but keep in current locations and configurations.

Local Arterial Bridge Concept

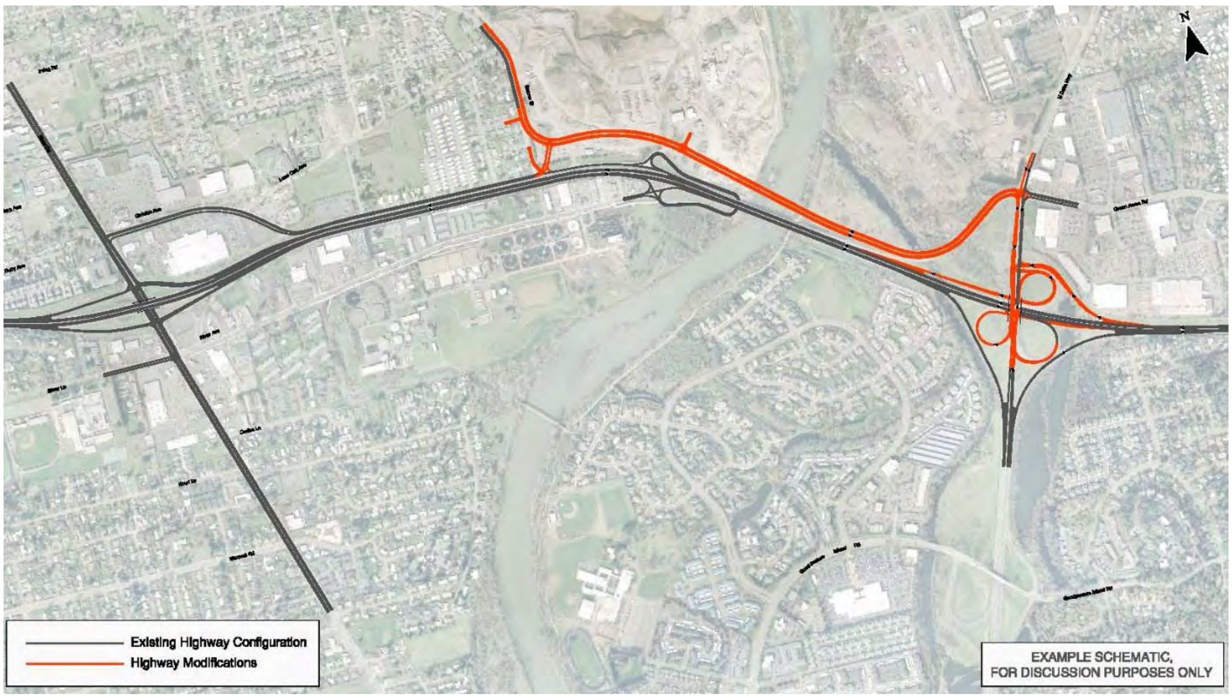

Figure 12 Local Arterial Bridge Concept

This concept would add an arterial bridge to the north of the Beltline Highway, providing a local connection option for traffic to travel over the river to provide alternative routes to the Beltline Highway over the Willamette River. The local arterial bridge would have two lanes in each direction, connecting Green Acres Road across the Willamette River from the Delta Highway Interchange area to the Beaver Street area west of the River Avenue/Division Avenue interchange on Beltline Highway.

There would be some upgrades to the Delta Highway interchange to provide a connection to the new arterial bridge including removing the Green Acres Road connection to westbound Beltline Highway. The movement would be served via a southbound left turn to the reconstructed loop ramp in the north east quadrant. The local arterial bridge as a treatment could be added to most of these concepts except the Collector-Distributor Road Concept as an interchangeable component.

Auxiliary Lane Concept

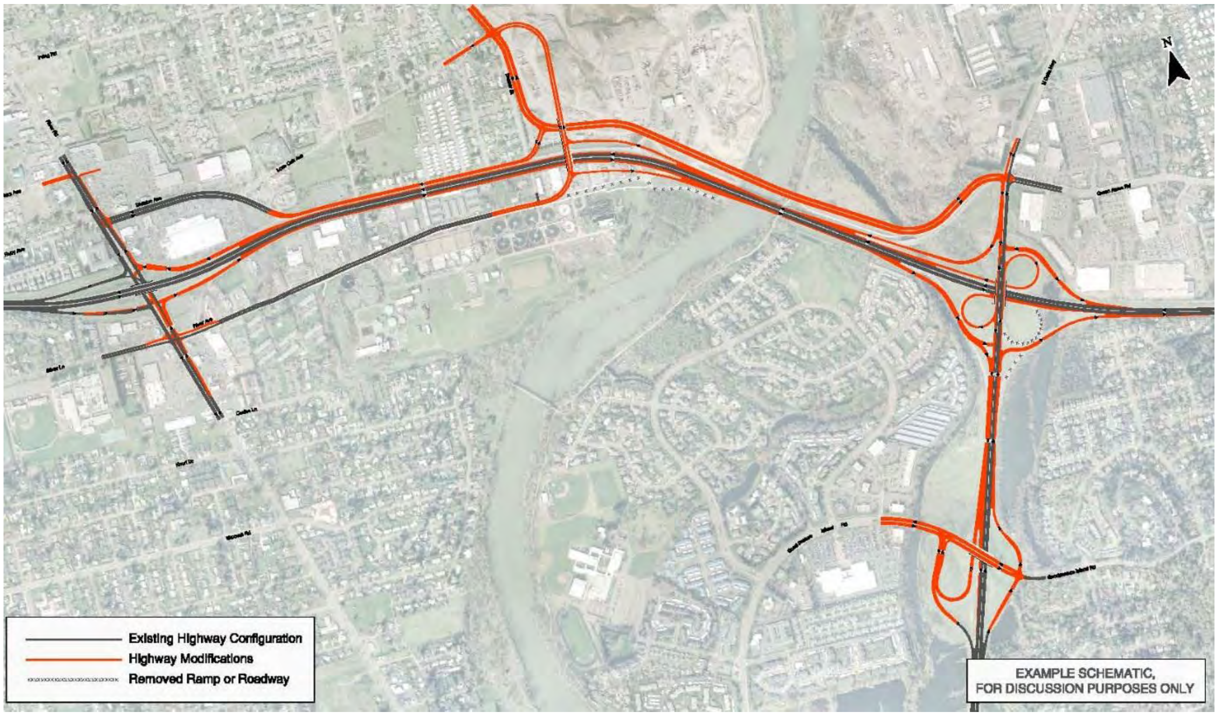

Figure 13 Auxiliary Lane Concept

The Auxiliary Lane Concept adds an auxiliary lane on Beltline Highway between River Road and Delta Highway.

The Auxiliary Lane Concept would:

- Provide a local connection between Beaver Street and Green Acres Road.
- Change the River Avenue/Division Avenue interchange to provide an overcrossing on Beltline Highway.
- Upgrade the Delta Highway interchange and Goodpasture Island Road/Delta Highway interchange the same as in the Split Diamond Concept.
- Create the local arterial bridge connection north of the Willamette River Bridge on Beltline Highway.
- Upgrade the River Road on and off-ramps with additional lanes.
- Upgrade the Santa Clara Avenue and River Avenue intersections with River Road.
- Add an auxiliary lane to the Delta Highway southbound to Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and expand on and off-ramps to two lanes to accommodate traffic.

Split Diamond Concept

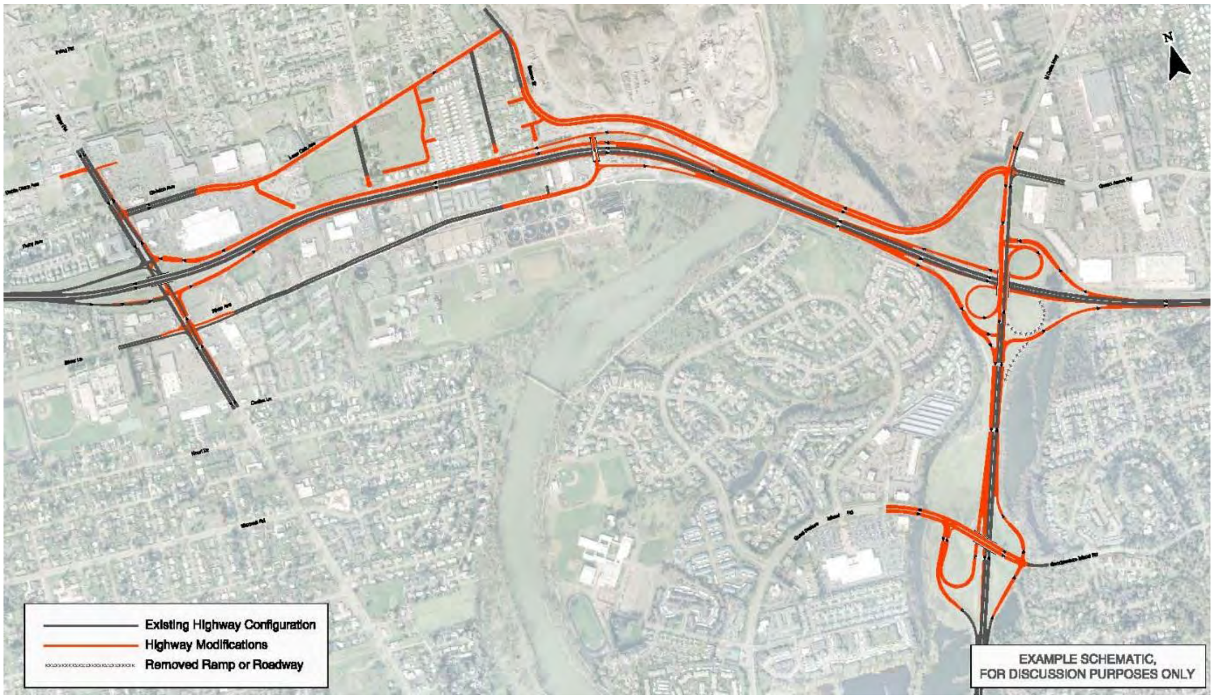

Figure 14 Split Diamond Concept

The Beltline Highway/Delta Highway interchange would be configured very similarly to the Improve Existing Concept.

The Split Diamond Concept would:

- Add an auxiliary lane to the Delta Highway southbound to Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and expand on and off-ramps to two lanes to accommodate traffic.
- Retain the local arterial bridge north of the Beltline Highway.
- Include improvements to Beaver Street, Lone Oak Avenue, and local collectors in the Santa Clara Neighborhood.
- Remove driveway and public road access from Division Avenue; serve adjacent properties from Lone Oak Avenue.
- Reconfigure the River Avenue/Division Avenue interchange with an overpass over Beltline Highway.
- Add auxiliary lanes to the Beltline Highway between River Road and Delta Highway.
- Reconfigure River Avenue near the Beltline Highway.
- Add a westbound connecting ramp between the River Avenue/Division Avenue and River Road interchanges.

- Upgrade the River Road/Beltline Highway interchange.

Collector-Distributor Roadway Concept

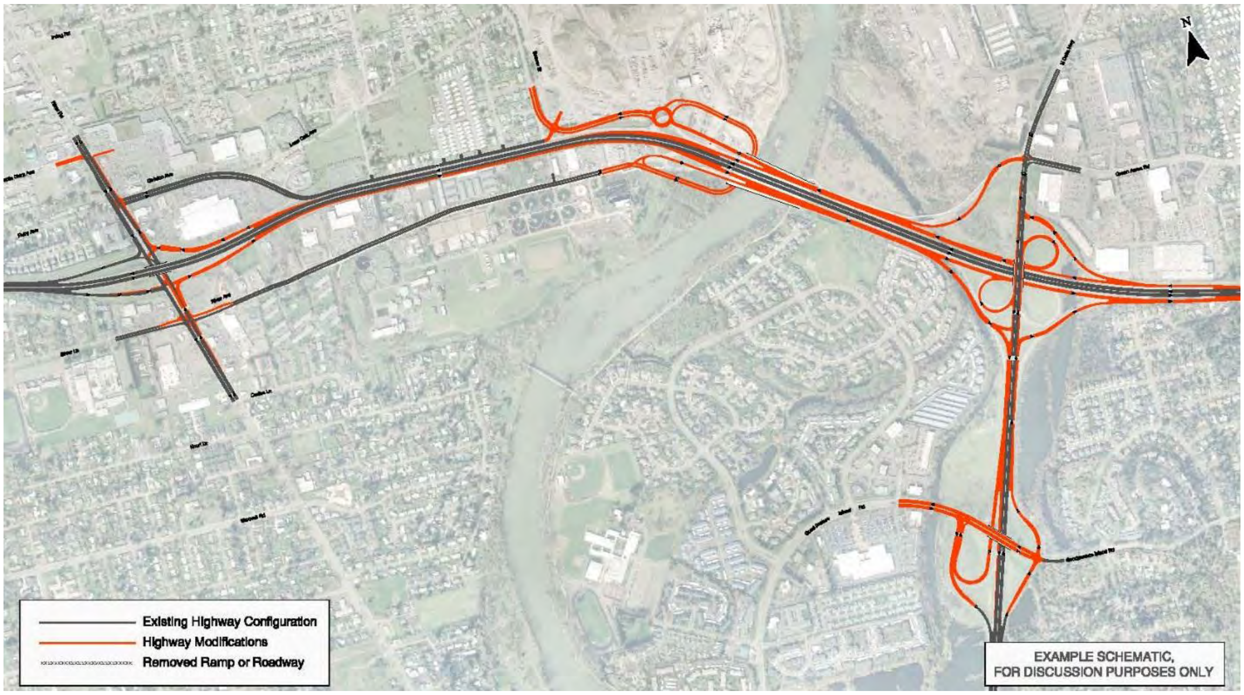

Figure 15 Collector-Distributor Concept

The Collector-Distributor Roadway Concept would provide a separate roadway parallel to the Beltline Highway from River Avenue/Division Avenue to east of the Delta Highway.

The Collector-Distributor Roadway Concept would:

- Collect all traffic eastbound from River Avenue, Division Avenue, and Delta Highway, to merge with Beltline Highway east of the Delta Highway interchange.
- Collect merging and diverging westbound traffic east of the Delta Highway interchange to merge onto Beltline Highway near the existing River Avenue/Division Avenue interchange.
- Add an auxiliary lane to the Delta Highway southbound to Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and expand on and off-ramps to two lanes to accommodate traffic.
- Allow traffic merging onto westbound Beltline Highway from the River Avenue/Division Avenue interchange to travel along Division Avenue to the River Road interchange, and enter Beltline Highway west of River Road.
- Provide eastbound Beltline Highway access via intersection control (roundabout or signal) north of the highway, allowing traffic to pass under the Beltline Highway to access Beltline Highway eastbound, or to move traffic from the highway onto the local roads including Beaver Street or Division Avenue westbound.

- Upgrade the Delta Highway/Beltline Highway interchange and Goodpasture Island Road/Delta Highway interchanges similar to the previous two concepts, however westbound traffic from the Delta Highway interchange would not immediately join the Beltline Highway mainline, but would be gathered onto the collector-distributor road to merge further west onto the Beltline Highway.
- Upgrade River Road on and off-ramps for the Beltline Highway.

Ramp Braid Concept

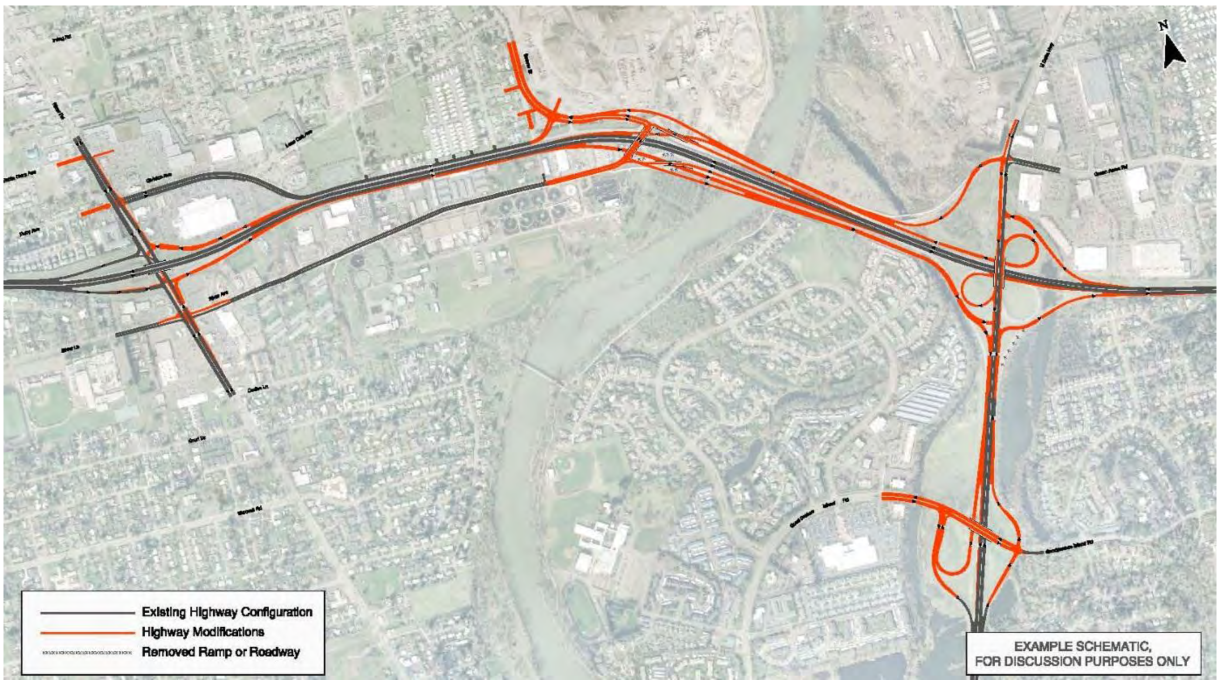

Figure 16 Ramp Braid Concept

The Ramp Braid Concept would physically separate the on- and off-ramps between the River Avenue/Division Avenue interchange and Beltline Highway, and would provide access to eastbound Beltline Highway and Delta Highway from the Santa Clara neighborhood.

The Ramp Braid Concept would:

- Upgrade the Delta Highway/Beltline Highway Interchange and the Goodpasture Island Road/Delta Highway interchange similar to the previous two concepts.
- Create an overpass for River Avenue over Beltline Highway. This would require a relatively wide footprint to support the ramp braiding.
- Require the most new structure over the Willamette River to also include the on- and off-ramps to the Delta Highway.
- Add an auxiliary lane to the Delta Highway southbound to Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and expand on and off-ramps to two lanes to accommodate traffic.

These alternative concepts were evaluated against the criteria described above. The results of the evaluation were shared with the three advisory groups. The SAC and PMT then developed a recommendation to the Steering Committee about which concepts to carry forward into the next phase.

Appendix D: Evaluation Framework includes full ratings and explanation of how the project team rated each measure.

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3 Recommendations

Through both phases 2 and 3, the PMT, SAC, and PSC refined and narrowed the concepts reaching consensus about a set of concepts to advance to the environmental process.

Recommendation Process

The PMT, SAC and Steering Committee developed recommendations at several steps in the process. Detailed information about individual committee recommendations is provided in Appendix C Public Involvement. At each decision point, the PMT first reviewed the technical analysis and developed a recommendation for consideration by the SAC. The SAC reviewed the PMT recommendation and developed additional input for consideration by the Steering Committee. The Steering Committee reached consensus at each decision point.

Recommended Concepts

This facility plan recommends advancing the following concepts for further analysis during the NEPA process:

- Improve Existing Concept
- Auxiliary Lane Concept
- Collector-Distributor Roadway Concept

All concepts include TDM and TSM strategies, which assume a future increase in transit, bicycle, and pedestrian use. The Improve Existing Concept and Auxiliary Lane Concept include the local arterial bridge. These concepts are very similar except for the interchange at River Avenue/Division Avenue. The local arterial bridge is not included in the Collector-Distributor Roadway Concept because the collector-distributor roadway provides a similar off-highway connection across the Willamette River. LTD reviewed all of the remaining concepts and agreed that these concepts are compatible with future transit service improvements.

Improve Existing

Figure 17 shows the Improve Existing Concept.

This concept maintains most of the Highway and interchanges similar to where they are today, with upgrades to ramp length and configurations to improve safety and address congestion. This description focuses on the Beltline Highway mainline and local roadway connections, the Interchange Configuration section includes more information on each of the three interchanges.

The Improve Existing Concept would:

- Include a local arterial bridge connection between Beaver Street and Green Acres Road.

- Add auxiliary lanes across the river in both directions between the Delta Highway and the River Avenue/Division Avenue ramps. This would require replacing the Willamette River bridges.
- Expand Delta Highway southbound by one auxiliary lane until it would exit north of Goodpasture Island Road.
- Create a new intersection at Division Avenue, Beaver Street, and the local arterial bridge connection.
- Upgrade Division Avenue between Beaver Street along Beltline Highway (maintaining one lane in each direction).
- Upgrade the intersection of Lone Oak Avenue and Beaver Street.

The Improve Existing Concept would make the following modifications to the Delta Highway and Goodpasture Island Road interchange (these changes are the same for all recommended concepts):

- Extend the westbound and eastbound off-ramps to the Delta Highway from Beltline Highway.
- Extend the eastbound auxiliary lane to Beltline Highway from the Delta Highway eastbound loop ramp.
- Extend the distance for westbound acceleration to westbound Beltline Highway from the Delta Highway westbound loop ramp.
- Reconfigure the northbound loop ramp terminal intersection to Delta Highway northbound to improve the sight-distance.
- Remove the loop ramp from eastbound Beltline Highway to northbound Delta Highway. Northbound traffic would exit with southbound traffic, and then pass through a controlled intersection (signal or other control) to continue northbound on Delta Highway.
- Expand Delta Highway southbound by one auxiliary lane until it would exit north of Goodpasture Island Road.
- Expand Goodpasture Island Road to two lanes in each direction over Delta Highway, and the on and off-ramps would be expanded to two lanes to accommodate traffic.
- Expand the westbound off-ramp to Delta Highway from one lane to two.

Summary of Costs

The planning level cost estimate for this concept is between $200 and $210 million in 2013 dollars (includes replacing the Willamette River bridges but does not include right-of-way).

Property Impacts

River Road/Beltline Highway Interchange

This concept could impact a parking lot on the southeast corner of River Avenue and River Road.

River Avenue and Division Avenue/Beltline Highway Interchange

Property impacts between River Road and Delta Highway, including the River Avenue, Division Avenue/Beltline Highway interchange, may include:

- Buildings and property south of the Beltline Highway between River Avenue and Division Avenue.
- Buildings and property north of the Beltline highway from reconstructing Division Avenue as it approaches the Beltline Highway.
- Buildings between Beaver Street and Hunsaker Lane.
- The arterial bridge may have impacts to the Delta Sand and Gravel property.

Delta Highway/Beltline Highway Interchange

This concept could have property impacts east of Delta Highway and north of Beltline Highway.

Mobility

- This concept would provide sufficient capacity for forecasted traffic volumes in 2035. In 2035 during the PM peak hour, the Beltline Highway would operate at a v/c of 0.71 westbound and 0.62 eastbound between the River Road and Division Avenue interchanges, and a v/c of 0.75 westbound and 0.63 eastbound between the Division Avenue and Delta Highway interchanges. The arterial bridge would operate at a v/c of 0.65 westbound and 0.23 eastbound.
- Travel demand across the river is essentially the same for all scenarios.
- Ramp terminal intersections and other nearby intersections operate below or near capacity, but can accommodate forecasted volumes with changes such as signal retiming and adding turn lanes, where needed for all concepts.
- The arterial bridge reduces demand on Beltline Highway, and will carry 17,000 vehicles on average per day.

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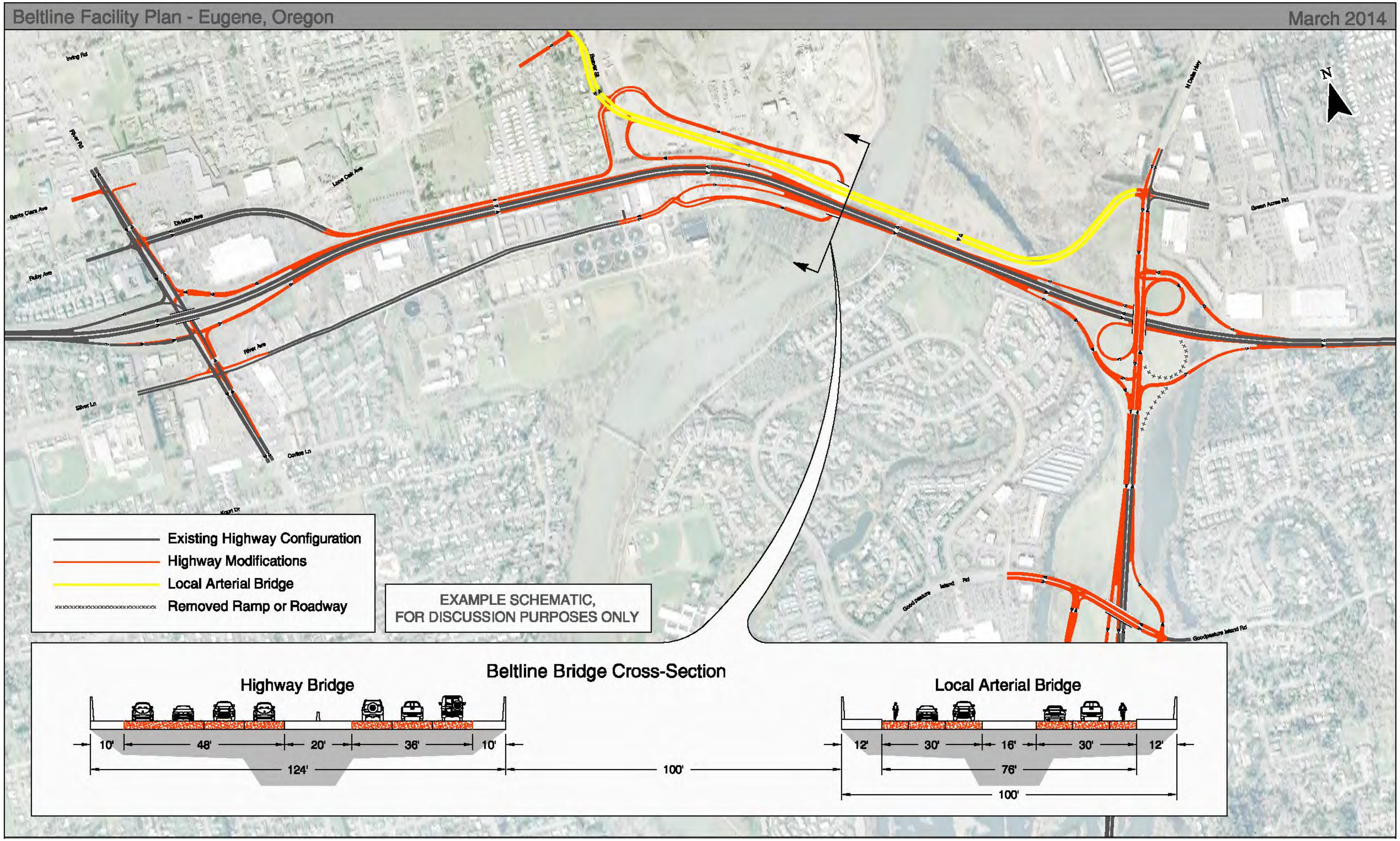

Figure 17 Improve Existing Concept

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Auxiliary Lane

Figure 18 shows the Auxiliary Lane Concept.

The Auxiliary Lane Concept adds an auxiliary lane on Beltline Highway between River Road and Delta Highway to provide more room for merging/diverging movements to improve traffic flow. This description focuses on the Beltline Highway mainline and local roadway connections; the next section includes more information on interchange concepts and configurations.

The Auxiliary Lane Concept would:

- Include a local arterial bridge connection between Beaver Street and Green Acres Road.
- Add one lane to Beltline Highway in each direction over the Willamette River starting just west of Delta Highway to where the River Road interchange ramps connect to the mainline. This would require replacing the Willamette River bridges.
- Upgrade Division Avenue (maintaining one lane in each direction) and reconfigure the intersection with Beaver Street.
- Reconfigure the River Avenue connection to Beltline Highway and create a new intersection with Lone Oak Avenue and Beaver Street.
- Make changes to the Delta Highway and Goodpasture Island Road as described in the Improve Existing Concept

Summary of Costs

The planning level cost estimate for this concept is between $215 and $225 million in 2013 dollars (includes replacing the Willamette River bridges but does not include right-of-way).

Property Impacts

River Road/Beltline Highway Interchange and Delta Highway/Beltline Highway Interchange

Property impacts at the River Road/Beltline Highway interchange are the same for all concepts. For impacts, see the section under the Improve Existing Concept.

River Avenue and Division Avenue/Beltline Highway Interchange

Property impacts between River Road and Delta Highway, including the River Avenue, Division Avenue/Beltline Highway Interchange may include:

- Buildings and property north of the Beltline Highway from reconstructing Division Avenue as it approaches the Beltline Highway.
- Buildings and property south of the Beltline Highway between River Avenue and Division Avenue

The arterial bridge and Beltline Highway overcrossing may have impacts to the Delta Sand and Gravel property.

Mobility

This concept would provide sufficient capacity for forecasted traffic volumes in 2035. In 2035 during the PM peak hour, the Beltline Highway would operate at a v/c of 0.71 westbound and

0.64 eastbound between the River Road and Division Avenue interchanges, and a v/c of 0.78 westbound and 0.65 eastbound between the Division Avenue and Delta Highway interchanges. The arterial bridge would operate at a v/c of 0.64 westbound and 0.24 eastbound.

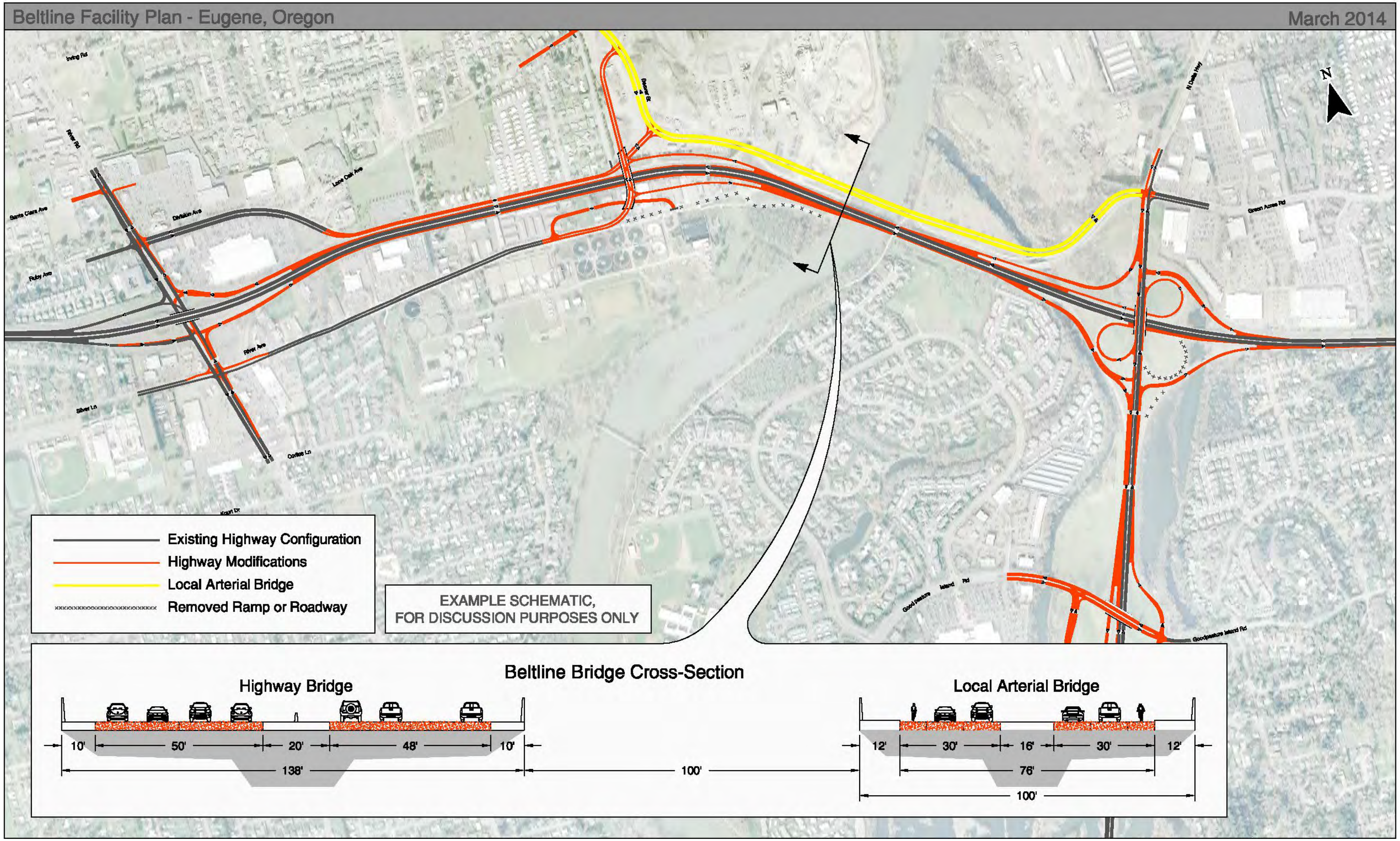

Figure 18 Auxiliary Lane Concept

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Collector-Distributor Road

Figure 19 shows the Collector-Distributor Road Concept.

The Collector-Distributor Roadway Concept would provide a separate roadway parallel to the Beltline Highway from River Avenue/Division Avenue to east of the Delta Highway, moving most of the merge/diverge traffic movements off the mainline and onto a collector-distributor road.

The Collector-Distributor Roadway Concept would:

- Collect all traffic eastbound from River Avenue, Division Avenue, and Delta Highway, to merge with Beltline Highway east of the Delta Highway interchange.
- Collect merging and diverging westbound traffic east of the Delta Highway interchange to merge onto Beltline Highway near the existing River Avenue/Division Avenue interchange.
- Collect traffic merging onto westbound Beltline Highway from the River Avenue/Division Avenue interchange on Division Avenue to River Road, where it would enter the highway at the interchange.
- Make changes to the Delta Highway and Goodpasture Island Road as described in the Improve Existing Concept.

Summary of Costs

The planning level cost estimate for this concept is between $260 and $270 million in 2013 dollars (includes replacing the Willamette River bridges but does not include right-of-way).

Property Impacts

River Road/Beltline Highway Interchange and Delta Highway/Beltline Highway Interchange

Property impacts at the River Road/Beltline Highway interchange are the same for all concepts. For impacts, see the section under the Improve Existing Concept.

River Avenue and Division Avenue/Beltline Highway Interchange

Property impacts between River Road and Delta Highway, including the River Avenue, Division Avenue/Beltline Highway Interchange may include:

- Buildings and property south of the Beltline Highway between River Avenue and Division Avenue
- Buildings and property south of the Beltline Highway between River Avenue and Division Avenue

The Beltline Highway undercrossing and local road connections may have impacts to the Delta Sand and Gravel property.

Delta Highway/Beltline Highway Interchange

This concept may impact buildings and property south of Beltline Highway west of Delta Highway.

Goodpasture Island Road/Delta Highway Interchange

Property impacts at the Goodpasture Island Road/Delta Highway interchange are the same for all concepts. For impacts, see the section under the Improve Existing Concept.

Mobility

This concept adds capacity with the collector-distributor roads over the river, though the lack of a local arterial bridge does not reduce demand on Beltline Highway.

This concept would provide sufficient capacity for forecasted traffic volumes in 2035. In 2035 during the PM peak hour, the Beltline Highway would operate at a v/c of 0.65 westbound and 0.68 eastbound between the River Road and Division Avenue interchanges, and a v/c of 0.63 westbound and 0.67 eastbound between the Division Avenue and Delta Highway interchanges. The collector-distributor roads would operate at a v/c of 0.69 westbound and 0.60 eastbound.

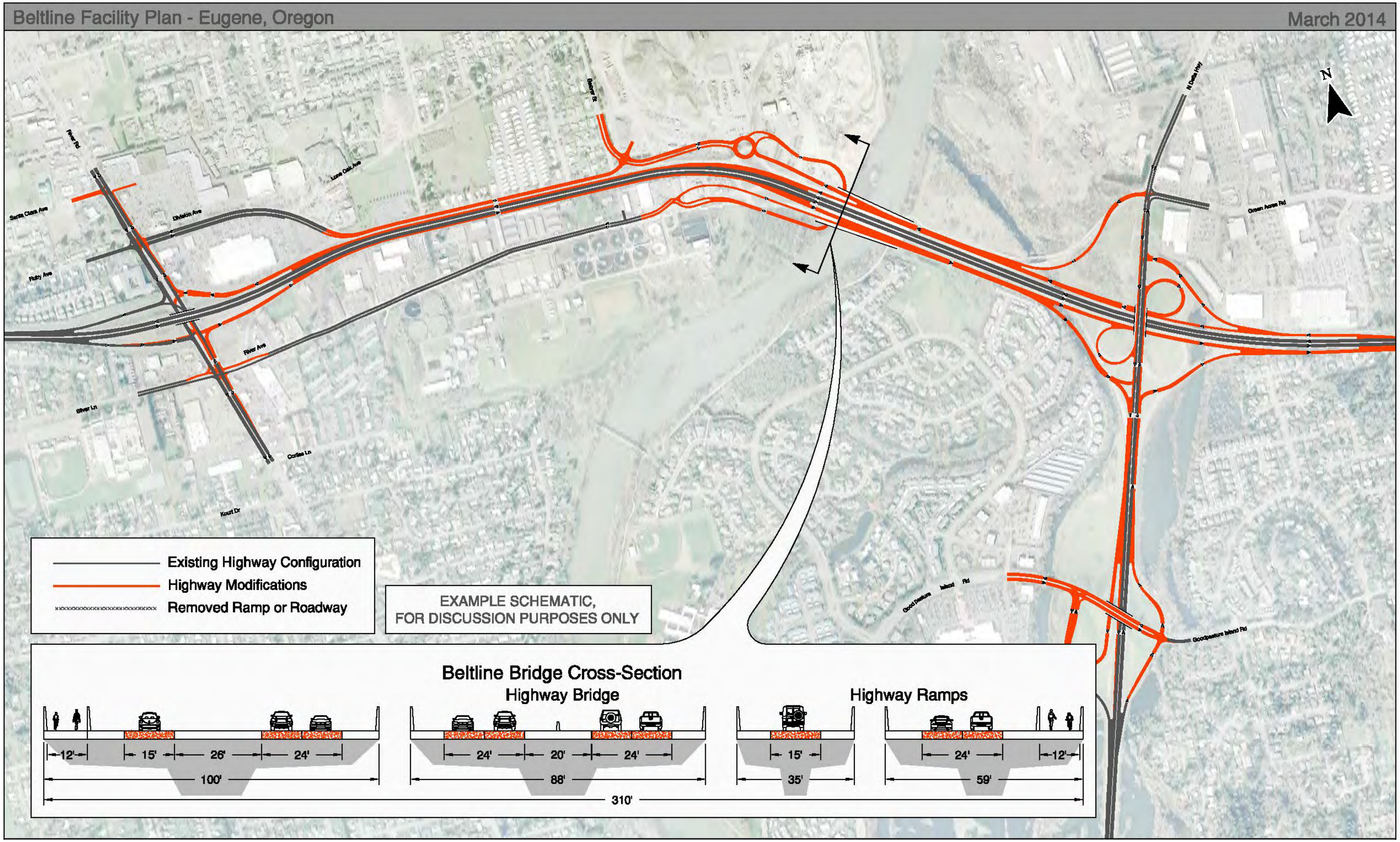

Figure 19 Collector-Distributor Concept

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4 Interchange Area Management Plans

Oregon Administrative Rule (OAR) 734-051-0155 requires an IAMP for new and upgraded interchanges to ensure safe and efficient operations between connecting roadways to protect the function of the interchange and minimize the need for future major interchange improvements.

The State Legislature passed Senate Bill 408 (SB408) in 2013 to address access management in facility plans which recommend changes to properties abutting State Highways. While the rules were under development during this planning effort, the project team determined that no access closures would be recommended as part of this facility plan and that access would be managed through City policies and ODOT/City coordination. As the NEPA process refines each concept to select a preferred alternative, and the rule is further developed, SB408 will continue to be applied if access changes are proposed. This chapter explains those access management policy concepts.

The interchange area management plans that follow recommended access management policies that can be implemented ahead of design and construction of the recommended interchanges as well as a description of potential access impacts, changes and management tools that may be explored prior to implementation of interchange improvements.

Specific funding sources to implement this facility plan have not yet been identified, though funding is likely to come from the City, LCOG, and ODOT. As the city develops Eugene's TSP, and LCOG finalizes the RTSP, ODOT will work with these two jurisdictions to include the Facility Plan and potential early implementation elements in the financially constrained list, as appropriate.

Interchange Area Management Plans

This facility plan includes IAMPs based on recommendations that will move forward into the NEPA phase. As the participating agencies determine the preferred alternative in the environmental study phase, these IAMPs may need to be refined to include additional high-level policies and actions that address how best to protect interchange improvements and function by identifying necessary transportation, land use, and access management actions. Additionally, if the city or ODOT make any large changes to the interchange concepts during the environmental study phase, the IAMPs will be updated to reflect these changes.

To comply with OAR 734-051-0155, the City of Eugene and the Oregon Transportation Commission will need to agree on IAMPs prior to construction of substantial interchange improvements. Prior to construction, the IAMPs prepared for the Beltline Highway will need to:

- Be developed no later than the time an interchange is designed or is being redesigned

- Identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt policies, provisions, and development standards to capture those opportunities
- Include short, medium, and long-range actions to improve operations and safety within the designated study area
- Consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches
- Provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years
- Consider existing and proposed uses of all the property within the designated study area consistent with its comprehensive plan designations and zoning
- Be consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission
- Include policies, provisions, and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the IAMP

Additionally, the three interchanges will need to be monitored by the city, county, and ODOT to ensure that the interchanges continue to function at a reasonable level. Based on the traffic analysis found earlier in this Facility Plan, all recommended concepts meet applicable ODOT mobility targets and Eugene mobility standards.

River Road Interchange Area Management Plan

River Road is a major north-south five lane arterial in north Eugene. The interchange study area includes the signalized on- and off-ramps for the Beltline Highway, the signalized River Avenue/River Road/Silver Lane intersection, the signalized River Road/Division Avenue/Ruby Avenue intersection, LTD's River Road Transit Station, commercial development, and a number of associated commercial driveways. LTD is studying transit improvements in this area; future improvements to the River Road interchange will need to be coordinated with LTD.

Existing and Future Safety and Traffic Conditions

Between 2007 and 2011, there were higher occurrences of reported crashes along River Road north of Beltline Highway and also at the Silver Lane/River Road intersection just south of Beltline Highway compared to other study intersections. Most of these crashes were either rear-end crashes or turning crashes.

On River Road between Silver Lane and Corliss Lane within the study area, the left-turn egress movement at four of the access driveways does not meet city level of service standards. Currently, vehicles making turns onto River Road can experience long delays when trying to make this movement. These accesses serve Abby's Pizza, Key Bank, Bi-Mart, and the Wendy's. Additionally, queuing analysis shows that during peak periods, queues can extend between intersections along River Road near the Beltline Highway westbound and eastbound ramps, the Silver Lane intersection, and the Santa Clara intersection. The northbound queue on River Road extends south of the Silver Lane/River Avenue intersection and also blocks some of the access driveways on the east side of River Road.

Future (2035) congestion on River Road is expected to increase from existing conditions at River Road/Ruby Avenue/Division Avenue, and vehicles making turns onto River Road will experience delays at a five of the unsignalized driveways on River Road between River Avenue and Corliss Lane. Future anticipated vehicle queues extend nearly the full length of the River Road corridor within the study area both northbound and southbound in the peak hour.

Existing Accesses

North of the Beltline Highway, two private accesses onto River Road are located within a quarter mile of the Beltline Highway off-ramp (one right-in entrance only and one full-access driveway). Both private accesses are on the east side of River Road. The intersections of River Road and Division Avenue/Ruby Avenue and Santa Clara Avenue are also within a quarter mile of the interchange north of the highway.

South of the Beltline Highway, the River Road/Silver Lane intersection is within a quarter mile of the Beltline Highway ramp terminal. There are nine accesses on the west side of River Road, and five on the east, all accessing commercial properties. All of these private accesses accommodate traffic both entering and exiting except for one pair of driveways that operate as a couplet with entrance only and exit only.

Additionally, Eugene has city-specific standards in city code which apply to River Road. Within the influence area of a controlled (signalized) intersection of a major arterial, city code states that "except when an existing lot or parcel is located entirely within the intersection influence area, no access connection to an arterial or major collector street shall be located within the intersection influence area." For River Road, the intersection influence area is 250 feet. Outside of intersection influence areas, according to city code, accesses should be spaced 200 feet apart. None of the accesses south of the River Road/River Avenue/Silver Lane intersection meet this 250 foot standard for intersection influence, or the 200 foot standard for distance between accesses.

Interchange Concept

Figure 20 shows the detail of the proposed improvement to the existing conditions at the River Road interchange.

The River Road interchange would have the same configuration with any corridor concept. The following changes would occur:

- Widen the eastbound on- and off-ramps by one lane each creating a three lane off-ramp and a two lane on-ramp at River Road.
- Widen the westbound off-ramp from Beltline Highway to River Road to four lanes.
- Improve the ramp terminal intersections at River Road better accommodate turning vehicles.
- Widen River Road northbound north of Corliss Lane to three lanes, and widen to four lanes between River Avenue and Beltline Highway
- Widen River Road northbound north of Beltline Highway to three lanes to Santa Clara Road.

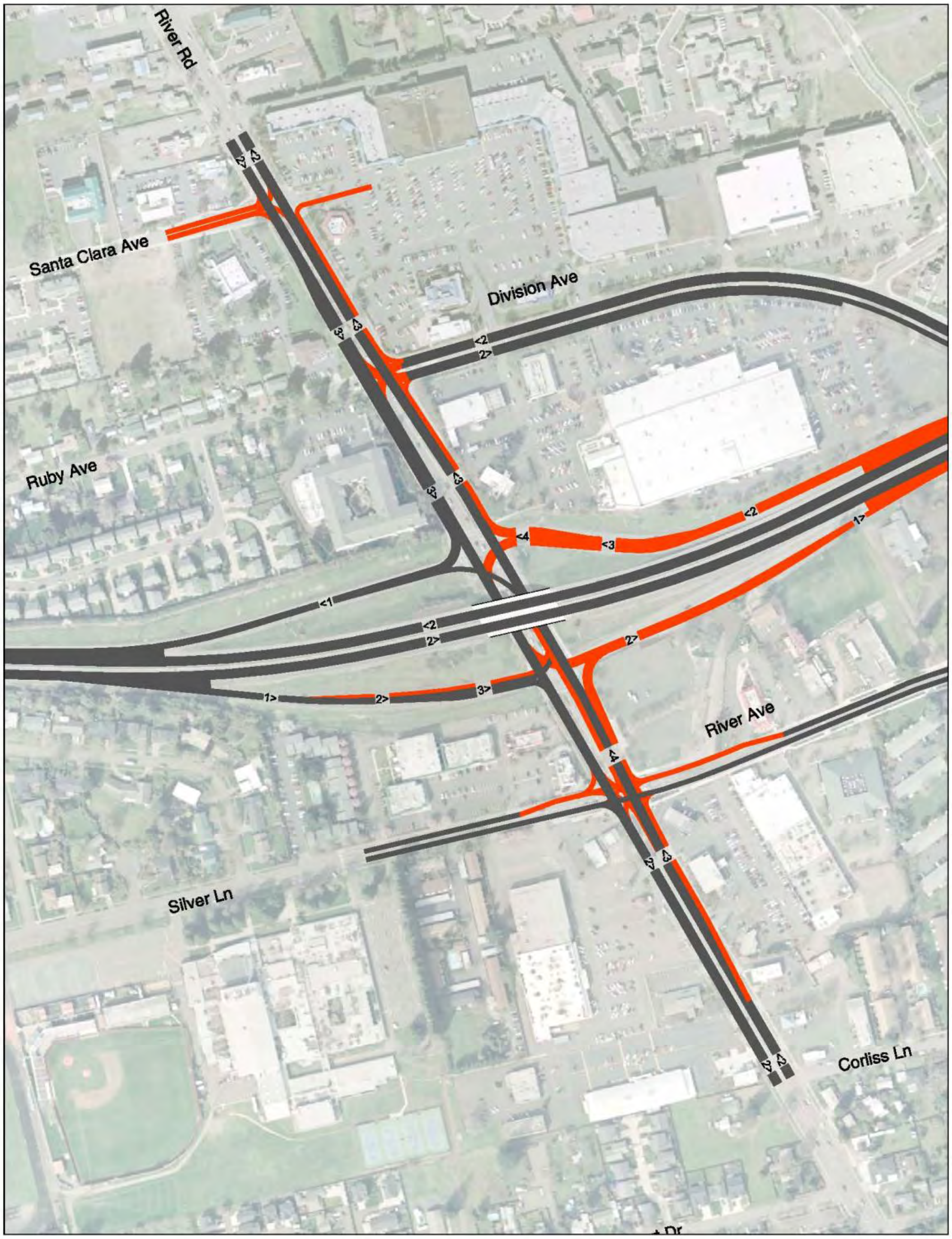


Figure 20 Detail of the River Road Interchange

Access Management Policies

As parcels redevelop or apply for use changes with the city, according to the City of Eugene's *Arterial and Collector Street Plan*, Eugene will "look for opportunities to consolidate multiple accesses into fewer driveways, particularly on commercial frontage along arterials." No changes to existing accesses are recommended at this point, and future access management actions will rely on the city implementing their access policies if and when these commercial properties along River Road are redeveloped or the property owner applies for a zoning change. In the no-build condition, ODOT will not consider changes to private access or public streets.

The city controls the signalized intersections at Ruby Avenue/Division Avenue and River Road, and Silver Lane/River Avenue and River Road and will work closely with ODOT to use these signals to manage traffic and access to the adjacent Beltline Highway ramp terminals. Coordination between the city and ODOT could help reduce congestion and safety concerns at the ramp terminals.

Additionally, the Eugene TSP will recommend access management policies on key transit corridors including River Road to ensure safe and smooth traffic operations. The facility plan and IAMPs in this document defer to the Eugene TSP to implement future access management policies and changes.

Eugene is beginning a study of transit improvements between northwest Eugene and Lane Community College; River Road may be studied during this process. Future evaluation of concepts should consider transit service improvements on River Road.

Alternative Mobility Standards

The River Road on- and off-ramps operate within the OHP mobility target of 0.90 v/c in both the existing and future no-build conditions. The westbound ramps operate at a v/c of 0.63 in the existing condition and 0.73 in the 2035 no-build condition. The eastbound ramps operate at a v/c of 0.71 and 0.82 in the existing and future conditions, respectively. Though the ramp termini operate within mobility targets, substantial queuing occurs on River Road in both the existing and future no-build conditions. Appendix A includes more information about the existing and future conditions. In the future build condition, all on- and off-ramps meet applicable mobility targets. Alternative mobility targets will not be needed in the no-build condition.

River Avenue/Division Avenue Interchange Area Management Plan

The River Avenue/Division Avenue interchange is a button-hook style interchange with Division Avenue north of Beltline Highway, and River Avenue south of Beltline Highway. The two streets are connected via an underpass on the west bank of the Willamette River. From the westbound Beltline Highway, vehicles exit to Division Avenue, and can either pass underneath Beltline Highway to access River Avenue, or access neighborhoods and commercial areas north of Beltline Highway by staying on Division Avenue.

The Beltline Highway eastbound off-ramp crosses River Avenue at a stop-controlled intersection with the eastbound on-ramp, creating confusion for some drivers who may be unfamiliar with the interchange configuration. The eastbound on-ramp from River Avenue is very short and requires vehicles to merge immediately onto mainline Beltline Highway before the two-lane bridge over the Willamette River.

Existing and Future Safety and Traffic Conditions

In 2010, two fatal crashes occurred near this interchange; alcohol was cited as contributing factor in both crashes. There were also a number of reported crashes along Beltline Highway near this interchange, and on Division and River Avenues. Most of the crashes on the mainline near this interchange were rear-end crashes, which are likely a result of congestion on the highway.

The Division Avenue/Beaver Street intersection will not meet county level of service standards in 2035, indicating that vehicles will experience delay and congested conditions as they move through the intersection, though the other ramps and intersections near this interchange meet current city, county, and ODOT standards in the future condition.

Existing Accesses

Similar to the River Road interchange, 12 private accesses and one public road are located along River Avenue within a quarter mile of the ramp terminals, mostly north of River Avenue, accessing commercial properties. Though none of these accesses meet ODOT spacing standards, this IAMP does not recommend change at this time. Three private accesses to the aggregate mining property north of Beltline Highway are located on Division Avenue are located within a quarter mile of the ramp terminal. The public street intersection of Division Avenue and Beaver Street is also located, within a quarter mile of the ramp terminal.

Interchange Concepts

The River Avenue/Division Avenue interchange configuration would vary with each concept.

Improve Existing

This concept includes the local arterial bridge, which would connect from Delta Highway at Green Acres Road to Beaver Street north of Beltline Highway and Division Avenue. With this concept, the River Avenue/Division Avenue interchange would be reconstructed in its current form with an underpass west of the Willamette River under Beltline Highway between River Avenue and Division Avenue. The location of the intersection of the local arterial bridge and Beaver Street, the footprint of the new underpass and the location of the intersection of the westbound off-ramp could vary in this concept. Figures 21 and 22 show the two interchange options. Figure 22 is a refinement to minimize impacts to adjacent properties.

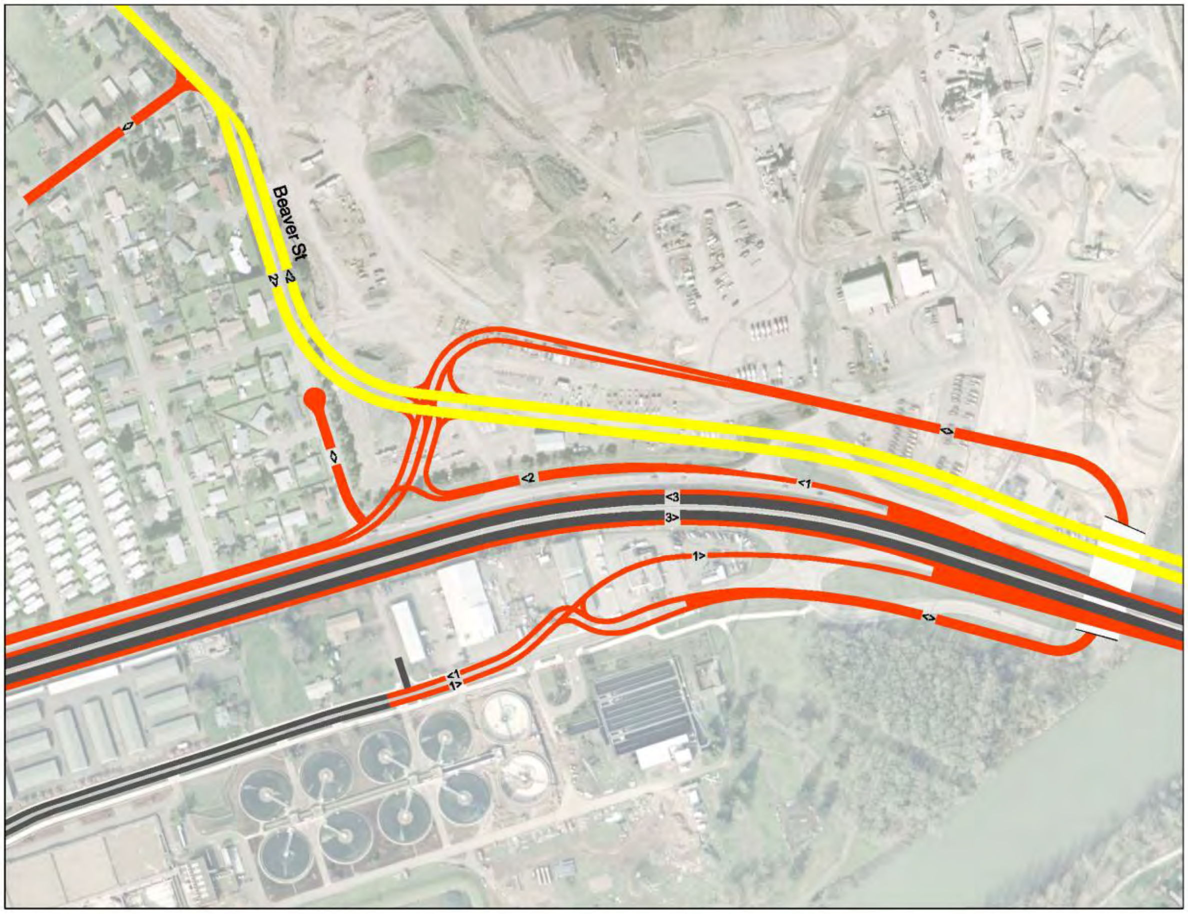


Figure 21 Improve Existing Option 1

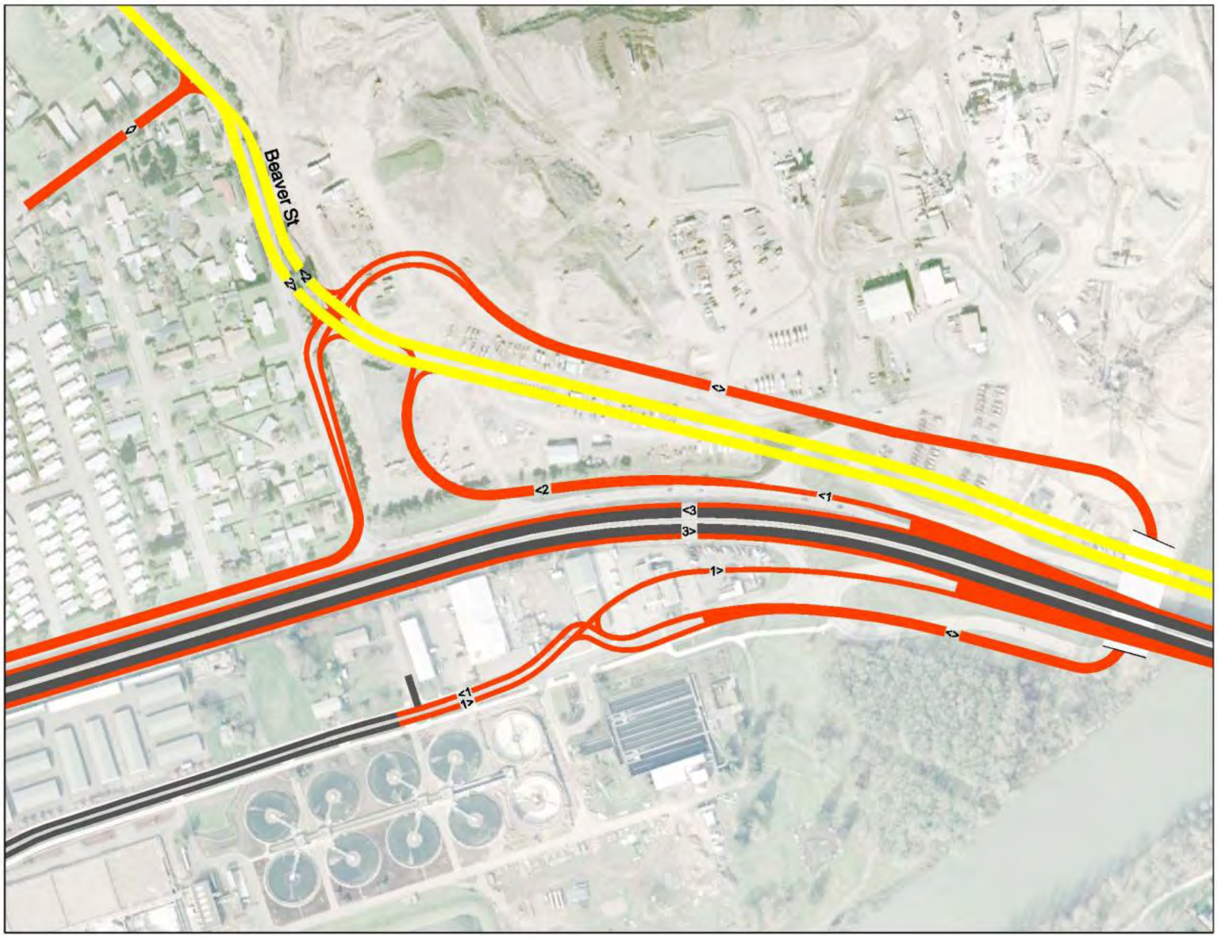


Figure 22 Improve Existing Option 2

Auxiliary Lane Concept

This concept also includes the local arterial bridge, but replaces the Beltline Highway underpass near the Willamette with an overpass closer to Beaver Street. Both provide an eastbound on-ramp and a westbound off-ramp from the new overpass to the Beltline Highway. There are two options for the location of the new overpass:

- **Option 1:** This option locates the overpass east of Beaver Street. Vehicles would connect to Division Avenue from River Avenue via an intersection at Beaver Street and Lone Oak Road. Connections from Division Avenue would occur at Beaver Street.
- **Option 2:** This option locates the overpass directly west of the Beaver Street alignment to reduce impacts to the aggregate mining company. Local access would be maintained from River Avenue to the RV dump station at the Metropolitan Wastewater Management Commission (MWMC) facility.

Figures 23 and 24 show the two Auxiliary Lane interchange options.

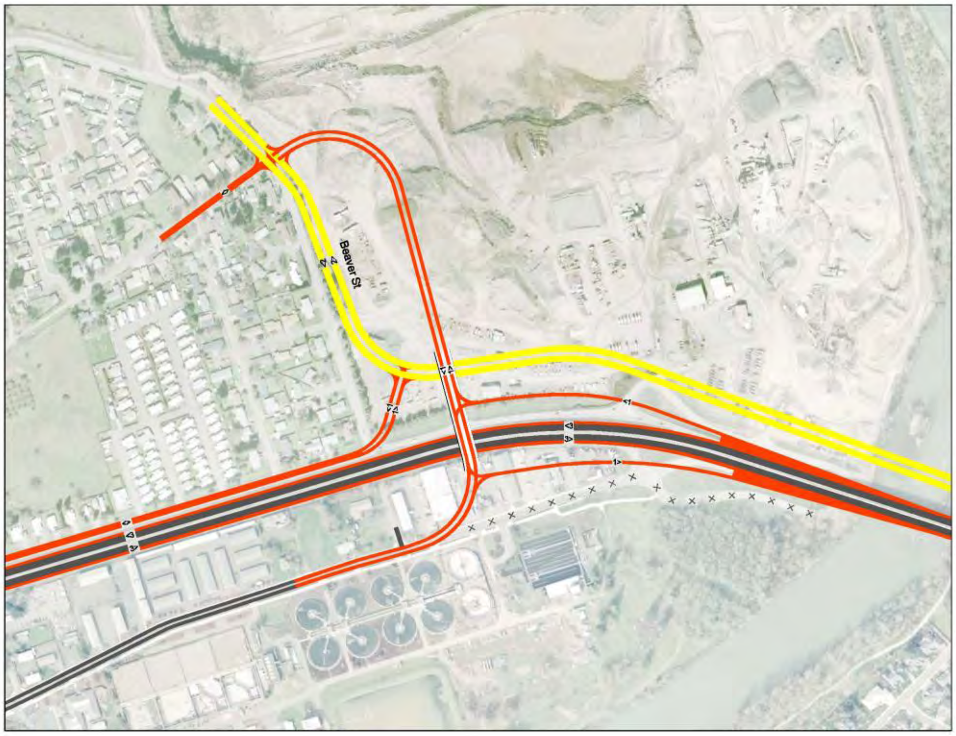


Figure 23 River Avenue/Division Avenue Interchange Auxiliary Lane Concept Option 1

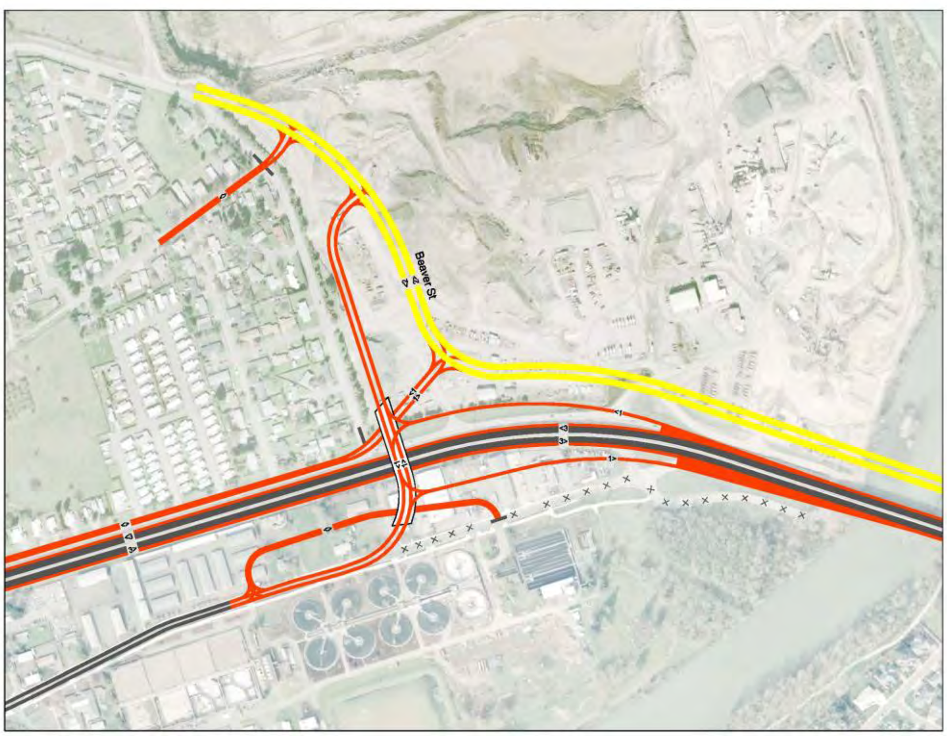


Figure 24 River Avenue/Division Avenue Interchange Auxiliary Lane Concept Option 2

Collector-Distributor Concept

This concept is the only concept advanced that does not include the local arterial bridge. The collector-distributor road effectively serves as this local connection. In lieu of the local arterial bridge, vehicles would use the collector-distributor roadway to cross the Willamette River without using the mainline. The concept maintains the underpass connection between River and Division Avenues, but would elongate the on- and off-ramps and separate merging/diverging traffic onto the collector-distributor road. It creates two controlled intersections; one between River and Division Avenues, and one between Division Avenue and Beaver Street. The interchange would impact businesses south of Beltline Highway on River Avenue. Two design variations have been developed that have different business impacts. Figures 25 and 26 show the two interchange configuration options.

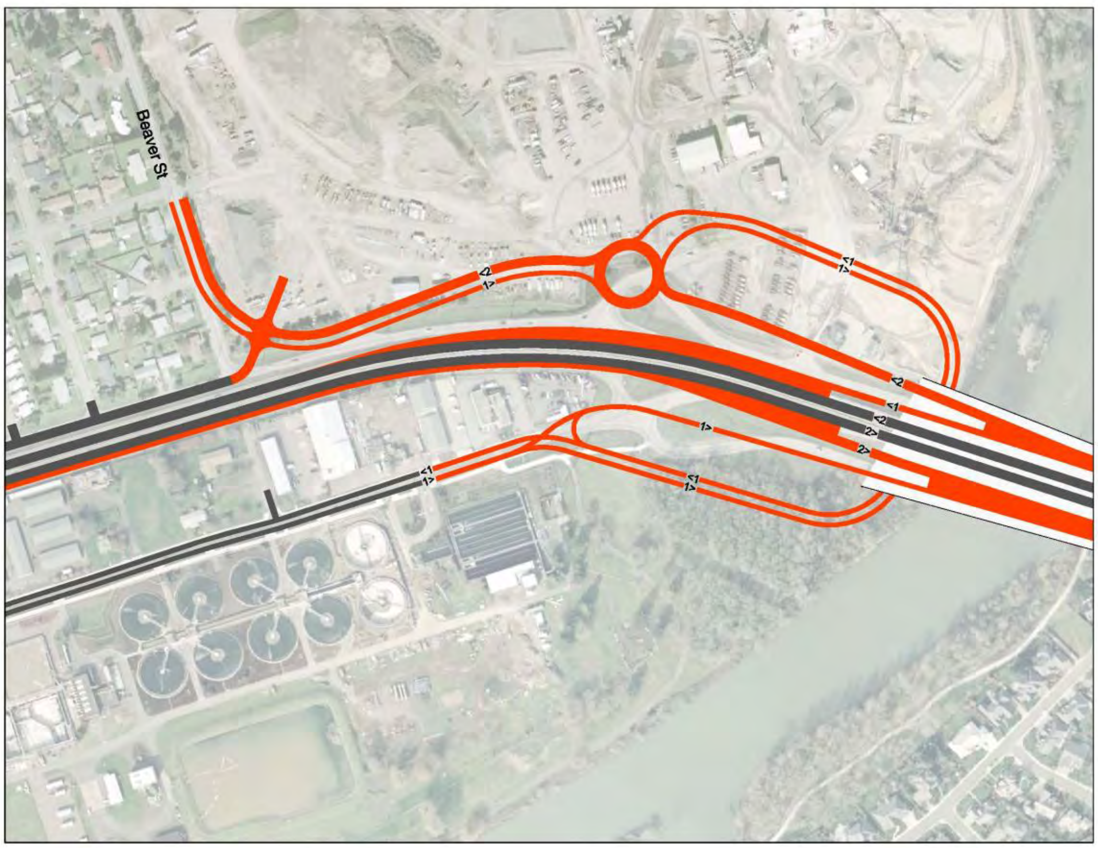


Figure 25 Collector- Distributor River Avenue/Division Avenue Interchange Option 1

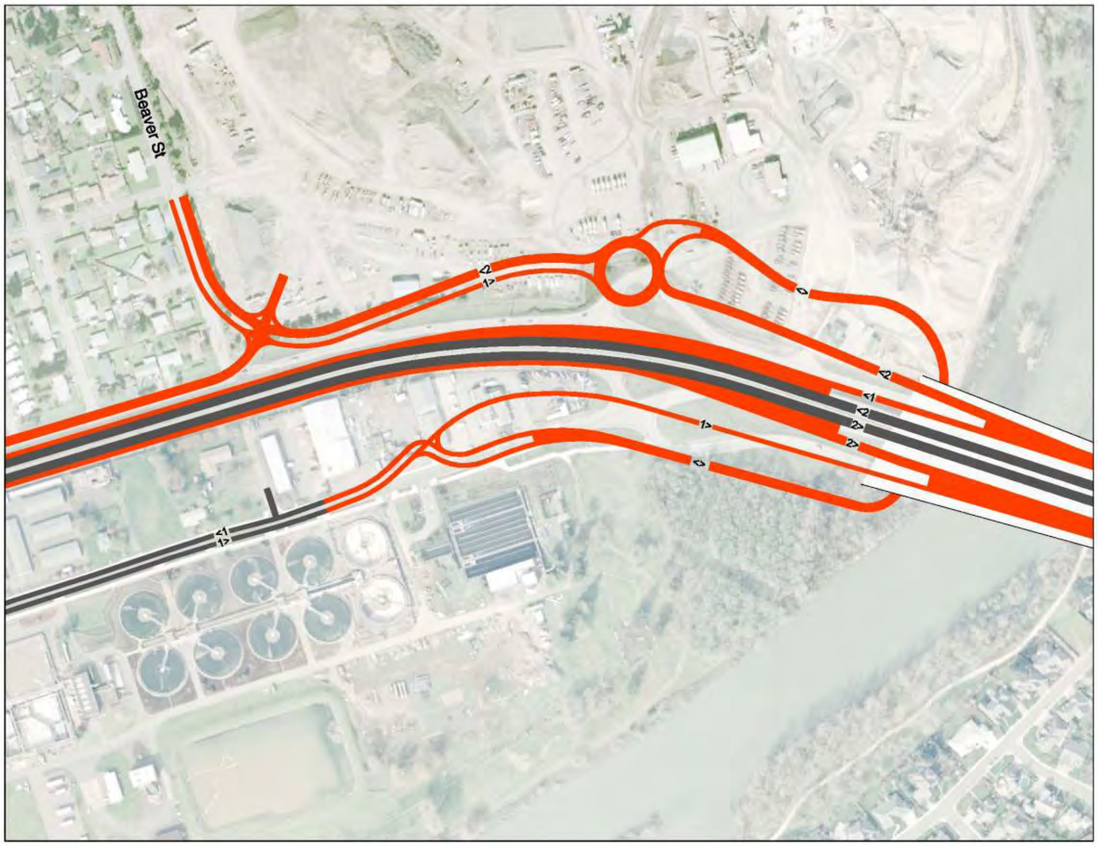


Figure 26 Collector- Distributor River Avenue/Division Avenue Interchange Option 2

Access Management Policies

No changes to existing accesses are recommended at this point, and future access management rely on the city implementing their access policies if and when these commercial properties along River and Division Avenues are redeveloped or the property owner applies for a zoning change.

Alternative Mobility Standards

The River Avenue and Division Avenue on- and off-ramps operate within the OHP mobility target of 0.90 in both the existing and future conditions. The Division Avenue westbound ramps operate at a v/c of 0.28 in the existing condition and 0.46 in the 2035 no-build condition. The eastbound River Avenue and Division Avenue ramps operate at a v/c of 0.31 and 0.49 in the existing and future conditions, respectively. Appendix A includes more information about the existing and future conditions. In the future build concept, all on- and off-ramps meet applicable mobility targets. Alternative mobility targets will not be needed in the no-build condition.

Delta Highway Interchange Area Management Plan

The Delta Highway interchange at Beltline Highway is a three loop cloverleaf with a northwest quadrant on-ramp. The three "leaves" of the cloverleaf are characterized by very short merge/diverge areas. The eastbound ramp is especially problematic where vehicles merging onto mainline Beltline Highway conflict with vehicles exiting the highway to go north on Delta Highway.

Existing and Future Safety and Traffic Conditions

The Delta Highway/Green Acres Road (westbound Beltline Highway on-ramp) intersection has a higher rate of reported crashes relative to other intersections. One fatal accident occurred in this area; alcohol was cited as a factor. The segment of Beltline Highway at the interchange and the segment just east where the Green Acres on-ramp meets the mainline are statewide Safety Priority Index System (SPIS) top 10 percent segments. Additionally, there are a high number of reported crashes for the eastbound to southbound Beltline Highway off-ramp, and leading to the westbound off-ramp.

Forecast no-build traffic conditions in 2035 will fail to meet city and county intersection operation standards:

- Western-most unsignalized commercial access along Green Acres Road
- Unsignalized access at Market of Choice on Green Acres Road
- Northern Home Depot unsignalized access on Delta Highway
- Delta Highway and Green Acres Road/westbound Beltline Highway On-Ramp terminal intersection

Traffic queues extend from the signal at Delta Highway along Green Acres Road, blocking commercial access points along the road to the signalized access to Home Depot and past the signal east of Home Depot.

Existing Accesses

Seven private non-controlled accesses are located north of Beltline Highway on Delta Highway within a quarter mile of the ramp terminals. Additionally, two public accesses, Green Acres Road and the westbound Beltline Highway on-ramp, and two private (access-restricted) driveways are located north of Beltline Highway on Delta Highway. South of Beltline Highway, at the interchange at Goodpasture Island Road is within a quarter mile of the ramp terminals.

The southbound access spacing between Beltline Highway and Goodpasture Island Road meets Lane County access management standards of 700 feet, but the spacing between the northbound Goodpasture Island/Delta Highway on-ramp and the Beltline Highway eastbound off-ramp does not meet Lane County standards found in the Lane County Code section 15.138.

Interchange Concept

The Delta Highway interchange would change substantially under all concepts. The new interchange would not include the loop ramp from eastbound Beltline Highway to northbound Delta Highway. Northbound traffic would exit with southbound traffic and pass through a controlled intersection (e.g. signal) making a left turn to go north on Delta Highway. Other changes would include:

- Extend the eastbound and westbound off-ramp to the Delta Highway.
- Extend the eastbound auxiliary lane to Beltline Highway from the Delta Highway eastbound loop ramp.
- Extend the acceleration distance to Beltline Highway from the Delta Highway westbound loop ramp.
- Change the northeast loop ramp to increase the acceleration distance onto the westbound Beltline Highway.
- Add an auxiliary lane to Delta Highway southbound to Goodpasture Island Road.

For the Improve Existing and Auxiliary Lane Concepts, the existing westbound on-ramp from Green Acres Road becomes a connection to the local arterial bridge and no longer provides for a connection to westbound Beltline Highway; in both concepts southbound on Delta Highway is able to access the westbound Beltline Highway via a left turn to the loop ramp (Improve Existing Concept) or a new on-ramp (Auxiliary Lane Concept). For the Collector-Distributor Road Concept, the on-ramp from Green Acres Road becomes the on-ramp to the westbound collector-distributor roadway. Figures 27, 28, and 29 show the three interchange concepts.

Figure 27 Detail of the Delta Highway Interchange – Improve Existing Concept

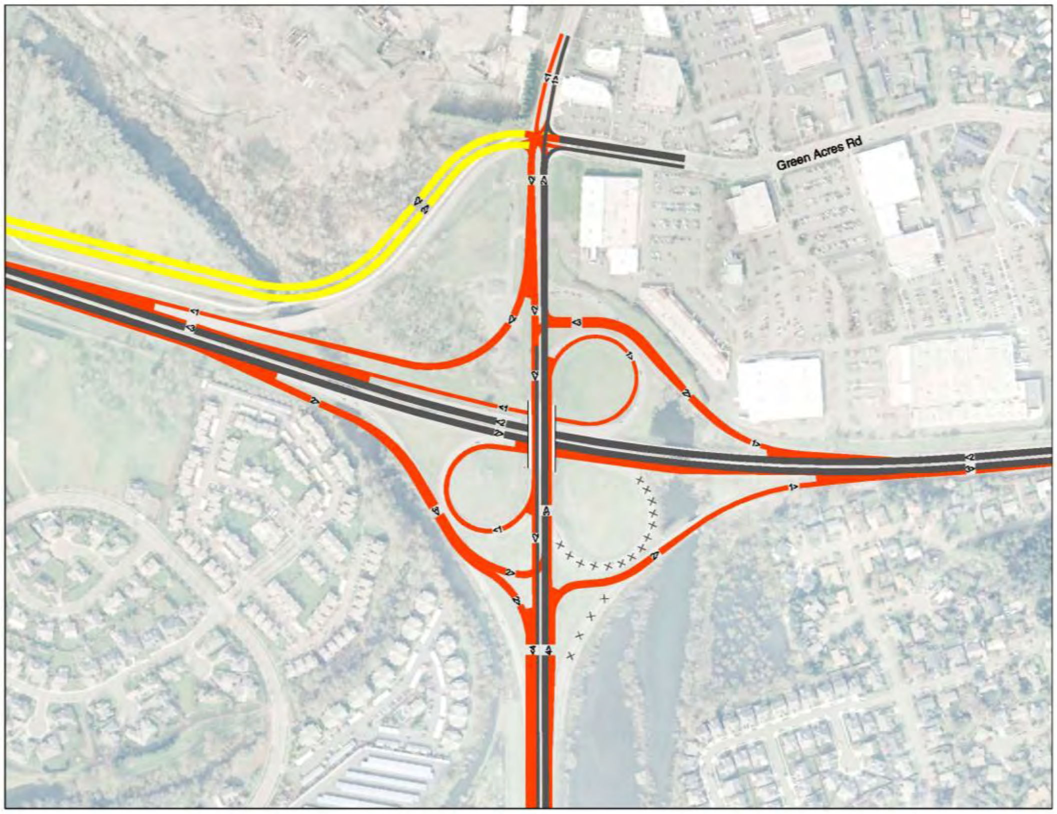


Figure 28 Detail of the Delta Highway Interchange – Auxiliary Lane Concept

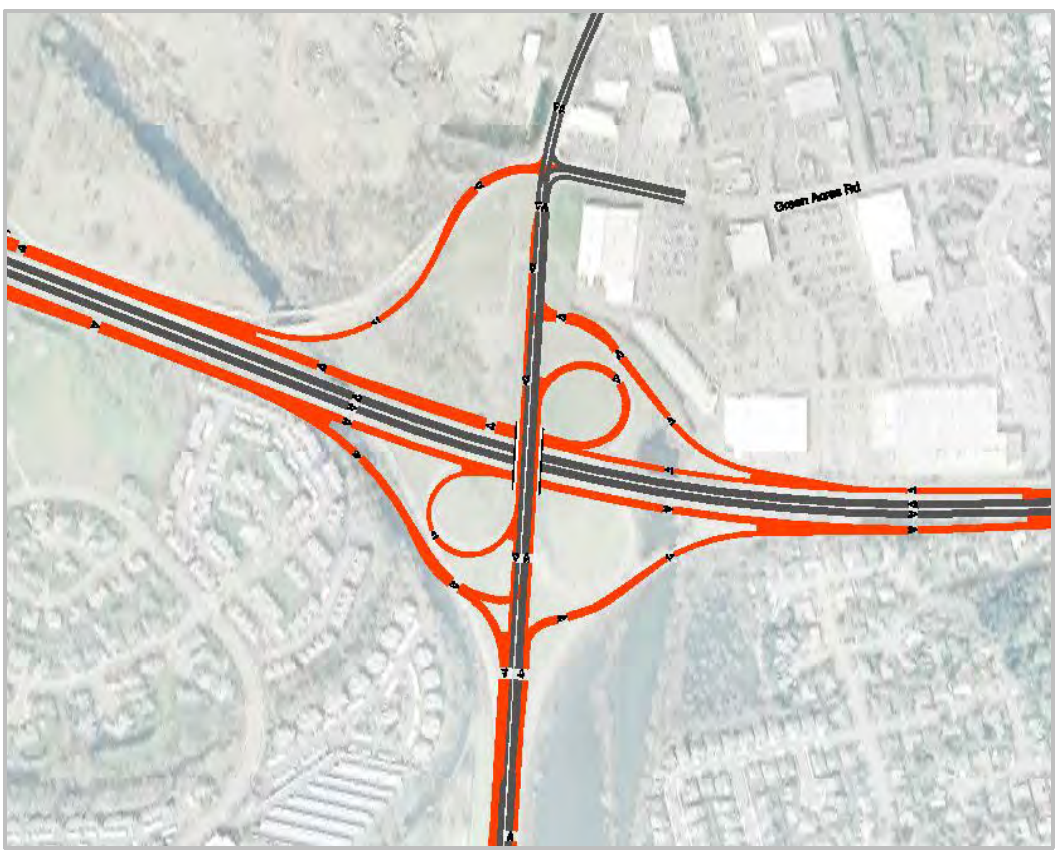


Figure 29 Detail of the Delta Highway Interchange – Collector-Distributor Concept

Access Management Policies

Since Lane County owns and operates Delta Highway, the county's spacing standards and access management policies apply to this interchange. The county's access management policies include considering joint accesses where possible, limiting access points to one, and, in the case of corner lots, providing access on the intersecting street with the lowest expected traffic volumes, or the road with the lower functional classification upon development or application for a land use change.

This interchange area is already populated with established commercial properties and the associated accesses. No access management changes are anticipated.

Alternative Mobility Standards

The Delta Highway westbound on-ramp operates within the OHP mobility target of 0.90 in the existing condition, but is over the target with a v/c exceeding 1.0 in the future no-build condition. The westbound Delta Highway off-ramp operates at a v/c of 0.64, within the Lane County operational standard of 0.85, in the existing condition and 0.74 in the 2035 no-build condition. Appendix A includes more information about the existing and future conditions. Alternative mobility targets will only be needed on the Delta Highway westbound on-ramp in the no-build condition.

5 Next Steps

This facility plan provides the groundwork for future National Environmental Policy Act (NEPA) analysis. Additionally, since the facility plan includes three interchanges, if there are any changes or modifications during the NEPA analyses, the IAMPs included in this plan will need to be modified to satisfy state (ODOT) requirements.

The city is finalizing this facility plan concurrently with the City of Eugene's Transportation System Plan (TSP) process, and the city will include outcomes of this plan in the TSP.

This facility plan must be adopted by the appropriate agencies including ODOT, LCOG, Lane County, and the City of Eugene.

The Beltline Facility Plan can be found on the project website at the web address below.

http://oregondot.org/beltline/?page_id=18

Attachment D: Alternative Performance Measure Benchmarks

LCDC-Approved Performance Measures (from TransPlan)	Benchmarks					How Measured
	2015	2020	2025	2030	2035	
% Non-Auto Trips "Active Mode Share"	17% (7% walk 8% bike)	24%	33%	40%	45%	% walking and biking trips ACS commute statistics and additional pedestrian and bike data as they becomes available from City & LCOG counts.
% Transit Mode Share on Congested Corridors	10%	12%	14%	16%	18%	LCOG data, LTD data (boardings) or ACS commute statistics (ACS=4.1% transit now)
Priority Bikeway Miles Definition of a "priority bikeway" project from *TransPlan* = Bike projects located along an essential core route on which the overall bicycle system depends; *and* (one of the following): 1. Fills in a critical gap in the existing bicycle system; or 2. Overcomes a barrier where no other nearby existing or programmed bikeway alternatives exist; or, 3. Significantly improves bicycle users' safety in a given corridor.		10	20	30	40	Number of new projects constructed that meet *TransPlan*'s definition of Priority Bikeway Miles.
Acres of zoned nodal development Definition of "nodal development" from *TransPlan* = a mixed-used, pedestrian friendly land use pattern that seeks to increase concentrations of population and employment in well-defined areas with good transit service, a mix of diverse and compatible land uses, and public and private improvements designed to be pedestrian and transit oriented.	1240	1530	1700	1870	2040	Number of acres that meet *TransPlan*'s definition of nodal development, *i.e.*, mixed use centers, Key Transit Corridors, and 20-minute neighborhoods. GIS, U.S. Census

% of dwelling units built in nodes	23.3%	26%	29%	32%	35%	% of new dwelling units built in areas that meet *TransPlan's* definition of nodal development, *i.e.*, % of new dwelling units built in mixed use centers, 20-Minute Neighborhoods, and along Key Transit Corridors. LCOG, Census
% of New "Total" Employment in Nodes (Per *TransPlan*, the calculation of the measure excludes employment that would not likely located in a nodal area, such as industrial employment.)	45%	48%	51%	54%	57%	% of new employment located within areas that meet *TransPlan*'s definition of nodal development, *i.e.*, % of new employment in mixed use centers, 20 Minute Neighborhoods, and along Key Transit Corridors. LCOG data

Attachment E: Freight Maps

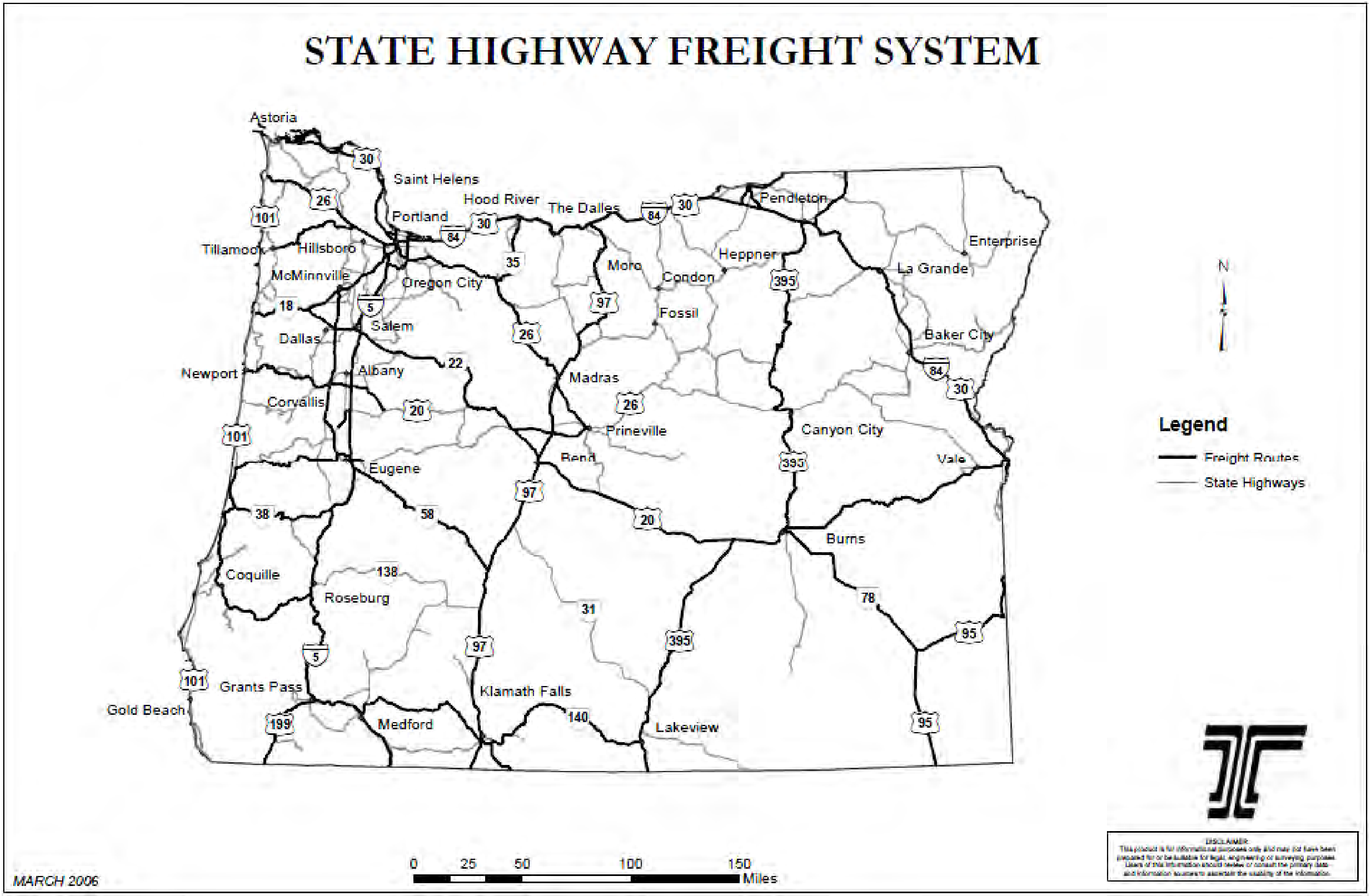


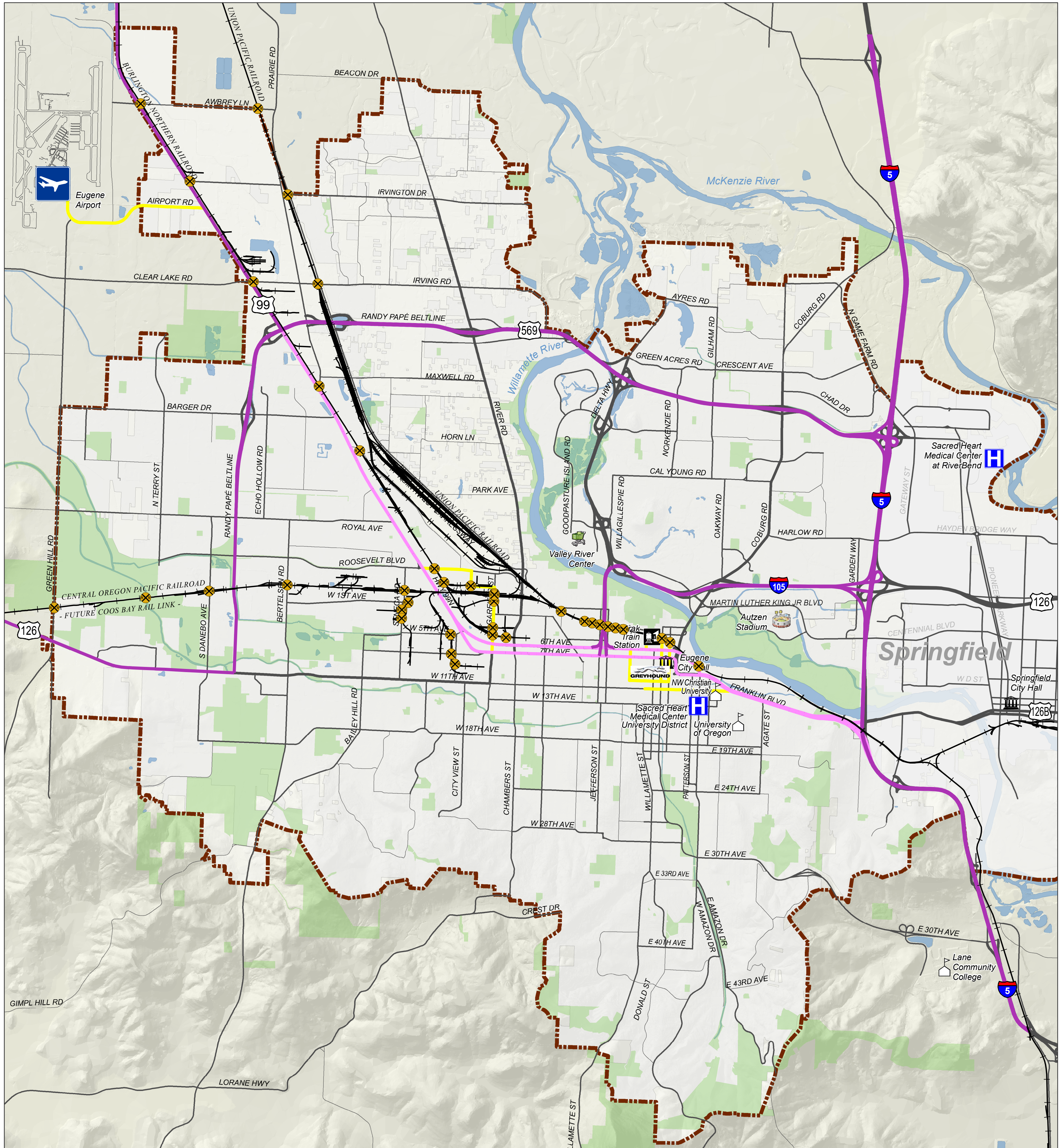
Figure 10: Designated freight routes[14]

[14] The Freight Route maps were updated pursuant to Amendment 05-16.

Source: 1999 Oregon Highway Plan, Oregon Department of Transportation

City of Eugene
Transportation System Plan

Attachment E, Figure 2
Freight Routes and Rail Facilities



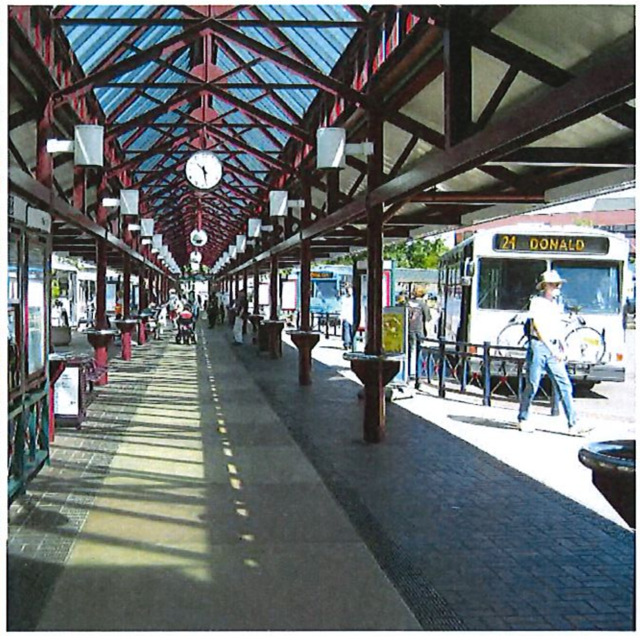
LEGEND

- At-Grade Rail Crossings
- Rail System
- Freight Routes (State of Oregon)
- Truck Routes (National Hwy System)
- NHS Connectors
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features

0 1 2 Miles

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

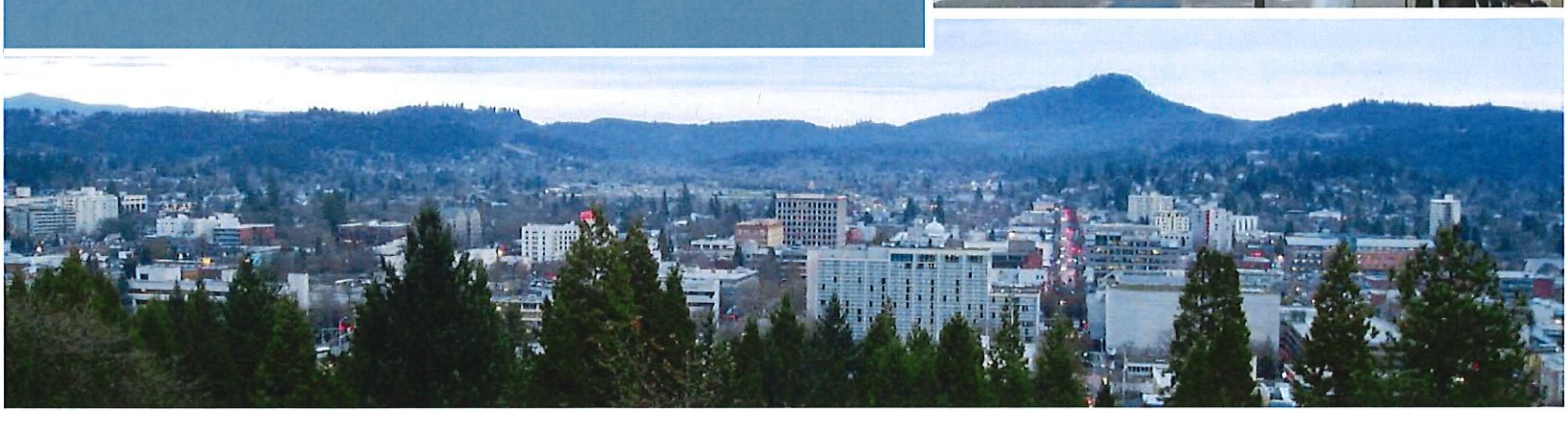
Map produced by City of Eugene PWE Info Team, October 2010



Eugene 2035 Transportation System Plan

Volume 2

February 2017



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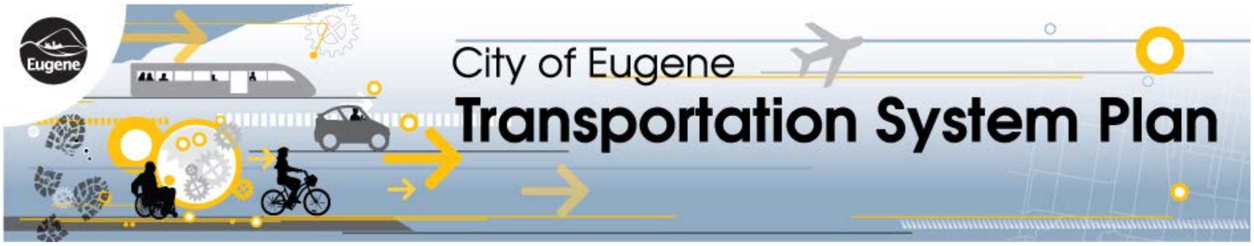

Volume 2

Appendix A: Existing Conditions Inventory and Analysis

Eugene Transportation System Plan: Existing Conditions and Deficiencies

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DATE: March 4, 2011

This memorandum describes and analyzes the current (2010) transportation system in Eugene, including existing conditions and deficiencies. The report evaluates the roadway network, public transportation routes and service, bicycle facilities, pedestrian facilities, rail facilities, airports, and pipelines within the project study area. This memorandum also describes general land use patterns and major activity centers that generate traffic. The information used to describe the existing system and identify deficiencies in this report came from the City of Eugene, Lane County, the Oregon Department of Transportation (ODOT), Lane Transit District (LTD) and from the consultant team through a site visit on July 27-28, 2010.

While this document attempts to accurately reflect the existing conditions of the transportation system within Eugene, it is not meant to serve as an all-encompassing and comprehensive final assessment. Rather, the document is meant to serve as a starting point for discussion by the broader community, and will be used to help inform the development of the Eugene TSP (TSP). The memorandum is organized as follows:

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Study Area

The study area for the Eugene TSP is largely comprised of the existing Eugene/Springfield Urban Growth Boundary (UGB) west of Interstate 5, and extends to include the Eugene Airport. The study area is illustrated in Figure 1. In addition, the existing conditions analysis considers areas outside the direct study area (e.g., the City of Springfield, the City of Coburg) to the extent that they affect travel patterns and transportation-related needs for the City of Eugene.

Land Use

The City of Eugene's zoning code identifies the types of development and land uses that are currently allowed within a designated area. The City's comprehensive plan provides a long-term vision for growth in the area and guides policy decisions within a city. The City of Eugene is currently updating its comprehensive plan through the *Envision Eugene* process (underway).

Metropolitan areas in Oregon are required to develop a regional transportation system plan. *TransPlan*, the current regional and local TSP adopted in 2001 (amended in 2002), introduced land use policies to create mixed-use development areas. These areas would have a mixture of land uses, supporting the use of alternative modes of transportation.

Figure 2 displays the land use designations outlined in the Eugene-Springfield's Metropolitan Area General Plan (Metro Plan), the current comprehensive plan for the Eugene-Springfield metro area and Figure 3 displays the current zoning throughout the study area. Figures 4a-4e display the potential mixed-use development areas identified in *TransPlan.*

General Overview of Existing Land Use

This section provides a general overview of existing and allowed land uses in the City of Eugene. It is intended not to be comprehensive but to inform the TSP team in identifying how current land uses affect current transportation conditions. For this effort, the City of Eugene was divided into five (5) geographic areas. The current zoning designations and land use patterns were reviewed, as well as activity areas identified, within the study area. Land use patterns are compared with the zoning code to identify areas where higher than expected traffic volumes or different traffic patterns may occur. The rest of this section is organized by the following five areas (shown in Figures 4a-4e):

- **Central Eugene:** This area comprises the central business district and inner Eugene neighborhoods. It is bounded by the Willamette River to the north, Laurel Hill Valley to the east, the south hills to the south, and Chambers St. to the west.
- **South Hills:** This area comprises the hills rising up to the south and east of Eugene.
- **West Eugene/Bethel/Danebo:** This area includes neighborhoods north of the West Eugene Wetlands and west of Chambers Street and Northwest Expressway.
- **NE Eugene – Willakenzie/Ferry Street Bridge:** This area is bounded by the Willamette River to the west and south, and by I-5/Springfield to the east.

- **River Road/Santa Clara:** This area is bounded by Northwest Expressway to the west and the Willamette River to the east.

These areas were initially developed for the Eugene Pedestrian and Bicycle Master Plan analysis (November 2010). They were used for the land use analysis for this planning effort as they follow general land use patterns throughout the city and establish consistency between transportation planning efforts.

Mixed Use Development Areas

TransPlan, the current regional and local TSP adopted in 2001 (amended in 2002), introduced a policy of nodal development in the Eugene/Springfield metropolitan area. The plan states that “nodal development supports mixed land uses in designated areas to increase opportunities for people to live near their jobs and to make shorter trips for a variety of purposes. Nodal development also supports the use of alternative modes of transportation.”(Chapter 2, Land Use Policy #1) *TransPlan* identified fifty-three potential nodal areas (also known as Mixed Use Centers) in the Eugene-Springfield area, thirty-nine of which are located within Eugene.

Of the thirty-nine mixed use development areas in Eugene, seven were visited as part of the existing conditions land use analysis and are described in this section. These areas were chosen for the purposes of focusing the analysis on areas that have differing land uses and activity generation, and were selected in coordination with City of Eugene staff. Each mixed use development area will be described within the geographic area subsection in which it is located. These development areas are displayed on Figures 4a - 4e.

Activity Areas

Throughout Eugene there are several major destinations that attract people by personal vehicle, bicycle, and foot, and therefore, generate a significant amount of traffic. These uses attract both visitors from outside of Eugene and residents within Eugene. Major activity centers will be noted in the geographic area subsections and are also shown in Figures 4a – 4e. The list of activity areas presented in this section is not intended to be exhaustive but instead will provide an indication of many of the areas where activity occurs in the City of Eugene.

Central Eugene

Central Eugene is comprised of the central downtown area, the University of Oregon, and the surrounding neighborhoods (see Figure 4a). This area of the city serves as a center for many civic, commercial, and sporting activities within the City of Eugene and is zoned to accommodate these uses. The University had an enrollment of more than 22,000 in 2009. With eight residence hall complexes and five apartment/home communities for only about 4,100 students, most students and employees must commute to this area. Other major attractors within Central Eugene include City Hall (8^{th} Avenue and Pearl Street), Lane Transit District’s Eugene Station (10^{th} Avenue and Willamette Street), Skinner Butte Park (along the Willamette River between Lincoln and High streets), and Hilyard Community Center/Amazon Community Center & Pool (Hilyard Street between 24^{th} Avenue and 28^{th} Avenue).

Central Eugene also hosts many events that attract regional attendance. Large sporting events for the University of Oregon are held in Central Eugene at Hayward Field (on the

University of Oregon campus), MacArthur Court (also on the University of Oregon campus), and Matthew Knight Arena (13th Avenue and Franklin Boulevard – opened December 2010) and cultural events are held at the Hult Center (7th Avenue and Willamette Street) and Lane County Fairgrounds (13th Avenue and Monroe Street). Other community events that occurred in the downtown core throughout 2010 summer included the Saturday Market crafts and food fair; a Tuesday, Thursday, and Saturday Farmer's Market; the Oregon Bach Festival; and many summer in the City events. Summer in the City is a series of outdoor events organized by the City and sponsored by community partners. 2010 Summer in the City events included the Eugene Celebration Raise the Roof; the KOOL 99.1 Dance Party & Theatre Teasers; No Shame Theatre; bicycle and walking breakfasts; and outdoor concerts.

The most common zoning designations within Central Eugene are low-, medium-, high-, and limited high-density residential; community and major commercial; and public land. This variety and the distribution of designations facilitate dense commercial and residential development in the downtown core area and residential development and parks throughout the remaining area. Land use throughout the Central Eugene area is primarily single- and multi-family residential, retail, services, offices, government, parks, and educational facilities. Other common uses include religious or non-profit uses and vacant land.

Central Eugene also contains six "special area" zones (SW Whiteaker Special Area zone, SF Fifth Avenue Special Area zone, S-DW Downtown Westside Special Area zone, S-JW Jefferson Westside Special Area zone, Riverfront Park Special Area zone, and S-HB Blair Boulevard Historic Commercial Special Area zone). These areas have special zoning requirements such as design requirements.

Land uses and zoning are generally in conformance with each other in the Central Eugene area. A few land uses were identified that may create higher traffic flows or different traffic patterns than would be expected with the uses that are normally occur within the designated zone. For example, multi-family housing was identified in a few locations zoned as major commercial. Although multi-family development is encouraged by city policy in this zone and allowed by the commercial zoning, these land uses may create different transportation system demands than commercial uses. Retail and service uses were also identified in areas zoned for industrial uses. These uses are allowed, with a conditional use permit, in an industrial zone but are noted as they may impact traffic patterns or volumes.

Visited Mixed Use Development Area #1 – 13th Avenue from Ferry to Kincaid

This area is located along 13th Avenue from Ferry Street to its terminus at the University of Oregon. The land uses within this area are primarily retail and service, although the development density and character varies throughout the area. The block between Alder and Kincaid streets provides a retail center that is friendly to pedestrians with wide sidewalks, pedestrian lighting and continuous storefronts. The volume of bicyclists and automobiles, coupled with a narrow street and

13th Avenue looking west.

parallel parking, create a less than optimal on-street environment. A number of University of Oregon related stores, including the University of Oregon bookstore, and businesses oriented towards University clientele are located on this block.

The other blocks in this mixed use development area are also primarily retail and service businesses. Between Ferry and Patterson streets, the development pattern is primarily low-density commercial, with many of the businesses being located in converted residential buildings. Sacred Heart Medical Center, University District is located on the corner of 13th Avenue and Hilyard Street. New construction was observed across the street from the hospital during a site visit.

This focus area is zoned for commercial uses and has a mix of low- to mid-density commercial, parking garages, medical related offices, and the hospital. Current land uses appear to be generally consistent with the designations in the 13th Avenue from Ferry to Kincaid focus area.

Visited Mixed Use Development Area #2 – Walnut Station

Walnut Station is located along Franklin Boulevard from Villard Street to Walnut Street and along Walnut Street from 15th Avenue to the Willamette River. This area is located adjacent to the Walnut Station EmX bus rapid transit (BRT) station and is zoned public land and commercial. The area currently has a mix of commercial uses (such as hotels/lodging, a grocery store, financial and automobile services, a convenience store, food service/restaurants, offices) and vacant buildings with large parking lots. The commercial establishments are focused along Franklin Boulevard. Two vacant buildings are located at the corner of Walnut Street and Franklin Boulevard. The parking lots for these buildings are currently used by the University of Oregon. Two hotels and an office building are located north of Franklin Boulevard along Walnut Street. The City of Eugene recently adopted a form-based code for the Walnut Station area to encourage transit and pedestrian activity through mixed use as this area is redeveloped. The form-based code provisions allow for a wide variety of uses in this zone. As a result, the majority of the existing uses there are consistent with those allowed by the new code provisions although the current density and intensity of development is much lower than envisioned.

Vacant car dealership being used as University of Oregon parking lot at Walnut Station node.

Woodfield Station on 29th Avenue, west of Willamette Street.

Visited Mixed Use Development Area #3 – Woodfield Station

Woodfield Station is located on the border of the Central Eugene and South Hills sectors at the intersection of 29th Avenue and Willamette Street. This focus area extends 2 blocks to the west along 29th Avenue and provides a concentration of service and retail businesses in a portion of the City that is primarily residential in character. It is zoned for commercial development and includes commercial (such as food service/restaurants, financial and automobile services, grocery stores, and retail) and residential uses. The land uses in this focus area appear to conform to the current zoning.

Other activity Areas

In addition to the activity areas that characterize Central Eugene and the visited mixed use development areas, many other activity areas generate auto, pedestrian, and bicycle traffic. These other areas include:

- Amtrak Station (5th Avenue and Willamette Street)
- Eugene Downtown Public Library (10th Avenue and Olive Street)
- Greyhound Bus Terminal (10th Avenue and Pearl Street)
- PeaceHealth Medical Group - Downtown Eugene Clinic (11th Avenue and Willamette Street)
- South Eugene High School (19th Avenue between Amazon Parkway and Patterson Street)
- Westmoreland Community Center/ Arts and Technology Academy at Jefferson (Fillmore Street between 19th and 24th Avenues)
- Northwest Christian University (11th Avenue and Alder Street)
- 5th Street Market (5th Avenue between Pearl and High Streets)
- Sundance Market (24th Avenue and Hilyard Street)
- Albertsons and Bi-Mart (18th Avenue and Chambers)

South Hills

The South Hills area includes the hills to the south of Eugene (see Figure 4b). The character of the South Hills area is quite different from Central Eugene. This area is less commercial and has predominately low-density development and residential uses. In addition to single-family residential homes, other common uses within the South Hills include: multi-family residential; general services; religious or non-profit uses; recreation/parks; educational facilities; some agriculture; and vacant land. Agricultural zoned land within the study area is a remnant of previous county zoning and is a holding zone until development is proposed. This land is not designated as agricultural land, per the state definition related to buildable land supply, and can be urbanized.

The zoning designations and land uses in this area are generally in conformance with each other. The primary zoning designation within the South Hills is low-density residential. This concentration of single-family homes and the residential character of this area is consistent with the residential designation. Other prominent zoning designations include commercial; campus industrial; natural resource; agriculture; and public land. Campus industrial and natural resource lands are concentrated on the western border of this area.

In a few areas within the South Hills, existing land uses differ from the current zoning designations. For example, small areas exist that are zoned as medium- or high-density residential but are currently being used by services. Also, a portion of the campus industrial area is being used by services.

Single-family and multi-family residences are present on some areas within the study area zoned agriculture. Although one single-family dwelling is allowed per lot in this zone, these residential uses could result in higher levels of traffic than expected in these areas.

Other Activity Areas

Within the South Hills geographic area, Winston Churchill High School (18th Avenue and Bailey Hill Road) and Edgewood Center are areas that generate bicycle, pedestrian, and automobile traffic.

West Eugene/Bethel/Danebo

The West Eugene/Bethel/Danebo area (see Figure 4c) is primarily comprised of low-density development and open spaces. Low-density commercial development is located predominantly along major corridors throughout West Eugene/Bethel/Danebo and serve as attractors to the area. Some major shopping centers are concentrated along West 11th Avenue (Market Place West, Seneca Station-Fred Meyer and Lowe's, and WalMart/Target). Barger Crossing (the intersection of Barger Drive, Cubit Street, and Echo Hollow Road), Gilbert Center (Highway 99 and Fairfield Avenue) and Jerry's Home Improvement (Highway 99 north of Randy Papé Beltline) are other major attractors to the area.

When compared to the other geographic areas in Eugene, this area has some unique land use characteristics. For example, this area has more land used for industrial purposes than the other four Eugene geographic areas. Also, relative to the South Hills and River Road/Santa Clara areas, this area has greater amounts of land used for retail, service, and multi-family residential purposes. Although a wide variety of uses exist within this area, single-family homes are prevalent throughout a large portion of this area. Other common land uses within the West Eugene/Bethel/Danebo area include religious or non-profit uses; education; agriculture; park; and vacant land.

Shopping center on W 11th Avenue.

Zoning designations and land uses are generally in conformance in the West Eugene/Bethel/Danebo area. The six major designations within this area include: low-density residential; heavy, light medium, and campus industrial; commercial; and natural resources. Other designations with substantial land in this area include: medium-density residential; public land; and neighborhood commercial. Royal Node and Elmira Road special area zones are also located within West Eugene/Bethel/Danebo.

In a few select locations in the West Eugene/Bethel/Danebo area, land use patterns were identified that may result in different traffic patterns than would be expected from the common uses allowed in the zoning code. Land use patterns noted for their potential to create traffic patterns different expected include: land zoned as industrial and used for retail, religious or non-profit organizations, or service purposes; multi-family residences on land zoned community commercial along Highway 99, services located on land that is zoned limited high-density residential and single-family residences on land zoned agriculture. Although these uses may be allowed outright or with a conditional use permit, their existence in these zones is noted as higher levels of traffic or different traffic patterns may occur.

Visited Mixed Use Development#4 – Royal West Shopping Center

Royal West Shopping Center is located at the intersection of Danebo Avenue and Royal Avenue and provides access to commercial businesses in a primarily residential neighborhood. The shopping center includes a grocery store, financial services, retail stores, food service/restaurants, and convenience stores. Both single-family and multi-family residential uses are located adjacent to the shopping center. The area is zoned for low- and medium-density residential as well as neighborhood and community commercial. The current land uses conform to these designations.

Figure 13: Albertsons at Royal West Shopping Center.

Other Activity Areas

In addition to the major shopping areas that are prevalent in West Eugene/Bethel/Danebo, this area contains some other areas that may generate automobile, bicycle, and pedestrian trips. Other activity areas within this subarea include the Peterson Barn Community Center (Royal Avenue and Berntzen Road) and Willamette High School/Echo Hollow Park & Pool/Cascade Middle School (Echo Hollow Road between Willhi Street and Dove Lane).

River Road/Santa Clara

The River Road/Santa Clara area of Eugene (see Figure 4d) consists primarily of low-density residential development, with services and retail uses along River Road. The concentration of services and retail at shopping centers along the River Road corridor, such as Riviera Center and Santa Clara Square, makes it a major attractor within the area. The River Road/Santa Clara area is unique within the study area because a large amount of the land is located outside of the City of Eugene but inside the UGB. Concentrations of agricultural zoning are also located north of Randy Papé Beltline and outside of the City boundary but inside of the UGB. Land uses appear to generally follow zoning designations in the River Road/Santa Clara area.


Santa Clara neighborhood.

Other Activity Areas

The River Road/Santa Clara area of Eugene also contains North Eugene High School (River Road between Silver Lane and Kourt Drive), which serves as an activity area and generates bicycle, pedestrian and automobile traffic.

Northeast Eugene – Willakenzie/Ferry Street Bridge

Autzen Stadium.

Northeast Eugene (Figure 4e) has a wide variety of land uses and major attractors. Alton Baker Park, Autzen Stadium, and PK Park are located along the Willamette River and at the southern border of the area. Autzen Stadium is a major attractor during University of Oregon football game days and PK Park is visited for the University of Oregon and Eugene Emeralds baseball games. Alton Baker Park is a major attractor as the Science Factory Children's Museum and Planetarium, Cuthbert Amphitheater and two boat ramps are located within its boundaries. One boat ramp is located west of the Autzen Pedestrian and Bicycle Bridge while the other ramp is located in the far eastern portion of the park. Northeast Eugene also has concentrations of service and retail businesses along Coburg Road, Green Acres Road/Crescent Avenue, and Valley River Drive. Major shopping centers along these roads, such as Delta Oaks Center, Valley River Center, and Oakway Center serve as attractors to Northeast Eugene.

Residential neighborhoods are located adjacent to these major corridors and shopping attractors. Many of these neighborhoods are primarily single-family homes while some have concentrations of multi-family residences. Other frequent land uses in the area include: education, religious or non-profit uses; and utilities. Agricultural uses also occur in multiple large areas north of Randy Papé Beltline Highway.

The land uses found in Northeast Eugene generally conform to the zoning designations in this portion of the study area. A large portion of Northeast Eugene is zoned for low-density residential uses but the area also has concentrations of medium-density and high-density residential; commercial; general office; campus industrial; agriculture; and public land. The areas zoned agriculture are located near the edge of the study area and are likely remnants of county zoning. The commercial and higher density residential, are often concentrated in areas or along corridors creating higher activity locations, such as the commercial shopping centers along Coburg Road. A concentration of high-density residential zoning also exists south of I-105, adjacent to the Chase Node Special Area zone.

Visited Mixed Use Development Area #5 – Crescent Village

Crescent Village is located in the area east of the intersection of Coburg Road and Crescent Avenue. A variety of land uses are present in this development area creating a mixed-use center with commercial businesses (such as food service/restaurants, convenience businesses, medical services, grocery stores, retail, and offices) and residential buildings. A large exercise facility is located directly west of this node.

Within the development area, residential uses are concentrated east of Shadowview Drive and north of Crescent Avenue and in some portions of the area south of Crescent Avenue. A mixed use development has recently been constructed along Shadowview Drive north of Crescent Avenue This area has a main street where buildings have space for ground floor retail and apartments and offices above. This main street also accommodates on street parking and off-street parking is located behind the buildings. The area south of Crescent Avenue has multi-family residential complexes and areas with low-density commercial uses .

Multi-family housing at Crescent Village.

In the newly constructed main street area, along Shadowview Drive, more walking or bicycle trips will likely occur as the uses are very integrated in that portion of the Crescent Village. In the other portion of the area, individuals may still need to drive between uses as the uses are separated and commercial buildings follow a low-density pattern. This development area is zoned for low, medium and high-density residential, community and neighborhood commercial, general office, and campus industrial uses. Current land uses generally conform with these designations.

Visited Mixed Use Development #6 – Chase Gardens

Chase Gardens is located in the area north of the Garden Way - Martin Luther King Jr. Boulevard intersection. This development area includes medical office complexes with substantial parking lots, multi-family housing, an unimproved park, undeveloped commercial properties, and undeveloped open space along the Q street Channel. Some assisted living facilities are located in this area as well as housing used mostly by university students. Along Commons Drive is a small convenience market and other retail, as well as a restaurant.

The development within this area is all relatively new construction and follows the requirements outlined in the Chase Node Special Area zoning code. The purpose of this zone is to facilitate the implementation of nodal development in this area and identifies specific design requirements to meet these goals. However, the introduction of significant medical facilities within the commercial area, rather than more neighborhood-serving businesses, may contribute to more destination automobile trips to the area than originally planned.

Multi-family housing at the Chase Gardens node.

Autzen Stadium is also located close to this area as well as off-street bicycle and pedestrian connections to the University of Oregon. These facilities have made it attractive for both students and the elderly to reside in the area.

Visited Mixed Use Development #7 – Oakway Center

Oakway Center is located at the intersection of Coburg and Oakway roads. This shopping center includes a grocery store and a variety of retail stores. Pedestrian friendly elements, such as storefront awnings and raised crosswalks, are located throughout the shopping center. The uses within the center are consistent with the community commercial zoning designation.

Retail stores at Oakway Center.

Other Activity Areas

Northeast Eugene contains the Sheldon Branch Library, the Sheldon Community Center, the Sheldon Park Pool, and Henry D. Sheldon High School (all located along Coburg Road between Young and Jeppsen Acres Roads). For analysis purposes this is considered as one general activity area. Costco, located at Chad Drive and Coburg Road, is another activity area within Northeast Eugene.

Demographic Analysis

As of the 2000 US Decennial Census (2000 Census), total population within Eugene was 137,231 persons, with an average household size of 2.27 people. Portland State University's Population Research Center, which serves as the State's Census office, estimates Eugene's 2009 population as 157,100 persons as of July 2009.

The American Community Survey is conducted by the U.S. Census Bureau to collect more timely demographic information than the decennial Census. This survey is used for the demographic analysis as it produces the best available data. Table 1 provides a snapshot of demographic statistics, based on the 2008 American Community Survey.

The American Community Survey shows that in 2008, the percentage of individuals in the labor force, percentage of individuals who speak a language other than English at home, and percent was higher in Eugene than in Lane County but lower than the State of Oregon. This data also shows that a lower percentage of individuals aged 65 years or older reside in the City of Eugene than Lane County but a higher percentage than in the State of Oregon. The 2008 ACS also shows that the percentage of individuals below the poverty line was higher in the City of Eugene than in Lane County or the State of Oregon.

TABLE 1
Select 2008 American Community Survey Demographic Characteristics for Eugene, OR

Demographic Characteristics	Percent of Total Population (%)		
	City of Eugene	Lane County	Oregon
In labor force (population 16 years and over)	64.3	63.5	65.3
Persons aged 65 years and older	13.8	14.5	13.3
Speak a language other than English at home	12.4	10.1	14.0

TABLE 1

Select 2008 American Community Survey Demographic Characteristics for Eugene, OR

Demographic Characteristics	Percent of Total Population (%)		
	City of Eugene	Lane County	Oregon
Individuals below poverty level	20.8	15.8	13.6
Minority population	17.1	14.4	20.1

Source: 2008 American Community Survey, US Census Bureau

Rates of individuals with the presence of physical disabilities were not released from the 2008 American Community Survey. The 2000 Census provides the best available demographic data about this population. In 2000, 16.4% of the population in the City of Eugene had the presence of a disability. This rate was lower than rate in Lane County (19.0%) and Oregon (18.8%).

Commute and Mode Characteristics

Data from the American Community Survey was used to identify commute and mode split characteristics. Data for the City of Eugene was compared to findings for the City of Salem, Portland, and Bellingham, Washington to provide a comparison between similar cities. The City of Portland was chosen for comparison as it is another major city in Oregon and with similar alternative transportation values as Eugene. Salem was chosen as it has a similar size population as Eugene. Bellingham, Washington was also chosen for comparison as it has a significant university population. Although Bellingham is smaller than Eugene, it was determined that comparing their commuting patterns would provide valuable information.

Mean travel time to work can be used as an indicator for congestion levels and land use patterns. The 2006-2008 American Community Survey provides the best available data about mean travel time for each of these cities. This data shows that the mean travel time to work in the City of Eugene was 16.9 minutes. This is lower than the mean travel time to work of residents in the City of Portland (24.1 minutes), the City of Salem (22.3 minutes) and, and the City of Bellingham (17.5 minutes).

According to the 2008 American Community Survey, the primary mode choice for commuting in the City of Eugene was the single occupancy vehicle (64.4 percent), with 9.5 percent carpooling, 7.1 percent using public transportation, 7.2 walking, and 8.7 using a taxicab, motorcycle, bicycle, or other means[1] percent bicycling, and 6.1 percent walking (Table 2). The percentage of commuters walking to work was higher in the City of Eugene than in the City of Salem, Portland, and Bellingham. The single occupancy vehicle and carpool rates were lower within the City of Eugene than in Salem, Oregon and Bellingham, Washington but, when compared to the City of Portland, was higher in both of these categories. The rate of individuals using public transportation to travel to work was higher in the City of Eugene than the City of Salem, almost equal to the City of Bellingham, and

[1] The 2008 ACS provides data on the use of taxicabs, motorcycles, bicycles , and other means as a single category for all of the cities in the table other than the City of Portland. For the City of Portland individual statistics are provided for each of these mode choices.

lower than the City of Portland. The large student population within the City of Eugene likely facilitates the high rates of alternative transportation use.

TABLE 2
2008 American Community Survey Commute Mode Split for Eugene, OR

Mode Choice	Percent of Total Population (%)			
	City of Eugene	Salem, OR	Portland, OR	Bellingham, WA
Single Occupancy Vehicle	64.4	75.0	60.5	65.9
Carpool	9.5	11.2	8.4	10.8
Public Transportation	7.1	3.8	12.6	7.2
Walked	7.2	3.0	5.3	6.6
Taxicab, motorcycle, bicycle, or other means	8.7	2.5	6.8	4.9

Source: 2008 American Community Survey, US Census Bureau

Policy Context

This section provides an overview of federal, state, regional, and local documents that comprise the policy framework for transportation planning in the City of Eugene. A variety of documents were reviewed to identify policies most relevant to the Eugene Transportation System Plan. Although each document reviewed contains many policies, only the policies and information most pertinent to development of the TSP are summarized to help focus this work. New policies considered for inclusion in the Eugene TSP are expected to be consistent with the currently adopted policies reviewed here. The following documents were reviewed for policies and regulations applicable to the city's TSP.

State/ODOT Plans, Policies and Relevant Documents

- Oregon Land Use Planning Goals
- Transportation Planning Rule (OAR 660-12)
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Bicycle and Pedestrian Plan
- Oregon Public Transportation Plan
- Access Management Rule (OAR 734-051)
- Freight Moves the Oregon Economy
- ODOT Highway Design Manual
- State Transportation Improvement Program (STIP)
- Oregon Rail Plan

- Oregon Aviation Plan
- Oregon Transportation Safety Action Plan
- Governor's Executive Orders

Regional Plans, Policies and Relevant Documents

- Lane County TSP
- Eugene-Springfield Metropolitan Area General Plan (Metro Plan)
- TransPlan
- Central Lane Metropolitan Planning Organization Regional Transportation Plan
- Lane Transit District Capital Improvements Program

Local Plans, Policies and Relevant Documents

- Eugene Land Use Code
- Eugene Growth Management Policies
- Central Area Transportation Study
- Eugene Pedestrian & Bicycle Strategic Plan
- Eugene Arterial and Collector Street Plan
- Eugene Parking Analysis, Final Report
- Eugene Capital Improvements Program
- West Eugene Collaborative Recommendations

Statewide Plans, Policies and Relevant Documents

Statewide Planning Goals

Statewide Planning Goal 1: Citizen Involvement

Goal 1, Citizen Involvement, requires that jurisdictions develop, adopt, and update comprehensive plans to provide the "opportunity for citizens to be involved in all phases of the planning process." According to the goal, the planning process includes the preparation of plans and implementation measures, plan and implementation measure adoption, and minor and major amendments to adopted plans. Technical information associated with the planning process must be available to citizens in an understandable form, and accessible ways of providing feedback must also be available.

Development of the Eugene TSP will need to be consistent with the citizen involvement goal. As part of the public involvement element, Eugene and ODOT will identify individuals to serve on one of two advisory boards – a Technical Advisory Committee (TAC) or a Department Advisory Committee (DAC). The TAC will consist of informed agency stakeholders who will provide technical input at key milestones during the TSP development process. The DAC will consist of business owners, residents, and community leaders who will provide advice to the project team at key milestones. Public open houses, briefings, and/or other meetings will also be held at key points to keep the community informed and provide an opportunity for input. Stakeholder interviews will also be conducted and information about the project will be available on a project website. The official adoption process for the TSP will also require public notification and hearings before the Planning Commission and City Council. Those hearings provide opportunities for citizens to give written and oral comments that become part of the record.

Statewide Planning Goal 2: Land Use Planning

Goal 2, Land Use Planning, requires that a land use planning process and policy framework be established as a basis for all decisions and actions relating to the use of land. Goal 2 emphasizes the importance of planning coordination between those local governments and state agencies "which have programs, land ownerships, or responsibilities within the area included in the plan." In the case of the Eugene TSP, Goal 2 requires coordination between the cities of Eugene and Springfield, Lane County, LCOG, Lane Transit District (LTD) and ODOT; each have land use planning and transportation facility or service responsibilities in the planning area.

Statewide Planning Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces

The purpose of Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces, is to "protect natural resources and conserve scenic and historic areas and open spaces." This goal requires local governments to inventory natural and cultural resources in their jurisdictions and to develop and adopt programs to conserve and protect them. Amongst the resources to be inventoried are: riparian corridors, wetlands, federal Wild and Scenic Rivers, state Scenic Waterways, groundwater resources, wildlife habitat (e.g. upland habitat in addition to riparian habitat), natural areas, wilderness areas, open spaces, scenic views and sites, mineral and aggregate resource areas, energy sources, and historic and cultural areas. Techniques for implementing conservation and protection of these resources include fee acquisition, development rights acquisition, easements, preferential tax assessment, clustered development and other land use regulations.

Within the Eugene TSP planning area, there are some identified Goal 5 (and Goal 6, see below) resources, the most significant of which are the riparian areas surrounding the Willamette River. Goal 15 addresses the Willamette River Greenway in more detail and is reviewed in a subsequent section of this memorandum.

Statewide Planning Goal 6: Air, Water and Land Resources Quality

Jurisdictions must comply with state and federal environmental regulations. Goal 6, Air, Water and Land Resources Quality, calls for jurisdictions to "maintain and improve the quality of the air, water and land resources of the state." Waste and process discharges within a jurisdiction may not exceed the carrying capacity of the local air shed and water shed in the long-term, nor degrade the quality or otherwise threaten the availability of the air shed and water shed services.

Water resources, including the Willamette and McKenzie rivers and the metropolitan network of waterways and associated creeks and drainage ways are important features in the Eugene-Springfield metropolitan area and have the potential to be impacted by transportation decisions. This goal and corresponding policies in the area's comprehensive plan (Metro Plan) must be taken into account in developing and selecting preferred alternatives and implementation measures in the Eugene TSP.

Statewide Planning Goal 7: Areas Subject to Natural Hazards

Goal 7, Areas Subject to Natural Hazards, was adopted to "protect people and property from natural hazards." The goal requires local jurisdictions to adopt comprehensive plans, including inventories, policies, and implementation measures, for identifying natural hazard areas and prohibiting or limiting development in these areas. Although local jurisdictions may define others, the goal defines natural hazard areas as those subject to floods, tsunamis, landslides, coastal erosion, earthquakes and related activities, and wildfires.

Similar to Goal 5 resources, natural hazards in the planning area will need to be considered as part of the TSP development process. In the city of Eugene, stream flooding and steep slopes constitute the primary natural hazards.

Statewide Planning Goal 8: Recreational Needs

Goal 8, Recreational Needs, was adopted to "satisfy the recreational needs of the citizens of the state and visitors, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts." The goal requires that local government conduct comprehensive recreational planning by identifying recreational needs, planning for facilities in sufficient quantities and locations to meet these needs, and working with private companies and other partners in meeting these needs. This goal will apply to the Eugene TSP insofar as multi-use trails and other paths function as both transportation facilities and recreational opportunities.

Statewide Planning Goal 9: Economic Development

The intent of Goal 9, Economic Development, is to "provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens." Local comprehensive plans and policies must support this goal and should include an assessment of the jurisdiction's existing economic conditions and comparative advantages. Plans should also include policies that address economic development and development opportunities, provide an adequate supply of sites with characteristics suitable for a variety of employment and economic development, and limit development around identified industrial sites to that which is compatible with uses allowed on the sites. The goal suggests implementation measures such as tax incentives and disincentives, preferential assessments, land use regulations, capital improvement planning and programming, and fee or partial fee acquisition.

The Eugene TSP must demonstrate the ways in which the preferred alternatives and projects selected for the TSP support this goal and the economic development policies adopted in the city's comprehensive plan.

Statewide Planning Goal 10: Housing

Goal 10, Housing, forms the basis for requiring a 20-year supply of land for housing – among other uses – within a city's or metropolitan planning organization's Urban Growth Boundary (UGB). The goal states that "plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density." Any areas where increased housing density is planned within the existing UGB through either re-designations of lands or new regulations must have adequate transportation facilities, consistent with Goal 12. UGB expansions intended to provide sufficient amounts and types of housing must be coordinated with transportation planning; this relationship is also addressed by Goal 11, Public Facilities.

Statewide Planning Goal 11: Public Facilities

Public facilities that are named in Statewide Planning Goal 11 include water, sewer, solid waste, and transportation facilities. Goal 11 requires the preparation of public facility plans for jurisdictions with populations greater 2,500. The public facility plan or plans are supporting documents to the jurisdiction's comprehensive plan. As such, a TSP effectively serves as a jurisdiction's public facility plan for transportation, although a TSP becomes an element of the comprehensive plan, not just a supporting document.

Transportation system planning is addressed further by Statewide Planning Goal 12 and the Transportation Planning Rule (TPR, described in the following section). However, Goal 11 is important because it calls for coordination between various public facility providers and between state agencies and jurisdictions to establish funding for water, sewer, solid waste, and transportation facility planning and development. The goal also highlights the importance of not using public facilities to inappropriately or prematurely urbanize an area or allowing public facilities to influence planning for the density and types of development.

Statewide Planning Goal 12: Transportation

Statewide Planning Goal 12, Transportation, requires cities, counties, metropolitan planning organizations, and ODOT to provide and encourage a safe, convenient, and economic transportation system. This is accomplished through development of transportation system plans based on inventories of local, regional, and state transportation needs.

Goal 12 is implemented through OAR 660, Division 12, the Transportation Planning Rule (TPR). The TPR contains numerous requirements that regulate transportation planning and project development. Of particular relevance to the Eugene TSP are sections 660-012-0020 through -0045. Those sections establish the requirement for all jurisdictions to prepare a Transportation System Plan, outline elements that must be included in the Transportation System Plan, and provide guidance for implementation of a Transportation System Plan. The TPR requires local governments to adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors and sites for their identified functions." This policy is achieved through a variety of measures, including:

- Access control measures that are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;
- Standards to protect future operations of roads;

- A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
- A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
- Regulations to provide notice to ODOT of land use applications that require public hearings, involve land divisions, or affect private access to roads; and
- Regulations assuring that amendments to land use designations, densities and design standards are consistent with the functions, capacities and performance standards of facilities identified in the Transportation System Plan. (See also OAR 660-012-0060.)

Prior to adoption, Eugene's TSP and land use code will be reviewed for consistency with the TPR and the state's access management requirements.

Statewide Planning Goal 13: Energy Conservation

The objective of Goal 13 is to conserve energy. This goal requires land and land uses to "be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles." While land use planning can support transportation alternatives and measures to conserve energy, provisions for viable transportation alternatives and energy-conserving measures must also be included in the city's Transportation System Plan.

Statewide Planning Goal 14: Urbanization

Goal 14 regulates urban growth boundaries. The goal requires that establishment and change of a UGB shall be based upon, in part, consideration of the following four factors:

- Efficient accommodation of identified land needs;
- Orderly and economic provision of public facilities and services;
- Comparative environmental, energy, economic, and social consequences;
- Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

The orderly and economic provision of transportation facilities in cities is regulated largely by the TPR, which is summarized in a subsequent section of this memorandum.

Statewide Planning Goal 15: Willamette River Greenway

Goal 15 serves to "protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway." The Greenway Program is composed of coordinated state and local plans for protection of the resource through ordinances, rules, regulations, permits, grants as well as acquisition and development of property. This goal requires an inventory of resources, uses and rights associated with the river in order to determine which lands are suitable or necessary for inclusion into the Greenway Program. The goal also establishes implementation measures that must be included in local plans and regulations to ensure a balance of appropriate uses within the Greenway. Cities and counties in which the Greenway is located must show the location and boundaries of the Greenway on their comprehensive plans. The Metro Plan (Eugene's comprehensive plan, reviewed in a subsequent section of this memorandum) shows the Greenway locations within the Eugene-

Springfield area. The Eugene TSP process will need to consider potential impacts to the Greenway when evaluating alternatives and policies.

Transportation Planning Rule (OAR 660-012) (Amended through 2006)

The TPR implements Oregon Statewide Planning Goal 12, which supports transportation facilities and systems that are safe, efficient, and cost-effective and are designed to reduce automobile reliance. The objective of the TPR is to reduce air pollution, congestion, and other livability problems, and to maximize investments made in the transportation system. Specific provisions of the rules are described in the following sections. Eugene's new TSP will need to be consistent with all of these provisions.

660-012-0015 Preparation and Coordination of Transportation System Plans

This section of the TPR establishes the requirement for MPOs and cities to prepare transportation system plans within their planning jurisdiction and to adopt the TSP as an element of their comprehensive plan. This section also requires that development of the TSP be coordinated with affected state and federal agencies, local governments, special districts, and private providers of transportation services

660-012-0016 Coordination with Federally-Required Regional Transportation Plans in Metropolitan Areas

Section -0016 requires that local governments prepare, adopt, amend and update transportation system plans in coordination with regional transportation plans prepared by MPOs. When an MPO adopts or amends a regional transportation plan, the affected local governments must review the regional plan and either make findings that the regional plan is consistent with the local plan or adopt amendments to the local plan to make them consistent.

660-012-0020 – Elements of Transportation System Plans

All jurisdictions in Oregon must prepare a TSP unless, for areas of small population, exempted by the Director of the Department of Land Conservation and Development (DLCD). Section –0020 of the TPR specifies what is required in a TSP including the following elements:

- Inventory and assessment of existing conditions
- Forecasts of transportation needs
- Road system plan
- Public transportation plan
- Bicycle and pedestrian plan
- Air, rail, water, and pipeline plans as applicable
- Transportation system and demand management plans
- A parking plan
- Financing program
- Implementing policies and land use regulations.

660-012-0025 Complying with the Goals in Preparing Transportation System Plans

The primary relevance of this section is that it requires that findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations be developed in conjunction with the adoption of a transportation system plan.

660-012-0030 Determination of Transportation Needs

Section -0030 requires that transportation system plans be developed based on an identification of transportation needs. The determination of transportation needs must be based on population and employment forecasts and distributions and must consider adopted measures to reduce reliance on the automobile.

660-012-0035 – Evaluation and Selection of Transportation System Alternatives.

Section –0035 describes standards and alternatives available to agencies weighing and selecting transportation projects, including benefits to different modes, land use alternatives, and environmental and economic impacts. For MPOs, the RTP emphasizes alternatives that increase transportation choices and reduce reliance on the automobile. The most critical piece of this section is that it requires that the analysis be based on alternatives that can "reasonably be expected to meet the identified transportation needs in a safe manner and at a reasonable cost with available technology." The following elements must be evaluated as components of systems alternatives:

- Improvements to existing facilities or services;
- New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;
- Transportation system management measures;
- Demand management measures; and
- A no-build system alternative required by the National

Metropolitan areas may also accomplish compliance with this section by demonstrating to that adopted plans and measures are likely to achieve a five percent reduction in VMT per capita over the 20-year planning period.

660-012-0040 Transportation Financing Program

Section -0040 requires that areas within a UGB containing a population greater than 2,500 persons include a transportation financing program as part of the transportation system plan. The financing program must include a list of planned transportation facilities and improvements, a general estimate of timing and cost for planned projects, and policies to guide selection of projects for funding.

660-012-0045 – Implementation of the Transportation System Plan

The TPR requires local governments to adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors and sites for their identified functions." This policy is achieved through a variety of measures described in this section.

660-012-0050 – Transportation Project Development

Section –0050 requires that transportation projects be reviewed for compliance with local and regional plans and, when applicable, undergo a NEPA environmental review process.

660-012-0060 – Plan and Land Use Regulation Amendments

Amendments made to Section –0060 in 2005 are among the most significant changes that have been made to the TPR since preparation of TransPlan. The amendments instruct local jurisdictions in how to determine whether an amendment to its adopted plans or land use regulations has a significant affect on a transportation facility.

Section –0060 specifies a category of facilities, improvements, and services that can be assumed to be "in-place" or committed and available to provide transportation capacity over a 20-year planning horizon. The TPR guides local jurisdictions in determining what transportation improvements are "reasonably likely to be provided by the end of the planning period" when considering amendments to local plans and land use regulations.

Oregon Transportation Plan (2006)

The Oregon Transportation Plan (OTP) serves as the TSP for the state. It is a policy document developed by ODOT in response to federal and state mandates for systematic planning for the future of Oregon's transportation system. The OTP is intended to meet statutory requirements (ORS 184.618(1)) to develop a state transportation policy and comprehensive long-range plan for a multi-modal transportation system that addresses economic efficiency, orderly economic development, safety, and environmental quality. The 2006 OTP emphasizes maintaining assets[2] in place, optimizing existing system performance through technology and better system integration, creating sustainable funding, and investing in strategic capacity enhancements.

The OTP's goals, policies and strategies guide the development of state multimodal, modal/topic[3] and facility plans and regional and local transportation system plans. The OTP provides the framework for prioritizing transportation improvements and funding, but it does not identify specific projects for development.[4] As required by Oregon and federal statutes, the OTP guides development and investment in the transportation system through:

- Transportation goals and policies,
- Transportation investment scenarios and an implementation framework, and
- Key initiatives to implement the vision and policies.

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[2] The OTP defines "asset management" as a "systematic process of maintaining, upgrading and operating physical assets cost-effectively. It combines engineering principles with sound business practices and economic theory, and it provides tools to facilitate a more organized, logical approach to decision-making. Asset management provides a framework for handling both short- and long-range planning."

[3] Modal or topic plans, as developed by ODOT and other state agencies, include plans for aviation, bicycle and pedestrian facilities, highways, marine ports and waterways, public transportation and rail.

[4] Projects are identified through facility plans and regional and local transportation system plans, and sometimes through modal plans.

The Implementation Framework section of the OTP describes the implementation process and how state multimodal, modal/topic plans, regional and local transportation system plans and master plans will further refine the OTP's broad policies and investment levels. The Eugene TSP will further OTP implementation by defining standards, instituting performance measures, and requiring that operational strategies be developed. As stated in the Implementation section of the OTP, requirements for regional and local Transportation System Plans are found in the Transportation Planning Rule (OAR 660-012). Regional and local Transportation System Plans must be consistent with the OTP, state multimodal, modal/topic and transportation facility plans. The modal elements of the OTP are airports, bicycle and pedestrian facilities, highways, pipelines, ports and waterways, public transportation and railroads.

1999 Oregon Highway Plan (amendments to 2010)

The Oregon Highway Plan (OHP) was created in 1999 and reaffirmed as a modal element of the 2006 OTP. The OHP defines policies and investment strategies for Oregon's state highway system. The plan contains three elements: a vision element that describes the broad goal for how the highway system should look in 20 years; a policy element that contains goals, policies, and actions to be followed by state, regional, and local jurisdictions; and a system element that includes an analysis of needs, revenues, and performance measures. It does not include projects.

The OHP addresses the following issues:

- Efficient management of the system to increase safety, preserve the system, and extend its capacity
- Increased partnerships, particularly with regional and local governments
- Links between land use and transportation
- Access management
- Links with other transportation modes
- Environmental and scenic resources

The policy element contains several policies and actions that are relevant to the Eugene Transportation System Plan, described in the following subsections.

Under Goal 1: System Definition, the following policies are applicable:

Policy 1A (State Highway Classification System)

Action 1A.1 categorizes state highways for planning and management decisions.

Within the Eugene TSP planning area, there are several identified state highways, as shown on Figure 5.

- I-5 and I-105 are designated Interstate Highways. Interstate Highways provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. Interstate Highways are major freight routes and their objective is to provide mobility.

- Highways 126 and 569 are designated as Statewide Highways. Statewide Highways typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips.
- Highway 99 is designated as a Regional Highway. Regional Highways typically provide connections and links to regional centers, Statewide or interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous-flow operation in rural areas and moderate to high-speed operations in urban and urbanizing areas.

The Eugene TSP will support the existing highway classifications and will enhance the ability of identified highways to serve in their defined functions.

Policy 1B (Land Use and Transportation)

Policy 1B, recognizes the need for coordination between state and local jurisdictions. Action 1B.7 gives special highway segment designations for specific types of land use patterns to foster compact development. The three segment designations available are Special Transportation Area, Commercial Center, and Urban Business Area. These designations may be considered in the Eugene TSP as solutions are developed.

Policy 1C (State Highway Freight System)

Policy 1C addresses the need to balance the movement of goods and services with other uses. In addition, Action 1C.4 states that the timeliness of freight movements should be considered when developing and implementing plans and projects on freight routes. Within the Eugene TSP planning area, the following roadways are designated as freight routes per the OHP:

- Interstate 5, from North UGB to South UGB
- Interstate 105/OR 126, from 6th Avenue/7th Avenue to Interstate 5
- Randy Papé Beltline, from W 11th Avenue to Interstate 5
- Oregon Route 126/ W 11th Avenue, from West UGB to Randy Papé Beltline
- Highway 99, from UGB to Randy Papé Beltline

The TSP will need to consider those designations and ensure consistency with the OHP policies on protecting the function of freight routes within the planning area.

Policy 1F (Highway Mobility Standards)

Policy 1F sets mobility standards for ensuring a reliable and acceptable level of mobility on the highway system. Action 1F.1 requires that highways operate at a certain level of mobility, depending on their location and classification. Part of this action also requires that freeway interchanges be managed to maintain safe and efficient operation of the freeway through the interchange area.

OHP Table 6 (located in Appendix A) contains a list of maximum volume to capacity ratios for peak hour operating conditions. For the highways identified in the Eugene MPO, the standard varies between 0.80 and 0.85, depending on the highway classification and whether or not the highway has a Freight Route designation. These mobility standards will serve as a gauge for determining traffic deficiencies both under current (2010) and future (2030) no build conditions.

Policy 1G (Major Improvements)

Policy 1G requires maintaining performance and improving safety by improving efficiency and management before adding capacity. Action 1G.1 directs agencies to make the fewest number of structural changes to a roadway system to address its identified needs and deficiencies through the 20-year planning horizon, and to protect the existing highway system before adding new facilities to it. The action ranks four priorities of projects, as follows:

- Preserving the functionality of the existing system
- Making minor improvements to improve the efficiency and capacity of the existing system
- Adding capacity to the existing system
- Building new transportation facilities

The intent of Action 1G.2 is to ensure that major improvement projects to state highway facilities have been through a planning process that involves coordination between state, regional, and local stakeholders and the public, and that there is substantial support for the proposed improvement.

Under Goal 2: System Management, the following policies are applicable:

Policy 2B (Off–System Improvements)

Policy 2B helps local jurisdictions adopt land use and access management policies. The Eugene TSP will include sections describing existing and future land use patterns, access management, and implementation measures.

Policy 2D (Public Involvement)

Public involvement in transportation and planning and project development will be a critical part of the TSP development process. A brief description of the public involvement process is provided under Statewide Planning Goal 1 in a previous section of this memorandum.

Policy 2F (Traffic Safety)

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

Under Goal 3: Access Management, the following policy is applicable:

Policy 3A (Classification and Spacing Standards)

Policy 3A sets access spacing standards for driveways and approaches to the state highway system. Action 3A.1 directs access management along state highways based on access management guidelines. Action 3A.2 relates to establishing spacing standards on state highways. Action 3A.3 calls for management of location and spacing of traffic signals along state highways.

Under Goal 4: the following policies are applicable.

Policy 4B, Action 4B.4

Action 4B.4 requires that highway projects encourage the use of alternative passenger modes to reduce local trips.

The TSP will address ways to encourage the use of alternative passenger modes to reduce trips on highways and other facilities. This would include improvement to bicycle and pedestrian facilities and consideration of transit movement along roadways.

Oregon Bicycle and Pedestrian Plan (1995)

The Oregon Bicycle and Pedestrian Plan is a modal element of the Oregon Transportation Plan that provides guidance for planning, design and operation of facilities for bicycle and pedestrian travel. The plan contains the standards and designs used on state highway projects for these facilities.

The plan includes two parts: the Policy and Action Plan and the Planning, Design, Maintenance, and Safety section. The policy section provides background information, including relevant state and federal laws, and contains the goals, actions, and implementation strategies proposed by ODOT to improve bicycle and pedestrian transportation.

The plan states that bikeway and walkway systems will be established on rural highways by widening shoulders as part of modernization projects, as well as on many preservation overlays, where warranted. For urban highways, implementation may take place:

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

The second part (“Part Two”) of the Oregon Bicycle and Pedestrian Plan governs the design of bicycle and pedestrian facilities on state-owned facilities. ODOT is currently updating the design section of the Oregon Bicycle and Pedestrian Plan. Many new pedestrian and bicycle treatments have been developed and incorporated into the update. Once adopted, the updated Oregon Bicycle and Pedestrian Plan Design Standards and Guidelines will be referenced where bicycle or pedestrian facilities are planned as part of the Transportation System Plan. In addition, the city is preparing the Eugene Pedestrian and Bicycle Master Plan. This effort, now underway, will develop a network of recommended bicycle and pedestrian improvements within Eugene. This plan will serve as the basis for the Bicycle and Pedestrian element of the Eugene TSP and will need to be consistent with the Oregon Bicycle and Pedestrian Plan as well as relevant provisions of the TPR.

Oregon Public Transportation Plan (1997)

The Oregon Public Transportation Plan serves as the transit modal plan of the Oregon Transportation Plan. The vision guiding the Public Transportation Plan is as follows:

The public transportation plan builds on and begins implementing the OTP's long-range vision for public transportation in the State of Oregon. That vision includes:

- *A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable, and safe manner that encourages people to ride*
- *A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural, and frontier (remote) areas*
- *A system that enables those who do not drive to meet their daily needs*
- *A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians.*

The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The Eugene TSP will include a Transit Element that will need to be consistent with the goals and policies of the Oregon Public Transportation Plan. Coordination with the Lane Transit District will be necessary for development of the Transit Element.

Access Management Rule (OAR 734-051)

The intention of ODOT's Access Management Rule is to balance the safety and mobility needs of travelers along state highways with the access needs of property and business owners. ODOT's rule sets guidelines for managing access to the state's highway facilities in order to maintain highway function, operations, safety, and the preservation of public investment consistent with the policies of the 1999 OHP. Access management rules allow ODOT to control the issuing of permits for access to state highways, state highway rights of way and other properties under the state's jurisdiction.

In addition, the ability to close existing approaches, set spacing standards and establish a formal appeals process in relation to access issues is identified. These rules enable the state to set policy and direct location and spacing of intersections and approaches on state highways, ensuring the relevance of the functional classification system and preserving the efficient operation of state routes.

There are two categories of standards included in the Access Management Rule – those applicable in urban areas and those applicable in rural areas. ODOT applies the urban access standards for state highways within the Eugene UGB. These standards will be used in the TSP to analyze the current access conditions, determine existing deficiencies, and provide direction for establishing a connectivity plan. These standards will be applied to all rights-of-way under the state's jurisdiction in the City of Eugene.

Freight Moves the Oregon Economy (1999)

While not a policy document, this report is useful because it summarizes a variety of information about issues and needs surrounding the transport of freight by roads, rail lines, waterways, aircraft, and pipelines. The document's stated purpose is to demonstrate the importance of freight to the Oregon economy and identify concerns and needs regarding the maintenance and enhancement of current and future mobility within the state of Oregon.

The report describes the federal National Highway System (NHS), a classification system that identifies the most significant highways for moving people and freight. The report describes the State Highway Freight System as including all of the state's interstate highways and selected other highways important to moving freight. The importance of freight movement will be a consideration during the Eugene TSP development as it pertains to access to I-5 and other designated freight routes, and how the local roadway system intersects with rail operations. In addition, per ORS 366.215, anything that could potentially be considered a reduction of capacity on a designated freight route needs to be approved by the Freight Committee.

ODOT Highway Design Manual

This manual contains standards for the design of state highways and various highway elements. Elements such as general alignments, roadway widths, and criteria for installation of turn lanes will need to be considered for evaluating the feasibility of construction and determination of right of way needs for the Transportation System Plan.

Table 10-1 in the Highway Design Manual displays the maximum allowable volume to capacity ratios for the 30th highest annual hour of traffic for use in the design of highway projects. These standards are to be applied to conditions forecasted to exist 20 years after completion of the proposed improvement. If the applicable mobility standard cannot be met, a design exception could be sought.

Elements of alternatives developed that include the construction or modification of state facilities must be designed in accordance with the requirements of the Highway Design Manual. To ensure feasible construction of proposed alternatives, these design standards must be used when laying out roadway alignments, turn lanes, and other roadway elements. Also, the ability of proposed highway improvements to adequately accommodate future traffic demand will be evaluated through the use of the mobility standards from the Highway Design Manual, rather than those from the Oregon Highway Plan.

State Transportation Improvement Program (2008 - 2011)

The State Transportation Improvement Program (STIP) is the programming and funding document for transportation projects and programs statewide. The projects and programs undergo a selection process managed by ODOT Regions or ODOT central offices. The document covers a period of four years and is updated every two years. The STIP contains a number of projects within the city of Eugene; the TSP will need to be consistent with projects that are included in the STIP and the Draft 2010-2013 STIP that is scheduled for adoption in 2010. Once the TSP is adopted, the STIP will be updated to provide consistency between the two documents. Appendix B contains a list of projects from the 2008 – 2011 STIP that are relevant to the Eugene Transportation System Plan.

Oregon Rail Plan (2001)

The Oregon Rail Plan serves as the Rail Element of the OTP and is a comprehensive assessment of the state's rail planning, freight rail, and passenger rail systems. The Plan contains three elements, which summarize the state's goals and objectives, measure the state's performance to-date and refines the projected costs, revenues and investment needs with regard to rail transportation of people and goods. The elements are:

- Rail Policies and the Planning Process
- Freight Element
- Passenger Element

The passenger element of the rail plan concentrates on intercity passenger service with some mention of commuter rail operations. It does not include light rail or other rail transit types. Figure 2-1 of the plan shows two types of rail lines within the Eugene TSP planning area: the Union Pacific line and the Central Oregon & Pacific (CORP) short line. The Union Pacific line has the highest density (Figure 2-2) with more than 20 million gross ton-miles in 1999 and the CORP line has lighter density with less than 5 million gross ton-miles. Figure 3-1 also indicates that the Amtrak passenger route passes through Eugene. According to ODOT's Rail Section, Eugene serves as the southern terminus of the designated Cascadia high speed rail corridor which would provide a speed and reliability upgrade between the cities of Eugene, Portland, Seattle, and Vancouver, B.C.

Oregon Aviation Plan (2010)

The Oregon Aviation Plan provides an overview of the airports in the state system and the jurisdictional responsibilities at all levels of government for the management, maintenance, operation, and funding of Oregon's airports. The Oregon Aviation Plan includes policies and investment strategies for airports in Oregon.

The Eugene Airport is designated as a Category 1 airport per the plan. Category 1 airports are commercial service airports that are designed to accommodate scheduled major/national or regional/commuter commercial air carrier service. For guiding growth and development of the Eugene Airport, the city relies primarily on the Eugene Airport Master Plan which is consistent with policies of the Oregon Aviation Plan. The Eugene Airport Master Plan was updated in 2010 and serves as a development guide for the Airport's short-term (5 to 10 years) and long term (20 year) needs. The Airport Master Plan presents a 20-year development plan that is "technically correct, environmentally sound, financially viable, and implementable; and identifies the overall land requirements that will ensure the Airport's long-term operational viability". The Master Plan will inform the airport element of the Eugene Transportation System Plan.

Oregon Transportation Safety Action Plan (2004 - 2006)

The Oregon Transportation Safety Action Plan is the safety element for the OTP. As an OTP plan element, it defines in greater detail system improvements, legislative needs, and financial needs to improve safety conditions on the state highway system. The plan states that the focal point for transportation safety programs in ODOT is the Transportation Safety Division (TSD). This division, with guidance from the Oregon Transportation Safety Committee, carries out most of the responsibilities established in ORS 802.310.

The plan documents changes that must occur by the year 2014 and the year 2024 that will result in a safer transportation system for Oregon. It includes 69 actions organized by the framework provided in the OTP. The 69 actions constitute Oregon's transportation safety agenda for the next 20 years. Nine of the actions are "Key Actions." Key actions respond to the factors that contribute to the most transportation-related deaths and injuries -- impaired driving, not using safety restraints, speed, and inexperience -- and were identified as actions that should be implemented by the year 2014.

One action in the Transportation Safety Action Plan that has direct relevance to the Eugene TSP process and the physical planning for transportation facilities in Eugene is Action 18, which emphasizes the role of access management in highway safety. Action 18 states that ODOT, as part of planning and project development, will continue to consider access management techniques that show significant improvements in safety for the roadway user, including the use of city and county roads as an alternative to increased access on state facilities.

Governor's Executive Orders

Executive Order No. EO 03-03: A Sustainable Oregon for the 21st Century.

Governor Kulongoski's executive order on sustainability states that economic recovery "will be aided by establishing a commitment to lasting solutions that simultaneously address economic, environmental and community well-being." It charges state government to "define sustainability, produce goals within state government to achieve sustainability, identify challenges to achieving sustainability and measure performance based on sustainability." While the sustainability order indirectly relates to transportation planning and implementation, it does not contain any action items that specifically target transportation. In keeping with the goals of the Oregon Sustainability Act adopted by the 2001 Legislature, the Eugene TSP should support this state initiative to move Oregon closer to a sustainable state.

Executive Order No. EO 00-23: Use of State Resources to Encourage the Development of Quality Communities.

Former Governor Kitzhaber signed an executive order on quality communities that communicates the state goal of accommodating growth and development in a manner that "promotes quality communities, protects the land base for our farm and forest industries, and reduces the cost of public facilities and services." This executive order acknowledges the necessity of coordinating state and local community development objectives. The directive is to ensure that state programs and activities help build and maintain quality communities, in part through development patterns that minimize public services costs and achieving a mix of land uses that support a balanced transportation system. The Quality

Development Objectives are intended to be used in “combination with state and local partnership principles and local development objectives to help build healthy and diverse communities and regions throughout Oregon.” They relate to promoting compact development, a mix of uses, energy efficient development, including alternative modes and ensuring that development is compatible with community goals, environmental constraints, sustainability practices and goals to reduce commuting.

TSP policies and implementation measures should support and complement these objectives by promoting “quality development” within Eugene.

Regional Plans, Polices and Relevant Documents

Lane County TSP (2004)

The Lane County TSP is the 20-year transportation planning document for the county, serving as the transportation element of the county’s Comprehensive Plan. The TSP establishes goals and policies for roads, bicycle and pedestrian facilities, public transportation, rail, air, water, and pipelines, land use and transportation, and financing and recommended improvements.

The plan also establishes functional classifications for county roads and standards for access management system performance (level of service) for county facilities, and refers to design standards that are specified in Lane Code Chapter 15.700. The plan recommends improvements, to be part of a 20-year project list and five-year Capital Improvement Programs, and financing for implementing the improvements.

The policies, regulations, and projects of the county TSP apply to county roads in Eugene or any parts of unincorporated areas within the Eugene-Springfield UGB. The Eugene TSP development process will need to be consistent with the policies of the Lane County TSP and coordinate with Lane County to address the planned projects listed in the county Transportation System Plan. Those projects are provided in Appendix C.

Eugene-Springfield Metropolitan Area General Plan (Metro Plan) (2004 – 2010)

The Metro Plan is the official long-range comprehensive plan for metropolitan Lane County and the cities of Eugene and Springfield. The Metro Plan sets forth general planning policies and land use allocations and serves as the basis for the coordinated development of programs concerning the use and conservation of physical resources, furtherance of assets, and development or redevelopment of the metropolitan area. The Metro Plan also identifies the major public facilities required to meet the land use needs designated within the urban growth boundary.

Chapter II of the Metro Plan contains the fundamental principles, goals and policies for growth management in the Eugene metropolitan area. Growth management policies emphasize the need to minimize urban sprawl through compact urban development within the urban growth boundary. This section of the plan also identifies the land use designations that will apply within the planning area. Land use designations provide direction for decisions pertaining to appropriate reuse (redevelopment), urbanization of vacant parcels, and additional use of underdeveloped parcels.

Chapter III of the Metro Plan contains goals and policies for specific planning elements such as housing, the economy and transportation. This section is most relevant to the Eugene TSP development process because it contains the specific goals and policies with which the Eugene TSP must be consistent. Those policies most pertinent to the TSP are summarized below. It should be noted that Eugene is in the process of preparing a new Comprehensive Plan which will supersede the Metro Plan and that the policies listed below may change as a result of that update.

Economic Element

- Policy B.18 is intended to encourage the development of transportation facilities that would improve access to industrial and commercial areas and improve freight movement capabilities.
- Policy B.19 states that local jurisdictions will encourage the allocation of funds to improve transportation access to key industrial sites or areas through capital budgets and priorities.

Environmental Element

- Policy C.22 states that the design of new street, highway, and transit facilities shall consider noise mitigation measures where appropriate.
- Policy D.11 requires that an exception must be taken if a non-water-dependent transportation facility requires placing of fill within the Willamette River Greenway setback.

Environmental Design Element

- Policy E.3 strongly encourages planting street trees, especially for all new developments and redeveloping areas (where feasible) and new streets and reconstruction of major arterials within the UGB.

Transportation Element

- TransPlan provides the basis for the surface transportation portions of the Metro Plan. The goals and policies in TransPlan are the same as those contained in this Transportation Element. Because TransPlan is reviewed and summarized in the next section, relevant goals and policies are not repeated here.

Energy Element

- Policy J.2 encourages careful control of energy related actions, such as automobile use, in order to minimize adverse air quality impacts. Trade-offs between air quality and energy actions shall be made with the best possible understanding of how one process affects the other.

Citizen Involvement Element

- Policy K.2 requires that the city maintain and adequately fund a variety of programs and procedures for encouraging and providing opportunities for citizen involvement in metropolitan area planning issues. Such programs should provide for widespread citizen involvement, effective communication, access to technical information, and feedback mechanisms from policymakers.

Eugene-Springfield TSP (TransPlan), 2002

TransPlan guides regional transportation system planning and development in the Eugene-Springfield metropolitan area. The plan includes provisions for "meeting the transportation demand of residents over a 20-year planning horizon while addressing transportation issues and making changes that can contribute to improvements in the region's quality of life and economic vitality." TransPlan establishes the framework upon which all public agencies can make consistent and coordinated planning decisions regarding transportation. The regional planning process ensures that the planning activities and investments of the local jurisdictions are coordinated in terms of intent, timing, and effect. TransPlan also serves as the transportation element of the Metro Plan and as the local TSP for both Eugene and for Springfield. The Lane Council of Governments is currently working to prepare an updated regional transportation plan.

TransPlan consists of two primary components: the policy element and implementation actions. The implementation actions were developed with the intent of providing flexibility to local jurisdictions in implementing the regional policies established in TransPlan.

Chapter 2 of TransPlan contains goals and policies for transportation growth and development in the metro region. Because these policies are directly relevant to development of the Eugene TSP and are too numerous to summarize here, a consolidated list of TransPlan policies is attached to this memorandum as Appendix D. Generally, those policies emphasize the creation of compact, mixed-use (nodal) development with quality bicycle and pedestrian connections and access to public transit.

Chapter 3 of TransPlan contains actions that implement the policy framework set forth in Chapter 2 and includes elements related to plan implementation that are required by state legislation. The first part of this chapter provides lists of capital investment actions for transportation system improvements in several categories: roadways, transit and bicycle projects. The projects on these lists are selected for inclusion in the Financially Constrained 20-Year Capital Investment Actions to establish a network of facilities that meet overall transportation needs for the 20-year planning period. These projects are too numerous to summarize here. The complete list of projects can be found at this website: http://www.lcog.org/documents/TransPlan/Jul-02/Chap%203.pdf.

Part two of Chapter 3 presents the Financial Plan which includes the following:

- A summary of the state regulations for financial constraint;
- A summary of future cost and revenue estimate methodologies;
- Forecasts of revenue from existing sources;
- An assessment of the revenue shortfall;
- A list of strategies to address the shortfall; and
- Development of the Constrained Plan.

Part four of Chapter 3 provides a range of regionally significant planning, administrative, and support actions that might be used to implement TransPlan policies. Local jurisdictions can use their discretion to evaluate and prioritize planning and program action implementation. Recommended implementation actions are organized into the following categories:

- Land use
- Transportation demand management
- Transportation system improvements
    - System-Wide
    - Roadways
    - Transit
    - Bicycles
    - Pedestrian
    - Goods Movement
    - Other Modes

Central Lane Metropolitan Planning Organization Regional Transportation Plan (2007)

The Regional Transportation Plan (MPO RTP) guides the planning and development of the transportation system within the Central Lane Transportation Management Area. The federally-required MPO RTP includes provisions for meeting the transportation demand of residents over at least a 20-year planning horizon while addressing transportation issues and making changes that can contribute to improvements in the region's quality of life and economic vitality. It includes consideration of all transportation modes: roadways, transit, bikeways and pedestrian circulation, as well as freight movement and regional aspects of air, rail and inter-city bus service.

Previously, TransPlan (reviewed above) served as both the federally-required Regional Transportation Plan and the state-required local TSP for Eugene/Springfield. Now, with the expansion of the MPO boundary to include Coburg, the MPO RTP serves as the federally required plan for the new MPO area, while TransPlan will continue to serve as the state-required plan for the Eugene/Springfield area.

The layout and content of the MPO RTP is very similar to that of the TransPlan and therefore is only briefly summarized here. Chapter 2 of the MPO RTP contains goals and policies for transportation growth management in the MPO. The policies are identical to those found in the TransPlan and are provided in Appendix D. Chapter 3 contains lists of capital investment actions for transportation system improvements in several categories: roadways, transit and bicycle projects. The complete list of projects can be found at this website: http://docs.lcog.org/mpo/PDF/rtp/2031/2031RTP_Chapter3_Nov-07Adoption_Corrected.pdf.

Lane Transit District Capital Improvements Program (2010 – 2017)

The Lane Transit District (LTD) Capital Improvements Program (CIP) is a list of proposed projects that are intended to enhance transit within LTD's service area. While funding is expected for these projects, it is not guaranteed. Projects may be changed or eliminated due to changes in priority or funding. The program is updated annually by the Board of Directors. The CIP project list includes projects that are specific to Eugene and those that apply to the entire transit district. A complete list of projects is provided in Appendix E.

Local Plans, Policies and Relevant Documents

Eugene Code Chapter 9 - Land Use (1971 – 2010)

Chapter 9 of the Eugene Code contains standards and regulations for land use and development in Eugene. It is intended to implement the goals and policies of the Metro Plan, refinement plans and applicable state and federal land use laws. The land use code will also need to implement the Eugene TSP once it is adopted. As such, revisions to the code may be necessary as part of the TSP development process, especially to ensure compliance with the requirements of TPR 660-012-0045 which identifies land use regulations that must be adopted to implement Transportation System Plans.

The most relevant sections of the Eugene Code in terms of the TSP are Sections 9.6800 – 9.6875, which regulate streets, alleys and other public ways. These sections contain standards for block length, connectivity, access and street right-of-way width that will need to be reviewed for consistency with the new Transportation System Plan. Although the code was updated to help implement TransPlan policies, the Eugene TSP development process will identify further revisions to the Eugene Code that might be needed in order to implement the new TSP once adopted.

Eugene Growth Management Policies (1997)

The Growth Management Policies were created by the Eugene Planning Commission and council liaisons based on a series of open houses, community workshops, tabloid responses, and surveys. These policies are intended to guide growth within the city of Eugene through the planning horizon. Policies especially relevant to the Eugene TSP are listed below.

- Policy 1 - Support the existing Eugene Urban Growth Boundary by taking actions to increase density and use existing vacant land and under-used land within the boundary more efficiently.
- Policy 2 - Encourage in-fill, mixed-use, redevelopment, and higher density development.
- Policy 5 - Work cooperatively with Metro area partners (Springfield and Lane County) and other nearby cities to avoid urban sprawl and preserve the rural character in areas outside the urban growth boundaries.
- Policy 10 - Encourage the creation of transportation-efficient land use patterns and implementation of nodal development concepts.
- Policy 11 - Increase the use of alternative modes of transportation by improving the capacity, design, safety, and convenience of the transit, bicycle, and pedestrian transportation systems.
- Policy 12 - Encourage alternatives to the use of single-occupant vehicles through demand management techniques.
- Policy 13 - Focus future street improvements on relieving pressure on the City's most congested roadways and intersections to maintain an acceptable level of mobility for all modes of transportation.

- Policy 14 - Development shall be required to pay the full cost of extending infrastructure and services, except that the City will examine ways to subsidize the costs of providing infrastructure or offer other incentives that support higher-density, in-fill, mixed-use, and redevelopment.
- Policy 15 - Target publicly-financed infrastructure extensions to support development for higher densities, in-fill, mixed uses, and nodal development.

Central Area Transportation Study (1987 – 2004)

The first Central Area Transportation Study (CATS) was completed in 1987, updated in 1993 and served as a technical element of the Central Eugene Parking and Traffic Circulation Plan, which was adopted by the Eugene City Council and the Lane Regional Air Pollution Authority. Its purpose has been to support maintenance and improvement of the city's transportation and parking systems, and to preserve air quality within the CATS boundaries.

The 2004 CATS Update was initiated because most recommendations from the original study had been implemented and other planning efforts that affect downtown have been undertaken. The CATS Update was also meant to inform the update of the Downtown Plan in 2004.

The CATS study area, as established in the original study, encompasses Downtown, the University of Oregon, Sacred Heart General Hospital sites, the Riverfront Research Park, parts of the Jefferson-Westside Neighborhood and Fairmount Neighborhoods, the new Federal Courthouse site, and EWEB-owned property to the north of that site.

The CATS Update includes policies and implementation strategies. The policies address the area's street system, pedestrian and bicycle facilities, transit system, vehicle parking, transportation demand management (TDM) programs, and the University of Oregon campus area. The policies are listed below.

<u>Street System</u>

- Promote the development of a transportation system within the downtown area that supports the goals of the Downtown Plan, enhances the livability of downtown, preserves the livability and economic vitality of areas within and directly adjacent to the CATS boundary, and provides for the safe and efficient movement of motor vehicles, pedestrians, bicycles, and transit vehicles.
- Maintain or improve the operation of the street system for pedestrians, bicycles, transit and automobiles. Balance the need for bicycle lanes on downtown streets with the need for on-street parking and transit facilities.

<u>Pedestrian System</u>

- Improve the pedestrian system in the downtown area to encourage walking as a primary means of transportation within downtown.
- Encourage and promote the creation of "great streets" within the downtown area that stimulate pedestrian activity while allowing for bicycles and slow-moving automobile traffic.

Bicycle Facilities

- Improve the safety and efficiency of existing bikeways in the downtown area. Improve bicycle circulation within the downtown area and improve access to existing and planned routes extending outside of the downtown area.

Transit System

- Support a frequent transit-based shuttle service in the greater downtown area to link major employment and activity centers and to provide an attractive, energy-efficient, low or no cost, transportation alternative for those who live, work or shop within the greater downtown area.

Vehicle Parking

- Support intensive development in the downtown area by balancing new parking supply with specific area demands and ensure an adequate supply of parking is available downtown to meet the needs of residents, workers and customers of downtown facilities.
- Make parking downtown convenient, affordable, safe and easy to use.

Transportation Demand Management (TDM) Program

- Promote walking, bicycling, carpooling, and riding the bus through employer-based programs.

University of Oregon Campus Area

- Support the transportation policies contained in the 1991 University of Oregon Long Range Campus Development Plan. [Note: The Campus Development Plan has been updated since CATS.]

The implementation schedule proposed in the study includes three categories, sometimes presented in phases: initial project planning, design, and public involvement; operational changes to the street system; and construction of new improvements or major modifications. The schedule spans mainly from 2004-2008, with a few recommended implementation strategies being carried out on an ongoing basis. Policies from this study will be reviewed by the DAC and PMT for the Eugene TSP and considered for policies of the TSP efforts.

Eugene Pedestrian & Bicycle Strategic Plan (2008)

The Eugene Pedestrian and Bicycle Strategic Plan is a five-year guiding document for the City of Eugene focused on creating a walkable and bikeable city. The plan is not an adopted regulatory document, nor is it a capital improvement document detailing the costs and programming of specific improvements. The city is currently working to update the Eugene Pedestrian and Bicycle Plan and anticipates adoption in June 2011. The new plan will be the bicycle/pedestrian element of the TSP and will be an official policy document.

The plan was designed to be consistent with the OTP, the Oregon Bicycle and Pedestrian Plan, and the Central Area Transportation Study (CATS), and to implement TransPlan. It implements Action 4.2.3 of TransPlan, which calls for developing an implementation strategy for TransPlan bicycle and pedestrian projects.

The strategic plan is structured around the five goals, and identifies strategies for each goal. Multiple actions are identified for each strategy, along with the lead organization, partner organizations, the relative level of priority of the action (scale of 1-5), and the relative level of resources required (scale of 1-3).

Eugene Arterial and Collector Street Plan (ACSP) (1999)

The primary purpose of the ACSP is to provide Eugene with an updated street classification map and right-of-way map that identifies the community’s major streets, and with appropriate street design standards and guidelines to apply to construction, reconstruction and improvement of those streets (the Eugene Local Street Plan design standards are also incorporated in adoption of the ACSP). The ACSP focuses on “developing a transportation system that balances mobility and access needs, provides for integration of land use and transportation systems, and provides for choices in modes of travel”. It was developed to be consistent with TransPlan and to implement some of the action items identified in the Central Area Transportation Study.

The basic principles governing the design of arterials and collectors in the ACSP are:

- Facilitate movement and enhance mobility through the region;
- Create multi-modal streets to provide a range of transportation options;
- Ensure adequate emergency vehicle response routes;
- Accommodate and enhance economic vitality of the region;
- Support and complement local business;
- Consider individual characteristics of neighborhoods;
- Be consistent with nodal development concepts;
- Incorporate high-quality construction and design; and
- Provide mobility and access for all modes of travel.

The appendices to the ACSP contain the bulk of the relevant information, including the street classification map, right-of-way map, bicycle/pedestrian facility maps, street cross-sections with right-of-way widths, and design standards for specific street elements such as bike lanes, sidewalks and street trees. These classifications are described in the roadway section of this memo. Following the development of project alternatives and selection of TSP recommendations, the Eugene TSP will review the classifications from the ACSP and update as appropriate. Changes will likely require an amendment to the ACSP.

Eugene Parking Analysis Final Report, 2002 - 2006

While not an adopted policy document, this report is relevant because it provides a block-by-block analysis of parking deficits and surpluses in the downtown Eugene area. The 2006 update expanded the study area and reevaluated parking needs based on uses and development that had occurred since the original study. Maps showing parking deficits and surpluses for each block in the study area are provided and indicate a wide range of parking situations within the downtown. The Parking Analysis will inform the TSP process when considering any potential changes to the transportation system through these downtown blocks.

Eugene Capital Improvement Program 2010-15, February 2009

The City of Eugene's Capital Improvement Program (CIP) forecasts the city's capital needs over a six-year period based on various long-range plans, goals and policies. The goals of the CIP are to:

- Provide a balanced program for capital improvements given anticipated funding revenues over a six-year planning period;
- Illustrate unmet capital needs based on anticipated funding levels, and;
- Provide a plan for capital improvements that can be used in preparing the Capital Budget for the coming two fiscal years.

The CIP is updated every two years and lists projects by category such as parks, stormwater and transportation. For each category, the CIP includes lists of projects with secured or identified funding, projects with no identified funding, and placeholder projects. The Eugene TSP will need to be consistent with projects that are identified in the CIP and the converse will also need to be true.

A list of CIP projects in the Transportation category can be found in Appendix F.

West Eugene Collaborative Recommendations (2009)

The West Eugene Collaborative (WEC) was formed in 2007 to "develop an integrated land use and transportation solution, supported by stakeholders, that will facilitate movement of people and commerce from/through/to west Eugene and west of Eugene while enhancing community, business and the environment." The recommendations in the March 2009 WEC report focus on problems with West 11th Avenue and Highway 126, but overall address concerns in an "area of interest" that spans from Downtown Eugene and I-5 to Veneta, and from the Eugene airport to the South Hills ridgeline. The report's recommendations were based upon eight principles that are listed below. It is important to note that these recommendations are not adopted policy, but are relevant in that they represent the views of a broad group of stakeholders within Eugene.

1. *Improve efficiency of the transportation network.*

2. *Increase public transit.*

3. *Enhance pedestrian paths and bikeways.*

4. *Intensify development appropriately.*

5. *Relocate some land uses.*

6. *Enhance open space/natural resources.*

7. *Enhance natural watersheds.*

8. *Enhance appreciation and connections to natural resources.*

The recommendations were grouped as short-, medium-, and long-range, and address transportation, land use, and environmental issues, and include such things as safety improvements to sidewalks and bike paths and support for mixed-use development and redevelopment.

Recommendations for implementation include adoption and/or enforcement of city policies and regulations to limit further encroachment into right-of-way along West 11th Avenue, and updates of the Metro Plan Diagram and city zoning map to identify protected natural areas as well as existing and planned wildlife habitat corridors. These recommendations were not adopted by Eugene City Council. They may be considered in the TSP though additional analysis would be required.

Roadway Network and Conditions

This section describes the current roadway network within the study area, including functional classification, ownership, and conditions. The roadway network is depicted in Figure 5.

Functional Classification

Functional classification defines a street's role and context in the overall transportation system. In addition, it defines the desirable roadway width, right-of-way needs, access spacing and pedestrian and bicycle facilities. The City of Eugene has established a functional classification system for the roadways owned by the City. Figure 5 illustrates the existing classifications as described in the Eugene Arterial and Collector Street Plan (ASCP). Functional classifications assessed as part of this TSP include major and minor arterials and major and minor collectors; local roadways are not analyzed as part of the Transportation System Plan.

Arterials

The primary function of arterial streets is to provide a high degree of vehicular mobility; however, they may also serve a minor role to provide access to individual properties. The nature of arterial streets dictates that their designs typically limit property access and on-street parking to improve traffic capacity for through traffic. Arterial streets are used as primary bicycle, pedestrian, emergency response routes and transit routes.

There are two classifications of urban arterial streets: major arterials and minor arterials. Because the function of both types is similar, the designs of major and minor arterials are also usually similar. Exceptions to this rule are freeways and expressways. While freeways and expressways are typically classified as major arterials, they have unique geometric criteria that control their design, and highly regulated access controls that limit access to adjacent land uses.

Collectors

The primary function of collector streets is to assemble traffic from the interior of an area and deliver it to the closest arterial street. Collectors provide for both mobility and access to property and are designed to fulfill both functions. They usually serve shorter trip lengths and have lower traffic volumes than arterial streets. Collector streets are also used as important emergency response routes and are frequently used as transit routes.

There are two classifications of collector streets: major collectors and neighborhood collectors. While the function of both types is essentially the same, the neighborhood collector classification is applied only in residential neighborhoods. Standards for neighborhood collectors provide for design flexibility to preserve the livability and character of residential areas.

State Roadways

ODOT owns the following roads within the Eugene TSP study area. Roadways are listed broken down by functional classification, as designated in the Eugene ACSP[5].

Freeways/Expressways

- Randy Papé Beltline, from W 11th Avenue to Interstate 5
- Interstate 105, from 6th Avenue/7th Avenueto Interstate 5
- Interstate 5, from North UGB to South UGB

Other Major Arterials

- Highway 99N, from North UGB to Garfield Street
- 6th Avenue, from Garfield Street to Interstate 105
- 7th Avenue, Garfield Street to Interstate 105
- W 11th Avenue, from West UGB to Randy Papé Beltline
- Franklin Boulevard, from Walnut Street to Interstate 5
- Delta Highway, portions of the Delta Highway interchange at Randy Papé Beltline

Minor Arterials

- Gilham Road, bridge structure at Randy Papé Beltline
- Norkenzie Road, bridge structure at Randy Papé Beltline
- Southwood Lane, from County Club Road to Coburg Road

Major Collectors

- Glenwood Boulevard, from Interstate 5 to the Interstate 5 off-ramp

Aside from Interstate 5, which has a speed of 60 mph through the study area, speed limits on ODOT owned facilities within the study area are generally 55 mph on freeways/expressways, 30-45 mph on other major arterials, and 35 – 40 mph on minor arterials and major collectors. All ODOT owned facilities are paved.

[5] Eugene ACSP street classifications and right-of-way needs are designed to be in agreement with those adopted by Lane County and the State of Oregon. However, the agency with jurisdiction over a particular roadway has the final authority on classification and right-of-way needs.

Lane County Roadways

Lane County Public Works (LCPW) owns the following facilities within the Eugene TSP study area. Roadways are listed broken down by functional classification, as designated in the Eugene ACSP.

Major Arterials

- Delta Highway, from Green Acres Road to Interstate 105
- River Road, from Irvington Drive to Federal Lane and from Corliss Lane to Park Avenue

Minor Arterials

- E 30th Avenue, from Spring Boulevard to East UGB
- Bailey Hill Road, from Bertelsen Road to Jarding Road
- Coburg Road, from Kinney Loop to County Farm Road
- Green Hill Road, from Barger Road to W 11th Avenue
- Irving Road, from Highway 99N to Belmont Street
- Irvington Drive, from Prairie Road to River Road
- Maxwell Road, from Prairie Road to NW Expressway and from Labona Drive to River Road
- NW Expressway from Irvington Drive to Maxwell Road and from north of Cornwall Avenue to Chambers Street
- Prairie Road, from Irving Road to northern City of Eugene boundary
- River Road, from Beacon Drive to Wilkes Drive
- Roosevelt Boulevard, from Randy Papé Beltlineto Danebo Avenue
- Royal Avenue, from Terry Street to roadway terminus

Major Collectors

- Beaver Street, from Hunsaker Lane to Division Avenue
- County Farm Road, from Fox Meadow Road to Coburg Road
- Enid Road, from Highway 99N to Prairie Road
- Glenwood Boulevard, from Interstate 5 off-ramp to Glenwood Drive
- Hunsaker Lane, from River Road to Beaver Street
- Old Coburg Road, from North UGB to Chad Drive
- Prairie Road, from Link Road to Irving Road
- Wilkes Drive, from River Road to Alameda Street

Minor Collectors

- Arrowhead Street, from City of Eugene boundary to Spearmint Street and from Calla Street to Dry Creek Road

- Barstow Avenue, from Arrowhead Street to Hyacinth Street
- Beacon Drive, from Daniel Drive to River Road and from Scenic Drive to W. UGB
- Blackfoot Avenue, from River Road to Hyacinth Street
- Calla Street, from Hyacinth Street to Kalmia Street
- Cornwall Avenue, from NW Expressway to Park Avenue
- Crocker Road, from Irvington Road to Irving Road
- Gilham Road, from Ayres Road to Ashbury Drive
- Gimpl Way, from Gimpl Hill Road to Gimpl Hill Road
- Gimpl Hill Road, from Gimpl Way to Bailey Hill Road
- Grove Street, from Maxwell Road to Silver Lane
- Horn Lane, from River Road to Park Avenue
- Howard Avenue, from Park Avenue to River Road
- Hyacinth Avenue, from Chimney Rock Lane to Naismith Boulevard and from Argon Avenue to Calla Street
- Kalmia Street, from Calla Street to Irving Road
- Lake Drive, from Howard Avenue to Horn Lane
- Lancaster Drive, from Lynnbrook Drive to Irvington Drive
- Lynnbrook Drive, from River Road to Lynnbrook Drive
- N Park Avenue, from Kelly Lane to Virgil Avenue and from NW Expressway to NW Expressway
- Park Avenue from River Road to City of Eugene boundary
- River Loop 1, from River Road to Dalewood Street
- River Loop 2, from River Road to Burlwood Street
- Scenic Drive, from River Loop 2 to North UBG
- Spring Creek Drive, from River Road to Scenic Drive
- Willow Creek Road, from the Eugene ownership boundary to Mt Valvue Lane

Lane County also owns local roadways throughout the study area, including several in the River Road/Santa Clara area where many parcels are located outside the Eugene City limits. Speed limits are generally 35 – 55 mph on major and minor arterials, and 25 – 40 mph on major and minor collectors. All Lane County arterials and collectors are paved.

City of Eugene Roadways

Major Arterials

Design Standards

In Eugene, major arterials typically have four or more lanes and, with the exception of freeways and expressways, typically have sidewalks, striped bicycle lanes, and raised median islands or two-way left turn lanes. Some major arterials also have planting strips. The Eugene ACSP includes guidelines and street design standards by functional classification type. For major arterials, which should be able to accommodate 20,000 average daily traffic (ADT) volumes per day, the ACSP provides the following design guidelines and standards:

- Curb-to-curb pavement widths should range from 68' to 94'
- Total right-of-way widths should range from 100' to 120'
- Travel lanes should be a minimum of 11′ wide
- Sidewalks should be continuous, located on both sides of the street, and setback from the curb
- Minimum sidewalk widths are 10′ for curbside sidewalks in pedestrian-oriented commercial areas and 5′ setback elsewhere (some exceptions apply)
- Striped bicycle lanes are required on both sides of newly constructed or widened arterial streets, should be a minimum of 5′ - 6′ wide, and should be free from drainage grates and utility covers

City of Eugene Major Arterials

The City of Eugene owns the following major arterials within the Eugene TSP study area:

- 6th Avenue, from I-105 to Mill Street
- 7th Avenue, from I-105 to Mill Street
- W 11th Avenue, from Randy Papé Beltline to Garfield Street
- Broadway, from Mill Street to Franklin Boulevard
- Chambers Street, from NW Expressway to 7th Avenue
- Coburg Road, from Crescent Avenue to Mill Street (including the Ferry Street Bridge and viaduct)
- Franklin Boulevard, from Broadway to Walnut Street
- Garfield Street, from 6th Avenue to W 11th Avenue
- Mill Street, from Coburg Road to Broadway
- Mill Street, segment from Mill Street to westbound on Broadway
- River Road, from Federal Lane to Corliss Lane and from Park Ave to NW Expressway

River Road at River Avenue, looking south.

Major arterials observed in Eugene ranged from having 4 one-way travel lanes with no bike lanes and sidewalks on both sides of the street (6th and 7th avenues) to having 4 travel lanes, a center turn lane, and sidewalks and narrow bike lanes on both sides of the street (both River Road and Coburg Road). All city-owned major arterials are paved.

Minor Arterials

Design Standards

Minor arterials connect the nearby rural areas to cities and function within cities as conduits for a large proportion of intra-urban trips. In Eugene a typical minor arterial contains two lanes plus a center turn lane, with bike lanes, planting strips (in some cases), and sidewalks. Some minor arterials are wider and contain up to 4 lanes plus turn lanes or median islands. For minor arterials, which should be able to accommodate an ADT of 7,500 - 20,000, the Eugene ACSP provides the following design guidelines and standards:

- Curb-to-curb pavement widths should range from 46' to 70′
- Total right-of-way widths should range from 75' to 100'
- Travel lanes should be a minimum of 11′ wide
- Sidewalks should be continuous, located on both sides of the street, and setback from the curb
- Minimum sidewalk widths are 10′ for curbside sidewalks in pedestrian-oriented commercial areas and 5′ setback elsewhere (some exceptions apply)
- Striped bicycle lanes are required on both sides of newly constructed or widened arterial streets, should be a minimum of 5′ - 6′ wide, and should be free from drainage grates and utility covers

City of Eugene Minor Arterials

The following minor arterial streets are owned by the City of Eugene:

- 8th Avenue, from Pearl Street to Coburg Road
- 11th Avenue, from Garfield Street to Franklin Boulevard
- 13th Avenue, from Garfield Street to Hilyard Street
- 18th Avenue, from Willow Creek Road (western) to Agate Street
- 20th Avenue, from Willamette Street to Oak Street
- 24th Avenue, from Willamette Street to Agate Street
- 28th Avenue, from Chambers Street to Lorane Highway
- 29th Avenue, from Lorane Highway to Amazon Parkway
- 30th Avenue, from Hilyard Street to Spring Boulevard
- Agate Street, from Franklin Boulevard to 24th Avenue
- Airport Road, from West UGB to Highway 99
- Amazon Parkway, from Pearl Street to Hilyard Street

Barger Drive at Randy Papé Beltline is a minor arterial with a curb to curb width of 88 feet.

- Bailey Hill Road, from Bertelsen Road to 5th Avenue
- Barger Drive, from Greenhill Road to Highway 99
- Bertelsen Road, from Royal Avenue to Bailey Hill Road
- Cal Young Road, from Willagillespie Road to Coburg Road
- Martin Luther King Jr. Boulevard, from Coburg Road to I-5
- Chambers Street, from 7th Avenue to Lorane Highway
- Club Road, from Country Club Road to Martin Luther King Jr. Boulevard
- Coburg Road, from County Farm Road to Crescent Avenue
- Country Club Road, from Willagillespie Road to Club Road
- Crescent Avenue, from Norkenzie Road to Game Farm Road
- Danebo Avenue, from Royal Avenue to W 11th Avenue
- East Amazon Drive, from Hilyard Street to Dillard Road
- Echo Hollow Road, from Barger Drive to Royal Avenue
- Game Farm Road, from Coburg Road to I-5
- Garfield Street, from 11th Avenue to 13th Avenue
- Gilham Road, from Crescent Drive to Cal Young Road
- Goodpasture Island Road, from Valley River Drive to Norkenzie Road
- Green Acres Road, from Delta Highway to Norkenzie Road
- Greenhill Road, from Barger Drive to Highway 126 (W 11th Avenue)
- Harlow Road, from Coburg Road to I-5
- High Street, from 6th Avenue to 19th Avenue
- Hilyard Street, from Franklin Boulevard to West Amazon Drive
- Irving Road, from Belmont Street to River Road
- Jefferson Street, from 7th Avenue to 13th Avenue
- Maxwell Road, from River Road to Labona Drive
- Norkenzie Road, from Green Acres Road to Cal Young Road
- Northwest Expressway, from Maxwell Road to north of Cornwall Avenue
- Oak Street, from 6th Avenue to 20th Avenue
- Oakway Road, from Cal Young Road to Coburg Road
- Patterson Street, from Franklin Boulevard to 23rd Avenue/Hilyard Street
- Pearl Street, from 6th Avenue to 19th Avenue
- Prairie Road, from Highway 99 to City of

Pearl Street at 16th Avenue is a minor arterial and contains two 12 foot travel lanes, and 5 foot bicycle lanes on both sides of the road.

Eugene boundary

- Roosevelt Boulevard, from Chambers Street to Randy Papé Beltlineand from Danebo Avenue to Terry Street
- Royal Avenue, from Highway 99 to Terry Street
- Seneca Road, from Roosevelt Boulevard to W 11th Avenue
- Terry Street, from Barger Drive to Morely Loop
- Valley River Drive, from Goodpasture Island Road to Willagillespie Road
- Washington Street, from 7th Avenue to 13th Avenue
- West Amazon Drive, from Hilyard Street to Fox Hollow Road
- Willagillespie Road, from Cal Young Road to Country Club Road
- Willamette Street, from 13th Avenue to South UGB
- Willow Creek Road, from 11th Avenue to 18th Avenue

Minor arterials observed in Eugene ranged from having a curb to curb width of 33 feet (Pearl Street at 16th Avenue) to 88 feet (Barger Drive at Randy Papé Beltline). Some minor arterials contain two travel lanes (such as Hilyard Street at 22nd Avenue and Pearl Street at 16th Avenue) while others contain up to four travel lanes with a center turn lane (Barger Drive at Randy Papé Beltline). The majority of minor arterials observed contained sidewalks on both sides of the road that were a minimum of 5 feet in width. Bicycle lanes were also generally present on both sides of the road (with the exception of Hilyard Street at 22nd Avenue) and were generally 5 feet in width. All city-owned minor arterials were paved and pavement quality ranges from good to like new.

Major Collectors

Design Standards

In Eugene, major collectors frequently have continuous center turn lanes and are normally provided with sidewalks, planting strips, and striped bike lanes; provision for on-street parking varies by location. Major collectors may be designed with raised medians to reduce conflicts, provide a pedestrian refuge, restrict turning movements, limit land access, or to furnish an aesthetic separation between traffic lanes. For major collectors, which should be able to accommodate an ADT of 2,500 - 7,500, the Eugene ACSP provides the following design guidelines and standards:

- Curb-to-curb pavement widths should range from 32' to 44’
- Total right-of-way widths should range from 60' to 75'
- Travel lanes should be a minimum of 10’ wide
- Sidewalks should be continuous, located on both sides of the street, and setback from the curb
- Minimum sidewalk widths are 10’ for curbside sidewalks in pedestrian-oriented commercial areas and 5’ setback elsewhere (some exceptions apply)

- Striped bicycle lanes are required on both sides of newly constructed or widened collector streets, should be a minimum of 5′ - 6′ wide, and should be free from drainage grates and utility covers

City of Eugene Major Collectors

The following major collectors are owned by the City of Eugene:

- 1st Avenue, from Seneca Road to Bertelsen Road
- 1st Avenue, from Washington Street to Van Buren Street/Railroad Boulevard
- 2nd Avenue, from Blair Boulevard To Garfield Street
- 3rdAvenue, from High Street to Coburg Road
- Shelton McMurphey Boulevard, from Washington Street to Pearl Street
- 4th Avenue, from Pearl Street to Coburg Road
- 5th Avenue, from Bailey Hill Road to Highway 99
- 5th Avenue, from Blair Boulevard To Washington Street
- 7th Avenue, from Bailey Hill Road to Highway 99
- 13th Avenue, from Hilyard Street to Kincaid Street
- 19th Avenue, from Hilyard Street to Agate Street
- 19th Avenue, from Willamette Street to Hilyard Street
- 24th Avenue, from Chambers Street to Jefferson Street
- 27th Avenue, from Portland Street to Amazon Parkway
- 40th Avenue, from Willamette Street to Hilyard Street
- Alder Street, from Broadway to 18th Avenue
- Arthur Street, from 13th Avenue to 18th Avenue
- Awbrey Lane, from Highway 99 to UGB
- Ayres Road, from Delta Highway to Gilham Road
- Blair Boulevard, from 2nd Avenue to Monroe Street
- Chad Drive, from Coburg Road to Game Farm Road
- City View Street, from 11th Avenue to 18th Avenue
- City View Street, from 18th Avenue to 28th Avenue
- County Farm Road, from Dale Avenue to Coburg Road
- Delta Highway, from Green Acres Road to Ayres Road
- Dillard Road, from East Amazon Drive to South UGB
- Division Avenu, from Randy Papé Beltline to River Road
- Donald StreetStreetSt,Street from Willamette Street to 40th Avenue
- Fox Hollow Road, from West Amazon Drive to south UGB
- Garden Way, from Martin Luther King Jr. Boulevard to Harlow Road

- Garfield Street, from Roosevelt Boulevard to 6th Avenue
- Gilham Road, from Ayres Road to Crescent Avenue
- Goodpasture Loop, from Goodpasture Island Road to Goodpasture Island Road
- Hawkins Lane, from 18th Avenue to 25th Avenue
- High Street, from 3rd Avenue to 6th Avenue
- Hilyard Street, from W Amazon Parkway to 40th Avenue
- Jefferson Street, from 13th Avenue to 28th Avenue
- Jefferson Street, from 1st Avenue to 7th Avenue

Jefferson Street is a major collector in the Jefferson-Westside Neighborhood.

- Kincaid Street, from 11th Avenue to 13th Avenue
- Leo Harris Parkway, from Martin Luther King Jr. Boulevard to Martin Luther King Jr. Boulevard
- McKinley Street, from 11th Avenue to Highway 99
- Oak Patch Road, from 11th Avenue to 18th Avenue
- Oakmont Way, from Oakway Road to Sorrel Way
- Olive Street, from 13th Avenue to 18th Avenue
- Pearl Street, from 4th Avenue to 6th Avenue
- Polk Street, from 2nd Avenue to 28th Avenue
- Railroad Boulevard, from River Road to 1st Avenue
- River Avenue, from River Road to Randy Papé Beltline
- Silver Lane, from Grove Street to River Road
- Terry Street, from Arrowsmith Street to 11th Avenue
- Terry Street, from UGB to Barger Drive
- Executive Parkway, from Valley River Drive to south
- Valley River Way, from Valley River Drive to south
- Washington Street, from 1st Avenue to 7th Avenue
- Willakenzie Road, from Cal Young Road to Bogart Lane

Major collectors observed in Eugene ranged from having two travel lanes, a center turn lane, 5 foot wide bike lanes, and 5 foot wide sidewalks (e.g. River Avenue) to just two travel lanes divided by a double yellow line with sidewalks on both sides of the street and no bike lanes (e.g. High Street and 3rd Avenue). Jefferson Street contains two one-way travel lanes and has on-street parking in lieu of striped bicycle lanes. All city-owned major collectors are paved.

Neighborhood Collectors

Design Standards

Neighborhood collectors (also referred to as minor collectors in other jurisdictions) are found only in residential neighborhoods and provide a high degree of access to individual properties. Neighborhood collectors are required to have sidewalks and planting strips. As a rule, left turn lanes are only infrequently used on neighborhood collectors, and then only at intersections with higher volume streets. On most neighborhood collectors, on-street parking is flexible and bicycles share the travel lane with other motor vehicles. For neighborhood collectors, which should be able to accommodate an ADT of 1,500 - 2,500, the Eugene ACSP provides the following design guidelines and standards:

- Curb-to-curb pavement widths should range from 20' to 43’
- Total right-of-way widths should range from 40' to 55'
- Travel lanes should be a minimum of 10’ wide
- Sidewalks should be continuous, located on both sides of the street, and setback from the curb
- Sidewalks should be a minimum of 5’ wide (some exceptions apply)
- Bicycles generally share the travel lane with motor vehicles (some exceptions apply)

City of Eugene Neighborhood Collectors

The following neighborhood collectors are owned by the City of Eugene:

- 16th Avenue, from Riverview Street to Augusta Street
- 19th Avenue, from Agate Street to Fairmount Boulevard
- 24th Avenue, from Agate Street to Columbia Street
- 25th Avenue, from Brittany Street to Hawkins Lane
- 27th Avenue, from Lincoln Street to Portland Street
- 28th Avenue, from Chambers Street to City View Street
- 33rd Avenue, from Willamette Street to Hilyard Street
- 39th Avenue, from Willamette Street to 40th Avenue/Brae Burn Drive
- 43rd Avenue, from Dillard Road to North Shasta Loop
- 43rd Avenue, from Donald Street to Fox Hollow Road
- 46th Avenue, from Willamette Street to Fox Hollow Road
- Agate Street, from 30th Avenue to Spring Boulevard
- Arrowhead Street, from Irvington Drive to Calla Street and from Dry Creek Road to Irving Road
- Augusta Street, from 16th Avenue to 26th Avenue
- Bailey Lane, from Coburg Road to Bogart Lane
- Bethel Drive, from Highway 99 to Roosevelt Boulevard

- Bogart Lane, from Willakenzie Road to Bailey Lane
- Brae Burn Drive, from Willamette Street to W 40th Avenue
- Brittany Street, from 18th Avenue to 25th Avenue
- Columbia Street, from 24th Avenue to 27th Avenue
- Danebo Avenue, from Barger Drive to Souza Street
- Donald Street, from 40th Avenue to Fox Hollow Road
- Elmira Road, from Bertelsen Road to Maple Street
- Fairfield Avenue, from Highway 99 to Royal Avenue
- Fairmount Boulevard, from 19th Avenue to Summit Avenue
- Fir Land Boulevard, from Agate Street to Spring Boulevard
- Floral Hill Drive, from Summit Avenue to 20th Avenue
- Friendly Street, from 18th Avenue to 28th Avenue
- Harris Street, from 18th Avenue to 30th Avenue
- Hawkins Lane, from 25th Avenue to Wintercreek Drive
- Hyacinth Street, from Torrington Avenue to Chimney Rock Lane and from Naismith Boulevard to City boundary and from Argon Avenue to Irvington Drive
- Jeppesen Acres Road, from Gilham Road to Coburg Road
- Kevington Street, from Warren Street to Brittany Street
- Kinsrow Avenue/ Commons Drive, from Martin Luther King Jr. Boulevardto Garden Way
- Lakeview Drive/Parkview Drive, from Gilham Road to County Farm Road
- Lancaster Drive, from UGB Lynnbrook Drive
- Lincoln Street, from 13th Avenue to 29th Avenue
- Lynnbrook Drive, from Lancaster Drive to Lynnbrook Drive
- Maple Street, from Elmira Road to Roosevelt Boulevard
- Marshall Avenue, from Echo Hollow Road to Hughes Street
- Minda Avenue, from Norkenzie Road to Gilham Road
- Monroe Street, from 8th Avenue to 13th Avenue
- North Park Avenue, from Northwest Expressway to Maxwell Road
- North Shasta Loop, from Spring Boulevard /Agate Street to 43rd Avenue
- Park Avenue, from NW Expressway to Virgil Avenue and from Kelly Lane to Howard Avenue
- Riverview Street, from Franklin Boulevard/I-5 Southbound Ramp to 16th Avenue
- Satre Street, from Bailey Lane to Western Drive
- Spring Boulevard, from 30th Avenue to Firland Boulevard
- Summit Avenue, from Fairmount Boulevard to Floral Hill Drive

- Taney Street, from Barger Drive to Marshall Street
- Timberline Drive, from Warren Street to Wintercreek Drive
- Van Buren Street, from 1st Avenue to Blair Boulevard
- Van Duyn Street, from Western Drive to Harlow Road
- Warren Street, from Bailey Hill Road to Timberline Drive
- West Amazon Drive, from Fox Hollow Road to Snell Street
- Willow Creek Road, from 18th Avenue to the Lane County ownership boundary
- Wintercreek Drive, from Timberline Drive to Hawkins Lane

Lincoln Street is a neighborhood collector in the Jefferson-Westside Neighborhood.

Bethel Drive is a neighborhood collector in the Trainsong Neighborhood.

Neighborhood collectors observed in Eugene ranged from having two narrow marked travel lanes with no shoulders, sidewalks, or bike lanes (e.g. Bethel Drive) to having no lane striping, no bike lanes, and on-street parking and sidewalks on both sides of the street (e.g. Lincoln Street). All city-owned neighborhood collectors are paved.

Local Streets

Local streets carry a lower volume of traffic than collectors and arterials, and provide direct access to neighborhoods and homes. Local streets generally feed into collector streets. The majority of local streets within the study area are owned by the City of Eugene; however, both ODOT and Lane County own some local streets as well. Local streets are not analyzed as part of this TSP.

Freight Routes

State freight routes and federally designated truck routes and intermodal connectors within the study area are depicted in Figure 6 and are described in the following section.

Freight and Truck Routes

The State Highway Freight System, as designated in the Oregon Highway Plan (OHP), includes the following freight routes within the study area[6]:

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[6] http://egov.oregon.gov/ODOT/TD/TDATA/gis/docs/STATEMAPS/FreightSystem.pdf

- Interstate 5, from North UGB to South UGB (freeway)
- Interstate 105/OR 126, from 6th /7th avenues to Interstate 5 (freeway)
- Randy Papé Beltline, from W 11th Avenue to Interstate 5 (freeway/expressway)
- Oregon Route 126/ W 11th Avenue, from West UGB to Randy Papé Beltline
- Oregon Route 99, from UGB to Randy Papé Beltline

In addition to the above, the following routes are part of the National Highway System (NHS) and are federally designated truck routes:

- Franklin Boulevard, from Interstate 5 to E Broadway
- E Broadway, from Franklin Boulevard to Mill Street
- Mill Street, from E Broadway to E 6th Avenue
- E 6th Avenue, from Mill Street to Highway 99N (at 5th Avenue)
- E 7th Avenue, from Mill Street to Highway 99N (at 5th Avenue)
- Highway 99N, from Randy Papé Beltline to E 7th Avenue (at 5th Avenue)

The difference between freight and truck routes is the agency that is authorized to make changes (mobility standards, construction, etc) to the routes. Federally designated truck routes need Federal Highway Administration (FHWA) approval while state routes need ODOT and/or local government approval. State freight routes have higher mobility standards than other state highways, but these mobility standards apply to freight routes only. The NHS truck routes also have certain standards, such as truck size, that must be met. In Eugene, the state freight routes generally correspond with the interstate highway system and the truck routes generally correspond with other major arterials within Eugene.

Intermodal Connectors

Intermodal connectors are roadways that provide access between major intermodal facilities and the National Highway System. The identified major intermodal facilities in Eugene include the Eugene Airport, Amtrak Station, Greyhound Bus Terminal, Eugene Transit Station, and the truck/rail reloading facilities within the Trainsong Neighborhood. The following street segments in Eugene are designated as intermodal connectors on the National Highway System:

- Garfield Street from 7th Avenue to Cross Street
- Cross Street from Garfield Street to Cleveland Street
- Cleveland Street from Cross Street to Roosevelt Boulevard
- Roosevelt Boulevard from Cleveland Street to OR 99
- Lockheed Drive from Greenhill Road to the Passenger Terminal
- Airport Road from Greenhill Road (west leg) to OR 99
- Oak Street from 7th Avenue to 5th Avenue
- 5th Avenue from Oak Street to Willamette Street
- Willamette Street from Amtrak station to 6th Avenue
- Willamette Street from 11th Avenue to 10th Avenue
- Charnelton Street from 6th Avenue to 10th Avenue
- Pearl Street from 6th Avenue to 10th Avenue
- High Street from 10th Avenue to 6th Avenue
- 10th Avenue from Charnelton Street to Pearl St

- 11th Avenue from Franklin Boulevard to Willamette Street

Opportunities for improvements to the freight system identified in the Draft 2010 Oregon Freight Plan are discussed in the Freight System Deficiencies section.

Traffic Operational Analysis

The TSP is intended to provide an understanding of regional needs and strategies to guide the management of the City's transportation system. These efforts are not intended to provide a comprehensive listing of citywide improvement needs, but rather to identify some of the key roadway and intersection needs. To understand system needs, the operational and safety performance of the existing transportation system was reviewed at 50 intersections throughout the City. Study intersections were selected based on the following criteria:

- Regionally significant facilities
- Intersections that may require future improvements and would therefore be part of a Capital Improvements Program (as noted through field observations, previous studies, and/or conversations with city staff)
- Land use, environmental and/or geometric opportunities and constraints, including those intersections that are already built out to the degree that may be feasible and/or desirable in the future
- Data and analyses needs for the Envision Eugene process

The location of the selected study intersections are shown in Figure 7. The vast majority of the study intersections (46 of 50) are controlled by traffic signals (herein referred to as "signalized").

The following sections describe the operational and safety performance of each of the intersections. Additional documentation is provided in the following Appendices:

- Appendix G: Technical Memorandum – Methods and Assumptions (Kittelson & Associates, Inc., October 2010)
- Appendix H: Traffic Volume Data
- Appendix I: Crash Data
- Appendix J: Existing Condition Operational Analysis Worksheets

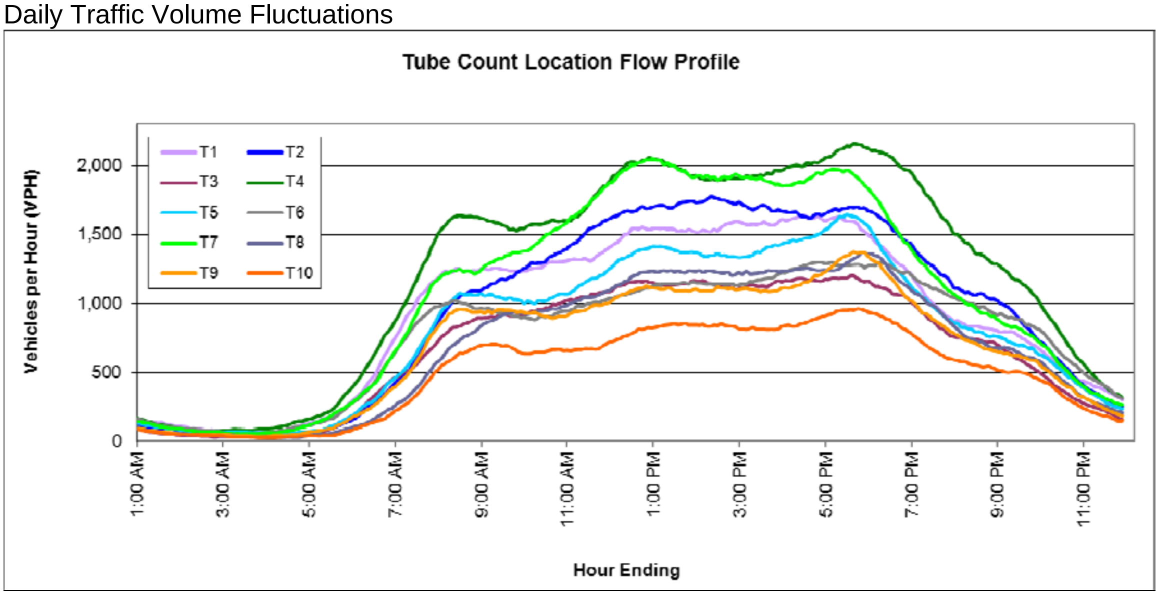
During the development of the TSP it may be necessary to amend this initial listing of study intersections with other locations that are identified as critical in gaining an understanding of assessing the citywide needs.

Design Hour Traffic Volumes

Traffic volumes throughout the City of Eugene were reviewed to understand how traffic flows vary throughout a typical weekday (e.g., Monday through Friday during months of the year when school and the University of Oregon is in session). Typically, traffic volumes peak during the weekday p.m. peak hour. This time period is representative of when travelers use the transportation system to travel to and from work, run errands, and travel to dining. At specific intersection locations, the land uses in the vicinity of the intersection may cause other peaking in traffic volumes to occur, such as near a school or large employer with shift changes that occur outside of a typical 4:00 to 6:00 p.m. period, or during large events at the University of Oregon.

The review of traffic volumes used peak hour turning movement counts at more than 100 intersections as well as 72-hour roadway tube counts recorded on ten key roadways. The graph below illustrates the traffic flows throughout the day, highlighting the distinct morning, midday, and evening commute periods at each of the tube count locations. The locations of each of the tube counts are shown in Figure 7.

Daily Traffic Volume Fluctuations



As shown in the graph, the highest combined bi-directional volumes are generally experienced during the evening commute period. On West 11th Avenue (Tube 7) and Coburg Road (Tube 2), traffic volumes are slightly higher during the midday peak hour.

Based on the review of existing daily traffic fluctuations, the weekday p.m. peak hour traffic volumes at each of the study intersections were used as the basis for calculating design hour volumes. As discussed in Appendix G: Technical Memorandum – Methods and Assumptions, the existing weekday p.m. peak hour volumes were adjusted to 30th highest hour conditions using the Seasonal Trend Methodology outlined in ODOT's Analysis Procedures Manual (APM) assuming Eugene is representative of a "commuter" community.

Intersection Operating Standards

Per TransPlan, the City of Eugene and Lane County base intersection operations on level-of-service (LOS). Both jurisdictions currently specify a minimum performance of LOS "D" at signalized intersections (less than 55 seconds of average per vehicle control delay). Within the Central Area Transportation Study Area Boundary (primarily downtown and near the University), the city allows LOS "E" (less than 80 seconds of average per vehicle control delay) for intersection operations. This reduced priority for vehicle throughput allows the City to allocate higher proportions of right-of-way to other travel modes within these areas.

The 1999 Oregon Highway Plan (OHP) outlines specific performance measures to be maintained along ODOT facilities as part of adopted Highway Mobility Standards. These standards are based on volume to capacity (v/c) ratios and are aimed at maintaining mobility along important road corridors and vary according to functional classification, location, and role within the National Highway System (NHS).

Per the OHP, the following intersection performance measures are applicable for the ODOT facilities within Eugene:

- Volume-to-capacity (v/c) ratio of 0.80 for Interstate 5 and Interstate 105, given their designation as Interstate facilities within a Metropolitan Planning Organization (MPO).
- Volume-to-capacity (v/c) ratio of 0.80 for Randy Papé Beltline (OR 569) from OR 126 to I-5 given its classification as a Statewide Highway Expressway within a MPO[7].
- Volume-to-capacity ratio of 0.85 for Highway 99 south of Randy Papé Beltline, given its classification as a Statewide NHS route and Truck Route. In addition, a v/c of 0.85 is applicable for all of the ramp termini within this segment. North of the Randy Papé Beltline and within the MPO boundary the applicable mobility standard is a volume-to-capacity (v/c) ratio of 0.80 due to its classification as a Freight Route.

The OHP standards above reflect signalized performance standards. At stop-controlled intersections where through highway movements do not experience control delay the appropriate mobility standard is based on the classification of the intersecting roadway.

Intersection Operations Analyses

Analyses of intersection performance relative to City and County level of service standards and ODOT mobility standards were performed based on the methodologies outlined in Appendix G: Technical Memorandum – Methods and Assumptions. The results of this analysis are summarized in Table 3 and Figure 8. As shown in Table 3, eight of the study intersections do not meet performance standards today. A more detailed discussion on each intersection that doesn't currently meet standards is provided below.

At other study area locations, there may be times of the day when queuing or congestion is experienced but the overall intersection operations meet standards today for the 30th highest hour condition. This is especially true for those intersections in the vicinity of schools that experience short periods of congestion during student drop-off and pick-up.

TABLE 3
Intersection Performance Summary for 30th Highest Hour Conditions

Intersection Name		Performance Standard			Intersection Performance Metrics				Meets Standard?
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
1	Randy Papé Beltline Westbound	TWSC	ODOT	0.85 v/c	WB	F	>> 50	> 1	No

[7] Highway OR 569 continues west along W 11th Avenue (OR 126) transitioning to OR Highway 126. Within the MPO boundary W 11th Avenue is classified as a Statewide Highway, Freight Route, and Truck Route, and contains the same mobility standards (v/c of 0.80).

Intersection Name		Performance Standard			Intersection Performance Metrics				Meets Standard?
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
	Ramps And Northwest Expressway								
2	Randy Papé Beltline Eastbound Ramps And Northwest Expressway	TWSC	ODOT	0.85 v/c	WB	F	>> 50	> 1	No
3	Randy Papé Beltline Westbound Ramps And Highway 99W	Signal	ODOT	0.85 v/c		B	11.9	0.64	Yes
4	Randy Papé Beltline Eastbound Ramps And Highway 99W	Signal	ODOT	0.85 v/c		B	19.6	0.56	Yes
5	Randy Papé Beltline Southbound Ramps And Barger Drive	Signal	ODOT	0.85 v/c		B	17.7	0.60	Yes
6	Randy Papé Beltline Northbound Ramps And Barger Drive	Signal	ODOT	0.85 v/c		B	11.4	0.49	Yes
7	Randy Papé Beltline And Roosevelt Boulevard	Signal	ODOT	0.80 v/c		D	54.5	0.85	No
8	Randy Papé Beltline And W 11th Avenue	Signal	ODOT	0.80 v/c		E	58.0	> 1	No
9	Highway 99W And Prairie Road	Signal	ODOT	0.85 v/c		B	18.2	0.56	Yes
10	Highway 99W And Barger Drive	Signal	ODOT	0.85 v/c		D	35.3	0.70	Yes
11	Highway 99W And Roosevelt Boulevard	Signal	ODOT	0.85 v/c		D	53.7	0.85	Yes
12	W 7th Avenue And W 5th Avenue	Signal	ODOT	0.85 v/c		C	21.5	0.47	Yes
13	River Road And Irving Road	Signal	City of Eugene	LOS “D”		C	23.1	0.78	Yes
14	River Road And Northwest Expressway - Railroad Boulevard	Signal	City of Eugene	LOS “D”		D	39.7	0.81	Yes
15	S Bertelsen Road And W 11th Avenue	Signal	City of Eugene	LOS “D”		D	50.0	0.98	Yes

Intersection Name		Performance Standard			Intersection Performance Metrics				Meets Standard?
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
16	Bailey Hill Road And W 11th Avenue	Signal	City of Eugene	LOS “D”		D	44.9	0.82	Yes
17	Seneca Road And W 11th Avenue	Signal	City of Eugene	LOS “D”		C	27.7	0.90	Yes
18	Garfield Street And W 11th Avenue	Signal	City of Eugene	LOS “D”		C	26.0	0.77	Yes
19	Chambers Street And W 11th Avenue	Signal	City of Eugene	LOS “D”		C	34.9	0.92	Yes
20	Garfield Street And W 13th Avenue	TWSC	City of Eugene	N/A	EB	F	> 50	0.34	No
21	Chambers Street And W 13th Avenue	Signal	City of Eugene	LOS “D”		C	22.8	0.76	Yes
22	Chambers Street And W 18th Avenue	Signal	City of Eugene	LOS “D”		D	39.3	0.86	Yes
23	Willamette Street And W 18th Avenue	Signal	City of Eugene	LOS “E”		B	18.8	0.70	Yes
24	Oak Street And W 18th Avenue	Signal	City of Eugene	LOS “E”		C	21.3	0.62	Yes
25	Pearl Street And E 18th Avenue	Signal	City of Eugene	LOS “E”		B	18.1	0.66	Yes
26	E 18th Avenue And Patterson Street	Signal	City of Eugene	LOS “E”		B	17.0	0.64	Yes
27	E 18th Avenue And Hilyard Street	Signal	City of Eugene	LOS “E”		C	20.9	0.70	Yes
28	Willamette Street And W 29th Avenue	Signal	City of Eugene	LOS “D”		C	32.3	0.69	Yes
29	Amazon Parkway - 30th Avenue And Hilyard Street	Signal	City of Eugene	LOS “D”		D	38.8	0.85	Yes
30	Mill Street And E 8th Avenue	Signal	City of Eugene	LOS "E"		A	7.9	0.73	Yes
31	Mill Street And E Broadway	Signal	City of Eugene	LOS “E”		B	13.0	0.64	Yes
32	Franklin Boulevard And E 11th Avenue	Signal	City of Eugene	LOS “E”		A	6.7	0.50	Yes

Intersection Name		Performance Standard			Intersection Performance Metrics				Meets Standard?
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
33	Agate Street And Franklin Boulevard	Signal	City of Eugene	LOS "E"		B	10.5	0.53	Yes
34	Walnut Street And Franklin Boulevard	Signal	City of Eugene	LOS "E"		B	10.1	0.69	Yes
35	Crescent Avenue And Norkenzie Road	Stop	City of Eugene	N/A		E	40.0	N/A	Yes
36	Coburg Road And Crescent Avenue	Signal	City of Eugene	LOS "D"		C	25.0	0.64	Yes
37	Coburg Road And Cal Young Road	Signal	City of Eugene	LOS "D"		B	12.9	0.58	Yes
38	Coburg Road And Harlow Road	Signal	City of Eugene	LOS "D"		C	27.6	0.82	Yes
39	Coburg Road And Oakway Road	Signal	ODOT	0.85 v/c		C	29.7	0.79	Yes
40	Coburg Road And Country Club Road	Signal	City of Eugene	LOS "D"		D	53.4	0.97	Yes
41	Delta Highway And Valley River Dr Southbound Ramps	Signal	ODOT	0.85 v/c		E	70.6	1.00	No
42	Willagillespie Road And Valley River Drive	Signal	Lane County	LOS "D"		C	27.9	0.69	Yes
43	Delta Highway And Willagillespie Road	Signal	Lane County	LOS "D"		B	16.8	0.78	Yes
44	W 6th Avenue And Garfield Street	Signal	ODOT	0.85 v/c		A	8.8	0.76	Yes
45	Chambers Street And W 6th Avenue	Signal	ODOT	0.85 v/c		D	46.8	0.94	No
46	W 6th Avenue And Madison Street	Signal	ODOT	0.85 v/c		B	14.7	0.93	No
47	W 7th Avenue And Garfield Street	Signal	ODOT	0.85 v/c		D	37.8	0.71	Yes
48	Chambers Street And W 7th Avenue	Signal	ODOT	0.85 v/c		D	38.4	0.85	Yes

Intersection Name		Performance Standard			Intersection Performance Metrics				Meets Standard?
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
49	Jefferson Street And W 7th Avenue	Signal	ODOT	0.85 v/c		C	23.5	0.81	Yes
50	Washington Street And W 7th Avenue	Signal	ODOT	0.85 v/c		B	17.6	0.85	Yes
OR 569 Beltline Highway: River Road to Coburg Road Facility Plan									
51	Division Avenue And Beaver Road		Lane County	LOS “D”		F	50.0	0.35	No
52	Coburg Road And Chad Drive	Signal	City of Eugene	LOS “D”		E	72.1	0.68	No
53	Delta Highway Northbound Ramps And Goodpasture Island Road	Signal	Lane County	LOS “D”		F	>80	1.04	No
54	Coburg Road And Eastbound Beltline Highway On/Off Ramps	Signal	ODOT	0.90		D	49.7	0.95	No
55	Coburg Road And Westbound Beltline Highway On/Off Ramps	Signal	ODOT	0.90		E	60.3	0.91	No

TWSC = Two-way stop-controlled; EB = eastbound; WB = westbound; v/c = volume-to-capacity ratio

Intersection 1, 2. Northwest Expressway and Randy Papé Beltline Ramps (Eastbound and Westbound)

The intersection of Northwest Expressway and Randy Papé Beltline Ramps are under the jurisdiction of Lane County and ODOT. Today, drivers exiting Randy Papé Beltline access Northwest Expressway at stop-controlled intersections. At this location, the mainline of Randy Papé Beltline is above the grade of Northwest Expressway. With the high volume of through traffic on Northwest Expressway, drivers exiting Randy Papé Beltline can experience long delays (corresponding to level of service “F”) trying to turn left onto Northwest Expressway.

Preliminary analyses conducted as part of the Existing Conditions review revealed that neither ramp intersection warrants installation of a traffic signal under today’s conditions.

Intersection 7. Randy Papé Beltline/Roosevelt Boulevard

The signalized intersection at Roosevelt Boulevard marks the transition of Randy Papé Beltline from a grade-separated facility to a suburban/urban arterial with at-grade intersections. At this intersection, the posted speeds of both facilities are still typical of a grade-separated environment: Randy Papé Beltline is posted at 55 miles per hour and Roosevelt Boulevard is posted at 45 miles per hour. An off-street pedestrian/bicycle trail paralleling Roosevelt Boulevard provides access to crossing opportunities via the northeast and northwest corners of the intersection.

The intersection operates at level-of-service "D" but with a volume-to-capacity ratio of 0.85, which exceeds the ODOT standard of 0.80. There are dedicated turn lanes on each of the approaches for the intersection and Randy Papé Beltline has two through travel lanes in each direction and Roosevelt Boulevard has one through lane in each direction. Previous discussions and studies have identified the need for improved connectivity in this area of the City as well as increased transit service, which may help provide alternative routes and modes for travelers as the area continues to grow.

Intersection 8. Randy Papé Beltline/West 11th Avenue

This intersection marks the terminus of Randy Papé Beltline at West 11th Avenue, though OR 569 continues west along OR 126W. The signalized intersection currently operates at capacity and level-of-service "E" conditions, given the high turning movement volumes that are facilitated at this location that result from limited travel route choices in this area. At the intersection, West 11th Avenue has two through lanes in each direction and a dedicated left-turn lane on the eastbound approach and a dedicated right-turn lane on the westbound approach. Randy Papé Beltline has a right-turn and a left-turn lane.

Two studies have recently been completed to assess needs along the West 11th Avenue corridor. The WEC Study (2009) identified a need for connectivity improvements, transit improvements, traffic signal improvements, and the construction of a multi-way boulevard in order to provide congestion relief to West 11th Avenue. The WEC study is completed but has not been adopted by City Council – any recommendations from the study would require further analysis and review. The West 11th Avenue corridor study completed in 2009 report focused on assessing intersection performance and mobility needs along the West 11th corridor.

Intersection 20. Garfield Street/West 13th Avenue

The land uses surrounding this intersection are a mixture of residential and small commercial uses. The Unsignalized intersection of Garfield Street and W 13th Avenue is unconventionally configured to allow freeflow conditions for the higher volume southbound movement. The intersection contains extensive signs warning drivers of the transition from a southbound to westbound (one-way) alignment.

This intersection facilitates a fairly low volume of eastbound vehicles today although the per-vehicle delays are high. This intersection was analyzed as part of the West 11th Avenue Corridor Study for operations and safety. There is sufficient capacity at the intersection for the eastbound movement and a traffic signal is not warranted at this location based on the existing conditions review.

Intersection 41. Delta Highway Southbound Ramps/Valley River Drive

This intersection provides access between the Delta Highway southbound on and off-ramps and connects to neighborhoods to the east with a Delta Highway overcrossing. Delta

Highway is a regionally significant facility that provides north-south freeway connectivity throughout the city and offers connections to Randy Papé Beltline, I-105, residential and commercial uses within the City, and the industrial areas in the County. The intersection with Valley River Drive occurs in a predominantly retail area. Residential uses and the Willagillespie Elementary School are located on the east side of the interchange. There is a retail access in the immediate vicinity of the intersection resulting in several access points along Valley River Drive between the Delta Highway ramps and Goodpasture Island Road.

The intersection currently operates at capacity and level-of-service "E." There are turn lanes on all approaches and two through lanes on Valley River Drive at the intersection. Any mitigation-related measures for this intersection will need to consider the overall connectivity provided to neighborhoods to the east as well as to the regional highway system.

Intersection 45. Chambers Street/West 6th Avenue

Within downtown Eugene, West 6th Avenue forms an east-west couplet with West 7th Avenue as part of Highway 99. The Chambers Street intersection is bounded by small retail uses that are provided access within the grid system of downtown streets. This intersection is outside of the Central Area Transportation Study boundaries. Although intersection delays correspond to level-of-service "D" conditions today, it does not meet ODOT mobility standards for Highway 99. There are turn lanes on each of the approaches and Chambers Street has two northbound through lanes and three southbound lanes (two becoming left-turn lanes at 7th Avenue) whereas West 6th Avenue has four through lanes (one way). Northbound Chambers Street has two lanes crossing and proceeding away from West 6th Avenue. Any future modifications will need to be considered within the context of the regional system, given the significance of Chambers Street and Highway 99 in providing multimodal mobility throughout Eugene and to areas outside the city.

Intersection 46. Madison Street/West 6th Avenue/I-105 Ramp

This intersection provides access between westbound Highway 99 and southbound I-105. The western CATS boundary is Lincoln Street. The intersection operates at a level-of-service "B" but exceeds ODOT mobility standards. The off-ramp volumes are high and are given preferential treatment in the timing of the traffic signal but the movement operates close to capacity. As a result, the overall intersection delays are low but the v/c is high. The ability to make any geometric modifications at this intersection is somewhat constrained by the presence of I-105 and the viaduct.

The City is considering the removal of the westbound right-turn movement from West 6th Avenue that crosses the I-105 southbound off-ramp. This low-volume movement can be accommodated through alternative routes, and its removal would provide a substantial improvement in intersection operations. In addition, treatments have been considered to prohibit lane changes immediately west of the intersection either through signage or construction of channelizing islands to reduce the sideswipe collision history and improve operations.

OR 569 Beltline Highway: River Road to Coburg Road Facility Plan

The Beltline Highway study identified five intersections that were exceeding intersection operations standards in 2008, as listed below.

- Division Avenue And Beaver Road
- Coburg Road And Chad Drive
- Delta Highway Northbound Ramps And Goodpasture Island Road
- Coburg Road And Eastbound Beltline Highway On/Off Ramps
- Coburg Road And Westbound Beltline Highway On/Off Ramps

The Beltline corridor study did not identify near-term solutions as part of the existing conditions analysis, and the need for both system and point improvements to address these deficiencies are being incorporated into the long-term corridor plan.

Recurrent Congestion Sites

In addition to the study intersections, several corridor segments were identified by City, County, and ODOT staff for consideration of treatment options within the future conditions analysis. These corridors are identified as Congestion Management Corridors within TransPlan.

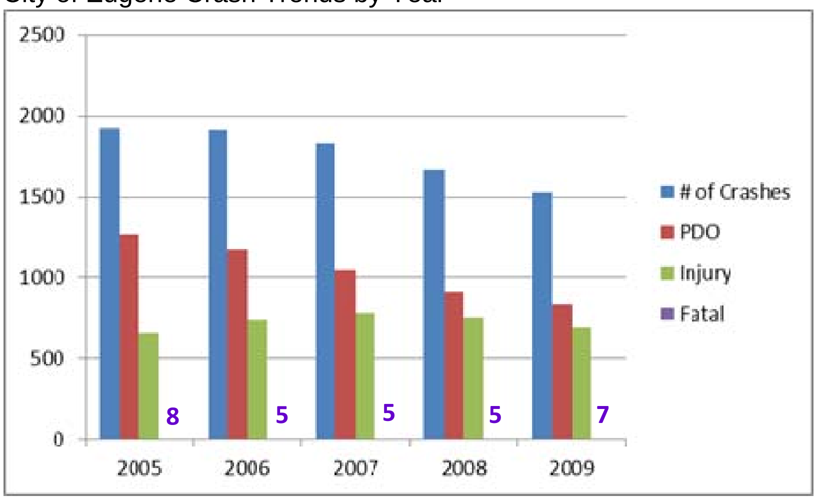
1. Interstate 5, from OR 58 interchange at Goshen to north boundary of the Transportation Management Area (TMA) at Coburg Road
2. OR 126/I-105, from Garfield Street in Eugene to Main Street/McKenzie Highway in Springfield
    a. 6th-7th couplet from Garfield to Jefferson
    b. Washington-Jefferson Bridge (I-105) from 7th to Delta Highway
    c. I-105 from Delta Highway to Interstate 5
    d. Eugene-Springfield Highway from I-5 to Main Street/McKenzie Highway
3. Beltline Highway, from Highway 99 to Interstate 5
4. Main Street/McKenzie Highway, from Mill Street (downtown Springfield) to 70th Street
    a. Broadway/Franklin Boulevard, from Mill St. (Eugene) to Springfield Bridge
    b. Broadway from Mill St. to Alder St.
    c. Franklin Boulevard from Alder St. to I-5
    d. Franklin Boulevard from I-5 to Springfield Bridge
5. West 11th Avenue, from Terry Street to Chambers Street
6. Ferry Street Bridge/Coburg Road, from Broadway to Crescent Avenue
7. Southeast Eugene corridor (Hilyard-Patterson-Amazon Parkway-Willamette) from 13th to 33rd Avenue
8. 18th Avenue, from Bertelsen Road to Agate Street

Streets with capacity constraints today and in the future are shown in Figure 9.

Safety Analysis

Crash records were obtained throughout the City of Eugene to identify regional crash trends that may be addressed through engineering, education, and enforcement strategies. Reportable crashes are those that result in an injury or fatality or result in over $1,500 in vehicle or property damage. The graph below illustrates the number of crashes by year, and highlights a decrease in total collisions, with reported 2009 crashes 79 percent of the level experienced in 2005. Between five and eight fatal crashes have been reported per year. Fatal crashes represent 0.3 percent of all crashes within the City, injury crashes represent less than 41 percent of all crashes, and non-injury (property damage only, PDO) crashes represent about 59 percent of the total.

City of Eugene Crash Trends by Year



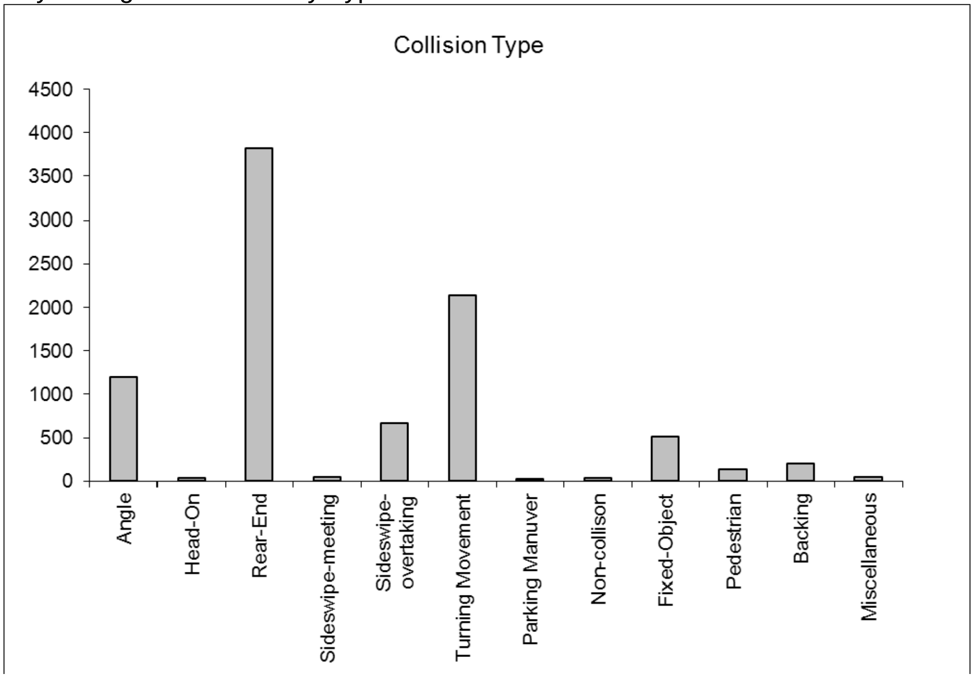
Review of weather and roadway surface conditions showed that of the total crashes, approximately 75 percent occur during clear weather with dry roadway conditions, approximately 7 percent occur during cloudy weather, and 16 percent occur during rainy conditions (20 percent with wet roadways). Approximately 2 percent of the crashes occurred during snow/ice, foggy, or unknown conditions.

Following volume trends throughout the day, about three in four collisions occur in daylight, one in five crashes occur in the dark, and one in twenty crashes occur during either dusk or dawn.

The graph on the following page illustrates the types of collisions that have occurred throughout the City. Overall, all types of collisions have declined throughout the five-year period, with the smallest reduction in crashes associated with turning movement crashes. Pedestrian-involved crashes (grouped with bicyclist crashes) have declined from 37 crashes in 2005 to 20 crashes in 2009 following an annually declining pattern.

Day of week trends show that crash frequencies increase through the week, with crashes on Monday representing 15 percent of the total and crashes on Friday representing 19 percent of the total. Weekend crashes comprise 18 percent of the total, with Sunday representing 8 percent of the overall crashes. Crashes by time of day follow volume trends, with a gradual increasing trend through the morning and a peak during the evening commute period. Following the peak volume trends, crashes drop off significantly into the evening.

City of Eugene Crashes by Type



Intersection Crash Rates

Intersection crash rates were reviewed to provide an overall screening of the safety at the study intersections. The crash rates were developed based on crash data provided by ODOT for each of the study intersections, and annual volumes were approximated from the commute period turning movement counts and roadway tube data. The total crash experience was taken directly from queries of the Statewide crash database without further screening of the individual records, and as such provides a conservatively high estimate of the crash experience. The resultant rates are shown in Table 4 and displayed in Figure 10. For the initial screening, a crash rate higher than 1.0 was considered to be an indicator of potential geometric or operational deficiencies. Intersections experiencing a crash rate higher than this were reviewed in greater detail to identify any discernable trends. In addition, any study intersection experiencing a fatality was also reviewed.

TABLE 4
Intersection Crash Rates

Intersection #	Intersection Name	MEV/ Year	Total Crashes (5 Years)	Crash Rate
1[2]	Randy Papé Beltline Westbound Ramps And Northwest Expressway	5.79	25	0.86
2	Randy Papé Beltline Eastbound Ramps And Northwest Expressway	5.11	28	1.10
3	Randy Papé Beltline Westbound Ramps And Highway 99W	8.94	19	0.43
4	Randy Papé Beltline Eastbound Ramps And Highway 99W	7.10	21	0.59
5	Randy Papé Beltline Southbound Ramps And Barger Drive	9.70	15	0.31
6	Randy Papé Beltline Northbound Ramps And Barger Drive	8.70	10	0.23
7	Randy Papé Beltline And Roosevelt Boulevard	11.54	54	0.94
8	Randy Papé Beltline And W 11th Avenue	12.71	36	0.57
9	Highway 99W And Prairie Road	8.07	11	0.27
10	Highway 99W And Barger Drive	9.80	14	0.29
11	Highway 99W And Roosevelt Boulevard	12.34	83	1.35
12	W 7th Avenue And W 5th Avenue	8.30	18	0.43
13	River Road And Irving Road	12.50	71	1.14
14	River Road And Northwest Expressway - Railroad Boulevard	11.69	13	0.22
15[2]	S Bertelsen Road And W 11th Avenue	12.59	62	0.99
16	Bailey Hill Road And W 11th Avenue	13.62	103	1.51
17	Seneca Road And W 11th Avenue	12.39	62	1.00
18	Garfield Street And W 11th Avenue	11.62	66	1.13
19	Chambers Street And W 11th Avenue	10.46	37	0.71[1]
20	Garfield Street And W 13th Avenue	4.79	27	1.13
21	Chambers Street And W 13th Avenue	8.76	61	1.39
22	Chambers Street And W 18th Avenue	11.77	56	0.95[1]
23	Willamette Street And W 18th Avenue	8.12	26	0.64[1]
24[2]	Oak Street And W 18th Avenue	7.85	20	0.51[1]
25	Pearl Street And E 18th Avenue	7.69	16	0.42[1]
26	E 18th Avenue And Patterson Street	7.47	28	0.75
27	E 18th Avenue And Hilyard Street	7.60	35	0.92
28	Willamette Street And W 29th Avenue	9.43	66	1.40[1]
29	Amazon Parkway - 30th Avenue And Hilyard Street	13.03	43	0.66
30	Mill Street And E 8th Avenue	12.31	32	0.52
31[2]	Mill Street And E Broadway	12.02	34	0.57
32	Franklin Boulevard And E 11th Avenue	11.12	20	0.36
33	Agate Street And Franklin Boulevard	13.35	44	0.66
34	Walnut Street And Franklin Boulevard	11.58	22	0.38
35	Crescent Avenue And Norkenzie Road	5.57	8	0.29
36	Coburg Road And Crescent Avenue	7.67	52	1.36
37	Coburg Road And Cal Young Road	8.84	35	0.79[1]
38	Coburg Road And Harlow Road	11.52	45	0.78
39	Coburg Road And Oakway Road	16.98	78	0.92
40	Coburg Road And Country Club Road	18.05	18	0.20
41	Delta Highway And Valley River Dr Southbound Ramps	11.53	11	0.19
42	Willagillespie Road And Valley River Drive	6.38	16	0.50

Intersection #	Intersection Name	MEV/ Year	Total Crashes (5 Years)	Crash Rate
43	Delta Highway And Willagillespie Road	5.83	31	1.06[1]
44[2]	W 6th Avenue And Garfield Street	9.38	22	0.47
45	Chambers Street And W 6th Avenue	15.84	53	0.67[1]
46	W 6th Avenue And Madison Street	11.46	16	0.28
47	W 7th Avenue And Garfield Street	11.80	58	0.98
48	Chambers Street And W 7th Avenue	13.95	38	0.54[1]
49	Jefferson Street And W 7th Avenue	14.62	107	1.46[1]
50	Washington Street And W 7th Avenue	13.99	97	1.39[1]

MEV: Million Entering Vehicles
Crash Rate: Crashes per Million Entering Vehicles
[1]Further review of crashes at these locations resulted in a number of crashes that were not intersection-related (i.e., occurring at adjacent intersections, etc). The reported crash rate reflects the adjustment.
[2]Crash records included a fatal collision

As shown in Table 4, thirteen of the study intersections experienced a crash rate of 1.0 or greater between 2005 and 2009. In reviewing the individual intersection crash records it was noted that the collision records summarized for individual intersections also included crashes at driveways and in some cases closely spaced public streets in proximity to the intersection. In addition, crashes that occurred away from intersections may have been excluded, such as the area of Delta Highway near the Randy Papé Beltline interchange where long queues and geometric conditions result in frequent collisions. Further review at each of these locations is provided below.

Intersection 1, 2. Randy Papé Beltline Ramps/Northwest Expressway

The image to the right shows the current intersection configuration. As discussed above, the operations analysis identified the stop-controlled westbound approach operating at-capacity and at LOS “F”. Although left-turn delays are high during the peak periods, the left-demand is low likely as a result of drivers choosing alternative routes to avoid the delays.

Aerial view of the Randy Papé Beltline Westbound Ramp intersection with Northwest Expressway.

Review of the crash records identified a total of 53 crashes throughout the five year period at the interchange terminals, with 25 crashes on the eastbound terminal. Injury crashes comprise approximately 43 percent of all crashes at the interchange terminals.

Citywide, approximately 25 percent of crashes have occurred during inclement weather, such as rain, snow, etc. At the ramp terminal intersections, approximately 44 percent of crashes have occurred on wet pavement. In addition, approximately 40 percent of all reported crashes occurred in poorly lit or dark conditions, which is much higher than citywide trends.

This data suggests that inclement weather and the lack of illumination may be affecting visibility. In addition, as discussed in the operations review, due to the high volume of through traffic there are limited gaps in traffic for vehicles to turn from the ramp onto Northwest Expressway. The crash experience suggests that vehicles may be accepting shorter gaps than are necessary to safely maneuver into the through traffic, especially during inclement weather conditions. Intersection improvements should consider both the operational and safety needs.

The one fatality within the crash records occurred in December 2007 and was reported as a single vehicle collision. Further review of the database revealed that the crash occurred on the Randy Papé Beltline mainline east of the diverge point for the westbound off-ramp. Accordingly, the fatal crash was not associated with the interchange ramps.

Intersection 11. Highway 99W/Roosevelt Boulevard

At the Highway 99W intersection with Roosevelt Boulevard intersection, 83 crashes were reported during the past five years, with 53 percent of the crashes reported as injury crashes. Yearly crash experience has been relatively constant throughout this period, with rear-end and turning movement crashes comprising three-quarters of all reported collisions. Of the reported rear-end collisions, approximately 46 percent are associated with northbound vehicles, approximately 34 percent are associated with southbound vehicles, and the remainder are associated with eastbound or westbound vehicles. Two of the crashes at this intersection involved a pedestrian, both of which were classified as injury crashes. Review of the crash data did not identify any specific patterns or trends.

Geometric review of the intersection identified that the intersection is skewed at an approximately 30 degree angle, with channelized right-turn islands to provide an adequate turning radius on the southeast and northwest quadrants. Separate left-turn lanes are in place and provide protected signal phasing on all approaches. Private driveways are located within close proximity to the intersection, though the crash records show only two collisions that were recorded as driveway-related.

The City of Eugene has reviewed improvement options at this intersection to increase driver awareness on the northbound approach, where the majority of the rear-end crashes have occurred. The railroad overcrossing limits the available sight distance toward the back of queue on the northbound approach, so an overhead flashing warning sign was identified as the recommended mitigation. No funding has yet been secured for this improvement.

Intersection 13. River Road/Irving Street – Hunsaker Lane

There were 71 reported crashes at the River Road/Irving Street intersection throughout the five year analysis. Ninety-percent of the reported crashes were either rear-end (52 percent) or turning movements (38 percent), and one-third of the reported crashes resulted in injuries.

Review of the crash records identified two pedestrian crashes that occurred within the intersection on the westbound exiting lane, one in September 2008 and one in August 2009. In the 2009 crash there were two pedestrians struck by a southbound right-turning vehicle. The crash records cited failure to yield right-of-way. The 2008 crash was coded as the fault of the pedestrian at an illegal crossing location.

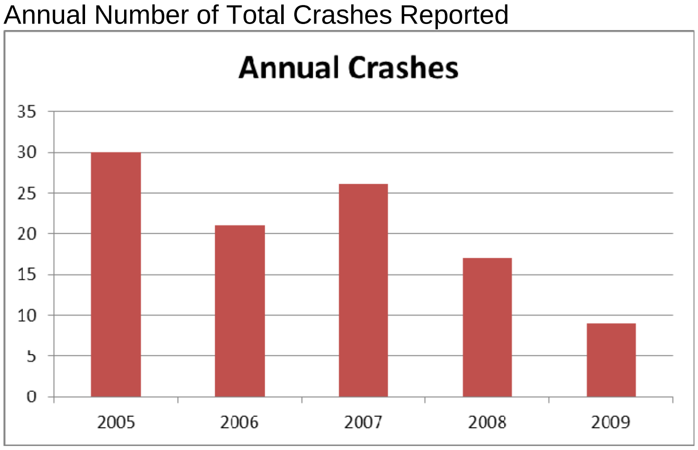
The current signal timing includes protected and permissive phasing on the north-south approaches and permissive-only phasing east-west. The majority of crashes were reported on the higher-volume north-south approaches, though based on the volumes rear-end crashes on the eastbound approach appear to be over-represented within the crash records, which could be attributable to the straight uncontrolled roadway section prior to the signal and numerous private access driveways within the signal influence area. Nearly all of the turning crashes involved north-south through traffic, and the northbound left-turn was the predominant movement.

Potential improvement options include replacement of the five-section north-south signal displays with four-section flashing yellow arrow signal displays, installation of signal ahead signage, and consideration of median treatments to reduce turning movements adjacent to the traffic signal.

Intersection 16. Bailey Hill Road/W 11th Avenue

A total of 103 crashes were reported at this intersection during the five year period, with one crash reported as drug and alcohol related and 32 reported due to excessive speed. Crashes at the intersection have been declining since their peak of 30 crashes in 2005 to only 9 crashes in 2009. Of the reported crashes 60 (58 percent) were non-injury collisions. Over half of the reported crashes (58 of 103 total crashes) were classified as rear-end collisions. The other reported collision types were turning movement (30), angle (7), sideswipe (5), fixed-object (2), and miscellaneous (1). Of the 103 reported crashes only 20 were reported to occur within the intersection; it is unclear what percentage of the crashes occurred at nearby private driveways. Sight distance limitations were observed from private driveways north of the intersection along Bailey Hill Road due to the crest vertical curve.

Annual Number of Total Crashes Reported



Intersection 17. Seneca Road/W 11th Avenue

A total of 62 crashes were reported at this signalized “T” intersection during the period from 2005 to 2009. Of these collisions 27 resulted in injuries. The majority of crashes were categorized as either turning movement (30) or rear-end (26) collisions. Turning movement crashes have declined since their peak in 2005 with 10 reported crashes to only three crashes in 2008 and 2009. There was one pedestrian crash reported; the collision occurred in April

2008 approximately 200 feet west of the intersection. Annual crashes at the Seneca Road and W 11th Avenue intersection have been declining with 17 reported crashes in 2005 and only 6 in 2009.

Field review of the intersection identified a closely spaced public road (Buck Street) to the east of the intersection forming an offset "T" and stop-controlled northbound leg. Buck Street serves multiple businesses. It is recommended that the City look for opportunities to realign this road with the signal, further offset the intersection, consider access restrictions and/or channelization, or look for opportunities to close the access with provision of shared access easements to adjoining parcels. These strategies could help to avoid conflicts between access needs and signalized intersection operations. Based on the declining crash trends it is also recommended that the intersection continue to be monitored.

Intersection 18. Garfield Street & W 11th Avenue

A total of 66 crashes were reported at the intersection over the period analyzed. Of these, 50 were classified as non-injury crashes. Over half of the crashes were classified as rear-end collisions, with the vast majority occurring eastbound and westbound on W 11th Avenue. No other significant trends were observed at this location.

Intersection 20. Garfield Street/W 13th Avenue

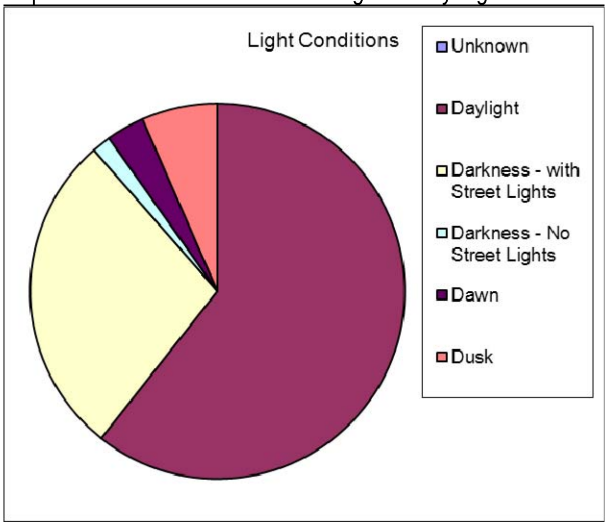
The unsignalized intersection of Garfield Street and W 13th Avenue is unconventionally configured to allow free-flow conditions for the higher volume southbound movement. The intersection contains extensive signs warning drivers of the transition from a southbound to eastbound (one-way) alignment.

Crash records identify a total of 27 crashes, though the annual crashes have been declining. Three-quarters of the reported crashes result in property damage only, likely reflective of the lower severity rear-end crash type comprising a majority (67 percent) of the reported crashes. The high occurrence of rear-end crashes is likely associated with the unconventional intersection configuration. The intersection currently exceeds performance thresholds due to high delay experience on the low-volume eastbound approach. It is recommended that the City consider reconfiguration of the intersection to a more conventional form that better meets driver expectations.

Intersection 21. Chambers Street/W 13th Avenue

The intersection of Chambers Street and W 13th Avenue shows an over-representation of crashes during non-daylight periods with 40 percent of the total reported collisions during periods of low light as compared to a citywide average of approximately 25 percent. Overhead intersection illumination is present on the northeast and southwest quadrants with cobrahead-style fixtures. Field observations noted that although the intersecting roadways are perpendicular, the signal visibility is reduced due to vegetation overhanging the street. In addition, the dark background when viewing the signals from surrounding trees and low lumens from the signals further reduces their visibility. Potential improvements could include higher visibility backplates (such as a yellow border), higher intensity signal lamps, and pruning along W 13th Avenue. This is likely to be an issue beyond this single intersection, as street trees and vegetation are prevalent along many City corridors. Due to the location of the intersection within a school zone additional illumination may also be considered if these measures are not adequate.

Reported Intersection Crashes Categorized by Light Conditions



Turning movement crashes comprise 20 percent of the overall total crashes at this intersection. Today, permissive-only left-turn signal phasing is provided at the intersection. Based on the high through volume in the northbound direction, it is recommended that the City consider protected and permissive signal phasing for the southbound to eastbound maneuver. The protected and permissive phasing will allow the signal to operate with protected only phasing during the peak periods and permissive phasing during off-peak periods to reduce unnecessary delay.

Intersection 22. Chambers Street/W 18th Avenue

Annual crashes at Chambers Street and W 18th Avenue were declining from 2005 (18 crashes) through 2008 (8 crashes) but again increased in 2009 (18 crashes), which could be related to the construction of new businesses and increased traffic to these new generators. Crash patterns were reviewed at the intersection based on this increasing trend despite the crash rate remaining below 1.0 per million entering vehicles. Review of the crashes showed that the occurrence generally followed regional trends related to traffic flows, weather, and severity.

Field review of the intersection noted a number of commercial driveways surrounding the intersection (see photo below). Based on the available information within the ODOT crash database it is difficult to ascertain the specific location of a crash. Nearly three quarters of all reported crashes occurred outside of the intersection; it is likely that ten crashes were associated with private driveways.

Private access driveways onto W 18th Avenue.

There were three reported pedestrian crashes, including two in 2005 and one in December 2009, all of which were classified as injury crashes. One of the crashes occurred within the intersection and two crashes occurred mid-block. The mid-block crashes occurred adjacent to the mid-block transit stop.

The land uses surrounding the intersection were likely constructed prior to current frontage standards so it is recommended that the City work with property owners over time to evaluate site frontage standards and site layout improvements that consolidate access and better orient pedestrians toward the signalized or existing grade separated crossings. It is also recommended that consideration be given to relocating the bus stops to far side of the intersection to facilitate ease of crossing.

Intersection 28. Willamette Street/W 29th Avenue

Crash records identify a total of 66 crashes throughout the 2005 through 2009 analysis period at the Willamette Street and W 29th Avenue intersection, representing a crash rate of 1.40.

Review of the crash patterns identified an over-representation of turning crashes at the intersection. These crashes represented 53 percent of the overall crashes and exhibit an increasing trend throughout the analysis period. Review of the crash database showed that only 16 of the 66 reported crashes occurred within the intersection, indicating that a high number of crashes could be associated with adjacent commercial driveways.

No other crash patterns or geometric deficiencies were noted based on review of the crash trends.

Intersection 36. Coburg Road/Crescent Avenue

There were 52 reported crashes at the Coburg Road and Crescent Avenue intersection within the five year assessment period, with 24 of these crashes resulting in injuries. Half of the collisions were classified as rear-end crashes. A single pedestrian crash was reported in September 2005, and was reported as occurring 40 feet from the intersection. The occurrence was reported to be an injury crash.

Review of the crashes by time of day, weather and road surface conditions, day of week, crash type, lighting conditions, and annual occurrence did not identify any patterns within the crash data. Due to the high number of rear end collisions, treatment options could include the addition of a second through signal display and replacement of the five-section protected and permissive heads with flashing yellow arrows, increased visibility signal heads, and review of intersection approach signs.

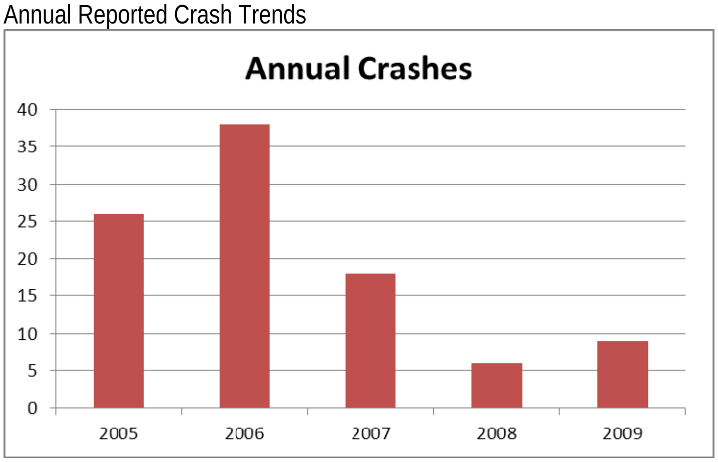
Intersection 43. Delta Highway & Willagillespie Road

A total of 31 crashes were reported at this intersection over the period analyzed. Of these, 14 were classified as injury crashes. Over half of the reported crashes were reported to be rear-end collisions, of which most occurred in the northbound direction on Willagillespie Road, despite the signal at Valley River Drive located immediately south. No other significant trends were observed at this location.

Intersection 49. Jefferson Street/W 7th Avenue

Review and screening of the reported crashes at Jefferson Street and W 7th Avenue identified 107 crashes associated with the intersection, resulting in a crash rate of 1.46 crashes per million entering vehicles. Forty-seven of the reported crashes resulted in injuries. Annual review of the crashes identified significantly higher crash frequency in 2005, 2006, and 2007. Rear-end crashes were the most prevalent crash type, comprising 43 percent of the overall crashes. No patterns were identified through review of crashes by illumination, weather, road surface conditions, time of day, or day of week.

Annual Reported Crash Trends



Field observations at the intersection noted that the volume of traffic in conjunction with the dense vehicle platoons from the signalized intersections makes lane change maneuvers difficult along W 7th Avenue. The crash records cited excessive speeds as a contributing factor in a majority of the crashes. The City should consider a review of the intersection yellow and all-red signal timing to ensure adequate clearance intervals are provided.

Intersection 50. Washington Street/W 7th Avenue

Ninety-seven collisions were reported at the intersection of Washington Street and W 7th Avenue, resulting in a crash rate of 1.39. Review of these crashes highlights a sharp decrease in the number of crashes recorded annually since 2006; there were 38 crashes in 2006, 18 in 2007, 6 in 2008, and 9 in 2009.

Existing signage at the Washington Street and 7th Avenue intersection.

Crashes at the intersection were more likely to occur during rainy conditions as compared to overall City averages, with 35 percent of the crashes on wet pavement. Fixed object crashes were over-represented at the intersection comprising 18 percent (17 in total) collisions over the five-year period, which is unusually high for crashes at an urban intersection. Fixed-object crashes typically comprise less than five percent of all crashes at conventional intersections. A more detailed review of the fixed object crash records indicate that 8 vehicles collided with a guard rail, 4 collided with a median barrier, 4 collided with bridge railing, and 1 collided with the curb as well as a nearby fence or building. The high occurrence of these crashes could be attributed to driver confusion associated with the parallel northern routes (to I-105 and Washington Street) and one-way streets. The higher proportion of crashes during rainy weather could also be attributable to driver confusion and unclear wayfinding direction.

Based on a field review of the intersection it is recommended that the City review signing and striping treatments at the intersection (and west through the Jefferson Street and 7th Avenue signal) to provide a clear and simple message to motorists. Consideration should also be provided to raised pavement markings, lane extension lines, and higher visibility treatments along the channelized islands and median curbing. This may help reduce fixed-object crashes due to the atypical configuration. However, it is likely that fixed object crashes will continue to be over-represented regardless of the treatments provided.

Beltline Highway Safety Review

Review of the Beltline Highway study identified numerous crashes along the highway, with the majority of crashes reported within the vicinity of interchanges. Further, many of the crashes along the highway occurred during the morning and evening commute periods, when traffic volumes and congestion levels tend to be higher. In particular, the crash rate and frequency were the highest near the Delta Highway and River Road Interchanges. These two locations account for nearly 70 percent of all recorded crashes during the period measured. In addition to a high percentage of rear end crashes, a number of crashes occurred in which vehicles ran off the road or were involved in a sideswipe.

Per information obtained from ODOT, the average crash rate measured at similar facilities (i.e., "other freeways and expressways") in the year 2007 was 0.73 crashes per million vehicle miles (MVM). The crash rate measured for the segment of Beltline Highway between River Road and Delta Highway is higher than the statewide average with a rate of 1.16.

Between Delta Highway and Coburg Road, the measured crash rate is lower than the statewide average.

Fatalities

Review of the crash database identified thirty fatalities throughout Eugene over the five-year analysis period. The fatal crashes were relatively constant throughout this period, with five to eight crashes per year. In addition to the fatalities previously described, there were four other study intersections with fatal crashes. Review of the records showed that these were isolated incidents; two involved drugs or alcohol, one involved an illegal mid-block pedestrian crossing within proximity of a marked crosswalk, and one was a random event that was caused by a pet running into traffic.

Corridor Safety Needs

A qualitative review of crash history at intersections and along corridors beyond the study intersections was also performed. This evaluation included a review of roadways where the recorded crash density was unusually high, with no weighting provided to traffic volumes. The following corridors were identified as candidates for further safety review, in order of priority:

- Delta Highway (Good Pasture Island Road to Green Acres Road),
- Coburg Road (E 6th Avenue to Oakway Road), and
- River Road (Maxwell to Irving).

In addition to these corridors, the following intersections are also recommended for further safety review:

- Coburg Road/Willakenzie Road
- River Road/River Avenue

Pedestrian System

Pedestrian Facility Types

According to the Oregon Bicycle and Pedestrian Plan (OBPP), pedestrian facilities are defined as any facilities utilized by a pedestrian or persons in wheelchairs. These types of facilities include walkways, traffic signals, crosswalks, curb ramps, and other features such as illumination or benches.

The following types of pedestrian facilities are recognized by the American Association of State Highway and Transportation Officials (AASHTO) and the OBPP unless otherwise noted:

- **Sidewalks:** Sidewalks are located along roadways, are separated from the roadway with a curb and/or planting strip, and have a hard, smooth surface, such as concrete. The ODOT standard for sidewalk travelway width is six feet, with a minimum travelway width of five feet acceptable on local streets. The unobstructed travelway for pedestrians should be clear of utility poles, sign posts, fire hydrants, vegetation, and other site furnishings.

- **Shared-use paths:** Shared-use paths are used by a variety of non-motorized users, including pedestrians, cyclists, skaters, and runners. Shared-use paths are typically paved (asphalt or concrete) but may also consist of an unpaved smooth surface as long as it meets Americans with Disabilities Act (ADA) standards. Shared-use paths are usually wider than an average sidewalk (i.e. 10 – 14 feet).
- **Roadway Shoulders:** Roadway shoulders often serve as pedestrian routes in many rural Oregon communities. On roadways with low traffic volumes (i.e., less than 3,000 vehicles per day), roadway shoulders are often adequate for pedestrian travel. These roadways should have shoulders wide enough so that both pedestrians and bicyclists can use them, usually six feet or greater.
- **Accessways:** Not defined in the OBPP, accessways are short sidewalk or shared-use path segments providing direct pedestrian and bicycle connections to destinations that would otherwise require out-of-direction travel on the surrounding street system. Accessways commonly connect cul-de-sac streets with paths, schools, or nearby streets to minimize pedestrian and bicycle travel distance in areas with limited street system connectivity.

Figure 11 shows existing sidewalks, shared-use paths, and accessways in Eugene. The percentage of streets classified as arterials or collectors that have sidewalks is 69% (252 of 366 miles); this figure does not include limited access freeways such as Randy Papé Beltline and I-105.[8]

Sidewalk coverage is one way to track how well a city's roadway system serves pedestrians, and can be a useful metric to track over time to demonstrate if or how sidewalk coverage is improving through new projects. Identified gaps in the arterial and collector sidewalk network will be used in developing projects for the future proposed pedestrian system in Eugene. The percentage of roadway miles with sidewalks is also a stated performance measure in TransPlan and is intended to be tracked over time.

Existing Pedestrian Facilities and Conditions

The City of Eugene was divided into five (5) geographic areas for the purposes of the pedestrian system assessment. These areas were also used for the land use analysis and are depicted in Figures 4a – 4e.

Central Eugene

Central Eugene's traditional grid street network creates a comfortable walking environment. Streets have near-universal sidewalk coverage, with good provision of curb ramps and marked crosswalks, serving a variety of primary pedestrian destinations such as the University of Oregon, downtown shops and workplaces, the University District, the Eugene Public Library, the Lane Transit District (LTD) Eugene Station, the Farmer's Market and

[8] 100% sidewalk coverage would mean full buildout of sidewalks on both sides of the street; a sidewalk on one side only would result in 50% sidewalk coverage for that facility.

Saturday Market, and parks such as Skinner Butte Park, Alton Baker Park, and Amazon Park. Many downtown employees arrive to work by transit, bicycle, or car and then make daytime trips on foot, contributing to a lively midday urban environment.

The LTD Eugene Station in downtown is a destination for pedestrians.

Central Eugene is served to the north by the Ruth Bascom Riverbank Path System along the Willamette River, with primary access points at Agate Street, Hilyard Street, and at the Ferry Street Bridge. To the south, the Amazon Path begins at South Eugene High School and continues south to Amazon Parkway and Tugman Park. To the east, the Fern Ridge Path begins at Westmoreland Park and continues east to the city limits.

South Hills


Many roads in Eugene's South Hills lack sidewalks on one or both sides.

This sector of Eugene features hilly topography and a non-grid street network, which create more challenging conditions for walking. Many roads in this part of Eugene were developed without sidewalks, and infill has been inconsistent, resulting in many roadways with no sidewalks or sidewalks on only one side of the street. Curb ramps and marked crosswalks are largely absent from this part of Eugene. Other through streets have sidewalks on one side only (e.g., Willamette Street and Fox Hollow Road). Certain pockets of residences, such as areas surrounding Friendly Street south of E 28th Avenue and surrounding Timberline Drive, have no sidewalks. It can be difficult to access some neighborhoods in the South Hills, such as Laurel Hill Valley, because of steep hills and a lack of walking facilities and connected streets.

Because much of Eugene's South Hills are primarily residential, with few commercial destinations, pedestrian destinations in this part of town are primarily area schools, parks (such as Hendricks Park and Spencer Butte), and the soft-surface Ribbon Trail and Ridgeline Trail. The Amazon and Rexius Paths provide an important northbound route into and out of the South Hills.

West Eugene/Bethel/Danebo

West Eugene has flat topography that facilitates walking, but the development patterns have left a legacy of cul-de-sac housing developments, disconnected streets, and high-speed/high-volume thoroughfares that make walking challenging and, in many cases, unpleasant. This sector of Eugene is bounded by Highway 99, the rail yards, and the Northwest Expressway along the northeastern border, presenting a largely impassable barrier to pedestrian travel into and out of the area. In addition, Randy Papé Beltline presents a major pedestrian barrier within the sector. The industrial area south of Roosevelt also presents challenges to pedestrians, as the roadway network breaks down and through trips are necessarily channeled to major streets.

There are businesses that can serve as pedestrian destinations, but because these businesses are located along major streets and have an auto-oriented configuration, with large parking lots, significant setbacks, and large driveways, pedestrian traffic is lower than it might otherwise be. Primary pedestrian destinations in this part of Eugene include neighborhood schools and parks, the Bethel Branch Library, and parks and wilderness areas on the edge of the city (such as Meadowlark Prairie and Golden Gardens Park).

The Fern Ridge Path is the premier walking facility in West Eugene.

Many local streets in this sector of Eugene are missing sidewalks entirely, or have inconsistent sidewalk coverage, and many sidewalks do not have curb ramps. Certain residential developments (e.g., the area east of N Terry Street between Barger Drive and Royal Avenue) lack sidewalks entirely, and have no pedestrian connections between cul-de-sac streets.

River Road/Santa Clara

Like West Eugene, River Road/Santa Clara's flat topography is not challenging for walking. The defining factor for pedestrians in this part of town is the legacy of patchy, often lot-by-lot incorporation, leaving many roads in this part of town outside of city control and thus not subject to city standards. As a result, River Road/Santa Clara has the lowest percentage of streets served by sidewalks in Eugene, and where there are sidewalks they are in many cases narrow, curb-tight, and lacking curb ramps. Many major streets (such as Hunsaker Lane, River Loop 1, River Loop 2, and Scenic Drive) are missing sidewalks, and nearly all of the River Road neighborhood (south of Randy Papé Beltline) lacks sidewalks entirely.

Lack of sidewalks in the River Road/Santa Clara neighborhoods force pedestrians to use the street.

Along with missing and substandard pedestrian infrastructure, walking is made more difficult by a non-grid roadway network. In order to travel a reasonable distance, most pedestrians will have to either make numerous dog-leg turns or use major roadways.

This sector of Eugene is bounded to the west by NW Expressway and to the east by the Willamette River, with Randy Papé Beltline providing the major crossing opportunity for vehicles and providing no accommodation for foot traffic. Randy Papé Beltline also represents a significant pedestrian barrier within the River Road/Santa Clara sector, and can only be crossed at River Road, a five-lane high-volume/high-speed arterial. Area residents report that the quantity and quality of pedestrian crossing opportunities across River Road leaves much to be desired.

Beyond neighborhood parks and schools, the Ruth Bascom Riverbank Path System is the premier pedestrian facility for this part of town. Most roadways east of River Road and south of Randy Papé Beltline have at least some form of access to the path system, though many are unimproved "demand trails" (worn tracks in dirt showing where people access the path despite lack of a formal access point). Formal pathway access is provided at several locations (including River Avenue, Howard Avenue, and Hillcrest Drive). The Ossowo and Greenway Bike bridges enhance the value of the riverfront paths for River Road/Santa Clara residents by giving them pedestrian access to the Ruth Bascom Riverbank Path System and the Willakenzie/Ferry Street Bridge neighborhoods.

NE Eugene-Willakenzie/Ferry Street Bridge

This sector of Eugene is bounded to the east by I-5, limiting pedestrian access to Springfield to few crossings (such as the I-5 Bike Bridge, Harlow Road, and Martin Luther King Jr. Boulevard). The Willamette River surrounds this part of Eugene to the south and west, representing both a barrier and a resource for foot trips by means of the path network.

Pedestrian accessways connect some streets in this part of Eugene.

While more roadways have sidewalks than in River Road/Santa Clara, there are numerous local roadways that lack sidewalks and curb ramps or provide inconsistent or substandard pedestrian accommodation. Many lower-traffic streets do not connect to other lower-traffic streets, forcing pedestrians to use busier streets for longer trips. At numerous locations in this part of Eugene, pedestrian accessways between dead-end streets provide a convenient solution to the problem of disconnected streets, offering shorter trip distances for walkers and an alternative to using major streets.

Randy Papé Beltline and I-105 traverse the NE Eugene-Willakenzie/Ferry Street Bridge neighborhood and are barriers to foot traffic. In addition, a number of large land uses such as Autzen Stadium and the Eugene Country Club provide no pedestrian through access, again forcing residents to make longer trips on busier streets.

Coburg Road is the most prominent of a number of major high-speed arterials that carry large amounts of both local and through motor vehicle traffic. While Coburg Road offers pedestrians a complete sidewalk network, signalized crossing opportunities, and commercial destinations, many residents report that it is uncomfortable for pedestrians, particularly along segments that have curb-tight sidewalks (that is, with no parking or landscaped buffer between pedestrians and the street).

Major pedestrian destinations in this sector of Eugene include the Sheldon Branch Library, the Sheldon Sports Park, the Sheldon Community Center and Pool, and retail and service opportunities at shopping centers (Oakway Center, Delta Oaks, and Valley River Center) and along Coburg Road and Green Acres Road. During sporting events, Autzen Stadium also attracts a large number of pedestrian trips.

This part of Eugene has numerous pedestrian access points to the Ruth Bascom Riverbank Path System, including the Green Acres Road path north of the Ossowo Bike Bridge, the Delta Ponds bridge (currently under construction), several connections from Goodpasture Island Road, the Ferry Street Bridge from Coburg Road, and several access points through Alton Baker Park.

Bicycle System

Bicycle Facility Types

Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles.

According to AASHTO's Guide for the Development of Bicycle Facilities (1999) and the OBPP, there are several different types of bicycle facilities. Bicycles are allowed on all study area roadways.

The following types of bikeways are recognized by AASHTO and OBPP:

- **Shared Roadway / Signed Shared Roadway:** Shared roadways include roadways on which bicyclists and motorists share the same travel lane. This is the most common type of bikeway. The most suitable roadways for shared bicycle use are those with low speeds (25 mph or less) or low traffic volumes (3,000 vehicles per day or fewer). Signed shared roadways are shared roadways that are designated and signed as bicycle routes and serve to provide continuity to other bicycle facilities (i.e., bicycle lanes) or designate a preferred route through the community. Common practice is to sign the route with standard Manual on Uniform Traffic Control Devices (MUTCD) green bicycle route signs with directional arrows. The OBPP recommends against the use of bike route signs if they do not have directional arrows and/or information accompanying them. Signed shared roadways can also be signed with innovative signing that highlights a special touring route (i.e., Oregon Coast Bike Route) or provides directional information in bicycling minutes or distance (e.g., "Library, 3 minutes, 1/2 mile").
- **Shoulder Bikeway:** These are paved roadways that have striped shoulders wide enough for bicycle travel. ODOT recommends a six-foot paved shoulder to adequately provide for bicyclists, and a four-foot minimum in constrained areas. Roadways with shoulders less than four feet are considered shared roadways. Sometimes shoulder bikeways are signed to alert motorists to expect bicycle travel along the roadway.
- **Bike Lane:** Bike lanes are portions of the roadway designated specifically for bicycle travel via a striped lane and pavement stencils. ODOT *standard* width for a bicycle lane is six feet. The *minimum* width of a bicycle lane against a curb or adjacent to a parking lane is five feet. A bicycle lane may be as narrow as four feet, but only in very constrained situations. Bike lanes are most appropriate on arterials and major collectors where high traffic volumes and speeds warrant greater separation.
- **Shared-Use Path:** Shared-use paths are used by a variety of non-motorized users, including pedestrians, cyclists, skaters, and runners. Shared-use paths may be paved or

unpaved, and are often wider than an average sidewalk (i.e. 10 – 14 feet). In rare circumstances where peak traffic is expected to be low, pedestrian traffic is not expected to be more than occasional, good passing opportunities can be provided, AND maintenance vehicle loads are not expected to damage pavement, the width may be reduced to as little as 8 feet.

In addition, **bicycle boulevards** are an increasingly common bicycle facility type. Though they have not yet been formally recognized by AASHTO and the OBPP, they have been defined as low speed, low volume local streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signs, pavement markings and intersection crossing treatments. The intent of this treatment is to provide direct, safe, comfortable and attractive routes that are welcoming to cyclists of all ages and skill levels.[9] In Eugene, Alder Street, E 15th Avenue, and Monroe Street/Friendly Street have not been formally designated as bicycle boulevards, but they effectively function as bicycle boulevards due to traffic calming, traffic reduction, signs, pavement markings, and crossing treatments.

Figure 12 shows existing bikeways, shared-use paths, and accessways in Eugene. Bicycle boulevards are not shown separately because no formal bicycle boulevards have been designated in Eugene at present.

The total number of miles of bikeway in Eugene is 220 miles (116 miles of bike lanes, 52 miles of signed bikeways, and 52 miles of shared-use paths). Approximately 45% of Eugene's arterials and collectors are served by bike lanes. Identified gaps in the arterial and collector bikeway network will be used in developing projects for the future proposed bicycle system in Eugene.

Existing Bicycle Facilities and Conditions

The City of Eugene was divided into five (5) geographic areas for the purposes of the bicycle system assessment. These areas were also used for the land use analysis and are depicted in Figures 4a – 4e.

Since the 1970s, Eugene has made a serious effort to improve bicycling conditions through planning and implementing facilities. As a result, conditions in Eugene are generally far superior to most American cities, and the 10.8% bicycling commute mode share reflects the results.

Central Eugene

Residents traveling by bicycle in central Eugene benefit from generally favorable bicycling conditions. While traffic volumes in the downtown core can be intimidating to less-experienced bicyclists, traffic speeds are lower than on larger suburban roadways. The presence of many bicyclists (especially traveling to and from the University) results in a sense of "safety in numbers."

Traffic calming on some streets in Central Eugene results in a more comfortable bicycling experience.

9 Source: National Association of City Transportation Officials' Cities for Cycling web page

Just as a grid makes for direct walking trips, residents traveling by bicycle in downtown Eugene and surrounding neighborhoods will be able to make a direct trip and choose from a variety of streets to meet their needs. Downtown's workplaces, shops and services attract a large number of bicycle trips, as do the Ruth Bascom Riverbank Path System and the University of Oregon campus.

Downtown features numerous bike lanes, some of which are left-running or contra flow lanes on one way streets. A number of streets have also been designated as signed bikeways (such as Broadway, 12th Avenue, and Olive Street), and sections of 10th Street, 12th Street, and Broadway additionally feature traffic diverters. Downtown does not have any fully separated path facilities for bicyclists. Despite the relatively high concentration of bikeways, many existing and potential bicyclists report that traffic speeds and volumes are too high for comfort, and they have requested bicycle facilities that provide more separation from vehicular traffic. While downtown Eugene offers bicyclists a relatively high number of sidewalk bike racks, residents report that there are insufficient numbers of covered, secure long-term bicycle parking facilities.

In the residential neighborhoods surrounding downtown, people traveling by bike may take bike lanes on busier streets (such as 18th Avenue, Agate Street, and E 24th Avenue) or opt for lower-traffic signed bike routes (e.g. Broadway, 15th Avenue, and University Street).

Bicyclists make use of the same shared-use paths as pedestrians: the Ruth Bascom Riverbank Path System, the Amazon Path, and the Fern Ridge Path. Bicyclists who want to travel to Springfield may take the pathway south of the Knickerbocker Bike Bridge, but a more popular route is to cross the bridge and head east on paths from Alton Baker Park.

South Hills

South of downtown and central Eugene, the South Hills rise sharply and challenge bicyclists with their steep slopes, non-grid street network, and sometimes fast-moving vehicle traffic. Many roadways have a rural cross-section of two lanes and minimal shoulders. Several roadways have been improved with bike lanes reaching at least partway into the hills (such as Timberline Drive, Hawkins Lane, Chambers Street, Amazon Parkway, and Fox Hollow Road), though many lack facilities that reach all the way to the city limits.

Many residents report that Willamette Street south of E 24th Avenue is uncomfortable for bicycling.

Aside from residents' trips, the major draw for bicyclists in the South Hills is access to outstanding recreational rides beyond the city limits (e.g. via Lorane Highway, Dillard Road, and Fox Hollow Road).

West Eugene/Bethel/Danebo

West Eugene's defining factor for both walking and bicycling is its disconnected street network. Eugene residents who bicycle in this part of town must use major streets to proceed in any direction (for example, only Barger Drive, Royal Avenue, and Roosevelt

Many roads in West Eugene, including S. Bertelsen Road, have bike lanes but also have busy vehicle conditions.

Boulevard cross Randy Papé Beltline). Highway 99, the rail yards, the NW Expressway, and the industrial area south of Bethel are all physical barriers that affect bicycling as well as walking.

Most major streets have bike lanes, though residents report that wide streets and higher auto speeds can make bike lanes uncomfortable, and major intersections (such as Barger Drive at Echo Hollow Road) can be particularly intimidating for left-turning bicyclists. A few streets have been designated as signed bicycle routes (e.g. Avalon Street and Fairfield Avenue), though they do not stretch long distances. Roosevelt Avenue also has a shared-use path on its north side that can be used by bicyclists.

Residents have several neighborhood destinations that can be accessed by bike (such as the Bethel Branch Library and numerous parks and natural areas). Many recreational bicyclists come through West Eugene to cross the city limits and continue west on longer rides. The Fern Ridge Path is popular and serves the majority of trips from these western neighborhoods to central Eugene.

River Road/Santa Clara

People traveling by bicycle in River Road/Santa Clara have only three streets with bike lanes available to them. Bike lanes on Maxwell Road and Irvington Drive travel east-west and connect to NW Expressway. River Road, the major north-south thoroughfare for all types of trips in this sector and the only existing opportunity to cross Randy Papé Beltline, has bike lanes along the entire length. Residents report that the five-lane cross section and heavy traffic makes for an uncomfortable bicycling environment.

River Road is a busy five-lane thoroughfare that carries most north-south bicycle trips in River Road/Santa Clara.

A few streets have additionally been designated as signed bike routes (e.g. River Loop 1, River Loop 2, Howard Avenue), but with no shoulders or traffic calming, they are more appropriate for experienced recreational cyclists than for inexperienced riders or children.

The Ruth Bascom Riverbank Path System is the major bicycling destination and circulator for this part of Eugene, and the Owosso and Greenway Bike bridges are important river crossing opportunities for eastbound cyclists and for

Lack of bike lanes on most streets in the River Road/Santa Clara area results in bicyclists traveling in the vehicle lane.

people who want to create routes of varying lengths on the path network.

NE Eugene-Willakenzie/Ferry Street Bridge

For bicyclists in this part of Eugene, limited crossing opportunities over I-5 and the Willamette River create significant barriers to travel of any distance. In addition, Randy Papé Beltline and I-105 are major barriers to north-south travel, and Autzen Stadium, the Oakway Golf Course, and the Eugene Country Club are large parcels that break up the street grid.

Alton Baker Park has parallel paved and soft-surface paths in many locations.

Disconnected local streets make it challenging to travel by bicycle without using major streets, though a handful of neighborhood accessways provide connectivity for bicyclists on low-traffic streets. A few signed bicycle routes have been developed to offer an alternative to major roadways (e.g. Sorrel Way/Westward Ho Avenue), and there are numerous accessways that provide bicycling connections. The potential for developing continuous low-traffic bicycle routes in this part of town is limited by disconnected streets and by limited crossing opportunities over Randy Papé Beltline.

Most major roadways in northeast Eugene have bike lanes, such as Norkenzie Road.

Confident bicyclists have many bike lane choices to traverse this part of town, as every minor arterial roadway as well as Coburg Road (a major arterial) has been provided with bike lanes. Some streets (e.g. Norkenzie Road and Gilham Road) have a three-lane cross section and few commercial land uses, which results in a lower-stress bicycling environment. However, Coburg Road's five-lane cross section and high vehicle speeds and volumes are uncomfortable for many bicyclists, particularly for turning or crossing.

Major bicycling destinations within this sector include Autzen Stadium and Oakway Center, Delta Oaks, and Valley River Center shopping centers. In addition, this sector offers two off-road opportunities to cross I-5 into Springfield, one in Alton Baker Park and one at the I-5 Bike Bridge south of Randy Papé Beltline.

This part of Eugene has numerous bicycle access points to the Ruth Bascom Riverbank Path System, including the Green Acres Road path north of the Ossowo Bike Bridge, the Delta Ponds Bridge (currently under construction), several connections from Goodpasture Island Road, the Ferry Street Bridge from Coburg Road, and several access points through Alton Baker Park.

Transit Service and Facilities

Transit Service

Intercity Bus Service

Amtrak, Greyhound Bus Lines, and Porter Stage Lines provide intercity bus service from their stations in Eugene to locations throughout the Northwest.

Eugene Greyhound Station.

Amtrak's intercity bus routes provide transportation service in addition to their regularly scheduled train service (see the *Rail System* section for more information on Amtrak passenger rail service). The Amtrak intercity bus service arrives at and departs from the Eugene Amtrak Station (433 Willamette Street) and provides service north to Albany, Salem, and Portland. Two of the daily trips to Portland connect passengers to train service while the other trips only provide bus service to the Portland train station. Bus service east to Ontario and west to Florence is provided through coordination with Porter Stage Lines and is described separately. Table 5 provides an overview of the Amtrak intercity bus schedule.

TABLE 5
Amtrak Intercity Bus Departures from Eugene

Destination	Length of Trip	Frequency*	Cost**
Portland, OR	2 Hours 30 Min – 2 hours 35 Min	3-4	$23.00
Salem, OR	1 Hour 25 Min	3	$15.00
Albany, OR	0 Hours 50-55 Min	3	$13.00

* # of departing trips per day

** Costs vary depending on weekend/weekday travel.
Source: www.amtrak.com; Amtrak Route Schedule

At the Albany Amtrak station, passengers can connect to a bus bound for Newport, Oregon. This bus is administered by a company independent of Amtrak. Service from Albany to Newport occurs twice per day.

Greyhound Bus Lines provides intercity bus service to destinations around the country. In Eugene, the Greyhound bus station is located at 987 Pearl Street in the downtown commercial business district. Greyhound provides service to a variety of destinations north, south, east, and west of Eugene, including major cities such as Portland, OR; Seattle, WA; Vancouver, BC; Sacramento, CA; and San Francisco, CA. Service is also provided to many of the smaller towns en route to these larger cities and to Newport, OR. Table 6 provides information about the major destinations served, as well as service frequency and cost. Tickets bought online for weekday trips are generally the least expensive and tickets bought in person for weekend trips are generally the most expensive.

TABLE 6
Departures from Eugene's Greyhound Bus Station

Destination	Length of Trip	Frequency*	Cost**
Bend, OR	5 Hours 0 Min	1	$32.56 – 47.50
Corvallis, OR	0 Hours 50 Min	2	$12.32 – 20.50
Medford, OR	3 Hours 35 Min - 3 Hours 55 Min	4	$29.04 – 42.50
Newport, OR	4Hours 20 Min – 9Hours 10 Min	1- 3	$29.04 – 42.50
Roseburg, OR	1 Hour 15 Min	4	$20.24 – 31.00
Salem, OR	1 Hour 20 Min – 1 Hour 45 Min	4	$14.52 – 23.00
Portland, OR	2 Hours 25 Min – 3 Hours 5 Min	4	$19.80 – 30.50
Seattle, WA	6 Hours 30 Min – 7 Hours 25 Min	3 or 4	$41.36 – 54.00
Vancouver, BC	12 Hours 5 Min – 12 Hours 25 Min	3	$84.48-117.00
Sacramento, CA	9 Hours 45 Min – 11 Hours 35 Min	4	$62.48 – 87.50
San Francisco, CA	15 Hours 10 Min – 16 Hours 15 Min	3	$72.16 – 101.00

* # of departing trips per day

** Costs vary depending on weekend/weekday travel and whether tickets are purchased online or in person.
Source: www.greyhound.com

Porter Stage Lines provides service from Eugene to destinations east and west of the city. Daily service is provided from Eugene east to Ontario, Oregon (through Bend, OR) and west to Florence and Coos Bay. The cost to travel from Eugene to Bend is $29 on weekdays and $31 on Fridays, Saturdays, and Sundays. The cost for a one-way ticket from Eugene to Florence is $37 on weekdays and $39 on Fridays, Saturdays and Sundays. Tickets can be purchased for Porter Stage Line routes at the Eugene Greyhound Station.

Intracity Bus Service

LTD provides public transportation services within the Eugene-Springfield area and surrounding communities. Twenty-seven regular bus routes and one BRT route serve the City of Eugene. Eugene Station, located at W 10th Avenue and Willamette Street, is the major transit hub in Eugene. Bus routes radiate out from Eugene Station along major corridors to provide service to residents outside of the central city. Figure 13 displays transit routes and facilities within the study area.

Eugene Station

Service on most routes, is provided from 6 a.m. to 11 p.m. on weekdays, 7 a.m. to 11 p.m. on Saturdays, and 8 a.m. to 8 p.m. on Sundays. On weekdays, most regular bus routes run every 30 minutes during peak hours and every 60 minutes during non-peak hours. Route 12

Gateway, from downtown along Coburg Road to Springfield, has more frequent service than the majority of routes with 15 minute headways during peak travel periods. Ten routes only have Monday – Friday service (routes 27, 28, 55, 73, 76, 78, 27, 82, 85, and 92) and three routes have Monday – Saturday service (routes 33, 79X, and 81). Of the 16 routes that offer both Saturday and Sunday service, the majority run every 30 to 60 minutes on weekends, depending on the route and time of day.

Service changes planned to take effect on September 19th, 2010 include additional or reduced trips on select routes and altered routes. Saturday and Sunday service has also been extended on some routes. Route 28 will gain service on Saturday and Sunday and Route 25 will be eliminated.

Table 7 provides an account of fares for system users. Discounted fares are provided for youth, individuals with disabilities, and Medicare cardholders (EZ Access). Children (5 and under) and Honored Riders (65 and older) are granted free access to transit services. Middle and high students are also eligible for free transit passes during the school year. Single fare and day passes can be purchased from the LTD bus driver and at the EmX stations. Monthly bus passes are sold at the LTD Customer Center at Eugene Station, select grocery and convenience stores, and on campus at Lane Community College and the University of Oregon.

TABLE 7
Lane Transit District Fares

Fares	Cash	Day Pass	Monthly Bus Pass	3-Month Bus Pass
Adult 19-64	$1.50	$3.00	$48	$130
Youth 6-18	$0.75	$1.50	$24	$85
EZ Access	$0.75	$1.50	$24	$85
Children (5 and under)	FREE			
Honored Rider (65 and older)	FREE			
Middle and high school students (during the school year)	FREE			

Source: LTD Readers Digest 2010, www.ltd.org

LTD has recently implemented a transit information text messaging service, called Route Shout, on a limited test basis. Route Shout enables riders to access information about the next scheduled bus arrival time at all major bus stops. Bus stops with Route Shout include circular displays that instruct riders where to send the text message to get information on their unique stop.

Bus Rapid Transit Service

A Bus Rapid Transit (BRT) system provides service that in many ways is similar to light rail or streetcar service, including exclusive bus right-of-way, less frequent stops, higher

Route Shout display.

frequency service, improved stations, signal priority, level boarding, and off-board fare collection. Lane Transit District has a BRT system, called "EmX," that includes many of these features. Figure 14 displays the existing and planned BRT system within the study area.

The Green Line, Eugene's first BRT line, was opened in January 2007. This line runs from the LTD downtown station, Eugene Station, primarily along Franklin Boulevard to Springfield. Sixty percent of this route has exclusive right-of-way, which enables efficient service during all traffic conditions. The Green Line is 4 miles in length and runs every 10 minutes during weekday peak travel periods. During off-peak hours and weekends, the service frequency is every 20 minutes. A trip from Eugene Station to Walnut Station along the Eugene-Springfield border, takes approximately 8 minutes one-way.

EmX exclusive right-of-way.

EmX bus at Walnut Station.

LTD currently has six BRT vehicles. These vehicles can accommodate 3 bicycles and 44 seated individuals or 100 standing individuals. In 2008-2009 the EmX had almost 1.6 million boardings. The cost for providing this service was $1.15 per boarding, which is a third of the cost to operate other LTD routes. A second BRT corridor will begin operation in Springfield in January 2011. It will provide a one-seat ride between major destinations in Springfield, the University of Oregon, and the downtown Eugene Business District. LTD and the Federal Transit Administration (FTA) are currently planning a new West Eugene EmX Extension. The Alternatives Analysis Report and Draft Environmental Impact Statement are currently being developed by LTD. A preferred alternative is expected to be selected by local decision makers during Fall 2010.

RideSource Services and the RideSource Call Center

Ride*Source* is the local public transportation alternative for people with disabilities who are unable to independently use LTD bus service due to a disability. Ride*Source* is provided under the requirements of the Americans with Disabilities Act (ADA) and operates throughout Eugene within ¾ miles of regularly scheduled metro bus routes. Lane Transit District administers Ride*Source* and the associated Ride*Source* Call Center. Direct operations are managed through a non-profit agency, Special Mobility Services.

Ride*Source* is a curb-to-curb advanced reservation service. Ancillary services include the RideSource Shopper a once a week grocery shopping service and Ride*Source* Escort door-to-door trips primarily to and from medical appointments using volunteers. Ride*Source* hours are from 5:30 a.m. to 10: 30 p.m. on weekdays, Saturday from 7 a.m. to 10:30 p.m., and Sunday 8 a.m. to 7:30 p.m. The fare for Ride*Source* is $3.00 one-way and $6.00 per round trip. The RideSource Shopper fare is $2.00 per round trip.

In 2008 LTD created the Ride*Source* Call Center to further improve coordination and simplify access for people who need transportation that requires unique features or fulfills an agency standard. The Ride*Source* Call Center is a "one-stop" center in Lane Transit District's Ride*Source* facility located at 2nd and Garfield in Eugene. A local telephone number (and a toll-free number for rural Lane County) is used by customers to call and arrange for trips. The Ride*Source* Call Center uses an array of public, non-profit, and private transportation providers.

Transportation currently managed through the Ride*Source* Call Center:

- **Non-Emergency Medical Transportation** provided through the Department of Human Services Medicaid program for eligible participants
- **Ride*Source* Complementary Paratransit** for people who are unable to use regular fixed-route service due to a disability as required under the ADA
- **Pearl Buck Pre-School Transportation** for children of disabled parents
- **Senior and Disabled Services Community-based Transportation** for eligible individuals who live in community residential rather than more formal institutional settings
- **Lane County Developmental Disabilities Work Transportation** for individuals with developmental disabilities case managed through Lane County
- **Volunteer Escort** for individuals without transportation options and who require the assistance of an attendant

LTD, through the Ride*Source* Call Center, has succeeded in combining services, allocating shared costs across multiple programs, and having a "one-stop" point of entry for persons who need accessible transportation or who are eligible for human services transportation. The Call Center currently arranges approximately 27,000 one-way trips for 2,800 customers per month.

LTD has a distinctive arrangement with the City of Eugene's Hilyard Community Center. Adaptive Recreation and LTD have an agreement to work cooperatively to provide transportation to and from the Hilyard Center for area residents who are eligible to use RideSource. The Center has full use of an LTD-owned accessible vehicle that is leased to the City. In turn the Center takes program participants one day each week on a schedule provided by RideSource dispatchers. LTD pays the Center a fixed reduced rate per trip.

Carpool/Vanpool

LTD's point2point Solutions provides a variety of carpool matching services to residents in Eugene including pool2school, pool2work, and pool2college. The application form for these matching services is provided on the point2point Solutions website. Employers can sign-up as a partnering agency with point2point Solutions for the Emergency Ride Home Program (ERHP). This program provides individuals who carpool, walk, bike, or take transit to work with an alternative for getting home in an emergency situation. Employees of partnering agencies are automatically signed up for ERHP when they apply for carpool matching services through the point2point Solutions website.

Valley VanPool provides vanpool services between Eugene and Salem (5 routes) and Eugene and Corvallis (3 routes). The cost for this service depends on the average number of monthly miles and other costs associated with van operations, depreciation, insurance, and maintenance. For a van with 14 passengers, the average monthly cost is $90 to $170 dollars per rider. Participants can register for the service on Valley VanPool's website. The ERHP is provided for vanpool users as well.

Park and Ride Facilities

LTD operates 24 park and ride facilities throughout the Eugene-Springfield area, 13 of which are located within the City of Eugene. Table 8 provides information about the park and rides within the City of Eugene.

TABLE 8
LTD Park and Rides within the City of Eugene

Name	Location	Number of Spaces	Parking Lot Type	Amenities
St. Matthew's Episcopal Church	4110 River Rd.	10	Paved	
River Road Transit Station	Near River Road and Randy Papé Beltline	146	Paved and Striped Lighting	Shelter and bike racks
Alison Park Christian Church	Echo Hollow Road	40	Paved Lighting	
Willamette Christian Center	W 18th Avenue	26	Paved and Striped Lighting	Shelter
Westside Christian Church	Chambers Street	11	Paved and Striped	
Eugene Faith Center	Polk Street	16	Paved and Striped	
Seneca Station	W 11th Avenue	44	Paved and Striped Lighting	Shelter
Westminster Presbyterian Church	Coburg Road	18	Paved and Striped	
Papa's Pizza	Coburg Road	20	Paved and Striped Lighting	
ShopKo	Coburg Road	15	Paved and Striped Lighting	
Valley River Center	Valley River Center, East Parking lot	26	Paved and Striped Lighting	Nearby Path

TABLE 8
LTD Park and Rides within the City of Eugene

Name	Location	Number of Spaces	Parking Lot Type	Amenities
Amazon Parkway	29th Ave and Amazon Parkway	43	Paved and Striped Lighting	Shelter and bike racks
Church of the Harvest	Fox Hollow Road	20	Gravel	

Source: www.ltd.org

Ridership

Transit ridership in Eugene is compared to US cities with similar populations and characteristics in Table 9 below:

TABLE 9
Transit Ridership in Eugene and Similar US Cities

City	2009 Population1	Public Transportation Commute Mode Share (2008)2	Transit Agency Annual Service Hours (2008)3,4	Transit Agency Annual Passenger Miles (2008)3,4
Eugene, OR	153,272	7.1%	401,000	43,061,000
Salem, OR	155,469	3.8%	422,000	19,933,000
Spokane, WA	203,268	5.5%	681,000	51,976,000
Boise, ID	205,707	0.8%	123,000	6,231,000

1 Source: US Census Population Finder, US Census Bureau
2 Source: American Community Survey, US Census Bureau
3 Source: National Transit Database;
4 Eugene = Lane Transit District (LTD); Salem = Cherriots; Spokane = Spokane Transit Authority (STA);
Boise = Valley Regional Transti (VTA)

Additionally, Lane Transit District conducts ridership surveys throughout their service area every few years. The two most recent surveys were conducted in May of 2004 and October of 2007. The findings discussed in the remainder of this section are the results of both of these surveys. Information specific to transit ridership in Eugene is listed as available in the 2007 survey report.

Demographics

The LTD 2007 Origin/Destination Study released general demographic information for riders of EmX and all routes at the district level. Demographic findings of LTD riders are summarized below:

- 29 percent are 20 years old or younger and 63 percent of riders are 30 years or younger.
- 59 percent have annual household incomes equal to or less than $25,000.
- 34 percent are students only and 21 percent are students and employed.

- 37 percent are transit dependent and 16 percent share a vehicle with another individual in their household.
- EmX riders were found to be generally older than riders on other routes with a lower percentage of riders under 20 years old (20% of EmX riders compared to 31% of riders on other routes) and a higher percentage of riders 20-30 years old (37% compared to 33%) and 31-60 years old (41% compared to 31%).

Ridership trends

The 2007 study also looked at ridership trends within the City of Eugene and the larger transit district between its study and the preceding survey from 2004. Ridership trends in Eugene include:

- Seventy percent of LTD riders begin their trips in Eugene; this is a slight decrease from the 2004 rate of 75 percent.
- Most LTD trips both begin and end in Eugene; this trend has been true since the 1999 ridership survey. In 2007, 60 percent of all trips both began and ended in Eugene and 9 percent of all trips began in Eugene and ended in Springfield.
- In 2007, forty two percent all EmX trips both began and ended in Eugene. This means that 42 percent of all EmX riders used EmX to travel within Eugene and did not travel into Springfield.
- Twenty two percent of riders who took trips beginning in Eugene were new riders; this is an increase from the 2004 rate of 10 percent[10].
- About 31 percent of riders who took trips beginning in Eugene indicated they rode transit more than in the previous year; a decrease from 41 percent in 2004.

The study also included a number of ridership statistics for the entire LTD service area. These characteristics include:

- Twenty nine percent of all passengers took transit to commute to work and 31 percent took transit to commute to school.
- A higher percentage of EmX riders use the service to commute to work than on other transit routes.

Rider Feedback

The 2007 study also asked riders about their satisfaction with LTD service and desired service improvements. A summary of survey findings is listed below:

- The majority of riders are satisfied with LTD service. The overall service quality rating was 5.6 out of 7.
- Twenty three percent of riders indicated that the service was excellent (the highest rating); this represented a slight decrease from 25 percent in 2004.

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[10] Overall ridership increased from 2004 to 2007; however, the two surveys may not be directly comparable since the surveys took place at different times of the year.

- EmX riders were generally more satisfied with the frequency of transit service, schedule reliability, and the speed of service.
- The most desired service improvements are increased service frequency on weekends and later evening service.

LTD is currently in the process of creating a long-range transit plan. Once complete, the recommendations in the LTD long-range transit plan will be interwoven with the Eugene Transportation System Plan.

Rail System

Freight Rail

Several railroads own tracks and/or operate in the City of Eugene, including Union Pacific (UP), Burlington Northern Santa Fe (BNSF), and Portland & Western. Additionally, Amtrak leases tracks from UP and operates a passenger rail service, which is discussed in more detail under *Intercity Passenger Rail*. The rail system is depicted in Figure 6, along with freight routes.

The following is a description of the facilities and active freight rail service provided by each railroad in Eugene:

- **Union Pacific (UP):** UP owns the railroad tracks and storage yard that parallel the NW Expressway. The tracks run north to the Portland-Metro area and southeast through Springfield, Oakridge, Klamath Falls, and into California. A few spurs connect to businesses with active rail sidings just north and south of the storage yard. UP operates approximately 20 freight trains per day through Eugene along these tracks. UP also leases operating rights along these tracks to Amtrak, which provides passenger rail service north and south of Eugene. Approximately 3 passenger rail trains operate per day on these tracks. Additionally, UP owns and operates the tracks and several spurs that head west from the storage yard past Randy Papé Beltline to S. Danebo Avenue. UP operates approximately 1 train per day along these tracks to serve the businesses with rail sidings along the spurs. East of S. Danebo Avenue the tracks switch ownership and become inactive out to the coast.
- **Burlington Northern Santa Fe (BNSF**): BNSF owns the railroad tracks and spurs that parallel Hwy 99N. The tracks run north to the Portland-Metro area and end in Eugene at Almaden Street and 5th Avenue in the Whiteaker Neighborhood. Several businesses have active rail sidings along these tracks. BNSF does not operate any trains on the tracks; rather, they lease the operating rights to Portland & Western.
- **Portland & Western (P&W):** P&W operates approximately 2 trains per day on the tracks owned by BNSF.

While not a railroad, the Port of Coos Bay recently purchased a set of inactive railroad tracks that head west from Eugene out to the coast. These tracks were previously owned by the Central Oregon and Pacific Railroad (CORP), but were abandoned in September of 2007 due to deferred maintenance and safety concerns. Currently, the Port of Coos Bay is repairing these tracks using a $2.5 million American Recovery and Reinvestment Act (ARRA) grant and a $13.6 million TIGER 2 grant. Once the rail line is rehabilitated the Port of Coos Bay reports that it will contract with a shortline railroad to operate rail service between Eugene and Coos Bay[11]. The proposed operating name for the rail line is Coos Bay Rail Link (CBRL).

Additionally, the Central Oregon and Pacific Railroad (CORP) owns and operates a set of railroad tracks just outside the City of Eugene. These tracks head south from the UP main line just east of I-5 to the Medford and Ashland areas. CORP operates approximately 2 freight trains per day on these tracks.

At-Grade Crossings

A total of 35 at-grade railroad crossings currently exist within the study area. At-grade crossings could create a safety conflict between trains and other modes of transportation. The locations of at-grade crossings within the study area are shown in Figure 6.

The At-Grade Railroad Crossing at Irvington Drive and NW Expressway.

The project team visited two at-grade railroad crossings - the crossing at Irving Road and the NW Expressway and the crossing at Irvington Drive and the NW Expressway. Union Pacific and Amtrak operate a total of approximately 25 trains per day along these tracks. Initial findings from the site visit show that the two visited at-grade railroad crossings appear to have a short distance (12 feet) between the crosswalks and the railroad crossing stop lines for westbound auto traffic. In general, problems can arise if vehicle queuing is longer than available storage space or if sight distance is poor. The Lane County TSP currently has a safety project planned at the Irving Road at-grade crossing location.

Railroad Quiet Zone

Federal law requires trains to sound their horns prior to entering at-grade crossings to warn motorists, bicyclists and pedestrians that the train is approaching. In February 2008, the Eugene City Council voted to make it a priority to have a downtown railroad quiet zone established for safety, economic development, and livability reasons. In an approved "railroad quiet

Potential Railroad Quite Zone Area in the Whiteaker Neighborhood.

[11] http://www.portofcoosbay.com/railrehab.htm

zone," the use of train horns would be reduced because other supplemental safety measures would be in place to reduce the risk of collisions. The area being considered for a railroad quite zone in the Whiteaker Neighborhood includes 10 at-grade crossings from Van Buren Street to Eighth Avenue at Hilyard. There has been no funding dedicated to the quiet zone study.

Intercity Passenger Rail

The Amtrak station is located in the Downtown neighborhood at 433 Willamette Street. The station has an enclosed waiting area, and restrooms and payphones are available during station hours. The station is open Monday – Sunday from 4:30 am to 9:00 pm and for limited service from 11:00 pm to 12:45 am. Hourly and short-term parking is provided at the station as well as taxi service.

Eugene Amtrak Station.

Amtrak provides intercity passenger rail service between the City of Eugene and cities north and south of the city. The Amtrak Cascades route travels from Eugene to Vancouver, BC and the Coast Starlight route travels from Seattle to Los Angeles. Each day the train departs northbound from Eugene three times and southbound from Eugene once (see Table 10). During the fiscal year 2009, 104,481 boardings and alightings occurred at the Eugene Amtrak station. This was an increase of 4,270 boardings and alightings from the 2008 fiscal year[12].

TABLE 10
Amtrak Passenger Rail Service

Departure Time	Arrival/Departure	Direction	Route
5:30 AM	Departure	Northbound	Cascades
9:00 AM	Departure	Northbound	Cascades
12:44 PM	Arrival/Departure	Northbound	Coast Starlight
5:10 PM	Arrival/Departure	Southbound	Coast Starlight
8:50 PM	Arrival	Southbound	Cascades
11:45 PM	Arrival	Southbound	Cascades

Source: Amtrak.com

Sample Amtrak passenger rail ticket prices and trip lengths are described for common destinations in Table 11. Ticket prices and trip lengths vary depending on the route taken (Cascade or Coast Starlight), the date and time of departure, and how long in advance the ticket is purchased.

[12] Source: Amtrack.com

TABLE 11
Passenger Rail – Sample Ticket Prices and Trip Lengths from Eugene Station

Destination	Adult Ticket* (16 or older)	Child Ticket* (ages 2 - 15)	Trip Length	Frequency
Portland	$23 - $33	$12 - $17	2.5 – 3 hours	3
Seattle	$48 - $80	$24 - $40	6.5 – 8 hours	3
Redding, CA	$52	$26	9 hours	1
Los Angeles, CA	$120	$60	28 hours	1
Portland	$23 - $33	$12 - $17	2.5 – 3 hours	3
Seattle	$48 - $80	$24 - $40	6.5 – 8 hours	3

* Ticket price depends on date and time of departure and ticket purchase date
Source: Amtrack.com

The Portland to Eugene rail segment is part of the Pacific Northwest Rail Corridor (PNWRC) between Vancouver, British Columbia and Eugene. The PNWRC has been designated a high speed rail corridor by the Federal Rail Administration (FRA). “High speed” is defined by the FRA as rail service that is “reasonably expected to reach speeds of at least 110 mph.” In 2009 the federal government made over $10 billion dollars available for planning and capital investment for states’ intercity passenger rail programs. The Oregon High Speed/Intercity Passenger Rail (HSIPR) program aims to improve passenger rail service between Portland and Eugene over the next 20 years through decreasing travel times, increasing service frequency, and improving reliability. To implement this strategy, Oregon has developed the following service objectives for passenger rail between Eugene and Portland:

- Increase average passenger train speeds (from 42 to 65 miles per hour).
- Increase maximum passenger train speeds (from 79 to 110 miles per hour).
- Reduce average passenger rail trip time (from 2 hours and 35 minutes to 1 hour and 55 minutes).
- Increase on-time performance of passenger trains (from 68% to 95% or more).
- Reduce conflicts between heavy rail and highway users.
- Avoid expenditure of $20 billion in highway user costs, including travel time, incidents, vehicle operating costs and highway maintenance.
- Reduce carbon emissions (by 69,138 pounds per year) in support of national and state policies and efforts to reduce GHG emissions and slow climate change.
- Enhance intermodal connections to existing and planned commuter rail, light rail, streetcar, bus service, park and ride, and bike/pedestrian facilities compatible with regional and local plans within the corridor.

Oregon’s High Speed/Intercity Passenger Rail (HSIPR) program has applied for funding to prepare an environmental assessment and conduct an alternatives analysis to identify a preferred high speed rail route in Oregon; both of which are required to receive federal funding.

Eugene Airport

The Eugene Airport at Mahlon Sweet Field (EUG) is located near Highway 99 about 10 miles northwest of downtown Eugene. The airport is in the northeast corner of the Eugene Urban Growth Boundary, outside of Eugene's city limits (See Figure 15). The airport has been at this location since 1964.

Industrial, farm, and retail uses primarily exist in the area surrounding the airport. The land uses adjacent to the road that leads to the airport, Airport Road, are primarily industrial businesses including a motorcoach construction company, an industrial park, and equipment manufacturing companies. A large equipment retail store also exists along this road.

Eugene Airport Terminal.

Facilities

EUG's Mahlon Sweet Terminal was completed in 1990. The terminal has two concourses that include rental car service, two restaurants, a gift shop, and an art gallery.

Two automobile parking lots are located at EUG. The main parking lot has 241 short-term and 714 long-term parking spots and is located adjacent to the terminal. The charge for short-term parking is $1.25 per half hour or $14 per day. The long-term parking charge is $2.50 per hour, $9 per day, or $54 per week. The overflow parking lot has 585 spaces and is located southeast of the terminal. An airport shuttle is provided between the terminal and the overflow lot. The employee parking lot has 200 parking spaces.


Walkway connecting terminal to parking lot.

EUG currently has two operational runways. Runway 16R-34L is the primary runway and is designed to accommodate aircrafts as large as a Boeing 767, Boeing 787, and Airbus A300. This runway is 8,009 feet long and 150 feet wide. Runway 16L-34R is the secondary runway at EUG. This runway is 6,000 feet long and 150 feet wide. It is designed to serve the same type of aircrafts as runway 16R-34L, but is used primarily by general aviation aircraft (planes not used for commercial or cargo purposes). Commercial flights can use the secondary runway when the primary runway is offline. The runways are parallel to each other so that they can be used simultaneously. Operation projections for the year 2026 show that only one-third of the capacity will be used in the long-term.

Fourteen taxiways exist at EUG. One taxiway runs adjacent to each runway and the other 12 taxiways provide connections between the taxiways and the terminals, the cargo and the general aviation ramps, and the parallel runways.

EUG has five aircraft parking ramps: the commercial ramp at the terminal, a cargo ramp, and three general aviation ramps. The commercial terminal ramp is 25,000 square yards and the terminal building pier design maximizes the capacity of this space. The three general aviation ramps are used by general aviation and charter aircrafts for storage and service. Two of the ramps contain facilities that can accommodate larger charter planes. The cargo ramp contains an apron that provides for the transfer of cargo from aircraft to truck. The current apron can accommodate seven smaller aircrafts. A project began in 2007 to expand the cargo apron to accommodate seven larger aircrafts.

Fifteen T-hanger buildings, containing 130 T-hanger units, and 37 conventional hangers are located at EUG. These hangers are generally owned by private individuals or entities, not the airport.

EUG has four fixed base operators: Flightcraft Services, Friendly Air Service, Lawrence Air Service, and Heli-Trade. Fixed base operators provide a variety of services to commercial and general aviation aircrafts at EUG such as ground handling, maintenance, flight training, catering, aircraft sales and rentals, parking, and fueling services. The level of service provided by these companies varies from full-service to limited service. Heli-Trade provides helicopter service.

Service and Usage

The Eugene Airport Master Plan (2010) states that the EUG's service area is Lane, Linn, Benton, and Douglas Counties and encapsulates a radius of approximately 60 miles. The service area was based on geography and access to the airport compared to other commercial service airports.

EUG is served by four airlines: Allegiant Air, Delta Connection, Horizon Air and United Express. Delta Connection, Horizon Air, and United Express flights are operated by regional airlines and marketed through the larger national companies. Currently, 18-24 commercial departures and arrivals are scheduled on a typical day. Table 12 lists the top ten domestic destinations. These rankings are based on the number of Origin and Destination passengers.

EUG is classified as a non-hub, commercial service, primary airport in the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems. It is classified as non-hub because enplanements at EUG account for less than .05 of total national enplanements.

Between 2001 and 2004, service was reduced by one-third at the Eugene Airport in response to national trends of low airline passenger rates following the events of September 11, 2001. Ticket prices also increased at the Eugene Airport during this period, affecting travel rates. Since 2004, service and passenger traffic have increased. According to Airport management records, a total of 92,779 aircraft operations (arrivals and departures) and 360,258 enplanements occurred in 2006. The majority of aircraft operations were associated with general aviation aircrafts. FAA projected that in 2011, 97,284 aircraft operations and 384,483 enplanements will occur at EUG.

TABLE 12
Eugene Airport Top 10 Domestic Destinations

Rank	Destination	# of Passengers
1	San Francisco	79,390
2	Los Angeles	45,220
3	Phoenix	34,960
4	Seattle	32,060
5	Denver	26,900
6	Las Vegas	24,940
7	Salt Lake City	24,940
8	San Diego	23,340
9	Orange County	17,080
10	Chicago	14,030

Source: Eugene Airport Master Plan Update, Data Base Products CY2005

In addition to commercial flights, the Eugene airport is also used by cargo, military and general aviation airplanes. In 2006, 178 general aviation airplanes were based out of the Eugene airport. A variety of community services are also administered through the airport, including: search and rescue, emergency medical, sheriff patrol, and fire fighting.

Air cargo fluctuated at EUG between 1997 and 2006, decreasing from 2003-2006. According to airport management records, 2,096,778 pounds of enplaned cargo was transported through EUG in 2006. The Eugene Airport Master Plan (2010) associates the decrease in air cargo with a decrease in air mail and the replacement of national commercial carriers with smaller regional carriers.

Ground Transportation Options

Travelers have four ground transportation options from the Eugene airport: taxi, limousine, shuttle bus, or rental car. Some Eugene hotels also provide shuttle service from the airport to their hotel. A taxi from EUG to downtown Eugene costs between $22-24. An additional $1 per person charge can be charged dependent on the time of travel. The charge for shuttle service, through OmniShuttle, from the airport to downtown Eugene is $21.50. For parties with more than 1 person, each additional person costs $5 dollars. Six companies provide rental car service from the airport, including: Avis, Hertz, National, Budget, Enterprise, and Alamo. Prices vary based on car model as well as day and season of rental. Lane Transit District does not currently serve the Eugene Airport.

Taxi line at Eugene Airport.

Waterways and Pipeline Facilities

Waterways and pipelines also provide transportation opportunities in Eugene. Figure 16 depicts navigable waterways and known pipelines within the study area.

Waterways

Navigable Waterways

The Willamette River is classified as a navigable waterway from river mile 187 (upstream from Eugene near the confluence of the Coast and Middle Forks) to river mile 0 (the confluence of the Willamette River with the Columbia River). Chapter 2 of TransPlan states that there are no maritime ports or navigational facilities within the Eugene TSP study area.

Water Trails

The Willamette River is a designated water trail that extends from Portland to south of Eugene. The Willamette Riverkeepers produces maps of the water trail that contain information about navigational hazards, access points, on-shore facilities, and hiking opportunities[13]. Figure 16 displays the location of boat ramps along the trail.

Pipelines

Two types of pipelines pass through the study area, a natural gas pipeline and a petroleum pipeline. These pipelines are shown in Figure 16 and are described below:

- A natural gas pipeline system runs through the City of Eugene. The Williams Northwest Pipeline Corporation owns and maintains the pipeline system, monitors system capacity, and supplies NW Natural Gas with product to distribute.
- The Kinder Morgan Energy Partners Pacific Pipeline carries petroleum gas from Portland to Eugene. The pipeline is 8 inches in diameter and made of steel. It enters Lane County north of Junction City and terminates in Eugene at their Prairie Road railroad terminal.

Summary of Deficiencies

The following summarizes the deficiencies identified within the existing transportation network in Eugene.

Traffic Operations and Safety Deficiencies

The existing conditions analysis is intended to define the scope and magnitude of safety and operational deficiencies at various locations throughout the City. The operational and safety review of the 50 study area intersections revealed that the following issues may merit further review.

- The Randy Papé Beltline Ramp Termini (Eastbound and Westbound) at Northwest Expressway are stop controlled and both operating at capacity during the design hour

[13] http://willamette-riverkeeper.org/WTrail/UpperSect/Section_jpgs/pages/pg18Key3_jpg.htm

and have experienced a higher than typical rate of crashes during the last five years. A traffic signal is not warranted at either ramp termini today. Intersection treatments to address safety and operational needs should be further considered.

- Increased connectivity and multimodal options over the next several years will likely help to improve accessibility in western Eugene, especially at the Randy Papé Beltline/Roosevelt Boulevard and the Randy Papé Beltline/West 11th Avenue intersections.
- Although no discernable trends or specific safety-related mitigation measures were identified, monitoring of crash experience at the following intersections is recommended: Highway 99W/Roosevelt Boulevard, Bailey Hill Road/West 11th Avenue, Willamette Street/West 29th Avenue, and Jefferson Street/West 7th Avenue.
- At the Chambers Street/West 13th Avenue intersection, the city may want to consider improvements to improve signal visibility, including trimming of trees, higher visibility signal backplates and higher intensity signal lamps. In addition, additional illumination may be considered given the proximity to the school zone. This issue is prevalent at many other locations throughout the city.
- At the Chambers Street/West 18th Avenue intersection, the city may want to consider working with property owners over time to facilitate access management and pedestrian-related improvements.
- At the Coburg Road/Crescent Avenue intersection, an improvement in visibility could include the addition of a second through signal display and replacement of the five-section protected and permissive heads with flashing yellow arrows, increased visibility signal heads, and review of approach signs.
- The City may want to continue monitoring the near capacity condition at the Coburg Road/Country Club Road/Martin Luther King Jr Boulevard intersection. Connectivity options in this area are fairly constrained by the presence of I-105 and the Willamette River.
- Additional connectivity and multimodal options in the future may help to address the at capacity conditions at the Delta Highway Southbound Ramps/Valley River Drive intersection.
- It is recommended that the signing and striping treatments be reviewed at the Washington Street/West 7th Avenue intersection (and west through the upstream Jefferson Street and 7th Avenue signal) to provide a clear and simple message reinforced through the signing and striping treatments. Consideration should also be provided to raised pavement markings, lane extension lines, and higher visibility treatments along the channelized islands and median curbing.
- The 6th and 7th couplet in downtown may need further review in the context of multimodal access and circulation. In particular, operations at the Chambers Street/West 6th Avenue, and Madison Street/West 6th Avenue/I-105 Ramp intersections.

Pedestrian System Deficiencies

Pedestrians face daily obstacles in Eugene, as described below. For a more detailed description of pedestrian needs and deficiencies by geographic area, please see the Eugene Pedestrian and Bicycle Master Plan (PBMP) Existing Conditions Report.

Citywide Pedestrian Deficiencies

- **Signals, Intersections, and Sidewalks:** Pedestrians have requested more responsive actuated pedestrian signals with longer walk cycles, wider sidewalks, and filling in sidewalks where they are missing. They have also noted the need for clear sight lines at intersections. Many residents are concerned about right-turning drivers failing to yield the right-of-way to pedestrians crossing the street and left-turning drivers failing to yield the right of way on one-way streets.

Unimproved roadways throughout Eugene lack bicycle or pedestrian facilities.

- **Shared Use Paths:** Shared-use paths in Eugene are often a victim of their own success, resulting in congested conditions and conflicts between different types of users. Many residents, particularly women, are concerned about lack of lighting on shared-use paths, especially at night. The pavement on some path segments is cracked and heaved as well, which creates tripping hazards. To remedy these deficiencies, users have requested wider paths, soft-surface jogging/pedestrian paths parallel to paved paths, more path lighting, and repaved path surfaces.
- **Lack of Signs:** Eugene's pedestrian system would benefit from signs and other wayfinding tools to orient pedestrians and direct them to and through major destinations, such as the University of Oregon and downtown. In addition, some neighborhoods (particularly around the University of Oregon campus) lack street signs, which makes navigation difficult.
- **Fragmented Sidewalk Network:** Although a relatively complete sidewalk network exists in downtown Eugene and adjacent neighborhoods, the system is fragmented in other areas. Many streets in all neighborhoods outside of downtown, particularly in the River Road/Santa Clara area, lack sidewalks on one or both sides of the road. In addition, the owners of some individual residential lots have never constructed sidewalks, and some have placed structures or plantings that encroach into the public right-of-way.
- **Difficult Crossings:** Pedestrians encounter difficult crossings on higher-volume streets where minimal or no crossing treatments exist. For example, pedestrians encounter relatively high

Pedestrians and bicyclists both report that it is very difficult to cross Willamette Street.

vehicle traffic volumes and few gaps when crossing River Road, Coburg Road, Barger Drive, 30th Avenue, and other major roadways. Additional treatments beyond an existing crosswalk may be necessary to facilitate safe and convenient crossings. Pedestrians with disabilities, children, and the elderly also experience crossing difficulties in Eugene. Curb ramps at many intersections are in poor condition or disrepair, while many intersections in the South Hills, West Eugene, River Road/Santa Clara, and Northeast Eugene areas lack curb ramps altogether. This can make traveling by wheelchair or motorized mobility devices challenging, if not impossible. Visually and mobility impaired pedestrians experience difficulty navigating through intersections with curb ramps oriented diagonally toward the intersection's center rather than toward a crosswalk. Signalized intersections also largely lack audible pedestrian signals to facilitate safe crossings for the visually impaired.

- **Bicyclist Behavior:** Numerous residents have commented that they feel endangered by bicyclists that use the sidewalk and that travel quickly on shared-use paths and pass without an audible signal.
- **Street Lighting:** Some members of the public have complained that a lack of lighting on streets in their neighborhood (e.g. in the Whitaker and South University neighborhoods) makes them uncomfortable walking at night.

Bicycle System Deficiencies

Bicyclists face various issues in Eugene, as described below. For a more detailed description of bicyclist needs and deficiencies by geographic area, please see the Eugene Pedestrian and Bicycle Master Plan (PBMP) Existing Conditions Report.

City-wide Bicycle Deficiencies

- **Shared-Use Paths:** Bicyclists have reported that a lack of signs and markings on shared-use paths can make it difficult to connect to adjacent neighborhoods. They have also mentioned that a lack of lighting on bike paths that serve heavy commuter traffic (e.g. the pathway from Alton Baker Park to Springfield) makes it hard for path users to see during dark or wet conditions. People have also asked for wider pathways with parallel soft-surface running paths to minimize user conflicts and meet the high demand for pathway use.
- **Signed Bikeways:** Many residents have requested specific enhancements for existing signed bike routes, most of which can be summarized as making the route easier for bicycles (safer, more convenient, more direct, easier to find) and more difficult for cars (lower vehicle speeds and volumes). Most signed bike routes in Eugene currently lack additional features that could make them more attractive and comfortable for bicyclists of all ages and abilities, such as wayfinding signs and markings, more robust traffic

Traffic calming on bicycle routes can create a lower-stress bicycling experience.

calming and vehicle diversion treatments, turned stop signs (to favor bicycle through movement), and intersection treatments to facilitate crossing major streets. In addition, many signed bikeways have double yellow center striping along their length or at intersections, which can create the impression that the street is designed for higher vehicle speeds and volumes than their functional classification actually indicates. Enhancing signed bikeways with these features would create bicycle priority streets, often called "bicycle boulevards," that have been shown to attract a wide spectrum of bicyclists.

- **Bike Parking:** Members of the public have noted the need for more and higher-quality covered long-term bike parking at major transit stops (e.g. Amazon Transit Center), for downtown commuters, and at area schools. Bike theft continues to be a major area of community concern, and increasing the quantity and quality of bike parking is one tool to address the bicycle theft problem.
- **Bicycle Intersection Issues:** Numerous residents have complained that traffic signals are not always triggered by the presence of a bicycle. Many intersections have push buttons for bikes on the right side, which does not work for cyclists who position themselves in the center of the lane (particularly when the right-hand lane is a right turn only lane for cars). Efforts to calibrate magnetic loop detectors for bicycles and/or installing video detection can help bicyclists "get the green." Many members of the public have asked for bike boxes, scramble signals, and leading pedestrian intervals to facilitate safer bicycle priority movement at intersections.
- **Bike Lanes:** Policy guidance in Eugene has resulted in five-foot bike lanes where bike lanes are provided (though a few specific locations have narrower bike lanes for historical reasons). Lanes are dashed through some intersections, and a through bike lane has been provided in many instances where a vehicular right-turn lane is provided. These provisions are meeting the needs of confident cyclists but do not provide sufficient protection from cars for children, seniors, and less-confident cyclists. The primary community complaint has been that bike lanes on busy roadways are "scary," "not wide enough," or "need more separation from cars." Many people have asked for wider bike lanes, physical barriers between bike lanes and motor vehicle lanes, reversing the parking lane and the bike lane (so parked cars provide a barrier) and/or colored pavement in bike lanes.
- **Maintenance Issues:** Gravel, glass and other debris are routinely present on the bikeway system, especially on shoulder bikeways (e.g. Green Hill Road). This typically occurs when passing motor vehicles blow debris into the adjacent bicycle lane or shoulder.
- **Poor Pavement Conditions:** Several on-street bikeways are characterized by poor pavement conditions (e.g., University Street), including potholes and uneven surfaces. Unimproved roadways throughout the city generally have rough conditions.

Poor pavement quality, such as on this stretch of University Street, can be a hazard for bicyclists.

- **Lack of Signs and Markings:** Eugene's bikeway system lacks a comprehensive system of signs, pavement markings, and other wayfinding tools to orient riders and direct them to and through major bicycling destinations like shared-use paths, downtown, parks, and schools. Residents who do not own a bike map have no way of knowing which routes will get them to where they are going, particularly on low-traffic signed bike routes, where no bike lane striping is present to confirm that the road in question has been optimized for bicycling. There is a particular problem with missing street signs in neighborhoods surrounding the University of Oregon campus.

Transit Deficiencies

The following list of transit deficiencies were derived from observations in the field and the transit service ratings included in the 2007 LTD Origin/Destination Study. The desired service improvements listed below do not necessarily represent the majority opinion of transit riders, but rather, highlight areas most desired for improvement.

Bus stops vary in the level of amenities provided.

- The most desired service improvement identified by transit riders in the 2007 LTD Origin/Destination Study was increased service hours, specifically later evening service. Currently, service on most routes is provided from 6 a.m. to 11 p.m. on weekdays, 7 a.m. to 11 p.m. on Saturdays, and 8 a.m. to 8 p.m. on Sundays.
- The second most desired service improvement identified by transit riders was increased comfort waiting for the bus, specifically more bus stops and more bus stop lighting. Bus stops in Eugene currently vary in the type and amount of amenities they offer transit riders, including benches, shelters, lighting, trash cans, and schedules/maps.
- Another desired service improvement identified by transit riders was increased service frequency for both weekdays and weekends. Currently, the majority of LTD bus routes operate on 30 minute headways during peak hours and on 60 minute headways during non-peak hours.
- Some riders also reported desiring an increase in service reliability. Currently, transit riders must rely on published bus schedules to estimate the arrival time of the next bus. While this information is made easily accessible (via the internet, brochures, and by text message at some stops), riders do not know if the next scheduled bus is canceled or delayed.
- Service to new areas was also reported as a desired improvement by some riders. Currently transit service in Eugene is modeled off a hub and spoke system, with the majority of transit routes taking riders to and from downtown Eugene into the surrounding neighborhoods. This can create out-of-travel delays for riders who would like to use transit to access cross-town destinations.

- Transit connections to regional multi-modal facilities, such as the Amtrak Station and Eugene Airport, are additional opportunities for improvement. Transit connections to the Amtrak Rail Station are currently provided by Routes 01 (Cambell Center), 40 (Bethel/Danebo), and 66 (VRC/Coburg). However, bus stops along these routes are located a few blocks away from the Amtrak Station and the routes are not necessarily timed to coincide with the 4 daily Amtrak passenger train departures. Transit service to and from the Eugene airport is not currently provided.
- Some transit riders also reported desiring improved LTD web information. Currently the LTD website links riders to Google Transit for online trip planning services, which does not provide riders with the ability to select preferences for walking distance, number of transfers, or quickest trip.
- In 2007, the majority of LTD transit riders accessed transit on foot (88 percent) or by bicycle (4.4 percent). Ensuring well-lit bicycle and pedestrian connectivity at all major transit stops, adding secure bicycle parking, and ensuring safe bicycle and pedestrian crossings near transit stops are strategies that could help serve these riders.
- EmX bus drivers report that passenger vehicles often mistakenly turn into and drive in the dedicated BRT only lanes. Increasing driver education about dedicated bus-only lanes could help improve driver safety and BRT reliability.
- Currently transit riders in Eugene have the option of buying a single ticket, day-pass, month-pass, or 3-month pass. While, several 3-month passes can be purchased at one time, currently riders do not have the option of purchasing an annual transit pass. Discounted annual transit passes can help decrease the cost and increase the convenience of riding transit.

Confused drivers sometimes drive in EmX dedicated bus only lanes.

Freight System Deficiencies

The 2010 Draft Oregon Freight Plan has identified a number of issues that need to be addressed in order to ensure that Oregon has an efficient and sustainable freight transportation system that supports economic growth and the livability of Oregon communities. The Draft Plan also formulates strategies that ODOT and other local government agencies and jurisdictions, including Eugene, can implement in order to realize the state’s freight transportation goals. These strategies are listed below:

- Define a strategic freight system and establish a process for updating the definition of the system;
- Describe how the strategic system should be preserved;
- Periodically revisit existing processes and criteria for determining critical investment needs for the freight system;

- Describe how ODOT can work with partner agencies and other states, local agencies and the private sector to ensure a coordinated approach to freight transportation system planning;
- Establish procedures to ensure the system operates efficiently;
- Identify actions that can be taken to coordinate land use and freight transportation planning decisions;
- Describe how regulatory programs can be coordinated with freight transportation needs; and
- Describe approaches to addressing long-term funding needs for the freight transportation system.

The implementation of these strategies statewide will impact the freight system in Eugene and provides a framework for the City to support and improve freight connections within the study area over the next 20 years.

Rail System Deficiencies

Freight Rail

Strategies identified in the 2010 Oregon Rail Study for Oregon to preserve and expand freight rail access in Oregon include:

- increasing capacity
- developing hub facilities for transloading and aggregating shipments
- providing equipment
- maximizing the development of existing rail-friendly land
- improving deteriorating infrastructure
- growing intra-Oregon rail traffic

These strategies will likely impact the freight rail system in Eugene as the state works to improve and expand the rail system in Oregon over the next 20 years.

Passenger Rail

To accommodate the desired improvements in passenger rail service identified by the HSIPR program, a preferred alignment will need to be identified and several improvements will need to be made to the rail corridor. The 2009 HSIPR Service Development Plan (SDP) identifies several needs, deficiencies, and capital improvements that would affect the rail system within the study area. These needs, deficiencies, and capital improvements are described below:

- Provide rail capacity improvements between Portland to Eugene including track alignment, double track locations, crossing improvements or closures, bridge and track recapitalization allowing for high speed operations, station improvements, signal, communications and positive train control, and maintenance facilities. (Project #9, HSIPR Service Development Plan)

- Construct two stub tracks at the downtown Eugene passenger station to permit passenger trains to be parked overnight and eliminate the current practice of storing them at Eugene Yard, which requires extra time and expense to travel back and forth. (Project #8, HSIPR Service Development Plan)[14]
- Install a new power-operated crossover between the main track and WP siding north of the passenger depot for enhanced freight access to Eugene Yard. (Project #8, HSIPR Service Development Plan)
- Analyze Eugene Yard to determine if the yard configuration is sufficient for projected 2030 rail traffic levels. A new yard configuration may be necessary to accommodate yard and industrial switching in conjunction with the additional through trains.

At-Grade Crossings

Observations of two at-grade railroad crossings at Irving Road and NW Expressway and Irvington Drive and NW Expressway show that the crossings appear to have a short distance (12 feet) between the crosswalks and the railroad crossing stop lines for westbound auto traffic. At-grade railroad crossings should be reviewed for vehicle queuing distance and storage space once the traffic data is available.

Airport Deficiencies

The Eugene Airport Master Plan Update identified needs associated with a variety of airport facilities. The facilities relevant to the Eugene TSP include airport facilities, terminal facilities, air cargo facilities, general aviation facilities, and automobile parking and circulation.

Airport Facilities

- The runway length of both runways was identified as a potential future deficiency. The extension of 16R-34L runway to 9,200 feet and the extension of 16L-34R to 6,500 feet would allow a greater range of aircrafts to be accommodated on each runway.
- The airport currently has only one baggage claim and does not have a back-up baggage claim.
- Air cargo facilities can only accommodate seven smaller aircrafts. In 2007, a project was started to construct facilities to accommodate seven larger aircrafts.

Surface Transportation and Auto Parking

- Terminal curb front space is projected to be inadequate to meet demand sometime between 2016 and 2026.
- Capacity at the parking lots adjacent to the terminal currently exceed capacity during peak times, resulting in drivers using the remote overflow parking lot. This parking lot

[14] This is part of a larger project at the Eugene passenger station that will include an elevated platform for getting on and off the train.

is more expensive for the airport to administer as it requires a shuttle service and is less convenient for travelers. Public parking (parking adjacent to the terminal and overflow parking) is expected to be inadequate sometime between 2016 and 2026.

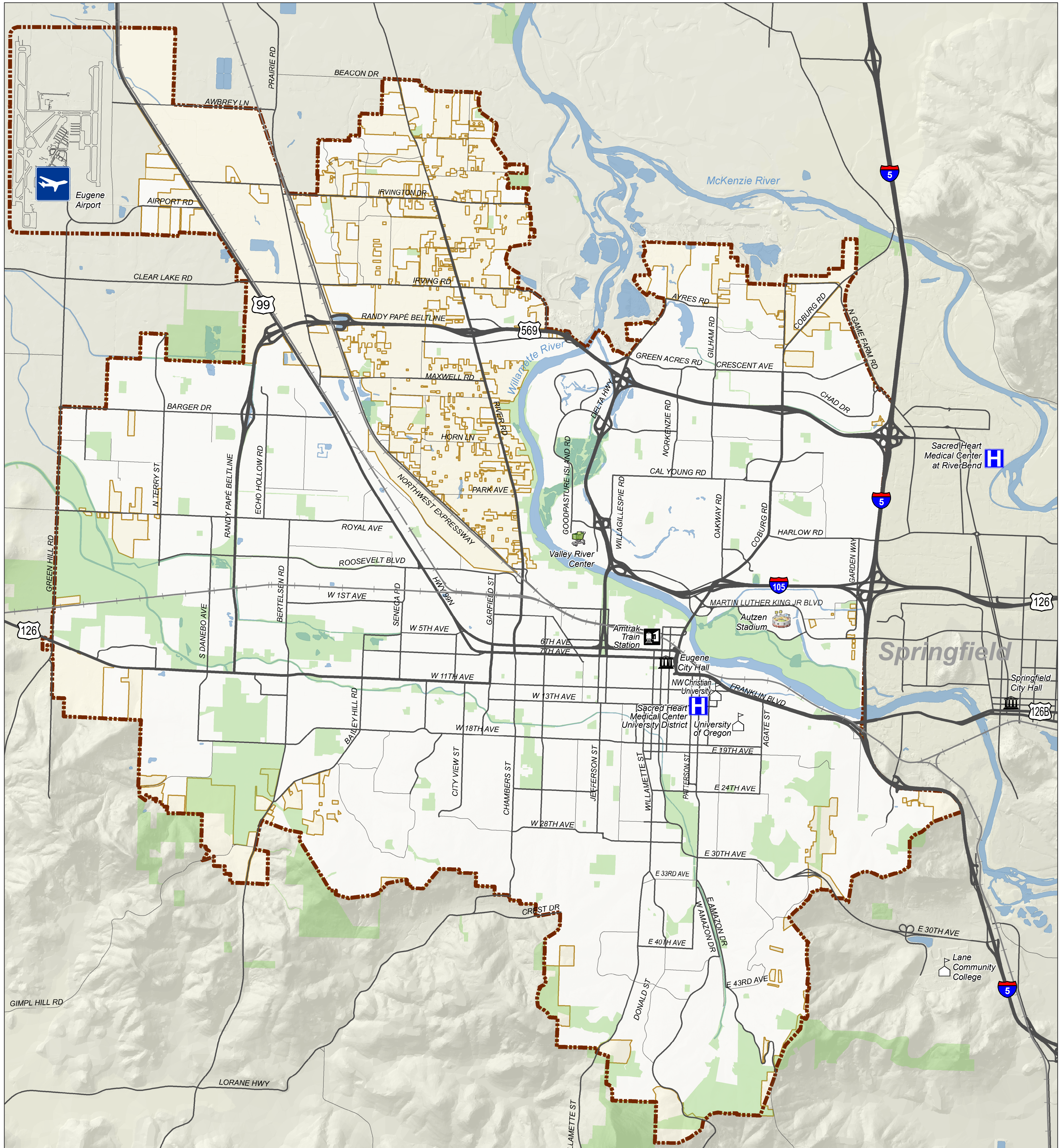
- The demand for storage and service spaces for rental car companies currently exceeds capacity at EUG. The number of ready and return spaces currently meets the need for rental car companies but is projected to be insufficient sometime between 2016 and 2026.
- Regularly scheduled transit service is not provided to and from this location. Most originating passengers at EUG use private automobiles to travel to the airport.

Next Steps

The information gathered and presented in this report will be reviewed by a broader audience and the ensuing discussion will serve as the basis for developing the alternatives considered in the Eugene Transportation System Plan. Future goals and policies for the Eugene TSP will be developed with input from project stakeholders and the broader community and will serve as the basis for evaluating the project alternatives.

City of Eugene
Transportation System Plan

Figure 1: Study Area



LEGEND

- Study Area Focus
- Eugene City Limits
- Unincorporated Areas
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

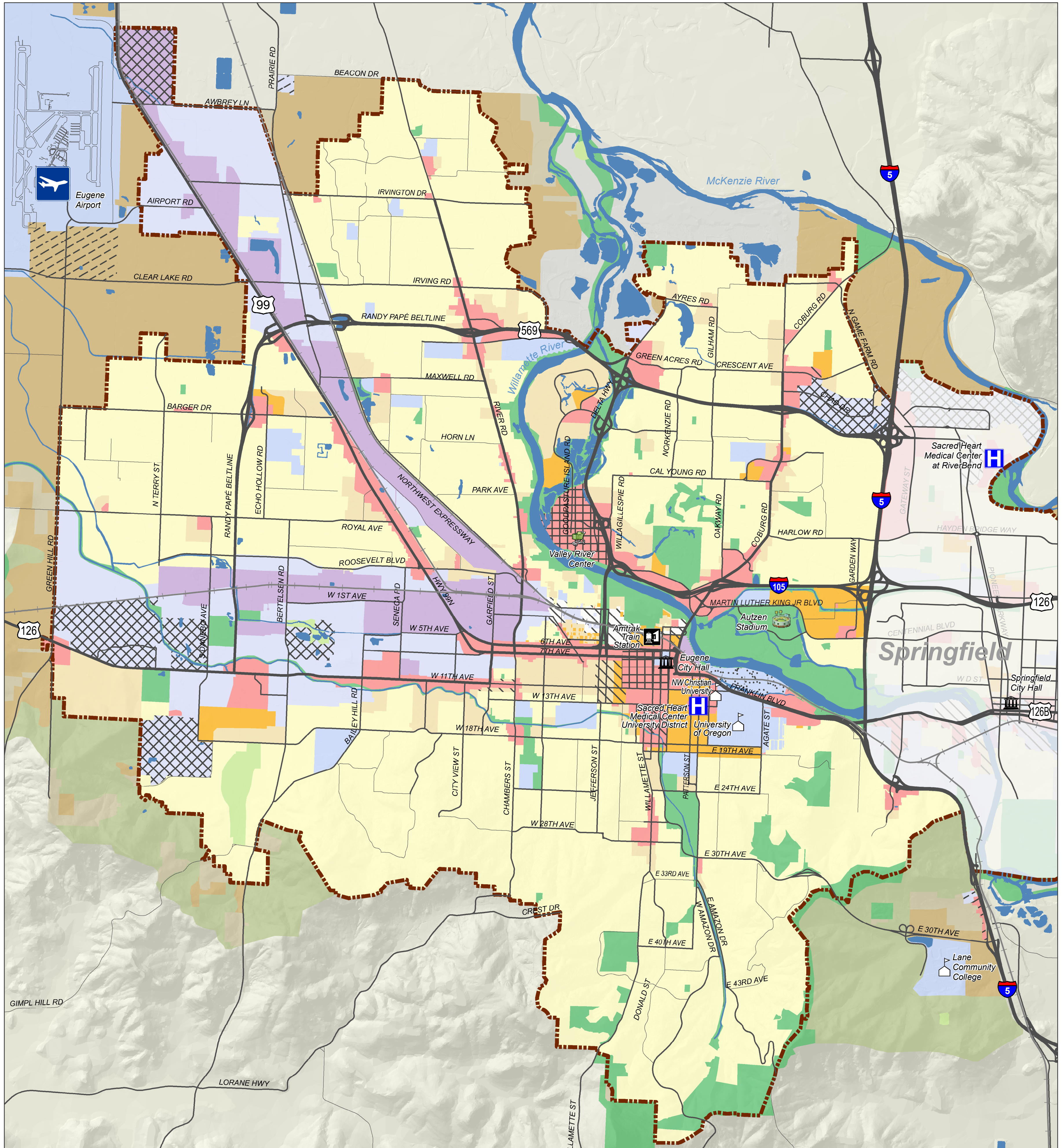
Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene
Transportation System Plan

Figure 2: MetroPlan Land Use Designations

2004 (as updated through 2009)



LEGEND

- Low Density Residential
- Medium Density Residential
- Medium Density Res Mixed
- High Density Residential
- High Density Res Mixed Us
- Commercial
- Commercial Mixed Use
- Major Retail Center
- Heavy Industrial
- Special Heavy Industrial
- Light Medium Industrial
- Light Med Ind Mixed Use
- Campus Industrial
- University Research
- Government & Education
- Parks and Open Space
- Natural Resource
- Sand and Gravel
- Agriculture
- Forest Land
- Rural Residential
- Rural Commercial
- Rural Industrial
- Airport Reserve
- Mixed Use
- Urban Growth Boundary
- Water Features
- Rail (Main & Branches)

Miles 0 1 2

Caution:
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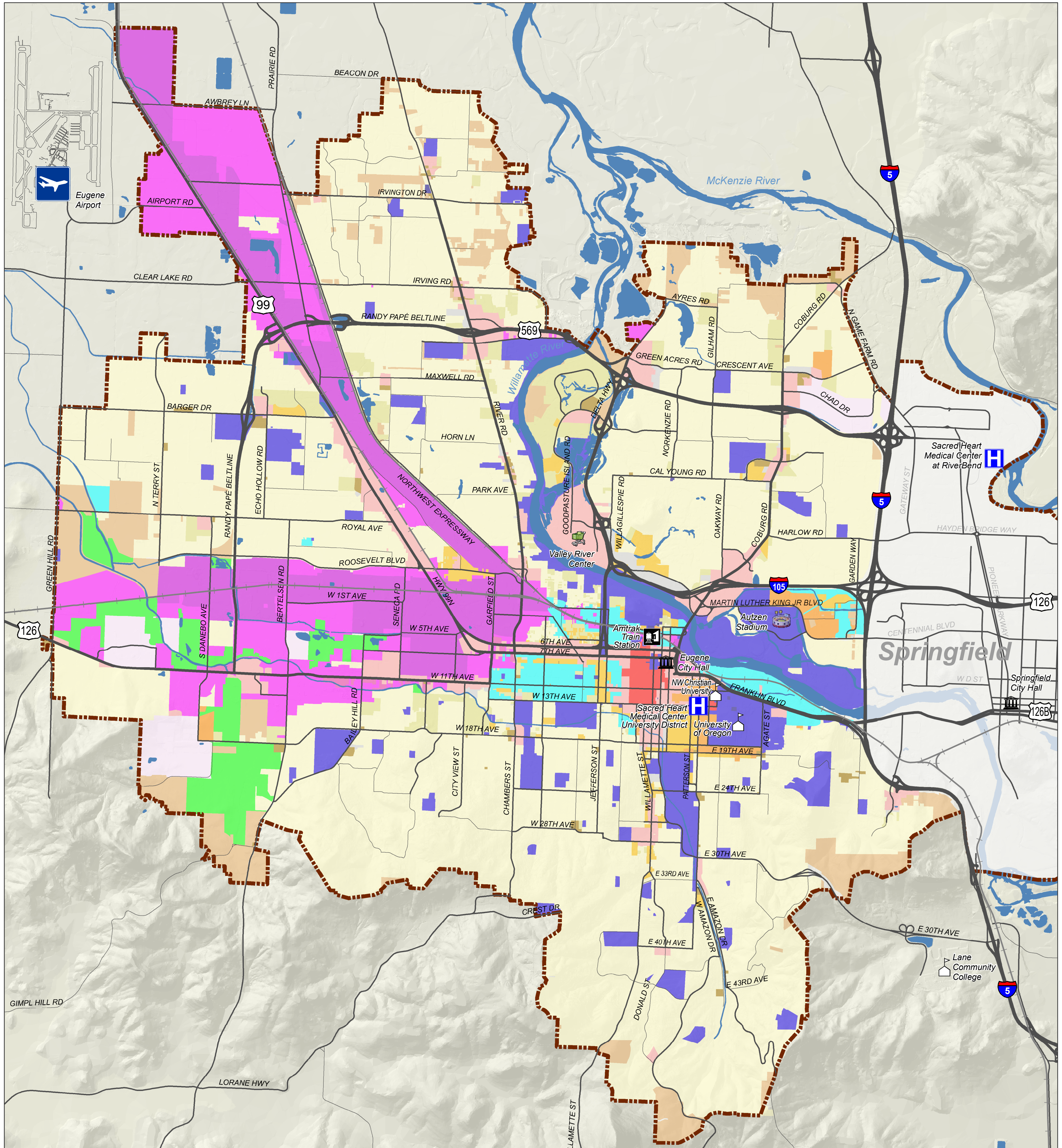
Map produced by City of Eugene PWE Info Team, October 2010

VALID AT 11X17" SCALE ONLY.
The information on this map was derived from digital databases on a regional geographic information system to approximate the MetroPlan Land Use diagram of 2004 and all amendments through 2009.
Care was taken in the creation of this map, but it is provided "as is".
Current plan designation, zoning, etc., for specific parcels should be confirmed with the City of Eugene Planning Division.
There are no warranties, express or implied, accompanying this product.

City of Eugene Transportation System Plan

Figure 3: Base-Zoning



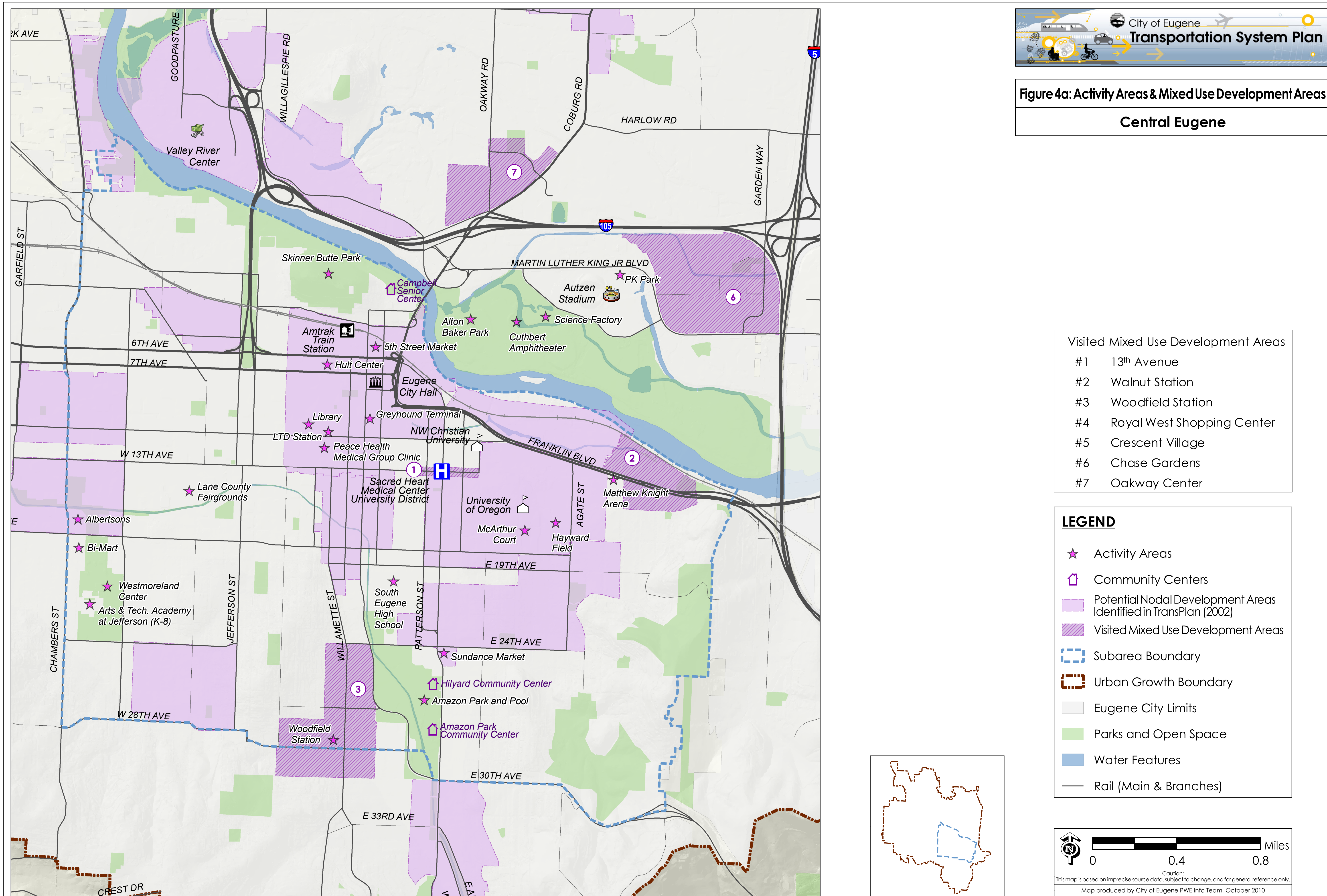
LEGEND

- Agricultural
- Neighborhood Commercial
- Community Commercial
- Major Commercial
- Commercial Industrial
- General Office
- Campus Industrial
- Light Medium Industrial
- Heavy Industrial
- Natural Resource
- Public Land
- Low Density Residential
- Rowhouse
- Medium Density Residential
- Limited High Density Residential
- High Density Residential
- Special Area Historic
- Special Area Zone
- Urban Growth Boundary
- Water Features
- Rail (Main & Branches)

0 1 2 Miles

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010


City of Eugene
Transportation System Plan
Figure 4a: Activity Areas & Mixed Use Development Areas
Central Eugene
Visited Mixed Use Development Areas
#1 13th Avenue
#2 Walnut Station
#3 Woodfield Station
#4 Royal West Shopping Center
#5 Crescent Village
#6 Chase Gardens
#7 Oakway Center
LEGEND
Activity Areas
Community Centers
Potential Nodal Development Areas Identified in TransPlan (2002)
Visited Mixed Use Development Areas
Subarea Boundary
Urban Growth Boundary
Eugene City Limits
Parks and Open Space
Water Features
Rail (Main & Branches)
Miles
0
0.4
0.8
Caution:
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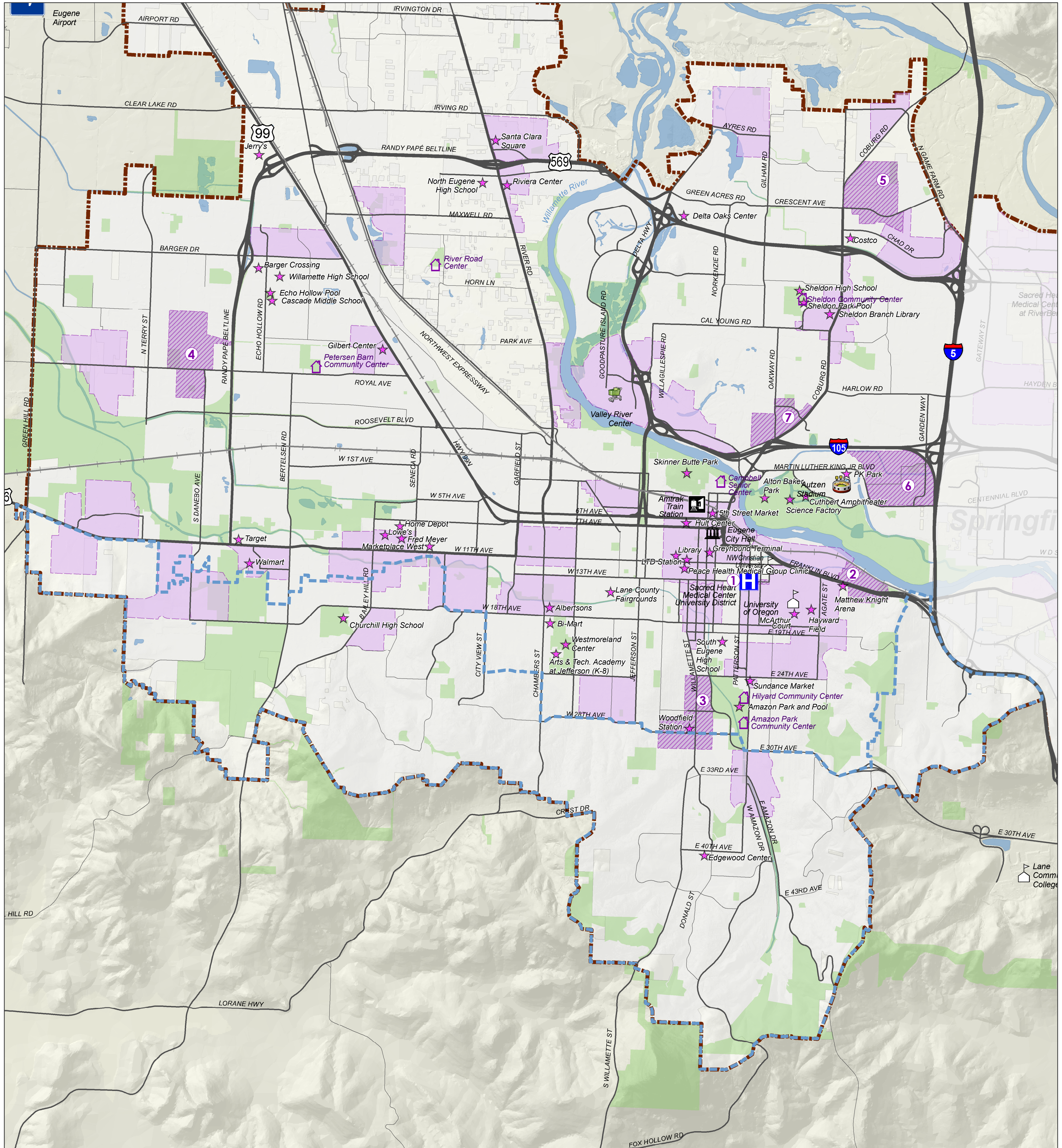
Map produced by City of Eugene PWE Info Team, October 2010
GOODPASTURE
WILLAGILLESPIE RD
OAKWAY RD
COBURG RD
HARLOW RD
GARDEN WAY
Valley River Center
GARFIELD ST
Skinner Butte Park
Campbell Senior Center
MARTIN LUTHER KING JR BLVD
PK Park
Autzen Stadium
Alton Baker Park
Cuthbert Amphitheater
Science Factory
Amtrak Train Station
5th Street Market
6TH AVE
7TH AVE
Hult Center
Eugene City Hall
Library
Greyhound Terminal
LTD Station
NW Christian University
Peace Health Medical Group Clinic
W 13TH AVE
FRANKLIN BLVD
Lane County Fairgrounds
Sacred Heart Medical Center University District
University of Oregon
Matthew Knight Arena
AGATE ST
Albertsons
McArthur Court
Hayward Field
Bi-Mart
E 19TH AVE
Westmoreland Center
Arts & Tech. Academy at Jefferson (K-8)
JEFFERSON ST
South Eugene High School
WILLAMETTE ST
PATTERSON ST
E 24TH AVE
CHAMBERS ST
Sundance Market
Hilyard Community Center
Amazon Park and Pool
W 28TH AVE
Woodfield Station
Amazon Park Community Center
E 30TH AVE
E 33RD AVE
CREST DR

City of Eugene
Transportation System Plan

Figure 4b: Activity Areas & Mixed Use Development Areas

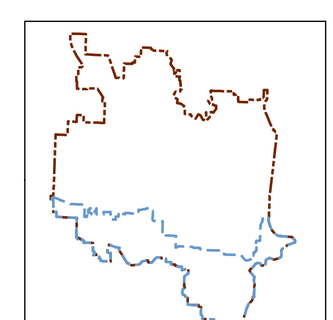
South Hills



Visited Mixed Use Development Areas	
#1	13th Avenue
#2	Walnut Station
#3	Woodfield Station
#4	Royal West Shopping Center
#5	Crescent Village
#6	Chase Gardens
#7	Oakway Center

LEGEND

- Activity Areas
- Community Centers
- Potential Nodal Development Areas Identified in TransPlan (2002)
- Visited Mixed Use Development Areas
- Subarea Boundary
- Urban Growth Boundary
- Eugene City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)



Miles
0 1 2

Caution:
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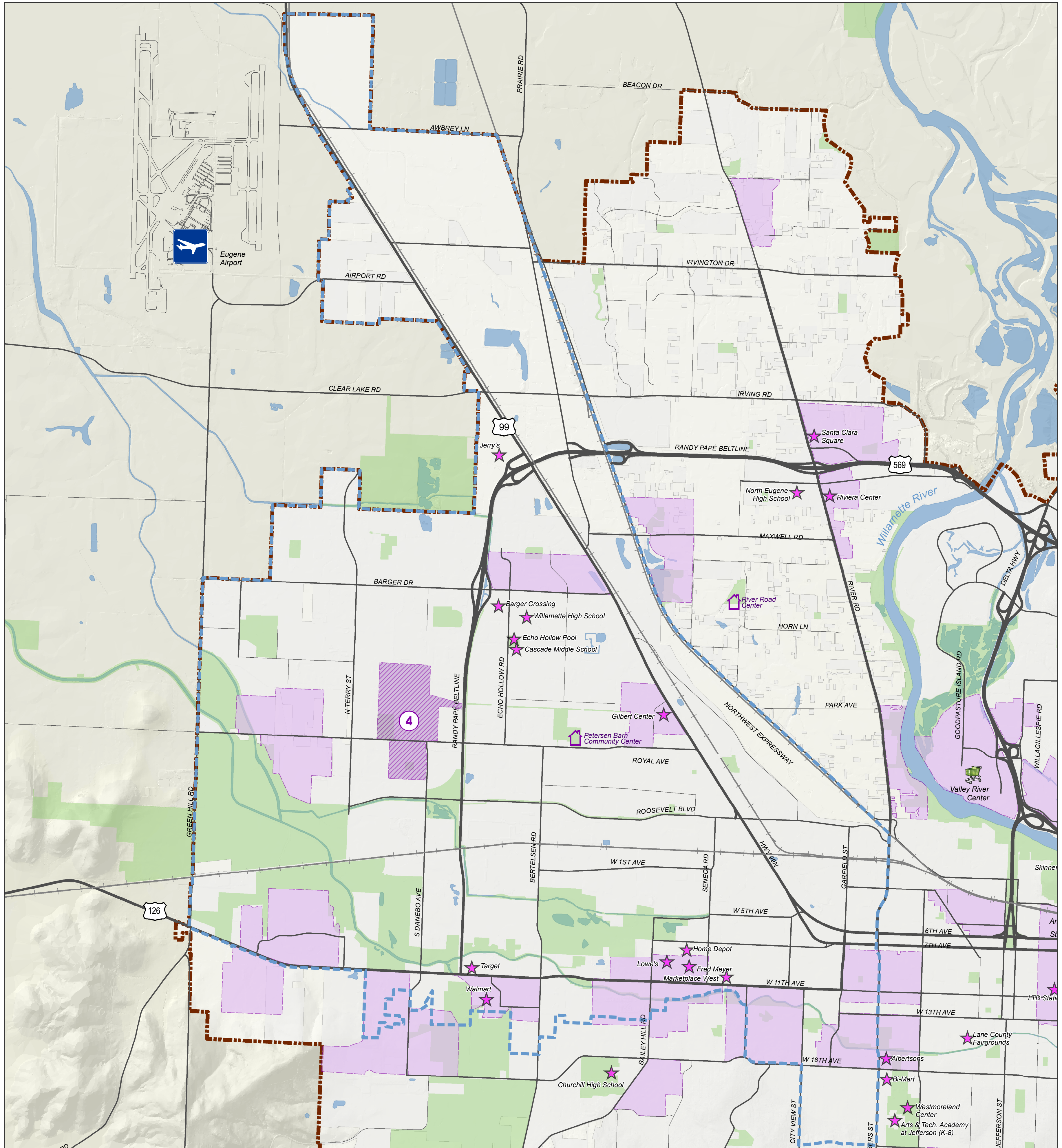
City of Eugene
Transportation System Plan

Figure 4c: Activity Areas & Mixed Use Development Areas

West Eugene/Bethel/Danebo

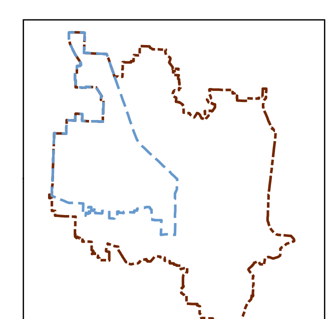


Visited Mixed Use Development Areas

#1	13th Avenue
#2	Walnut Station
#3	Woodfield Station
#4	Royal West Shopping Center
#5	Crescent Village
#6	Chase Gardens
#7	Oakway Center

LEGEND

- Activity Areas
- Community Centers
- Potential Nodal Development Areas Identified in TransPlan (2002)
- Visited Mixed Use Development Areas
- Subarea Boundary
- Urban Growth Boundary
- Eugene City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)



Miles
0 0.5 1

Caution:
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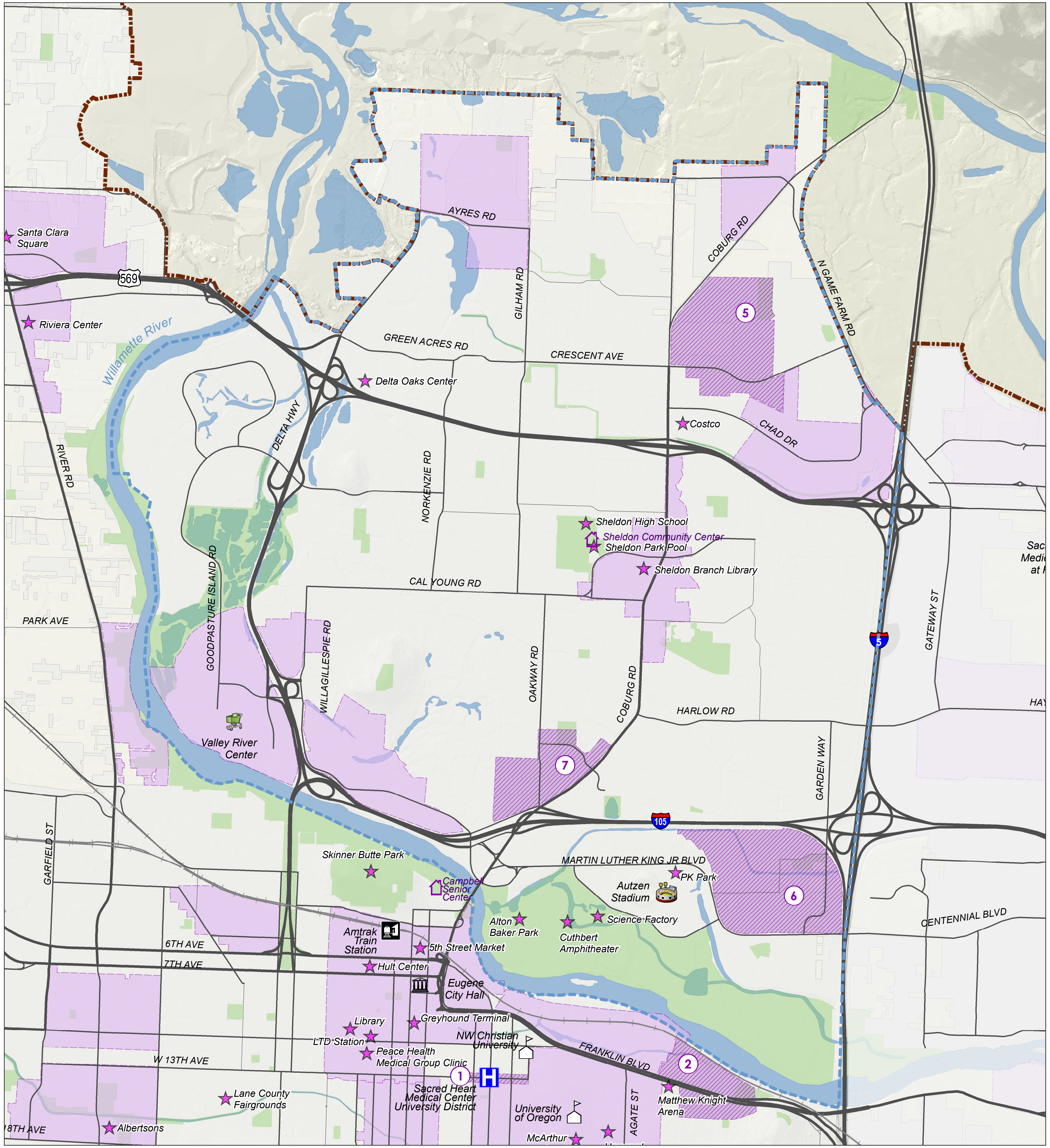
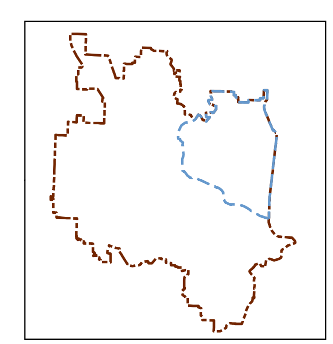
Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene Transportation System Plan

Figure 4d: Activity Areas & Mixed Use Development Areas

NE Eugene





Visited Mixed Use Development Areas

#1	13th Avenue
#2	Walnut Station
#3	Woodfield Station
#4	Royal West Shopping Center
#5	Crescent Village
#6	Chase Gardens
#7	Oakway Center

LEGEND

- Activity Areas
- Community Centers
- Potential Nodal Development Areas Identified in TransPlan (2002)
- Visited Mixed Use Development Areas
- Subarea Boundary
- Urban Growth Boundary
- Eugene City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles 0 0.5 1

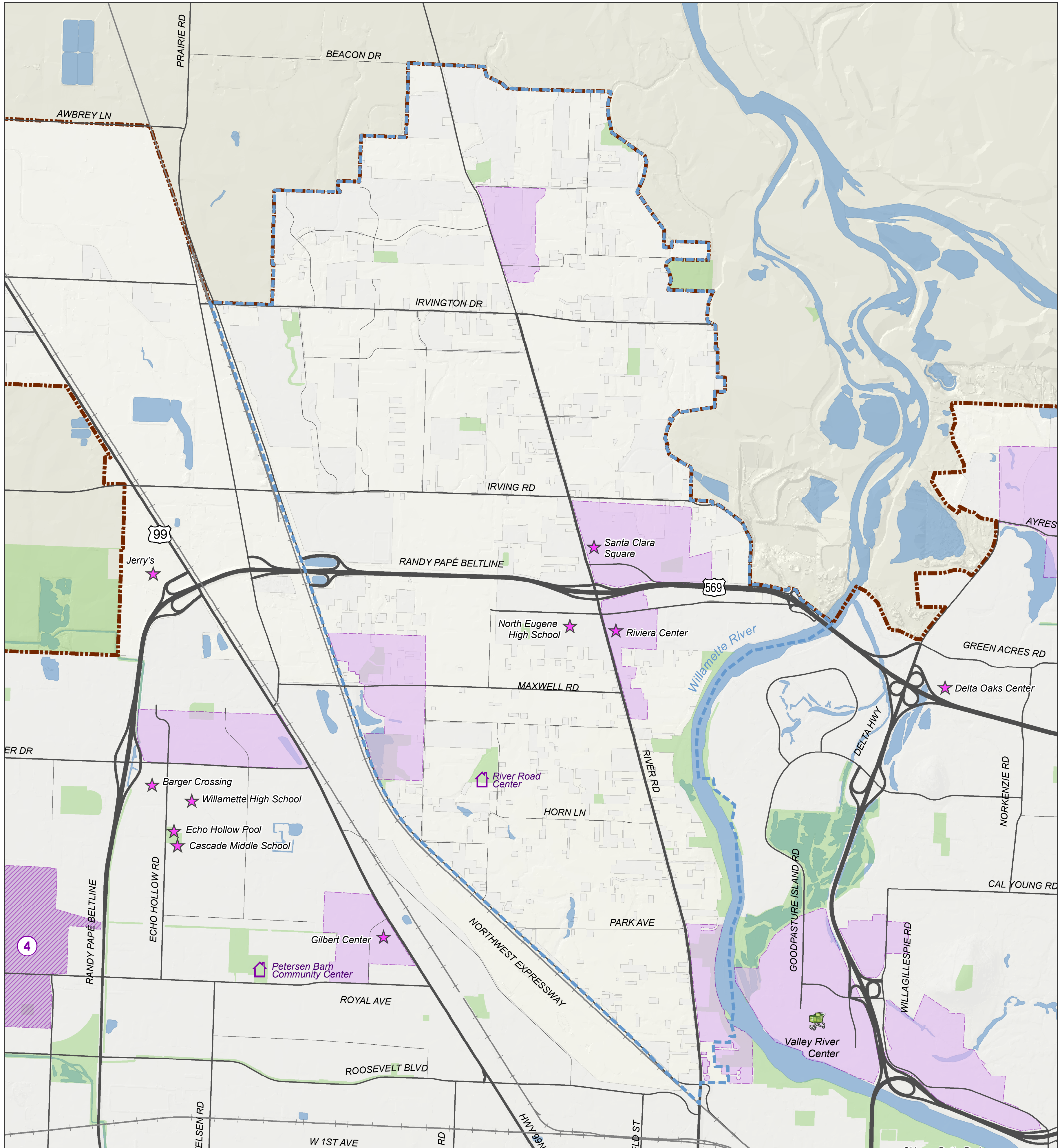
Caution: This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene
Transportation System Plan

Figure 4e: Activity Areas & Mixed Use Development Areas

River Road/Santa Clara

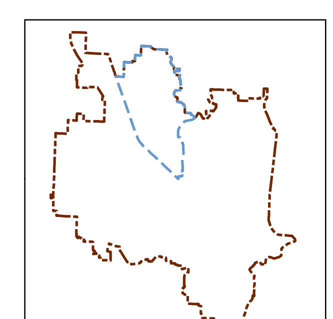


Visited Mixed Use Development Areas

#1	13th Avenue
#2	Walnut Station
#3	Woodfield Station
#4	Royal West Shopping Center
#5	Crescent Village
#6	Chase Gardens
#7	Oakway Center

LEGEND

- Activity Areas
- Community Centers
- Potential Nodal Development Areas Identified in TransPlan (2002)
- Visited Mixed Use Development Areas
- Subarea Boundary
- Urban Growth Boundary
- Eugene City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)



0 0.5 1 Miles

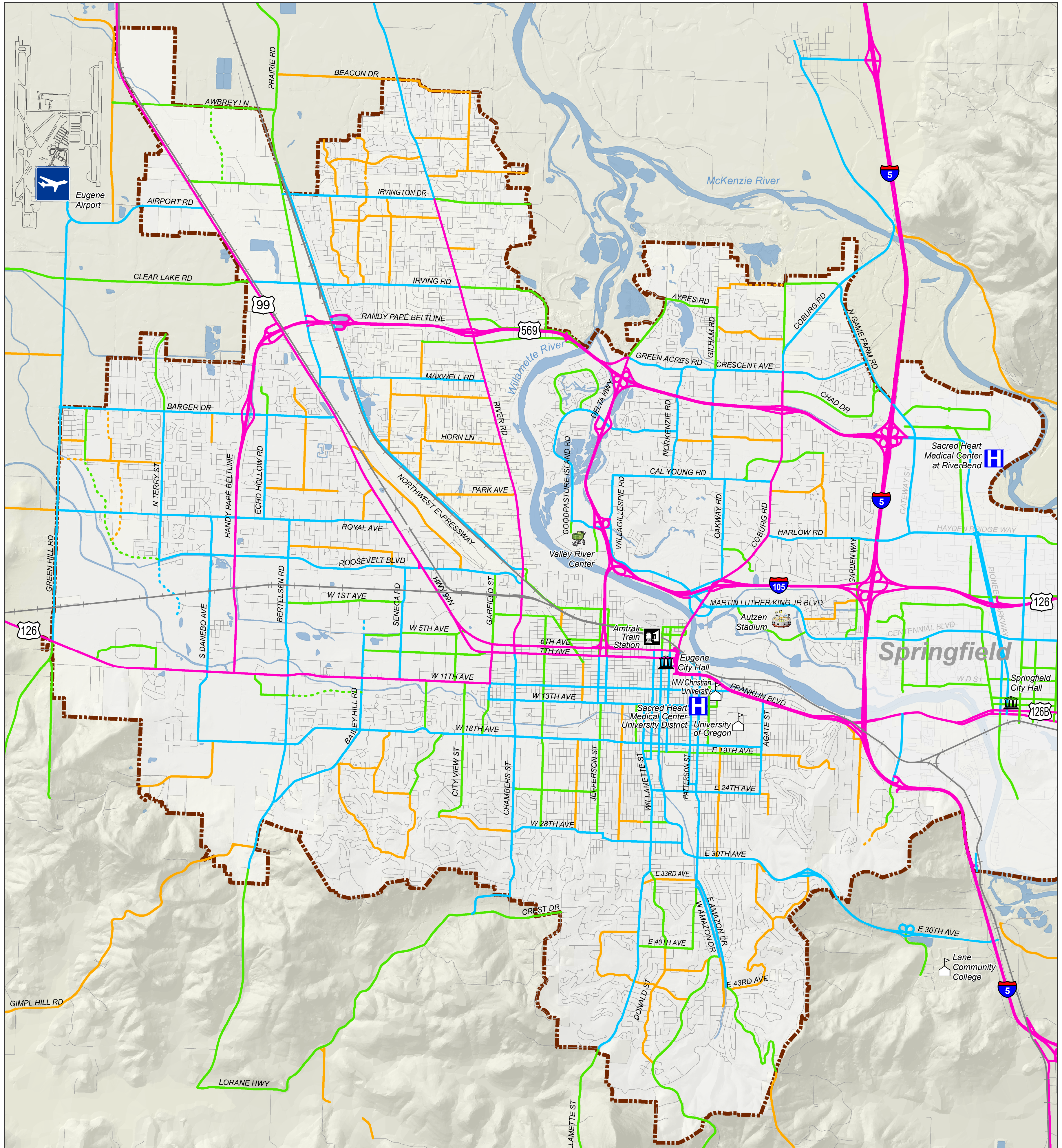
Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene
Transportation System Plan

Figure 5: Roadway Functional Classification

Based on the Arterial and Collector Street Plan (ACSP)



LEGEND

Roadway Functional Classification

Future Existing

- Major Arterial
- Minor Arterial
- Major Collector
- Neighborhood Collector
- Local
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

Caution:
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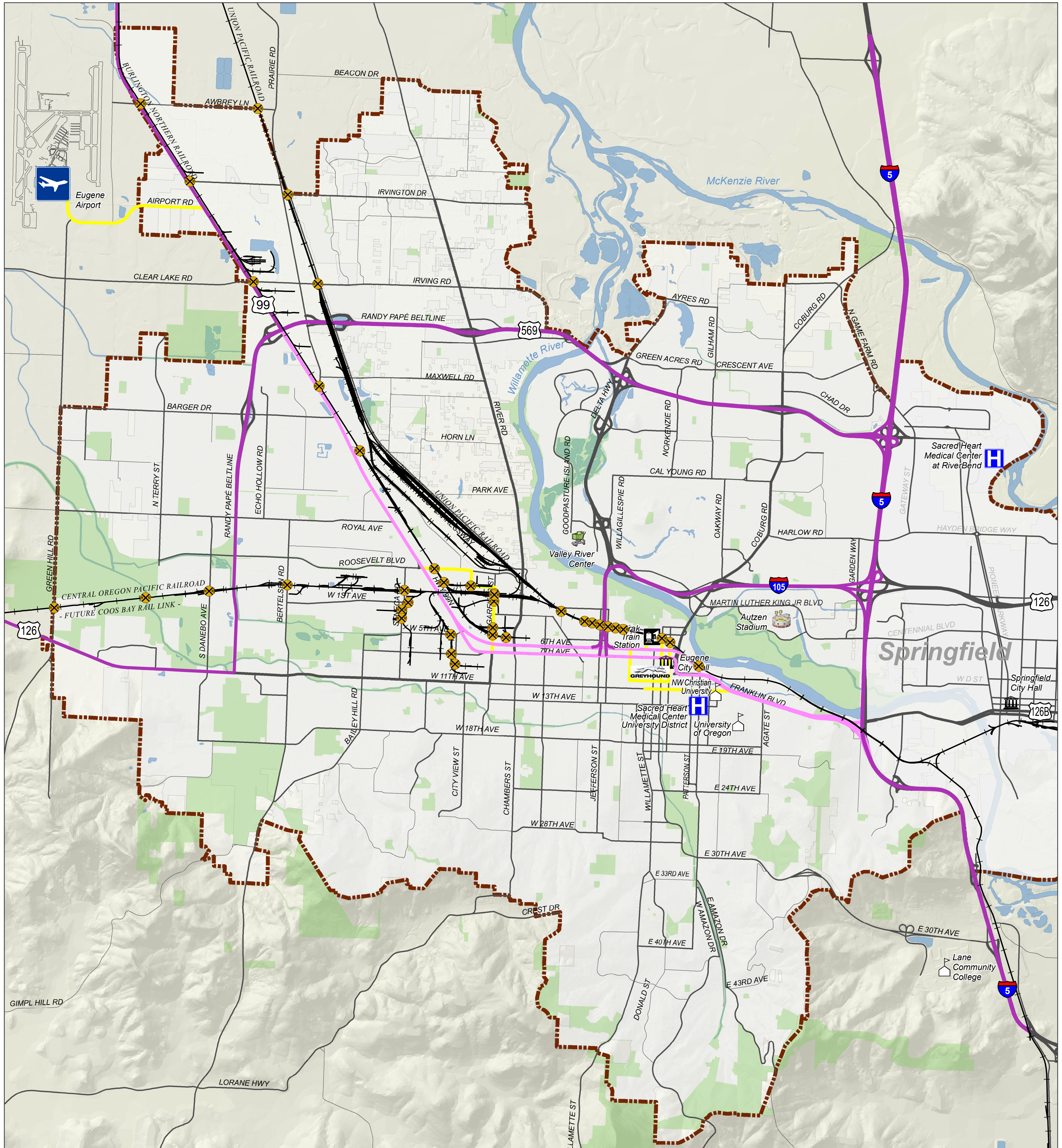
Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene
Transportation System Plan

Figure 6: Freight Routes and Rail Facilities



LEGEND

- At-Grade Rail Crossings
- Rail System
- Freight Routes (State of Oregon)
- Truck Routes (National Hwy System)
- NHS Connectors
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features

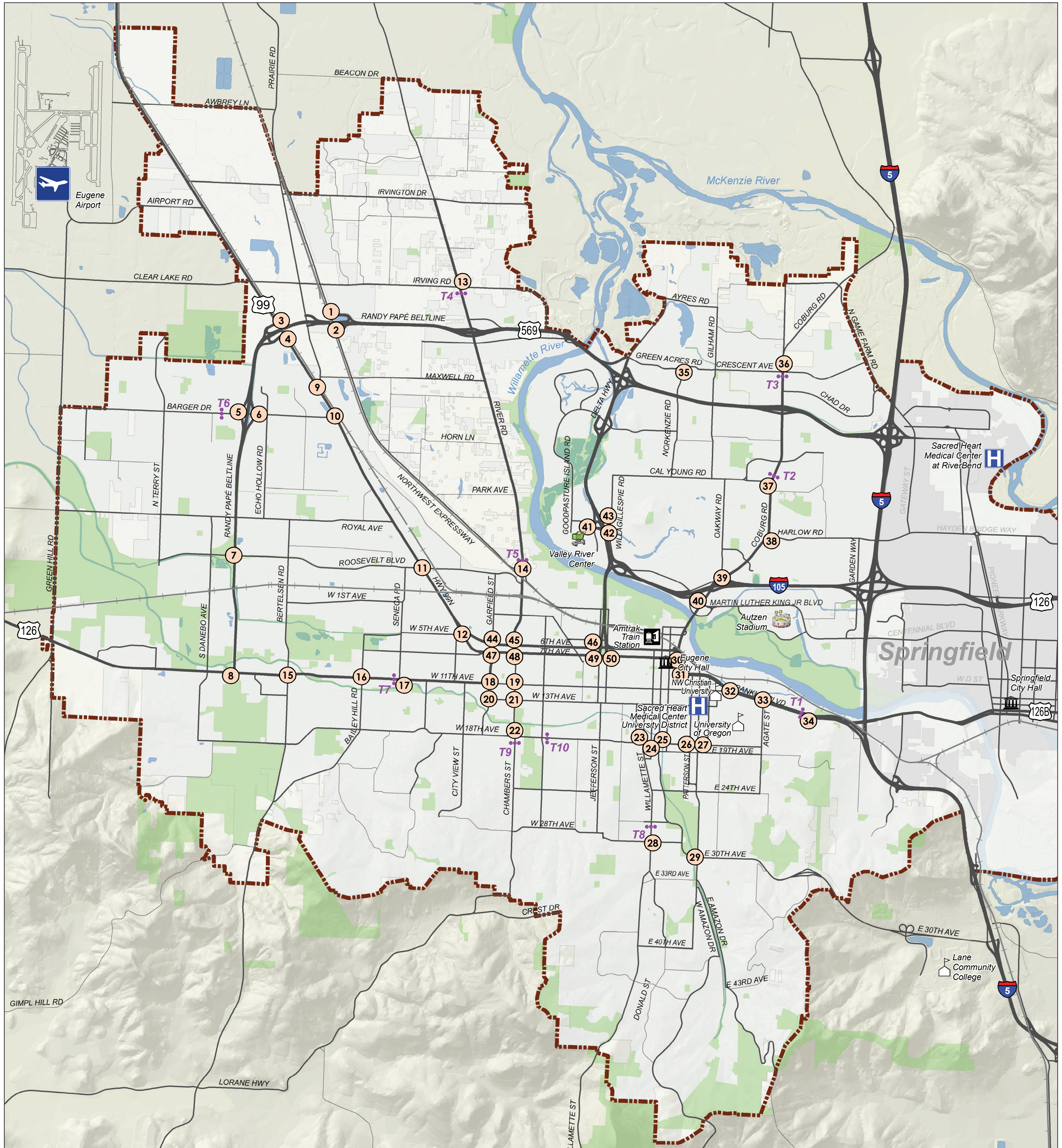
Miles
0 1 2

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010

City of Eugene
Transportation System Plan

Figure 7: Study Intersections



Intersection #	Street Name	
	North-South	East-West
1	Beltline Road Westbound Ramps	Northwest Expressway
2	Beltline Road Eastbound Ramps	Northwest Expressway
3	Beltline Road Eastbound Ramps	Pacific Highway W
4	Beltline Road Westbound Ramps	Pacific Highway W
5	Beltline Road Southbound Ramps	Barger Drive
6	Beltline Road Northbound Ramps	Barger Drive
7	Beltline Road	Roosevelt Boulevard
8	Beltline Road	W 11th Avenue
9	Pacific Highway W	Prairie Road
10	Pacific Highway W	Barger Drive
11	Pacific Highway W	Roosevelt Boulevard
12	W 7th Avenue	W 5th Avenue
13	River Road	Irving Road
14	River Road	Northwest Expressway - Railroad Boulevard
15	S Bertelsen Road	W 11th Avenue
16	Bailey Hill Road	W 11th Avenue
17	Seneca Road	W 11th Avenue
18	Garfield Street	W 11th Avenue
19	Chambers Street	W 11th Avenue
20	Garfield Street	W 13th Avenue
21	Chambers Street	W 13th Avenue
22	Chambers Street	W 18th Avenue
23	Willamette Street	W 18th Avenue
24	Oak Street	W 18th Avenue
25	Pearl Street	E 18th Avenue
26	E 18th Avenue	Patterson Street
27	E 18th Avenue	Hilyard Street
28	Willamette Street	W 29th Avenue
29	Amazon Parkway - 30th Avenue	Hilyard Street
30	Mill Street	E 8th Avenue
31	Mill Street	E Broadway
32	Franklin Boulevard	E 11th Avenue
33	Agate Street	Franklin Boulevard
34	Walnut Street	Franklin Boulevard
35	Crescent Avenue	Norkenzie Road
36	Coburg Road	Crescent Avenue
37	Coburg Road	Cal Young Road
38	Coburg Road	Harlow Road
39	Coburg Road	Oakway Road
40	Coburg Road	Country Club Road
41	Delta Highway	Valley River Dr Southbound Ramps
42	Willagillespie Road	Valley River Drive
43	Delta Highway	Willagillespie Road
44	W 6th Avenue	Garfield Street
45	Chambers Street	W 6th Avenue
46	W 6th Avenue	Madison Street
47	W 7th Avenue	Garfield Street
48	Chambers Street	W 7th Avenue
49	Jefferson Street	W 7th Avenue
50	Washington Street	W 7th Avenue

Tube Count #	Average Daily Traffic (ADT)
T1	21,600
T2	22,300
T3	15,900
T4	28,700
T5	19,000
T6	18,200
T7	24,900
T8	16,300
T9	16,000
T10	11,700

LEGEND

- Study Intersections
- Tube Counts
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

Caution:
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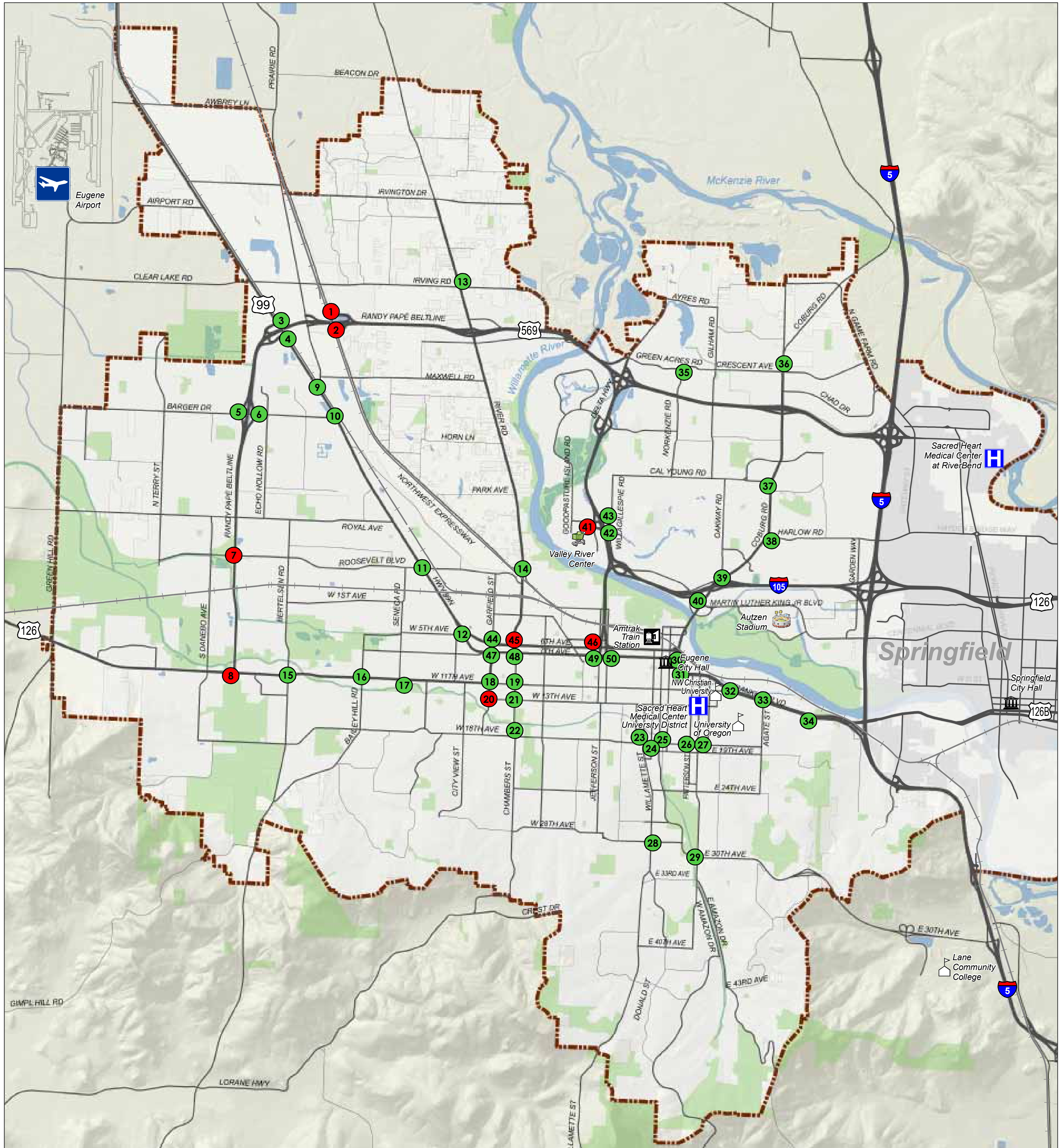
Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_StudyIntersectionsTC_01.ai 11/4/10 cts

City of Eugene
Transportation System Plan

Figure 8: **Intersection Performance**



Intersection #	Street Name	
	North-South	East-West
1	Beltline Road Westbound Ramps	Northwest Expressway
2	Beltline Road Eastbound Ramps	Northwest Expressway
3	Beltline Road Eastbound Ramps	Pacific Highway W
4	Beltline Road Westbound Ramps	Pacific Highway W
5	Beltline Road Southbound Ramps	Barger Drive
6	Beltline Road Northbound Ramps	Barger Drive
7	Beltline Road	Roosevelt Boulevard
8	Beltline Road	W 11th Avenue
9	Pacific Highway W	Prairie Road
10	Pacific Highway W	Barger Drive
11	Pacific Highway W	Roosevelt Boulevard
12	W 7th Avenue	W 5th Avenue
13	River Road	Irving Road
14	River Road	Northwest Expressway - Railroad Boulevard
15	S Bertelsen Road	W 11th Avenue
16	Bailey Hill Road	W 11th Avenue
17	Seneca Road	W 11th Avenue
18	Garfield Street	W 11th Avenue
19	Chambers Street	W 11th Avenue
20	Garfield Street	W 13th Avenue
21	Chambers Street	W 13th Avenue
22	Chambers Street	W 18th Avenue
23	Willamette Street	W 18th Avenue
24	Oak Street	W 18th Avenue
25	Pearl Street	E 18th Avenue
26	E 18th Avenue	Patterson Street
27	E 18th Avenue	Hilyard Street
28	Willamette Street	W 29th Avenue
29	Amazon Parkway - 30th Avenue	Hilyard Street
30	Mill Street	E 8th Avenue
31	Mill Street	E Broadway
32	Franklin Boulevard	E 11th Avenue
33	Agate Street	Franklin Boulevard
34	Walnut Street	Franklin Boulevard
35	Crescent Avenue	Norkenzie Road
36	Coburg Road	Crescent Avenue
37	Coburg Road	Cal Young Road
38	Coburg Road	Harlow Road
39	Coburg Road	Oakway Road
40	Coburg Road	Country Club Road
41	Delta Highway	Valley River Dr Southbound Ramps
42	Willagillespie Road	Valley River Drive
43	Delta Highway	Willagillespie Road
44	W 6th Avenue	Garfield Street
45	Chambers Street	W 6th Avenue
46	W 6th Avenue	Madison Street
47	W 7th Avenue	Garfield Street
48	Chambers Street	W 7th Avenue
49	Jefferson Street	W 7th Avenue
50	Washington Street	W 7th Avenue

LEGEND

- Study Intersections that meet performance standards
- Study Intersections that do **NOT** meet performance standards
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles 0 1 2

Caution:
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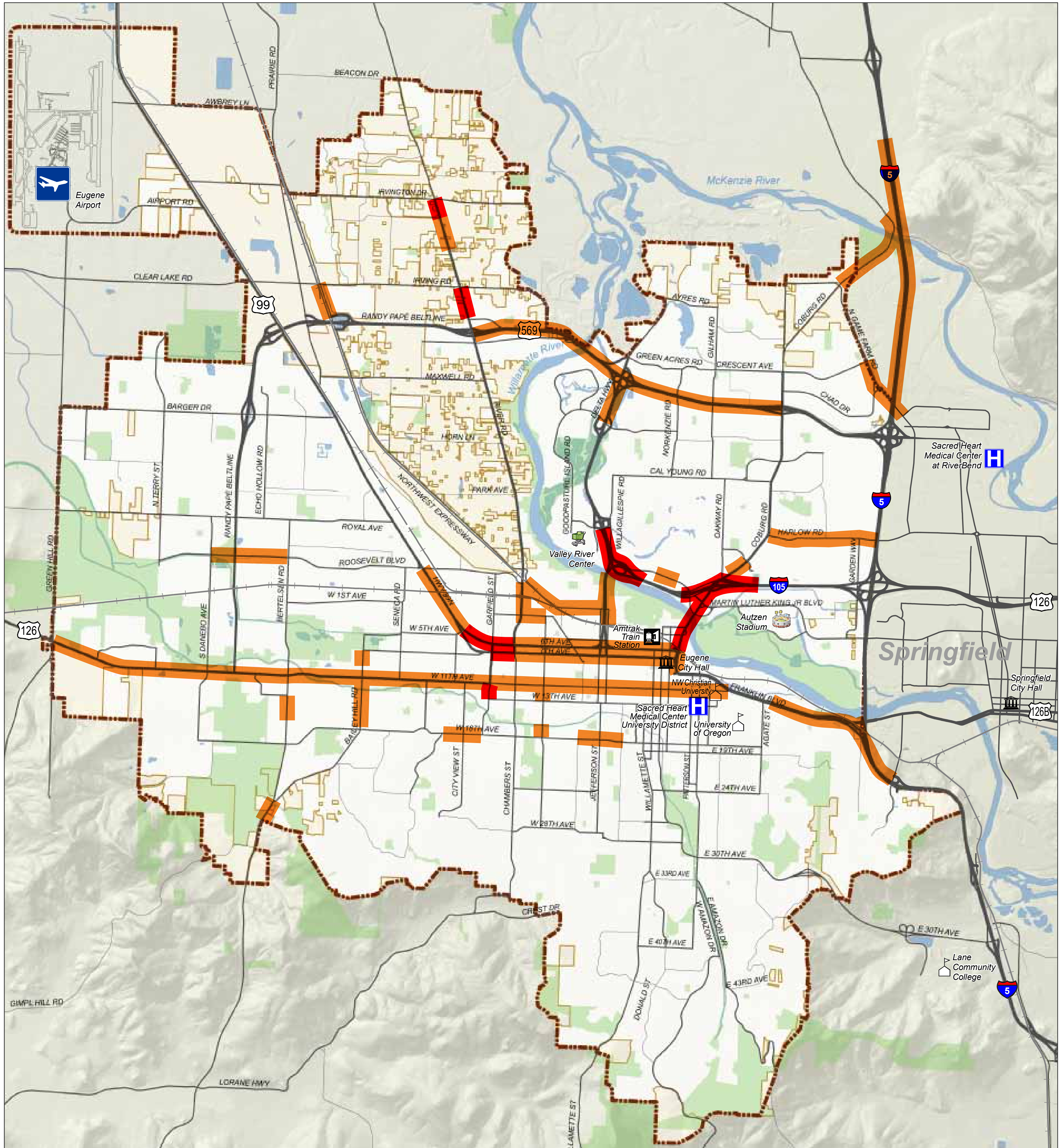
Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_StudyIntersections_06.ai 12/7/10 cts

City of Eugene
Transportation System Plan

Figure 9: **Streets with Capacity Constraints Today and in the Future**



LEGEND

- Street Over Capacity Today
- Street Over Capacity in 2031
- Study Area Focus
- Eugene City Limits
- Unincorporated Areas
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

Caution:
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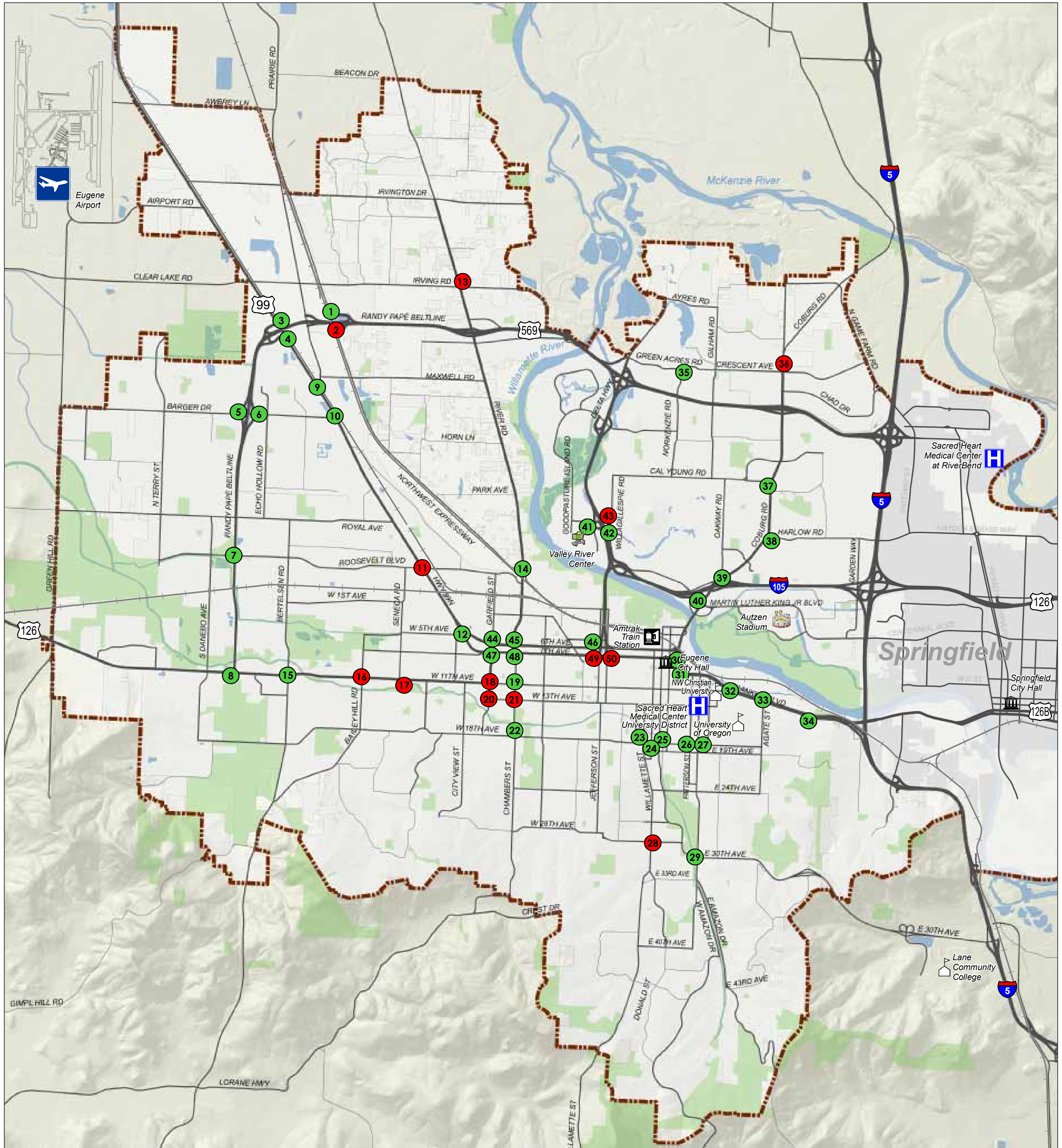
396256 EugeneTSP_StudyAreaFocus_04.ai 12/7/10 cts

City of Eugene
Transportation System Plan

Figure 10: **Intersection Safety**



Intersection #	Street Name	
	North-South	East-West
1	Beltline Road Westbound Ramps	Northwest Expressway
2	Beltline Road Eastbound Ramps	Northwest Expressway
3	Beltline Road Eastbound Ramps	Pacific Highway W
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9	Pacific Highway W	Prairie Road
10	Pacific Highway W	Barger Drive
11	Pacific Highway W	Roosevelt Boulevard
12	W 7th Avenue	W 5th Avenue
13	River Road	Irving Road
14	River Road	Northwest Expressway - Railroad Boulevard
15	S Bertelsen Road	W 11th Avenue
16	Bailey Hill Road	W 11th Avenue
17	Seneca Road	W 11th Avenue
18	Garfield Street	W 11th Avenue
19	Chambers Street	W 11th Avenue
20	Garfield Street	W 13th Avenue
21	Chambers Street	W 13th Avenue
22	Chambers Street	W 18th Avenue
23	Willamette Street	W 18th Avenue
24	Oak Street	W 18th Avenue
25	Pearl Street	E 18th Avenue
26	E 18th Avenue	Patterson Street
27	E 18th Avenue	Hilyard Street
28	Willamette Street	W 29th Avenue
29	Amazon Parkway - 30th Avenue	Hilyard Street
30	Mill Street	E 8th Avenue
31	Mill Street	E Broadway
32	Franklin Boulevard	E 11th Avenue
33	Agate Street	Franklin Boulevard
34	Walnut Street	Franklin Boulevard
35	Crescent Avenue	Norkenzie Road
36	Coburg Road	Crescent Avenue
37	Coburg Road	Cal Young Road
38	Coburg Road	Harlow Road
39	Coburg Road	Oakway Road
40	Coburg Road	Country Club Road
41	Delta Highway	Valley River Dr Southbound Ramps
42	Willagillespie Road	Valley River Drive
43	Delta Highway	Willagillespie Road
44	W 6th Avenue	Garfield Street
45	Chambers Street	W 6th Avenue
46	W 6th Avenue	Madison Street
47	W 7th Avenue	Garfield Street
48	Chambers Street	W 7th Avenue
49	Jefferson Street	W 7th Avenue
50	Washington Street	W 7th Avenue

LEGEND

- Study Intersection with a Crash Rate Less Than 1.0 Per Million Entering Vehicles
- Study Intersection with a Crash Rate Greater Than 1.0 Per Million Entering Vehicles
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles 0 1 2

Caution:
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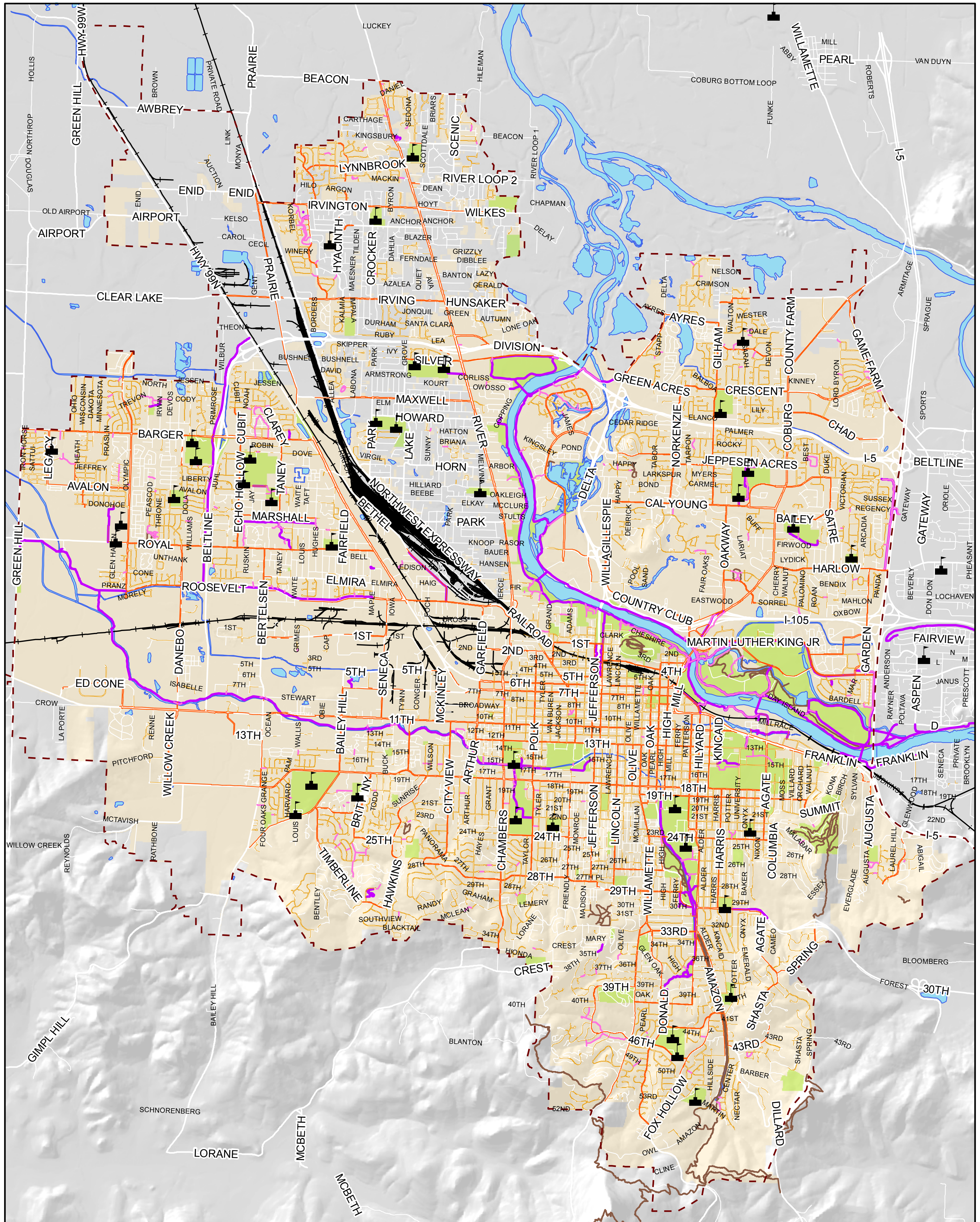
Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_IntersectionSafety_04.ai 12/7/10 cts

City of Eugene Transportation System Plan

Figure 11: **Pedestrian Facilities**



LEGEND

- School
- Existing Local Sidewalk
- Existing Aerterial/Collector Sidewalk
- Existing Accessway
- Existing Shared Use Path
- Existing Sof Surface Trail
- Railroad
- Water
- Parks & Open Space
- Eugene City Limits
- Urban Growth Boundary

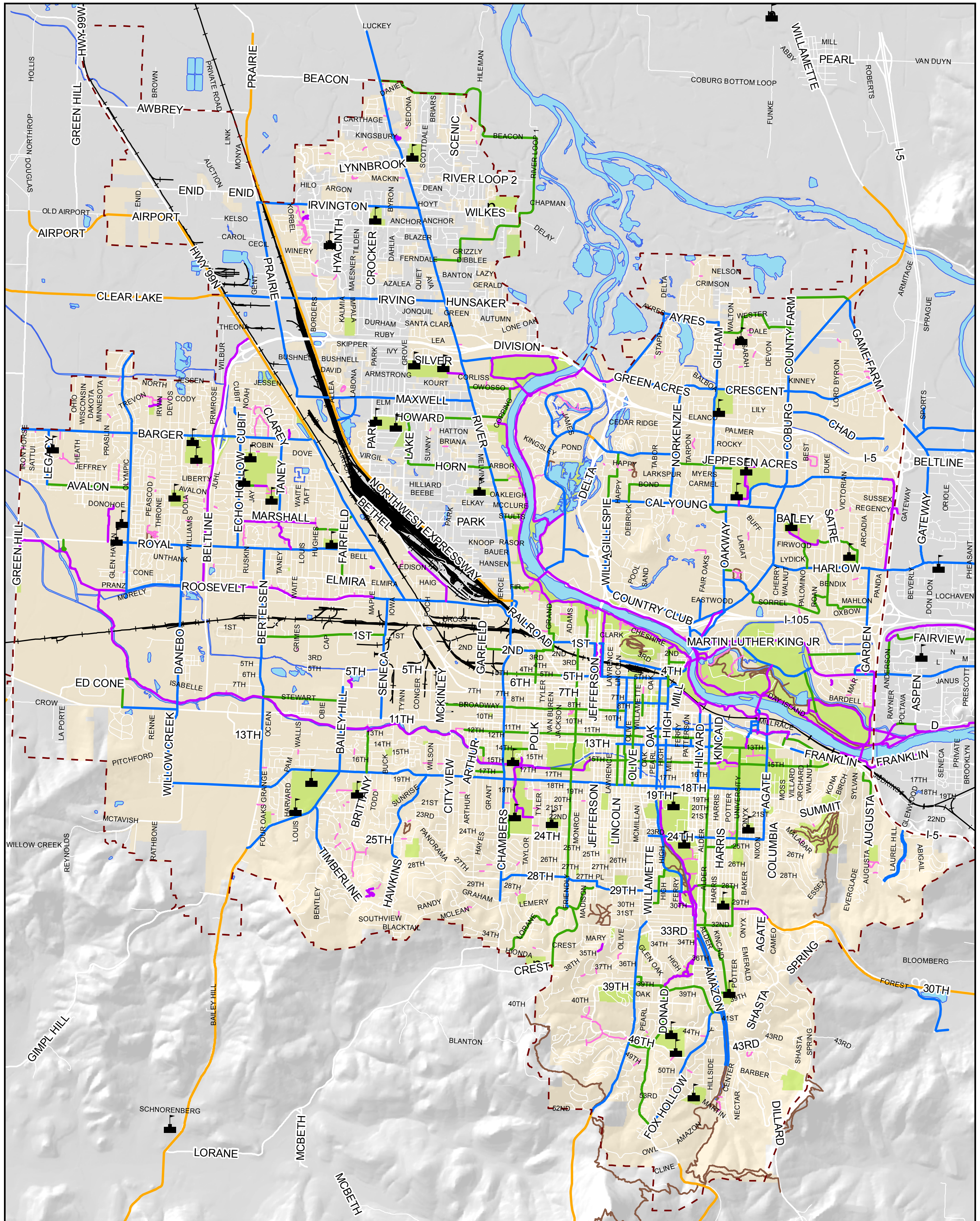
0 0.5 1 2 Miles

Source: Data obtained from ODOT, LCOG, City of Eugene

396256 EugeneTSP_PedestrianFacilities_03.ai 12/7/10 cts

City of Eugene Transportation System Plan

Figure 12: **Bicycle Facilities**



LEGEND

- School
- Existing Bike Lane
- Existing Shared Use Path
- Existing Signed Bike Route
- Existing Shoulder Bikeway
- Existing Accessway
- Existing Soft Surface Trail
- Railroad
- Water
- Parks & Open Space
- Eugene City Limits
- Urban Growth Boundary

0 0.5 1 2 Miles

Source: Data obtained from ODOT, LCOG, City of Eugene

396256 EugeneTSP_BicycleFacilities_01.ai 10/26/10 cts

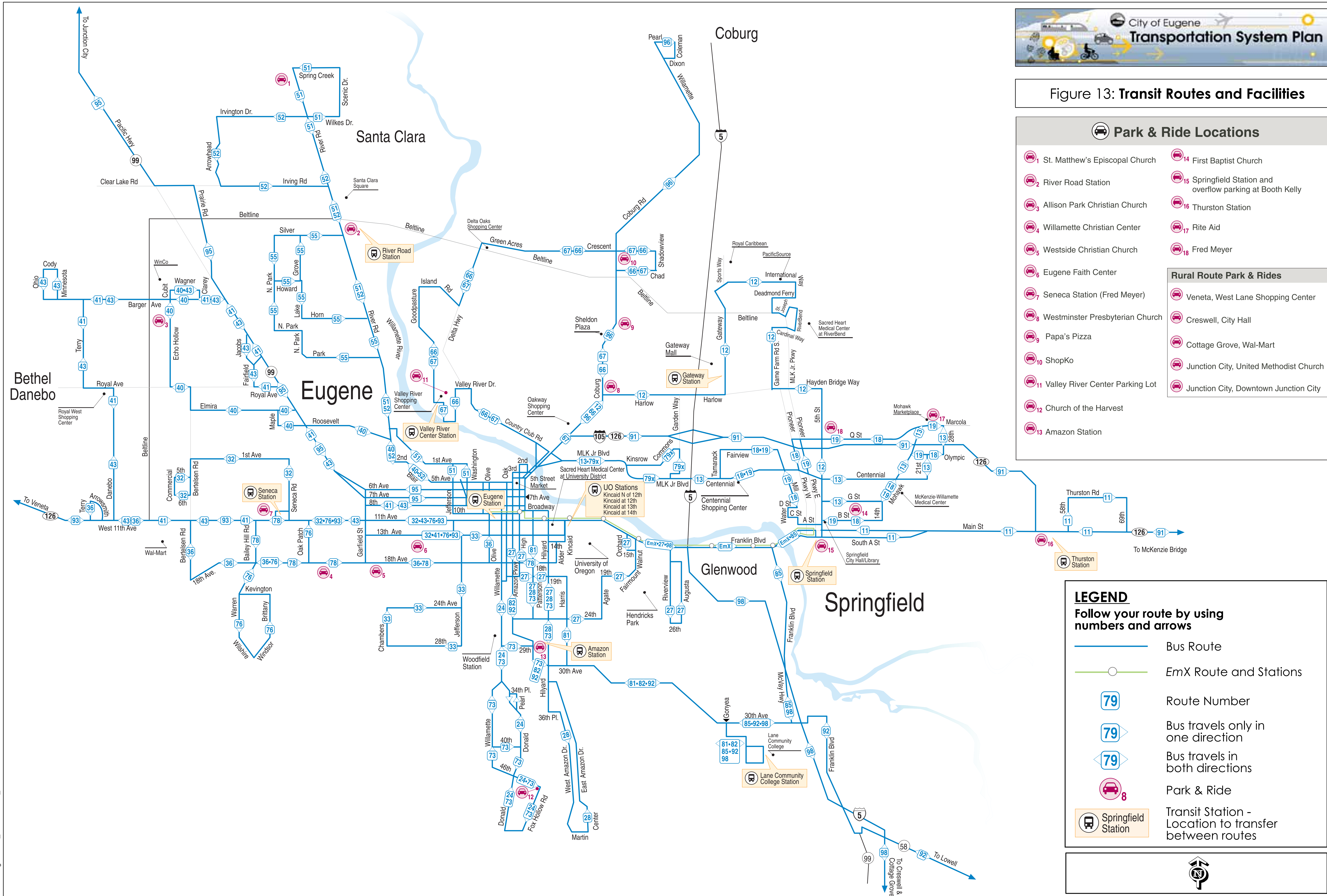
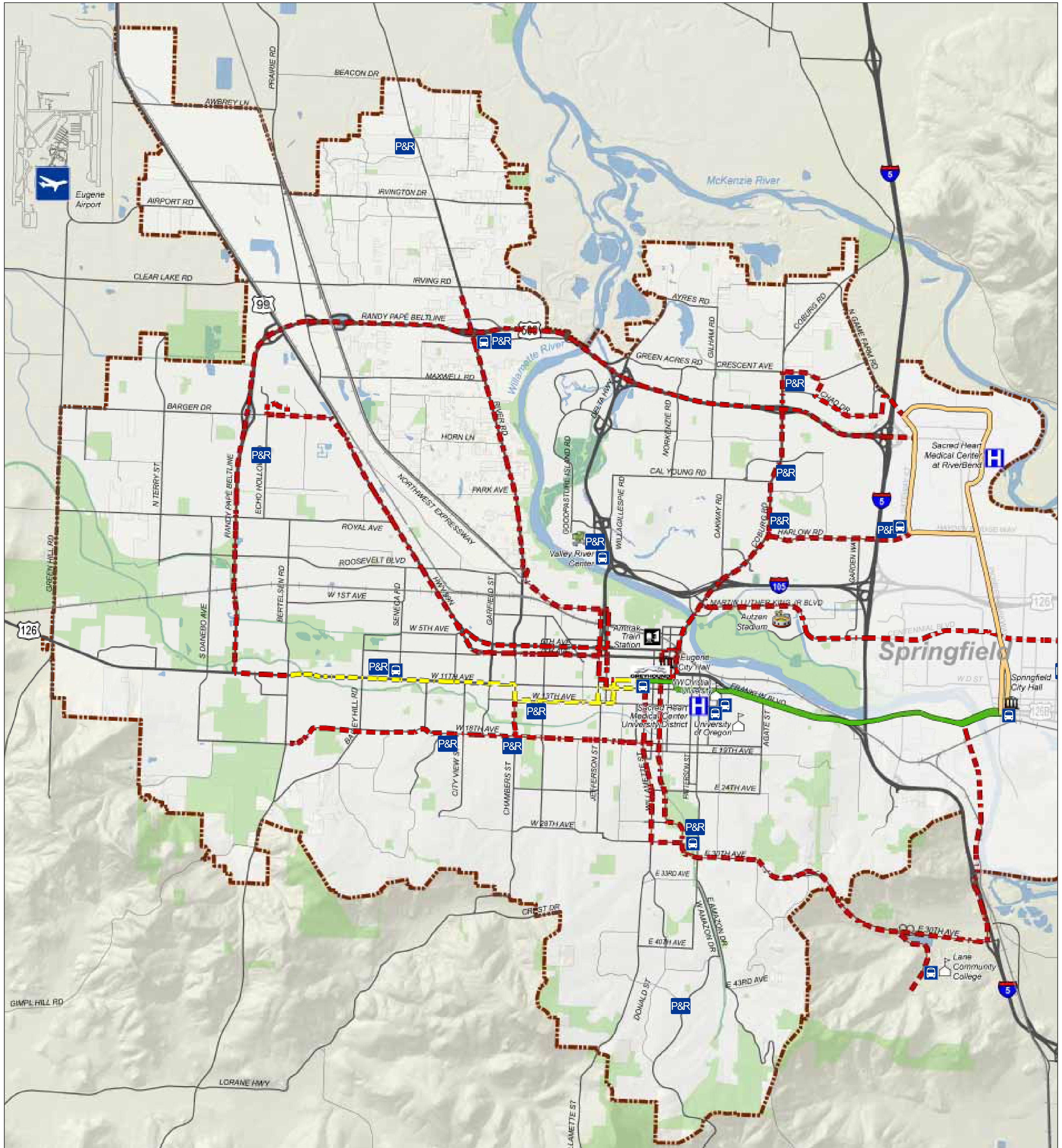


Figure 13: **Transit Routes and Facilities**

396256 EugeneTSP_ParkAndRide_03.ai 12/7/10 cts

City of Eugene
Transportation System Plan

Figure 14: **EmX Routes**



LEGEND

- Potential Future EmX
- Potential West Eugene EmX
- Franklin EmX
- Gateway EmX
- Transit Stations
- P&R Park & Ride
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

Caution:
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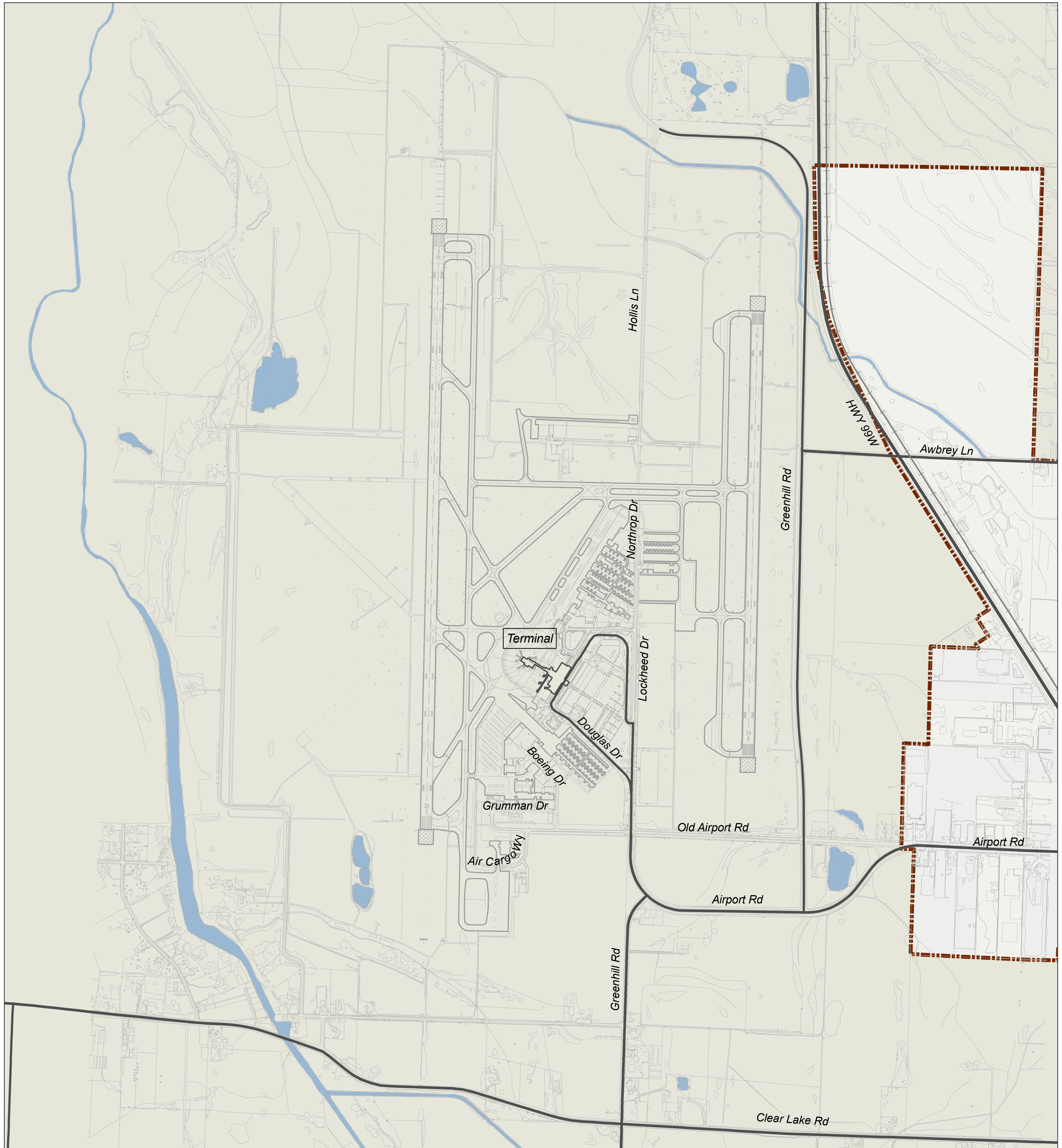
Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_EmXRoutes_01.ai 12/7/10 cds

City of Eugene
Transportation System Plan

Figure 15: **Eugene Airport and Vicinity**



LEGEND

- Urban Growth Boundary
- Eugene City Limits
- Water Features
- Rail (Main & Branches)

Feet
0 1500 3000

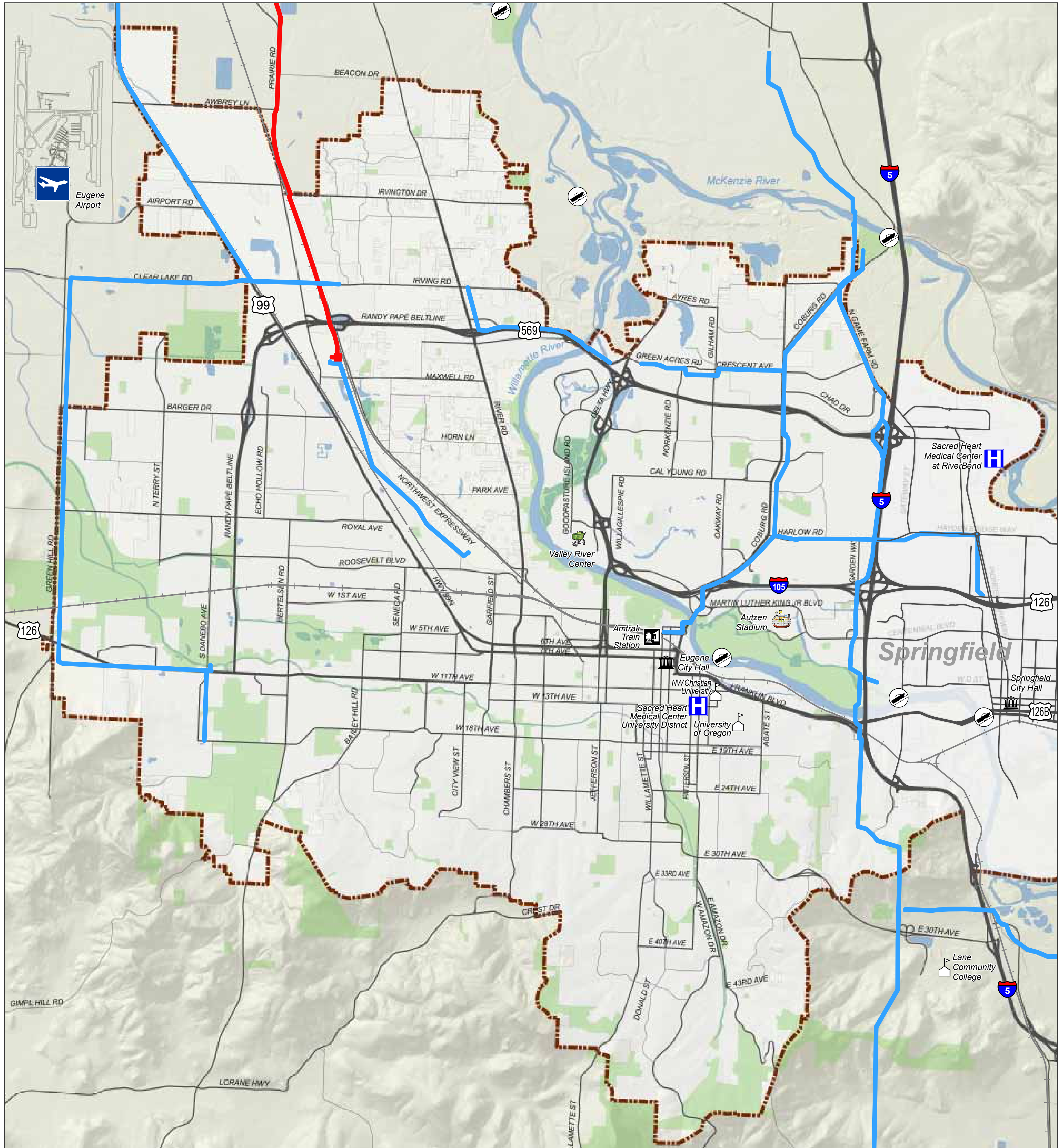
Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_EugneAirport_01.ai 12/7/10 cts

City of Eugene
Transportation System Plan

Figure 16: **Waterway and Pipeline System**



LEGEND

- Boat Ramp
- Breakout Tank
- Natural Gas Transmission Line
- Hazardous Liquid Line
- Urban Growth Boundary
- Eugene City Limits
- Springfield City Limits
- Parks and Open Space
- Water Features
- Rail (Main & Branches)

Miles
0 1 2

Caution:
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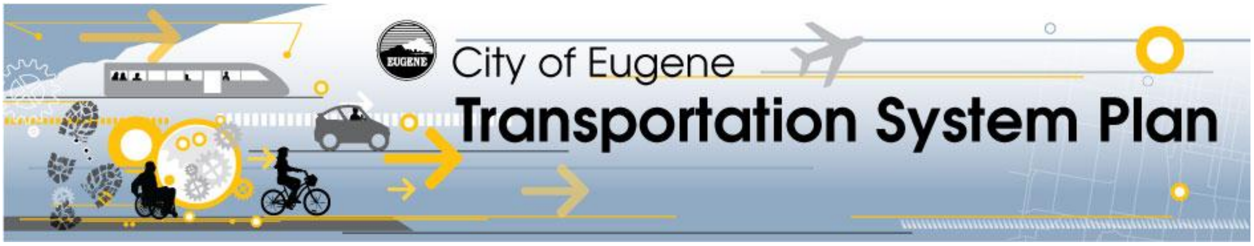
Map produced by City of Eugene PWE Info Team, October 2010

396256 EugeneTSP_Waterway_01.ai 12/7/10 cts

Appendix B: No Build Analysis



TECHNICAL MEMORANDUM

Eugene Transportation System Plan

Future Conditions Results - No Build Scenario

Date:	September 18, 2012	Project #:10296
To:	Eugene PMT, TAC and TCRG Kurt Yeiter, City of Eugene	
Cc:	Theresa Carr, CH2M Hill	
From:	Julia Kuhn, Joe Bessman & Matt Kittelson, Kittelson & Associates, Inc.	

This technical memorandum presents the key findings related to the year 2035 No Build Analyses for the Eugene Transportation System Plan (TSP). The following analyses relates only to the street system. The quality of service related to active modes of travel (i.e., walking, cycling, and transit) is not directly addressed within this memorandum; rather these modes are directly affected by the conditions projected to occur along the streets and at intersections. Information contained in this memorandum can be used to inform the identification and evaluation of future multimodal transportation system alternatives that meet the goals and objectives guiding the TSP.

All of the technical analyses summarized herein assume that the City will continue to see growth in employment and population between now and the year 2035 in a manner consistent with the existing Comprehensive Plan land use designations, within the existing Urban Growth Boundary (UGB) and consistent with the statewide and regional growth forecasts. At the same time, the analyses assume that the street, transit, pedestrian and bicycle systems will remain as they exist today. This “do nothing” approach from a transportation perspective is commonly used as a foundation by which cities can test the effectiveness of potential projects, policies, and programs. This testing of alternatives helps policy makers to weigh trade-offs regarding future funding priorities in a manner that ensures that the transportation system supports and enhances the continued economic growth, and contributes to the community vision in a manner that is safe, sustainable, fundable and diverse.

As will be discussed in this memorandum, the No Build analyses highlight the following primary deficiencies within Eugene:

- Localized intersection improvement needs,
- Increasing congestion along the West 11th Avenue corridor,

- Increasing congestion along the 6th Avenue and 7th Avenue corridors,
- Heavy demand along Beltline Highway, and
- Heavy demand on the existing river crossings and those facilities connecting Eugene with Springfield and other areas to the east.

The remainder of this memorandum outlines the analyses assumptions and findings.

LAND USE ASSUMPTIONS

Staff from the cities of Eugene and Springfield, Lane County and Lane Council of Governments (LCOG) worked collaboratively to identify where the estimated year 2035 population and employment growth might occur within the region as well as within individual areas of each city. This interagency collaboration ensures that the No Build analyses for Eugene, Springfield, and Coburg start with the same fundamental assumptions and that the population and employment forecasts are "coordinated" for compliance with Oregon transportation and land use planning requirements.

Table 1 shows the existing and future population and employment estimates for lands within the City of Eugene urban growth boundary.[1]

Table 1. Land Use Estimates*

	Year 2010	Year 2035	Growth
Population	177,332	219,060	41,728 (23%)
Households	78,844	97,330	18,486 (23%)
Employees	80,900	114,460	33,560 (42%)

*For the purposes of the No Build analyses, land use growth was concentrated only in the existing urban growth boundary (UGB). Although Eugene is contemplating an UGB expansion, decisions on whether and/or where to expand the UGB have not been made. The impact of growth outside the current UGB would be addressed in subsequent analyses once these decisions have been made.

TRANSPORTATION SYSTEM ASSUMPTIONS

City of Eugene plans, TransPlan and the Regional Transportation Plan (RTP) have previously identified a variety of street, pedestrian, bicycle and transit projects that could be implemented in the future. At this point, there are no guaranteed funding sources for any major projects that will materially affect

[1] The Envision Eugene planning process is evaluating land use designations throughout the city. At this point, no changes to the Comprehensive Plan or zoning designations for individual properties have been adopted as part of the Envision Eugene project. For the purposes of the No Build, the land use designations in place in Spring 2012 were used in determining where growth would occur in 2035. Future modeling efforts will be used to test the transportation effects of the contemplated Envision Eugene assumptions and any land use changes once the Envision Eugene strategies have a greater level of specificity.

traveler behaviors and traffic volumes on the city's street network in the future. For this reason, the No Build assumes that the existing street, pedestrian, bicycle and transit system is in-place in the year 2035 and that will not build any new transportation improvements (other than minor intersection improvements) or implement new programs to lessen automobile traffic on the street system.

TRAFFIC VOLUME DEVELOPMENT

Based on estimates of future job and household growth and the No Build transportation network, LCOG developed traffic volume forecasts for the city's collector and arterial street system, using an emme travel demand model.[2] This model is calibrated to actual traffic volume counts recently measured on streets within the city. In addition to land use and street network inputs, the model also relies on information about existing traveler behavior and trip-making characteristics to understand how people might use the transportation system in the future.

Based on information obtained from LCOG, coupled with measured traffic counts at intersections and roadways within the city, year 2035 intersection and roadway volumes were developed using a procedure consistent with guidance from ODOT's Analysis Procedures Manual (APM).

INTERSECTION ANALYSES

Key street intersections are often the first points in the transportation system to exhibit congestion. Review of these intersections can help inform the identification of localized improvement needs (such as additional turn lanes, new traffic signals, etc.), and can serve as indicators for more significant street network issues.

The No Build intersection analyses focuses on the peak fifteen minutes of the weekday evening commute conditions, when traffic volumes throughout the City as a whole are highest during the day. Although the evening commute period captures many of the system issues, different patterns and needs may occur in the morning, mid-afternoon, or during weekends at specific locations based on adjacent land use characteristics (e.g., school hours, employment shift changes outside of the typical dayshift). Localized improvement needs that occur outside the evening commute period can be evaluated in future corridor, subarea, and other plans prepared outside of the TSP efforts. These more detailed studies can be incorporated into future TSP amendments and capital planning efforts as part of periodic updates.

The Existing Conditions memorandum prepared for the TSP included analyses of 50 intersections throughout the city. The No Build analyses assesses the performance of these same intersections and

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[2] LCOG will provide a memorandum detailing the assumptions included in the LCOG Travel Demand Forecasting Modeling under separate cover.

compares the expected intersection performance to adopted city and state standards. These analyses were conducted in a manner consistent with the methodologies outlined in the Highway Capacity Manual and guidance provided in the Analysis Procedures Manual (APM) prepared by ODOT. The City may consider amendments to the adopted performance standards in the later phases of the TSP. For the purposes of the No Build analyses the existing standards were assumed to be in-place.

As discussed in the Existing Conditions Memorandum, the Beltline Facility Plan planning efforts are currently underway. The planning for this Facility Plan has included significant operational, safety and geometric review of the interchanges and adjacent intersections. As part of the TSP No Build review, the Beltline Facility Plan study area intersections were not reviewed. Rather, it is assumed that the findings of the Facility Plan will be incorporated into future TSP efforts.

The year 2035 No Build intersection operations are shown in Table A in the Appendix and are exhibited in Figure 2. For comparison, the Appendix also presents a graphic illustrating the existing conditions findings, as shown in Figure 1. Within Figures 1 and 2, locations where the performance meets city and state standards are colored as green; locations where the city and state standards are not met are shown as red. Specific findings of the intersection analyses are discussed below.

CORRIDOR ANALYSES

For the purposes of identifying future transportation system alternatives, it is also helpful to look at a holistic, corridor approach to understand the No Build deficiencies. This broader system approach can be guided by the comparison of anticipated demand on key corridors within the city to planning-level estimates of street capacity. Review of the street segments can identify network connectivity, functional issues, potential corridor management strategies, and multimodal opportunities. This can ensure that the future transportation system looks, feels and operates in a manner consistent with the community's vision.

To inform this assessment, the comparison of the year 2035 traffic demand to capacity for individual arterial and collector streets within the city was assessed and then classified within three categories:

- Streets that operate "well" – defined for the purposes of this memo as the No Build demand is less than 80 percent of the capacity. These streets are shown in green in the figures.
- Streets that are "nearing capacity" under the No Build – the demand is between 80 and 100 percent of the capacity. These streets are shown in yellow in the figures.
- Streets that are "over capacity" – the No Build demand exceeds the capacity, which is shown in red on the figures.

The results of these analyses are shown in Figure 2. In reviewing Figures 1 and 2, it is helpful to note that the corridor analyses consider a full hour of traffic demand during the weekday commute period whereas the intersection analyses focus on the peak 15 minute time period.

Together, with the intersection analyses results, the corridor analyses can be used to identify the No Build street system deficiencies throughout Eugene. These deficiencies are described in more detail below.

NO BUILD FINDINGS

W 11th Avenue Corridor

The W 11th Avenue corridor provides a connection from downtown Eugene and the University of Oregon to the employment, commercial, and residential areas to the west as well as to outlying communities and eventually to the Oregon coast. Today, this corridor experiences congestion due to the local accessibility and regional and statewide mobility functions it serves.

Under the 2035 No Build analyses, undeveloped residential lands to the south of the West 11th Avenue corridor, particularly near Crow Road are expected to experience considerable growth. The growth in land uses served by the corridor as well as the increasing demand for regional and statewide traffic will place additional pressures on the corridor. As shown in Figure 2, the W 11th Avenue corridor is shown to operate near or over capacity from the UGB into the downtown. In addition, all of the study intersections, except one, along this corridor are also shown to be over capacity. The inability of the W 11th Avenue corridor to serve all of the No Build traffic demand would result in traffic diverting to other corridors, like W 18th Avenue.

In July 2012, the Lane Transit District (LTD) released the West Eugene EmX Extension Project Environmental Assessment (EA) to construct bus rapid transit (EmX) in this corridor in the future. The traffic analyses prepared to support the EA assumes that the projects identified in the RTP are in-place under the EA's No Build Alternative. Per this EA, even with the RTP projects and the implementation of EmX, this corridor and many of the intersections along it are projected to experience significant congestion in the year 2035.

The TSP and EA analyses suggest that a series of system, corridor management and demand management strategies could help to address future multimodal needs along West 11th Avenue. Examples of these types of strategies are outlined at the end of this document.

West 18th Avenue Corridor

Today, this corridor serves as a key facility in connecting pedestrian, bicycle and vehicular trips from local streets to both the regional arterial network and into downtown and the University of Oregon. Although this corridor isn't congested from a vehicular standpoint today, its current configuration can feel constrained to pedestrians and bicyclists, especially.

Under the 2035 No Build analyses, undeveloped residential lands to the south of the West 18th Avenue corridor are expected to experience considerable growth. This growth, combined with the potential diversion of traffic to this corridor resulting from considerable congestion on West 11th Avenue, could result in the demands for West 18th Avenue reaching or exceeding the available vehicular capacity. This same demand-to-capacity forecast is also shown on Bailey Hill Road and on Bertelsen Road under the No Build scenario.

Although the intersection analyses did not reveal specific intersection constraints, the findings suggest that the demands for the West 11th and West 18th Avenue corridors in serving both local and regional multimodal travel need to be taken into context together when considering possible solutions.

Highway 99

Highway 99 serves as one of the regional arterials within Eugene, connecting employment and residential lands to the downtown. Highway 99, like other regional roadways (e.g., the Beltline Highway, West 11th Avenue, I-105), also serves as a key corridor for freight movement within the city. In addition, Highway 99 provides a connection between Eugene and Junction City to the north. Within the vicinity of the Beltline ramps, Highway 99 begins to transition from a rural highway to a more urbanized corridor. As such, most of the congestion expected along Highway 99 in the future occurs south of Beltline Highway and increases as the highway approaches the downtown area.

Today and in the future, congestion occurs at the intersection of the Beltline ramps with Highway 99; this congestion can also be problematic on weekends, given the proximity of commercial uses to the interchange. Significant growth expected in Junction City (both residential and employment, such as the hospital and state correctional facilities) will also increase the regional demand along this corridor Further, intersections along the corridor to the south of Roosevelt Boulevard and transitioning into the 6th Avenue/7th Avenue couplet will be at or over capacity. Future improvements to this roadway should consider how to maintain the regional mobility purpose of this facility through access management strategies and/or localized improvements. Corridor-wide capacity improvements south of Roosevelt Boulevard will be difficult and likely expensive given the existing railroad overcrossing. In reviewing these findings, it is important to note that the No Build analyses do not include the proposed EmX improvements or enhanced transit service in this corridor.

Northwest Expressway

Northwest Expressway serves as the transition between residential neighborhoods to the east and employment uses and the railroad tracks to the west. This corridor is an access controlled roadway connecting northwest Eugene south to River Road, providing an important albeit somewhat underutilized freight connection. Under the No Build, the Northwest Expressway is expected to operate below capacity over much of its length. The section between Irving Road and the Beltline ramp intersections is anticipated to operate over capacity as are the two ramp intersections. The intersection with River Road is also shown to experience over capacity conditions.

River Road Corridor

River Road is a north-south arterial roadway that connects North Eugene travelers with destinations to the south, including downtown Eugene and the University of Oregon. Some users may use Northwest Expressway, or even Highway 99, as alternatives to River Road. However, these alternatives are often out-of-direction for the traveler and River Road provides local access for a number of residences, commercial districts, and schools, including North Eugene High School. Given the length and distinct areas along the River Road corridor, the facility is discussed by segment in the subsections below.

Eugene City Limits to Beltline Highway

Along this northern stretch of River Road, the roadway feels and operates more like a two-lane rural highway than a city street. South of the Eugene city limits, River Road quickly transitions to a suburban arterial, connecting the neighborhoods and schools in Santa Clara with the regional transportation system. Just north of Beltline Highway there are several commercial uses that attract both local and more regional demand.

In the 2035 No Build conditions, growth in the Santa Clara area will increase the regional demand along this corridor. Given that most users are traveling to and from the south, towards the Eugene city core and Beltline Highway, traffic volumes increase along this segment toward the south. In fact, the roadway is expected to exceed capacity between Irving Road and Beltline Highway.

As mentioned previously, the section of River Road near Beltline Highway is part of an ongoing Facility Plan. As such, specific projects and planning strategies will be developed for this area, including this portion of River Road and the River Road/Beltline Highway ramp intersections. The Beltline Facility Plan will be completed separate from but coordinated with the TSP recommendations.

Beltline Highway to Northwest Expressway

This section of River Road generally includes two travel lanes in each direction plus a center turn lane and serves mostly residential neighborhoods with a small mix of commercial uses. In general, the roadway is expected to operate under capacity, though the River Road/Northwest Expressway intersection is expected to exceed capacity.

South of Northwest Expressway

Just south of Northwest Expressway, River Road crosses the railroad tracks at a grade-separated crossing. This crossing represents a critical link in the ability of Eugene's transportation system to provide reliable north-south access for emergency vehicle, regional travel and multimodal travel. There are no alternate grade-separated rail crossings to the west for over 2.5 miles. Further, this connection is especially important because of its proximity to the Emergency Services Training Center, Fire Department logistics building, and Central Lane Communication 911 Center on Second Avenue and the City Public Works yard on Roosevelt Boulevard.

Given the attractiveness of this route, this section of River Road is expected to operate over capacity under future conditions.

6th Avenue/ 7th Street Avenue

6th Avenue and 7th Avenue form a one-way couplet that provides access between Highway 99 and the downtown area. In the east, 6th Avenue and 7th Avenue provide a connection to the Ferry Street Bridge and Coburg Road. This corridor is a major east-west route serving the downtown area and is a major commercial corridor within Eugene. This corridor is also an important freight corridor, playing a role in the economic vitality of the community.

Under the 2035 No Build conditions, 6th Avenue and 7th Avenue are both expected to operate near or over capacity throughout the entire corridor. In addition, most of the intersections studied along these corridors would be over capacity under the No Build.

The existing grid system in the vicinity of the 6th Avenue and 7th Avenue corridors provide travelers with a number of travel options. In addition, EmX is proposed along the corridor, although not included in the No Build analyses as it is not currently funded for construction. The well-developed grid systems creates opportunities for bicycles and pedestrians to travel along less congested roadways, providing a safer and more attractive route than the major roadway system.

Franklin Boulevard

Franklin Boulevard connects downtown Eugene, the University of Oregon campus, I-5 and Springfield. In the future, this corridor will play an important role in serving the redevelopment of both the EWEB (Eugene Water and Electric Board) properties and the Walnut Station mixed use nodal area.

Under the 2035, much of Franklin Boulevard is shown to operate near or over capacity between the downtown and I-5. The proximity of the University facilities to the corridor, especially athletic facilities, also result in peak traffic demand that occur outside the weekday evening commute hour. These larger events typically have event demand management strategies in place designed to maintain a functioning transportation system during such times.

The Franklin Boulevard corridor has an existing EmX line in place. As the system is extended in the future, travelers will be able use the system to travel to this area from farther distances.

Beltline Highway

Beltline Highway serves as a major connection for the West Eugene area to and from I-5 and the northern parts of Springfield. It also provides one of the major river crossings for all of Eugene, particularly for residents in the north. The land use and transportation context varies through the corridor. For the purposes of highlighting the No Build finding, the corridor is discussed in subsections below.

As discussed previously, the section of the Beltline Highway between Coburg Road and River Road is part of the ongoing Facility Plan being conducted by ODOT, the City of Eugene and the County. The findings of this Plan will be incorporated into later TSP efforts. For the purposes of the No Build, general observations from the corridor demand to capacity analyses are summarized below. The details of specific analyses can be found in the Beltline Facility Plan.

I-5 to Delta Highway

East of I-5, the roadway operates as an at-grade highway within Springfield, meaning intersections, not interchanges, provide access to adjacent roadways. At I-5, Beltline Highway transitions to a high capacity, grade separated facility. Like today's conditions, the Beltline Highway is expected to be congested between Coburg Road and the Delta Highway.

The only interchange within this section is with the important north-south connection of Coburg Road. The No Build analyses show that the Beltline ramp intersections will operate over capacity in the future. This would also contribute to congestion along Coburg Road near the interchange.

Delta Highway to River Road

This section of the highway is included in the Beltline Facility Planning efforts. As discussed in the Facility Plan and as shown in Figure 2 of this memorandum, over capacity conditions are expected along this section of the highway, especially on the Willamette River Bridge. This bridge is the only crossing of the Willamette River within all of north Eugene for both regional and local users. In addition, there are a lot of vehicles entering and exiting the Beltline in this segment of the highway. This creates significant "weaving" movements along the corridor as drivers change lanes to either exit or enter the Beltline Highway in this segment. These weaving movements contribute to both congestion and safety-related issues in this corridor. These issues will be exacerbated in the No Build condition.

In addition to the highway itself, the three interchanges (Delta Highway, Division Avenue/River Avenue, and River Road) are also shown to operate near or over capacity in the future. The type of interchange in place today at the Delta Highway allows for higher-speed, free flow traffic movements between the two roadways. Although this type of interchange has more capacity than the type found at River Road ("a diamond" interchange), the need to serve commercial and residential lands to the north of Beltline and to provide one of only two river crossings into the downtown provides additional pressures on the Delta Highway, resulting in near and over capacity conditions.

The Beltline Highway ramps intersect River Road at traffic signals. There are a number of private driveways serving commercial uses as well as a Lane Transit District park and ride within one-quarter mile of the interchange. Serving the traffic demand associated with adjacent land uses as well as regional traffic demand contribute to over capacity conditions at the ramp intersections under the No Build.

River Road to Barger Drive

Within this section, interchanges also provide access to the adjacent roadways. Unlike the section between River Road and I-5, this section of the Beltline Highway is expected to operate under capacity in the No Build. Despite this finding, the ramp intersections at the Northwest Expressway and at Highway 99 are shown to operate over capacity.

South of Barger Drive

South of the Barger Drive interchange, Beltline Highway transitions to an arterial street with intersections, not interchanges, provided for intersecting streets. Between Barger Drive and W 11th Avenue, access to the Beltline Highway is only provided at key intersections, not at private driveways. To the north of Roosevelt Boulevard, the Beltline has two travel lanes in each direction; to the south, it narrows down to one lane in each direction. Between Barger Drive and Roosevelt Boulevard, the Beltline Highway is expected to be under capacity; along the section to the south that is only one lane in each direction, it is expected to operate near capacity in the No Build. In addition, the intersections at Roosevelt Boulevard and W 11th Avenue are expected to operate over capacity.

Coburg Road

Coburg Road provides a regional connection between Eugene in the south and the cities of Coburg and Harrisburg in the north. Within Eugene city limits, Coburg Road is a key regional and local street that provides access to Beltline Highway, I-105, and downtown Eugene. The look and feel and role it serves in the transportation system varies along its length; these key differences are described below.

Eugene City Limits to Beltline Highway

Between the Eugene City Limits and Beltline Highway, Coburg Road provides access to several neighborhoods and commercial uses. Like River Road to the east, the traffic volumes along Coburg Road increase the further south you go. Within this section of the street, both the Coburg Road/Crescent Avenue intersection and the Beltline Highway ramp intersections are shown to operate over capacity in the No Build. The deficiencies at the ramp intersections were also highlighted in the Existing Conditions memorandum and the Beltline Facility Plan.

Beltline Highway to Harlow Road

South of the Beltline Highway, Coburg Road provides access to a number of neighborhoods as well as a large commercial area in the vicinity of Willakenzie Road and Cal Young Road. Within this section, Coburg Road is a 5-lane street that is serves both the local and regional travel needs. Under the No Build, this section of Coburg Road is shown to operate under capacity.

Harlow Road to Willamette River

This section of Coburg Road connects travelers from Springfield (via Harlow Road) into downtown Eugene. Grade-separated access is provided under I-105 and over the Willamette River at the Ferry Street Bridge. This section of the road is shown as overcapacity in the No Build. The Ferry Street Bridge is one of only two bridges within the city that connects into the downtown.

In addition to serving regional travel, this section of Coburg Road also provides access to large retail developments and some of the University of Oregon athletics facilities, including Autzen football stadium and PK Park baseball field. As such, the roadway experiences high levels of demand when events at these facilities take place, though traffic demand management strategies, such as offsite shuttles, are typically implemented to offset some of the roadway congestion. The attractiveness of the large retail users in this corridor also creates congestion on the weekends.

Amazon Parkway/30th Avenue Corridor

The Amazon Parkway corridor provides access between downtown Eugene, neighborhoods to the south and eventually to I-5 and Lane Community College (LCC). Given the topography of this area, travelers using Amazon Parkway have few alternative travel options. As such, this corridor is shown as near or over capacity in the future. The Amazon Parkway/Hilyard Street/30th Avenue intersection is also shown as over capacity.

River Crossings

The Willamette River flows through the Eugene area, providing the city with a beautiful scenic resource. The river corridor is also the city's mainline bike facility. The limited number of vehicular river crossings both today and in the No Build, results in difficult connection and mobility issues. All four river crossing locations within the city (Beltline Highway, Ferry Street Bridge, I-105, and I-5) are expected to approach or exceed capacity in the future (as shown by the red on Figure 2 for all locations except I-5, which is shown as yellow).

In addition to the river crossings within Eugene, the Main Street/S A Street bridges in Springfield are also shown to be over capacity in the No Build. This means that all available river crossing options within the larger urbanized area exceed capacity by 2035. This finding has implications for potential evacuation route planning for emergency services.

DEMAND MANAGEMENT AND SYSTEM MANGEMENT STRATEGIES

Given the size of Eugene's urban area and growing complexity of the transportation system, a set of strategies that focus less on capital improvements and more on the efficient management of the existing infrastructure and vehicular demand could be an integral part of the future functioning of the system. There are a number of transportation system management and operations (TSMO) strategies that can be used by Eugene in the future to lessen the demand for future automobile improvements and to make better use of the existing infrastructure. Examples of the types of strategies that could be used are discussed below. Further detail regarding these strategies and their application to specific areas within the city will be provided as part of future TSP memoranda.

- Along many of the congested corridors, Eugene has a number of parallel streets and developed grid system that can provide alternative routes for multimodal travel and localized trip making. Finding ways to eliminate gaps in the grid system and to prioritize pedestrian and bicycle treatments along the parallel facilities can help to relieve congested corridors and provide safe and efficient travel for all modes.
- Roadway and intersection safety improvements should be coordinated via a "data driven evaluation system". This allows the city to focus on specific improvements that benefit multimodal travel along corridors and at specific intersections.
- Accessible freight corridors are critical to support a well-functioning local economy. As such, current and future freight corridors should maintain proper design standards to accommodate larger freight vehicles. In addition, specific improvements, such as truck signage, can be used on specific corridors, like the Northwest Expressway, to facilitate the efficient movement of goods. Prioritization of "freight-friendly" improvements can incentivize freight to use specific corridors and re-direct regional freight within specific subareas of the city. At the same time, prioritization of treatments that are aimed at pedestrians, cyclists and transit could occur in other adjacent corridors.
- Intersection capacity needs can be met through the implementation of transit priority signal timing, freight signal priority, transportation system management applications, adaptive signal control, and roundabouts to enhance roadway character and improve access control.
- Continued expansion of the EmX system will help to provide accessible travel options and to reduce traffic demands over time.
- The city's roadway design standards and intersection level of service standards should be flexible to recognize the constrained urban and natural environment and allocate the available right-of-way to pedestrian, auto, bicycle, or transit mobility, or streetscape and parking needs, based on specific facility goals.
- The City is currently participating in the Regional Transportation Options Project (RTOP). This project will provide the region with a series of strategies and programs that reduce the need for single occupancy vehicle travel in the future. Implementation of these programs will be an integral part of ensuring that the City's transportation system continues to support economic growth in a manner consistent with the overall vision for the community.

NEXT STEPS

The review of system needs under the No Build scenario will be compared with the findings of other multimodal systems (transit, pedestrian/bicycle) to complement the list of alternatives considered. The No Build and existing safety and operations analyses will help to inform and prioritize the development of alternatives within subsequent memoranda.

City of Eugene

Transportation System Plan

Appendix 1

2035 No-Build Intersection Performance Summary

Table A. Intersection Operational Results

	Intersection Name	Performance Standard			Intersection Performance Metrics				Meets Standard?[1]
		Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay (s)	v/c	
1	Randy Papé Beltline Westbound Ramps And Northwest Expressway	TWSC	ODOT	0.85 v/c	WB	F	> 50	> 1	No
2	Randy Papé Beltline Eastbound Ramps And Northwest Expressway	TWSC	ODOT	0.85 v/c	WB	F	> 50	> 1	No
3	Randy Papé Beltline Westbound Ramps And Highway 99W	Signal	ODOT	0.85 v/c		B	18.4	0.89	No
4	Randy Papé Beltline Eastbound Ramps And Highway 99W	Signal	ODOT	0.85 v/c		D	40.4	0.78	Yes
5	Randy Papé Beltline Southbound Ramps And Barger Drive	Signal	ODOT	0.85 v/c		B	19.9	0.63	Yes
6	Randy Papé Beltline Northbound Ramps And Barger Drive	Signal	ODOT	0.85 v/c		B	12.0	0.54	Yes
7	Randy Papé Beltline And Roosevelt Boulevard	Signal	ODOT	0.80 v/c		F	>80	>1	No
8	Randy Papé Beltline And W 11th Avenue	Signal	ODOT	0.80 v/c		F	>80	> 1	No
9	Highway 99W And Prairie Road	Signal	ODOT	0.85 v/c		C	24.9	0.67	Yes
10	Highway 99W And Barger Drive	Signal	ODOT	0.85 v/c		E	61.1	0.81	Yes
11	Highway 99W And Roosevelt Boulevard	Signal	ODOT	0.85 v/c		F	>80	>1	No
12	W 7th Avenue And W 5th Avenue	Signal	ODOT	0.85 v/c		C	27.1	0.63	Yes
13	River Road And Irving Road	Signal	City of Eugene	LOS "D"		D	48.0	>1	Yes
14	River Road And Northwest Expressway - Railroad Boulevard	Signal	City of Eugene	LOS "D"		E	61.1	>1	No
15	S Bertelsen Road And W 11th Avenue	Signal	City of Eugene	LOS "D"		F	>80	>1	No
16	Bailey Hill Road And W 11th Avenue	Signal	City of Eugene	LOS "D"		F	>80	>1	No
17	Seneca Road And W 11th Avenue	Signal	City of Eugene	LOS "D"		F	>80	>1	No
18	Garfield Street And W 11th Avenue	Signal	City of Eugene	LOS "D"		D	38.0	0.90	Yes
19	Chambers Street And W 11th Avenue	Signal	City of Eugene	LOS "D"		E	66.4	>1	No
20	Garfield Street And W 13th Avenue	TWSC	City of Eugene	N/A	EB	F	> 50	0.62	No
21	Chambers Street And W 13th Avenue	Signal	City of Eugene	LOS "D"		D	35.8	0.91	Yes
22	Chambers Street And W 18th Avenue	Signal	City of Eugene	LOS "D"		D	54.3	0.97	Yes
23	Willamette Street And W 18th Avenue	Signal	City of Eugene	LOS "E"		C	20.5	0.75	Yes

		Performance Standard			Intersection Performance Metrics				
	Intersection Name	**Intersection Control**	**Jurisdiction**	**Performance Standard**	**Critical Movement**	**LOS**	**Delay (s)**	**v/c**	**Meets Standard?[1]**
24	Oak Street And W 18th Avenue	Signal	City of Eugene	LOS “E”		C	23.2	0.71	Yes
25	Pearl Street And E 18th Avenue	Signal	City of Eugene	LOS “E”		C	20.1	0.73	Yes
26	E 18th Avenue And Patterson Street	Signal	City of Eugene	LOS “E”		B	19.8	0.75	Yes
27	E 18th Avenue And Hilyard Street	Signal	City of Eugene	LOS “E”		D	47.3	0.88	Yes
28	Willamette Street And W 29th Avenue	Signal	City of Eugene	LOS “D”		D	50.9	0.90	Yes
29	Amazon Parkway - 30th Avenue And Hilyard Street	Signal	City of Eugene	LOS “D”		E	63.1	>1	No
30	Mill Street And E 8th Avenue	Signal	City of Eugene	LOS "E"		C	23.5	0.88	Yes
31	Mill Street And E Broadway	Signal	City of Eugene	LOS “E”		B	17.3	0.76	Yes
32	Franklin Boulevard And E 11th Avenue	Signal	City of Eugene	LOS “E”		B	10.1	0.70	Yes
33	Agate Street And Franklin Boulevard	Signal	City of Eugene	LOS “E”		B	14.5	0.73	Yes
34	Walnut Street And Franklin Boulevard	Signal	City of Eugene	LOS “E”		C	24.1	0.94	Yes
35	Crescent Avenue And Norkenzie Road	Stop	City of Eugene	N/A		F	>50	N/A	Yes
36	Coburg Road And Crescent Avenue	Signal	City of Eugene	LOS “D”		E	67.2	>1	No
37	Coburg Road And Cal Young Road	Signal	City of Eugene	LOS “D”		B	15.0	0.67	Yes
38	Coburg Road And Harlow Road	Signal	City of Eugene	LOS “D”		D	39.0	0.95	Yes
39	Coburg Road And Oakway Road	Signal	ODOT	0.85 v/c		C	31.3	0.84	Yes
40	Coburg Road And Country Club Road	Signal	City of Eugene	LOS “D”		F	>80	>1	No
41	Delta Highway And Valley River Dr Southbound Ramps	Signal	City of Eugene	LOS “D”		F	>80	>1	No
42	Willagillespie Road And Valley River Drive	Signal	Lane County	LOS “D”		D	45.2	0.82	Yes
43	Delta Highway And Willagillespie Road	Signal	Lane County	LOS “D”		C	31.7	0.93	Yes
44	W 6th Avenue And Garfield Street	Signal	ODOT	0.85 v/c		B	13.5	0.92	No
45	Chambers Street And W 6th Avenue	Signal	ODOT	0.85 v/c		F	>80	>1	No
46	W 6th Avenue And Madison Street	Signal	ODOT	0.85 v/c		B	19.0	0.96	No
47	W 7th Avenue And Garfield Street	Signal	ODOT	0.85 v/c		D	37.4	0.82	Yes
48	Chambers Street And W 7th Avenue	Signal	ODOT	0.85 v/c		E	55.6	0.99	No
49	Jefferson Street And W 7th Avenue	Signal	ODOT	0.85 v/c		C	31.7	0.95	No
50	Washington Street And W 7th Avenue	Signal	ODOT	0.85 v/c		C	24.1	0.98	No

[1]The salmon color indicates those intersections that fail to meet standards under only the No Build. Black indicates those intersections that don't meet standards under either the existing or No Build conditions.

Intersection	Cross Streets
1	Beltline Road Westbound Ramps And Northwest Expressway
2	Beltline Road Eastbound Ramps And Northwest Expressway
3	Beltline Road Westbound Ramps And Pacific Highway W
4	Beltline Road Eastbound Ramps And Pacific Highway W
5	Beltline Road Southbound Ramps And Barger Drive
6	Beltline Road Northbound Ramps And Barger Drive
7	Beltline Road And Roosevelt Boulevard
8	Beltline Road And W 11th Avenue
9	Pacific Highway W And Prairie Road
10	Pacific Highway W And Barger Drive
11	Pacific Highway W And Roosevelt Boulevard
12	W 7th Avenue And W 5th Avenue
13	River Road And Irving Road
14	River Road And Northwest Expressway - Railroad Boulevard
15	S Bertelsen Road And W 11th Avenue
16	Bailey Hill Road And W 11th Avenue
17	Seneca Road And W 11th Avenue
18	Garfield Street And W 11th Avenue
19	Chambers Street And W 11th Avenue
20	Garfield Street And W 13th Avenue
21	Chambers Street And W 13th Avenue
22	Chambers Street And W 18th Avenue
23	Willamette Street And W 18th Avenue
24	Oak Street And W 18th Avenue
25	Pearl Street And E 18th Avenue
26	E 18th Avenue And Patterson Street
27	E 18th Avenue And Hilyard Street
28	Willamette Street And W 29th Avenue
29	Amazon Parkway - 30th Avenue And Hilyard Street
30	Mill Street And E 8th Avenue
31	Mill Street And E Broadway
32	Franklin Boulevard And E 11th Avenue
33	Agate Street And Franklin Boulevard
34	Walnut Street And Franklin Boulevard
35	Crescent Avenue And Norkenzie Road
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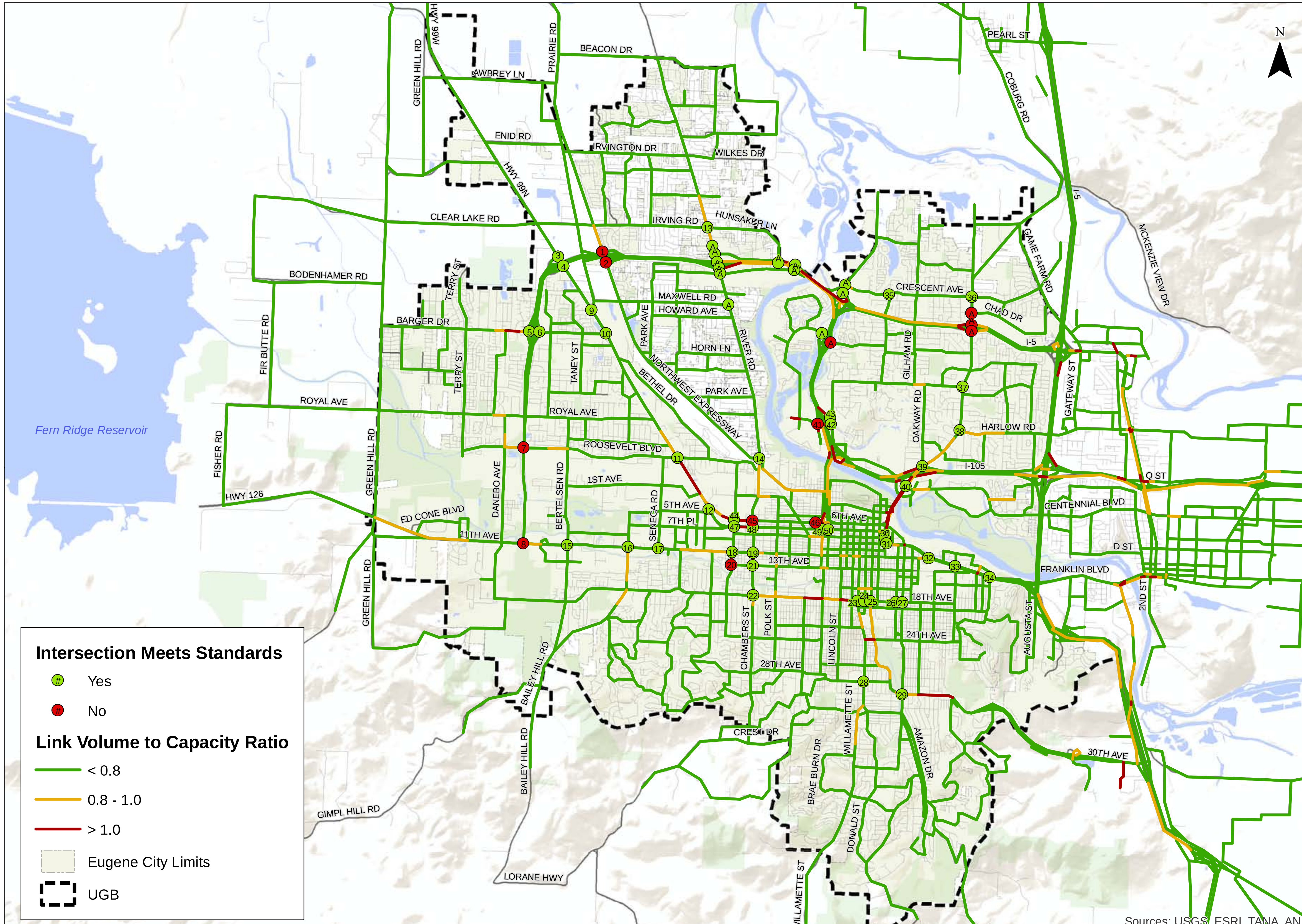
37	Coburg Road And Cal Young Road
38	Coburg Road And Harlow Road
39	Coburg Road And Oakway Road
40	Coburg Road And Country Club Road
41	Delta Highway And Valley River Dr Southbound Ramps
42	Willagillespie Road And Valley River Drive
43	Delta Highway And Willagillespie Road
44	W 6th Avenue And Garfield Street
45	Chambers Street And W 6th Avenue
46	W 6th Avenue And Madison Street
47	W 7th Avenue And Garfield Street
48	Chambers Street And W 7th Avenue
49	Jefferson Street And W 7th Avenue
50	Washington Street And W 7th Avenue
A	From Beltline Facility Plan



0 1 2 3 Miles

Existing Traffic Conditions
Weekday PM Peak Hour

Figure
1

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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Coordinate System: NAD 1983 HARN StatePlane Oregon South FIPS 3602 Feet Intl
Data Source: City of Eugene

Intersection	Cross Streets
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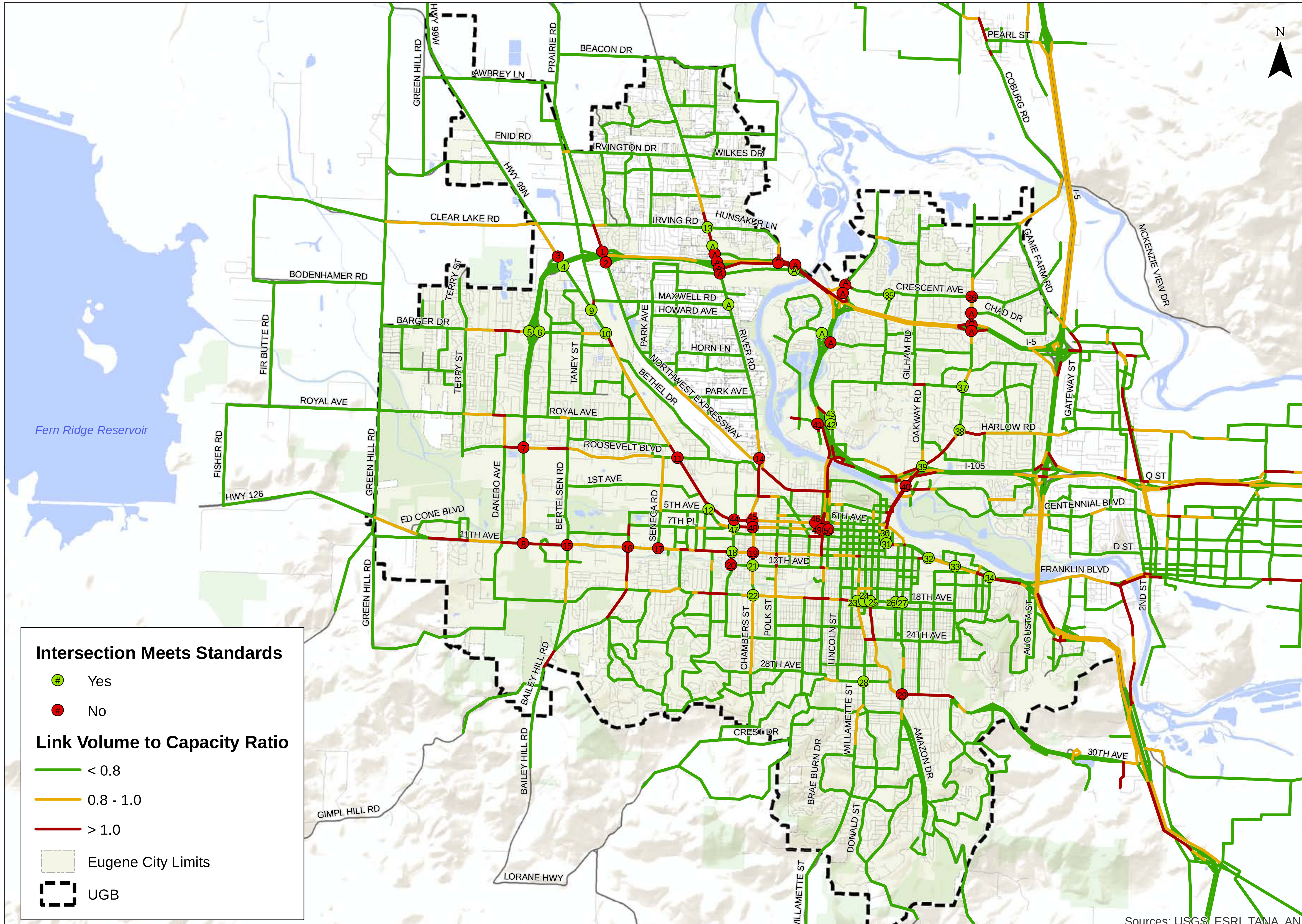
50	Washington Street And W 7th Avenue
A	From Beltline Facility Plan

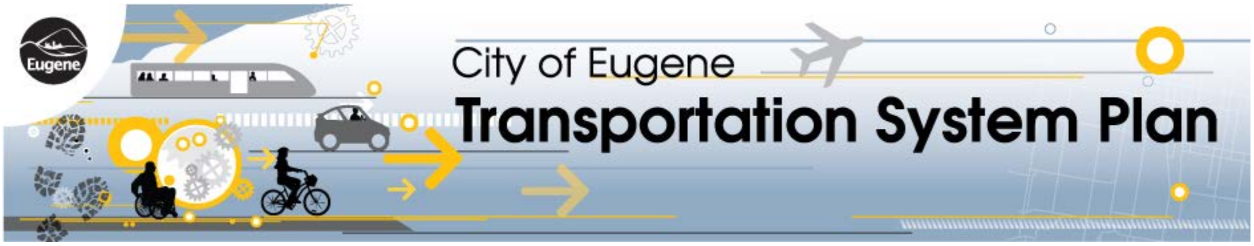


0 1 2 3 Miles

2035 Traffic Conditions
Weekday PM Peak Hour

Figure
2

H:\projfile\10296 - City of Eugene TSP\gis\01_2035 Traffic Conditions Weekday PM Peak Hour.mxd - jsommerville - 11:17 AM 9/18/2012



Appendix C: 20-year Needs Analysis

DRAFT TECHNICAL MEMORANDUM

Eugene Transportation System Plan

Future Conditions Results - Build Scenario

Date:	January 22, 2015	Project #:10296
To:	Eugene PMT Kurt Yeiter, City of Eugene	
Cc:	Kristin Hull, CH2M Hill	
From:	Julia Kuhn, Matt Kittelson & Ashleigh Griffin, Kittelson & Associates, Inc.	

This technical memorandum presents the year 2035 "build analyses" for the Eugene Transportation System Plan (TSP). The enclosed analyses relate primarily to the quality of service experienced by vehicular traffic. The future needs of "active modes" are addressed in separate documents. The build analyses incorporate the assumptions outlined below.

- The City and Region will continue to see growth in employment and population over the next twenty years consistent with Envision Eugene (and the soon-to-be adopted Comprehensive Plan), and the Springfield and Coburg Comprehensive Plans. Additionally, growth in statewide traffic will continue to occur consistent with the Oregon Transportation Plan.
- The City will expand its Urban Growth Boundary (UGB) to accommodate additional growth in population and employment over the next twenty years. This UGB expansion will be incorporated into the soon-to-be adopted Comprehensive Plan.
- Regional growth in population and employment will be supported by the transportation system programs, policies and projects reflected in Springfield's TSP as well as the following categories of transportation system projects in Eugene:
    - *Projects to be completed within 20 years* – frequent transit service improvements including corridor improvements on six key arterials in the city, urbanization of key existing collector and arterial streets to provide for multimodal travel, construction of a local bridge to the north of the Randy Pape Beltline near River Road, roadway capacity improvements at a small number of locations, passenger rail

improvements at the Eugene Station, and two new roadways in the Clear Lake UGB expansion area.

- *20-year Pedestrian and Bicycle System Improvements* – this category incorporates continued implementation of the City's Pedestrian and Bicycle Master Plan. The primary elements of the Master Plan will become part of Eugene's TSP.
- *Projects to Complete Upon Development* – those that are likely needed as new neighborhoods and employment areas develop or redevelop. The timing of these projects is uncertain and they are unlikely to be advanced by the city in the absence of specific private development activities. Typically, these projects address only localized multimodal transportation needs associated with newly developing or redevelopment areas.
- *Operational Projects* – those that are needed at specific intersections and/or corridors to improve the quality of service provided to all modes. This may include the use of technology, implementation of Transportation System and Management Options (TSMO) strategies, signal corridor timing strategies, etc.

The TSP identifies a series of projects for future study to determine when and if a specific multimodal system improvement is needed to address a future deficiency. These projects are not included in the 2035 travel demand model.

TRAFFIC VOLUME DEVELOPMENT AND OPERATIONS ANALYSES

Based on estimates of future job and household growth, LCOG developed traffic volume forecasts for the city's collector and arterial street system, using an emme travel demand model. Based on information obtained from LCOG, coupled with measured traffic counts at intersections and roadways within the city, Kittelson & Associates, Inc. (KAI) developed year 2035 intersection and roadway volumes using a procedure consistent with guidance from ODOT's Analysis and Procedures Manual (APM).

The existing conditions and No Build memorandums prepared for the TSP included analyses of 50 intersections throughout the city. The build analysis includes evaluation of these same intersections plus 12 additional intersections previously analyzed as part of the Beltline Facility Plan. The build analysis compares the expected intersection performance to adopted city and state standards. KAI conducted this analysis in a manner consistent with the methodologies outlined in the Highway Capacity Manual and guidance provided in ODOT's APM.

The year 2035 intersection operations are shown in Table A in the Appendix and illustrated in Figures 1 (No Build) and 2 (TSP Projects). Within the figures, those locations whose performance meets city and state standards are colored as green; locations where the city and state standards are not met are shown as red. Specific findings regarding the analysis are discussed below.

Figures 1 and 2 also include a comparison of the year 2035 traffic demand to capacity for individual arterial and collector streets within the city based on the three categories:

- Streets that operate "well" – the vehicular demand is less than 80 percent of the capacity. These streets are shown in green in the figures.
- Streets that are "nearing capacity" – the vehicular demand is between 80 and 100 percent of the capacity. These streets are shown in yellow in the figures.
- Streets that are "over capacity" – the vehicular demand exceeds the capacity, which is shown in red on the figures.

In reviewing the figures, it is helpful to note that the corridor analyses consider a full hour of traffic demand (based on direct model output) during the weekday commute period. In looking at a full hour of traffic demand, the corridor analyses may not reflect some of the queuing that occurs at intersections. Conversely, the intersection analyses are based on traffic volumes that have been further refined ("post processed" from the model outputs) and reflect conditions that occur during the peak 15 minute time period. Queuing on the roadway segments leading up to intersections would be expected at those locations where intersection operations are shown to exceed standards.

SUMMARY OF NO BUILD FINDINGS

As a basis of comparison, the No Build memorandum highlighted the following key findings:

- *West 11th Avenue Corridor* – both under existing and No Build conditions, the corridor experiences congestion through much of its length and at many of its key intersections. This corridor plays an important role in both regional and statewide mobility as well as local accessibility to the downtown, University of Oregon, residential and employment areas.
- *West 18th Avenue* – under the No Build, this corridor becomes congested primarily between Bailey Hill Road and Pearl Street. This is likely attributable to the planned residential growth in this area of the city as well as diversion of traffic from the congested West 11th Avenue corridor.
- *Highway 99* – under existing and No Build, this corridor experiences congestion as it transitions into downtown Eugene. In addition, congestion occurs under both conditions at the Beltline ramp termini intersections, likely attributable in part to the commercial uses in proximity of the interchange.
- *Northwest Expressway* – for the most part, this corridor operates well under both existing and No Build conditions, with two exceptions; the areas adjacent to and at the Beltline ramp termini as well as to River Road are expected to experience congestion in the future.
- *River Road* – Under the No Build, this corridor is expected to experience congestion between Irving Road and River Avenue as well as at and south of the intersection with the Northwest Expressway. The section between Irving Road and River Avenue will be

influenced by the improvements that result from the ongoing Beltline Facility Plan. The section south of Northwest Expressway includes a critical grade-separated crossing of the railroad that represents the only crossing for over 2.5 miles to the west, thereby serving an important role in emergency vehicle and freight and regional mobility needs.

- *6th and 7th Avenues* – this one-way street pair is expected to operate at or over capacity under No Build conditions throughout much of its length. The couplet provides an essential connection into downtown as well as for regional and local freight mobility.
- *Franklin Boulevard* – this corridor is expected to experience congestion between the downtown and I-5 under the No Build. In addition, given its role in serving accessibility to the University of Oregon (UO), will continue to experience congestion during peak event times on-campus, of which the UO employs a variety of demand-management strategies to mitigate.
- *Beltline Highway* – the corridor serves as a major connection to West Eugene as well as regional and statewide mobility and freight needs. As such, it is expected to continue to experience congestion between I-5 and Northwest Expressway. In the No Build, the section between Roosevelt Boulevard and West 11th Avenue is also expected to experience congestion. The Beltline Facility Plan outlines a variety of strategies that may be implemented over time to address the capacity and safety needs between River Road and the Delta Highway.
- *Coburg Road* – this regional corridor is expected to experience congestion in the vicinity of the Beltline Highway as well as between Harlow Road and the downtown.
- *Amazon Parkway/30th Avenue* – this corridor serves as an important connection between the downtown and residents to the south as well as to I-5 and Lane Community College (LCC) and is expected to see increasing levels of congestion.
- *River Crossings* – under the No Build, all of the vehicular crossings of the Willamette River are expected to be over capacity in Eugene and Springfield. This condition can affect emergency response routes, freight mobility and economic development and regional and local mobility and accessibility.

ANALYSIS OF THE 20 YEAR PROJECT LIST

Through input from the TCRG, regional and local stakeholders and public engagement events, the TSP includes implementation of high frequency transit on six key corridors, pedestrian and bicycle improvements, and roadway/intersections at select locations. Between now and 2035, the TSP assumes implementation of the following categories of improvements:

- Projects to be completed within 20 years;
- Pedestrian and Bicycle System improvements;

- Projects to complete upon development; and,
- Operational improvements to increase the efficiency of the existing roadway system

Many of the projects included in these lists serve primarily localized accessibility and connectivity needs. Examples of projects that provide more regional multimodal capacity as compared to the No Build include:

- Frequent transit service improvements along the following corridors:
  - West 11th Avenue, 6th Avenue and 7th Avenue EmX
  - River Road
  - Coburg Road
  - Highway 99
  - Martin Luther King Jr. Boulevard
  - 30th Avenue/Amazon Parkway
- Construction of a "local arterial" bridge and operational improvements to the Randy Pape Beltline Highway/Delta Highway ramps
- Widening of the Randy Pape Beltline Highway between Roosevelt Boulevard and West 11th Avenue and associated intersection improvements.

With all of the 20 year TSP projects in-place, the corridors highlighted under the No Build analyses are still anticipated to experience similar of slightly lower levels of congestion, as discussed below and reflected in Figure 2.

- *West 11th Avenue Corridor* – Even with the implementation of EmX, this corridor is expected to experience congestion through much of its length and at many of its key intersections.
- *West 18th Avenue* – with the TSP projects in-place, the corridor is expected to experience similar levels of congestion as seen under the No Build although it operates primarily under or near capacity.
- *Highway 99* – this corridor shows slight improvements in congestion levels as compared to the No Build. Intersection improvements, such as installation of roundabouts at the Beltline ramp termini could help mitigate localized congestion in their vicinity.
- *Northwest Expressway* – with the TSP projects, the corridor is expected to operate consistent with that seen under the No Build condition.
- *River Road* – with the TSP projects, the corridor is also expected to operate consistent with that seen under the No Build condition.
- *6th and 7th Avenues* – Even with the implementation of EmX, this couplet is expected to experience congestion through much of its length and at many of its key intersections.

- *Franklin Boulevard* – this corridor is expected to experience slight improvements in congestion levels as compared to the No Build and operate primarily under or near capacity.
- *Beltline Highway* – with the construction of the local arterial bridge and other TSP projects, this corridor could see minor improvements to congestion levels as compared to the No Build. However, much of the corridor between I-5 and the Northwest Expressway is still projected to operate at or over capacity. Widening of the corridor between Roosevelt and West 11th Avenue could enable the corridor function under capacity along this segment.
- *Coburg Road* – this regional corridor is expected to operate in a manner similar to that described in the No Build.
- *Amazon Parkway/30th Avenue* – this corridor is also expected to experience similar congestion levels as shown in the No Build.
- *River Crossings* – like the No Build, all of the vehicular crossings of the Willamette River are expected to be at or over capacity in Eugene and Springfield even with implementation of the TSP projects.

Like the corridors, many of the key intersections are expected to experience congestion and/or not meet State or City operating standards. At some of these locations, the City and/or ODOT may want to consider the adoption of alternative vehicular mobility standards and/or level of service standards in attempts to balance multimodal quality of service and adjacent land use needs. These are outlined below.

- *Highway 99/Randy Pape Beltline westbound ramp terminus* – this signalized intersection is projected to operate at a level of service (LOS) “B” and a volume-to-capacity ratio (v/c) of 0.91, exceeding ODOT’s mobility standard of 0.85 but still operating well within city LOS standards.
- *Roosevelt Boulevard/Randy Pape Beltline* – even with significant widening of the intersection approaches, the intersection is projected to operate at LOS “E” and a volume-to-capacity ratio of 0.93.
- *Roosevelt Boulevard/Highway 99* – if a second northbound left-turn is added, the intersection is projected to operate at LOS “E” and a volume-to-capacity ratio of 0.95. This still exceeds ODOT and City standards but still allows the intersection to operate below capacity.
- *Coburg Road/Oakway Road*– this signalized intersection is projected to operate at a level of service (LOS) “D” and a volume-to-capacity ratio (v/c) of 0.94, exceeding ODOT’s mobility standard of 0.85 but still meeting city LOS standards.
- *Coburg Road/Country Club Road*– this signalized intersection is projected to operate at a level of service (LOS) “F” and a volume-to-capacity ratio (v/c) of 1.09. This intersection

would require significant reconstruction to meet standards if the traffic volumes reach the forecast year 2035 levels.

- *6th and 7th Avenue couplet intersections* – these corridors already have three to four through lanes in the east-west direction at all of the locations studied. This couplet may require additional signal timing and technological improvements to help with vehicular flow without impacting the multimodal environment.
    - Along 6th Avenue, the Garfield Street and Madison signalized intersections are projected to operate at LOS “B” and under capacity but exceed ODOT’s 0.85 mobility standard.
    - The intersection of 6th Avenue/Chambers Street is expected to operate at LOS “F” and a volume-to-capacity ratio of 1.03.
    - Along 7th Avenue, the Jefferson Street, Chambers Street, and Washington Street intersections are projected to exceed ODOT’s mobility standard of 0.85 but operate below capacity and with a LOS of “E” or better.
- West 11th Avenue – many of the intersections between Beltline Highway and Chambers Street are projected to operate at or over capacity and exceed the city’s LOS standard of “D” even with implementation of EmX. The intersection results are slightly better than the No Build. This corridor may require additional technological solutions to provide as efficient of movements for vehicles as possible while preserving the cross-section identified during the Environmental process. The projected intersection volume-to-capacity ratios are:
    - Randy Pape Beltline/West 11th Avenue = 1.45
    - S Bertleson Road/West 11th Avenue = 1.35
    - Bailey Hill Road/West 11th Avenue = 1.25
    - Seneca Road/West 11th Avenue = 1.1
    - Chambers Street/West 11th Avenue = 1.03 although the delay is associated with level of service “D”, thereby meeting city standards
- Garfield/West 13th Avenue – this intersection is forecast to operate well over capacity in its current configuration; the city may need to review alternative configurations at this location as well as potential level-of-service considerations.

In addition to the alternative standards considerations, additional analysis will be needed to determine the appropriate traffic control and lane configuration at the new local arterial bridge/Beltline Westbound off-ramp terminal/Delta Highway intersection as part of the ongoing Beltline Facility Planning efforts.

CONCLUSIONS

The City of Eugene, City of Springfield, Lane County, Lane Transit District, Central Lane MPO, and ODOT will need to continue to work together to investigate and implement future multimodal improvement projects, policies and programs that provide for a balanced transportation system. On many of the key city-wide and regional corridors, the high levels of projected vehicular travel demand will not be met by the widening of roadways. As such, the City and ODOT should consider alternative mobility and/or level-of-service standards at the locations outlined below.

State Facilities

- Consider adopting a standard of 0.99, consistent with the Portland Metro region at the following locations: Randy Pape Beltline/Highway 99 ramp termini; Randy Pape Beltline/Roosevelt Boulevard; Highway 99/Roosevelt Boulevard; Coburg Road/Oakway Road; 6th Avenue/Garfield Street; 6th Avenue/Madison Street; Chambers/7th Avenue; Jefferson/7th Avenue; and Washington/7th Avenue.
- Adopt a standard of greater than 1 at the following locations: 6th Avenue/Chambers Street; Randy Pape Beltline/West 11th Avenue.

City Facilities

- Consider adopting a level-of-service “F” standard at the following locations: S Bertelsen Road/West 11th Avenue; Bailey Hill Road/West 11th Avenue; Seneca Road/West 11th Avenue; Garfield Street/13th Avenue; and Coburg Road/Country Club Road.

Further, the efficiency of the existing transportation system will need to be maximized through transportation system management (TSM) improvements, connectivity improvements, multimodal improvements, and TDM strategies. These strategies, in combination with the identified TSP projects, will provide benefits to the city’s and the regional multimodal Transportation System.

Appendix 1
2035 Performance Summary

Intersection	Cross Streets
1	Beltline Road Westbound Ramps And Northwest Expressway
2	Beltline Road Eastbound Ramps And Northwest Expressway
3	Beltline Road Westbound Ramps And Pacific Highway W
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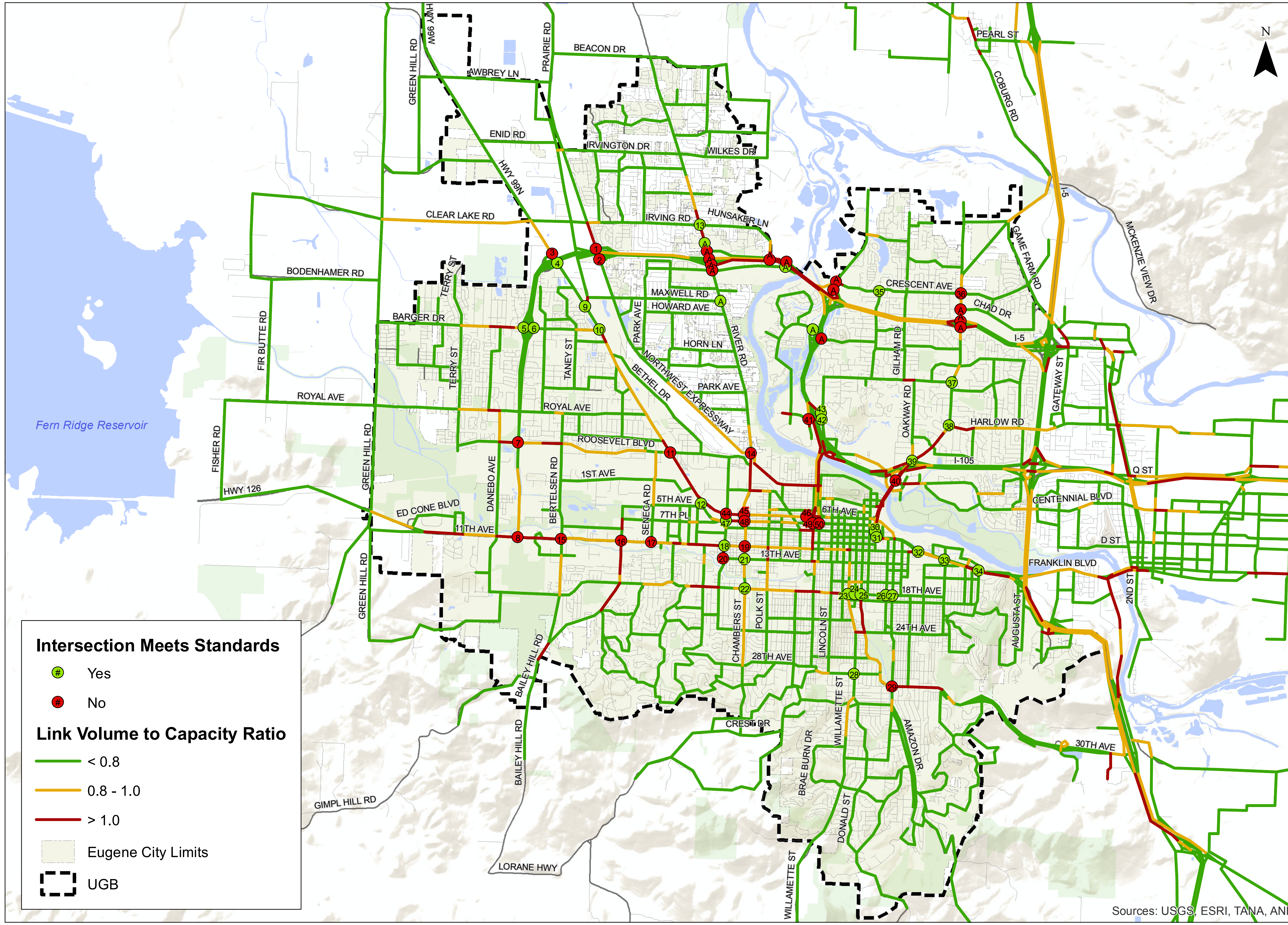
A	From Beltline Facility Plan



0 1 2 3 Miles

2035 Traffic Conditions Weekday PM Peak Hour

Figure 2

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Kittelson & Associates, Inc.
Transportation Engineering/Planning

Coordinate System: NAD 1983 HARN StatePlane Oregon South FIPS 3602 Feet Intl
Data Source: City of Eugene

Intersection	Cross Streets
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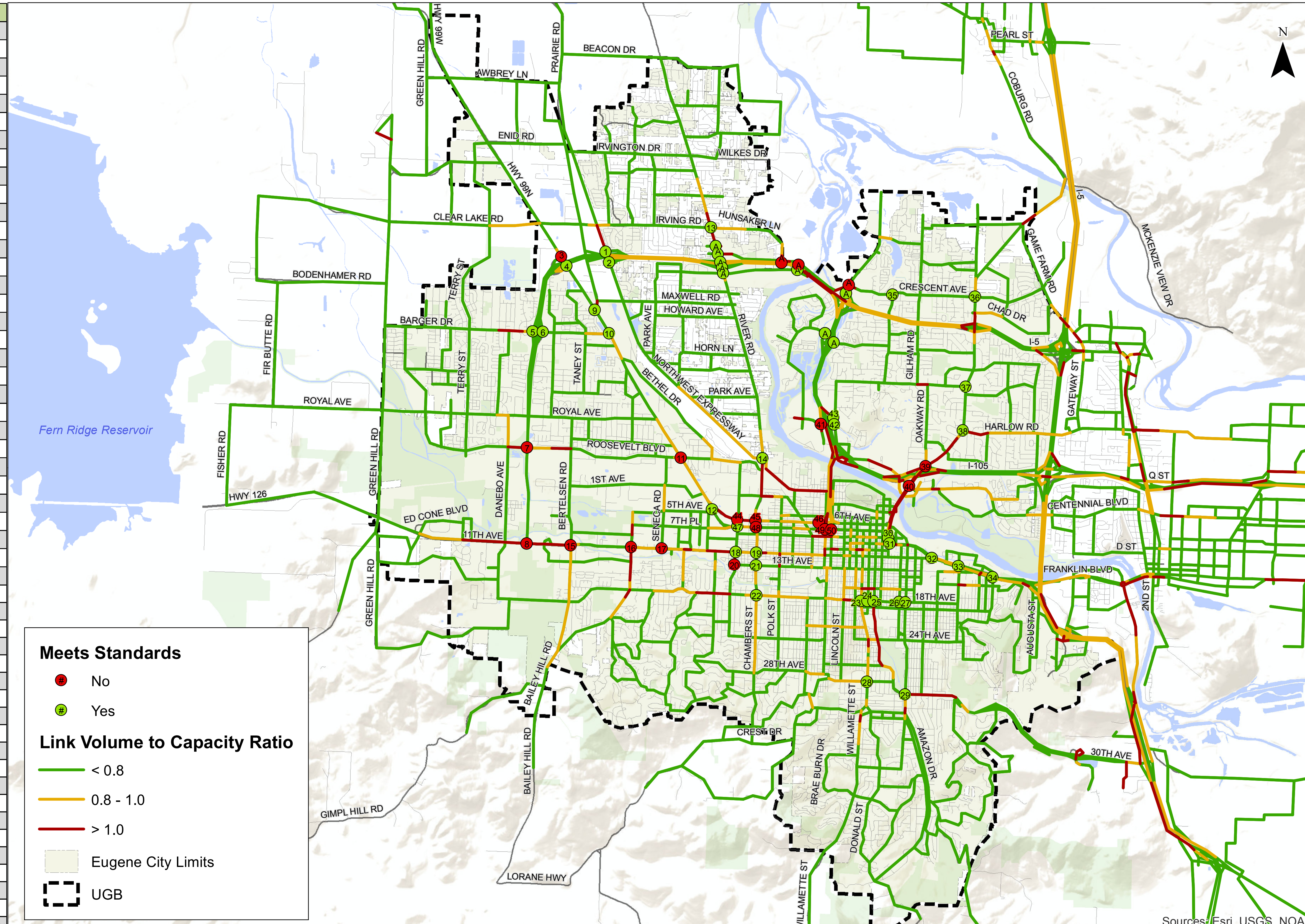
48	Chambers Street And W 7th Avenue
49	Jefferson Street And W 7th Avenue
50	Washington Street And W 7th Avenue
A	Beltline Facility Plan Study Intersections, Analyzed with Bridge Only



0 1 2 3 Miles

2035 Build Traffic Conditions
Weekday PM Peak Hour

Figure
2

Appendix D: Alternatives Evaluation Process

MEMORANDUM

Eugene Transportation System Plan

Project Evaluation Approach

Date:	January 8, 2014	Project #:10296
To:	Kurt Yeiter, City of Eugene Eugene PMT, TAC, and TCRG	
Cc:	Terra Lingley and Kristin Hull, CH2M Hill	
From:	Julia Kuhn, Kittelson & Associates, Inc.	

This memorandum describes the approach used to categorize and evaluate projects that may become the key elements of the recommended Transportation System Plan (TSP). The overall approach and categorization result from the TSP goals and objectives, and Eugene's commitment to creating a plan that supports its sustainability goals including the sustainability Triple Bottom Line (TBL; environment, equity, and economy).

The following goals developed during Phase 1 of the TSP guide this process:

- **Goal 1:** Create an integrated multimodal transportation system that is safe and efficient; supports local land use and economic development plans; reduces reliance on single-occupancy automobiles; and enhances community livability.
- **Goal 2:** Advance regional sustainability by providing a transportation system that improves economic vitality, environmental health, social equity, and well-being.
- **Goal 3:** Strengthen community resilience to changes in climate, increases in fossil fuel prices, and economic fluctuations through adaptations to the transportation networks.
- **Goal 4:** Distribute the benefits and impacts of transportation decisions fairly and address the transportation needs and safety of all users, including youth, the elderly, people with disabilities, and people of all races, ethnicities and incomes.

Consistent with the TBL and the TSP goals, the City's priorities for the transportation system (in no particular order) are:

- Safety
- Quality of the transportation facilities (ensuring comfortable environments for all modes within the overall transportation network)
- Supporting Envision Eugene's Key Transit Corridors and planned densities.
- Completing networks for all modes
- Understanding the tradeoffs associated with transportation project and network decisions

The categorized project list supports the above priorities and suggests timeframes for implementation based on complexity, likely available funding (including potential funding sources), and staff assessment of probable timelines. The five project priority categories include:

- 20 year projects,
- Beyond 20 year projects,
- Projects to complete upon development,
- Studies, and
- Operational projects.

In addition to the project lists, policy statements comprise an essential component of the TSP and will guide the City in future decision-making efforts as they relate to project prioritization, understanding trade-offs, and helping the city to progress toward achieving triple bottom line objectives. These policy statements are not evaluated in this memo but rather will be used to support the implementation of the TSP. Appendix A of this memo includes a preliminary list of policy concepts that may be included in the TSP.

Further discussion about each of the five project categories, and a description of how bicycle and pedestrian facilities will be handled, is provided below. A list of projects included in each category follows.

Bicycle and Pedestrian Projects

Specific bicycle and pedestrian projects are not proposed for inclusion in the TSP, with one primary exception as described below. Instead, the recently completed Pedestrian and Bicycle Master Plan (PBMP) will be adopted separately and incorporated by reference as part of the TSP. The TSP will reference the general types of pedestrian and bicycle projects and policies included in the PBMP and may specifically reference some of the key projects/policies, but the project list and priorities will be detailed in the PBMP. Further, the TSP will describe the relationship between the two documents and articulate that the PBMP represents the pedestrian and bicycle elements of the TSP. Supporting text/policies can provide the city the flexibility to update the PBMP over time without having to amend the TSP.

The potential for a grade-separated pedestrian/bicycle overcrossing of the Beltline Highway may be evaluated using TSP criteria and included explicitly in the TSP. This, the most expensive pedestrian and bicycle project being contemplated, fulfills a major gap in the existing pedestrian and bicycle system, and requires coordination with the street system and careful consideration of potential land use impacts.

Many of the projects identified in the TSP project lists will include pedestrian and bicycle components as part of the overall improvement and therefore be included in the TSP.

20 Year Projects and Upon Development Projects

Most of the projects in the 20 year and “upon development” categories provide incremental, local changes, and while they will improve specific areas, very few “move the dial” on achieving greenhouse gas reduction targets or other city-wide priorities. These projects will be evaluated by bundling them together to show the city-wide benefit of systematically implementing them over the 20 year planning horizon. Cost estimates and transportation modeling for the 20 year projects will help inform the evaluation discussions.

Projects that are to be completed upon development are those that are likely needed as properties in the urban growth boundary develop or redevelop. The timing of these projects is uncertain and they are unlikely to be advanced by the city in the absence of specific private development activities. Typically, these projects address only localized multimodal transportation needs associated with newly developing or redevelopment areas. These projects will be included in the transportation modeling and the cost estimating but most are not of the scale/nature that will inform the evaluation discussions.

The list of “upon development” projects reflects City staff’s current understanding of likely priorities in these areas. At the time that specific land use applications are submitted, additional or different provisions may be required as conditions of approval based on the specifics and timing of the actual development application. Further, the projects in this category may be funded through a variety of sources, such as urban renewal, proportionate sharing (based on level of anticipated impact of a specific development), etc.

Projects Beyond 20 Years

Projects beyond 20 years are still important to consider, as they are the larger more complex projects, or projects that could address future transportation issues that are not yet problematic. This provides a clear path for the City to work towards beyond the immediate plan priorities. Inclusion of projects in the beyond 20 year category provides the city flexibility to re-evaluate priorities and to pursue a variety of funding opportunities that may arise over the life of the TSP. In terms of projects beyond 20 years, the regional land use and transportation model may be used to provide a sensitivity analysis on the traffic benefits/impacts of a new river crossing in Eugene. No other beyond 20 year projects will be modeled.

Study Projects

Study projects are those that need further analysis prior to identifying a specific project for implementation and inclusion within the TSP.

Operational Projects

Operational projects are typically intersection-related improvements that are individually lower in cost than other projects being contemplated and generally do not require right-of-way acquisition. The TSP is not all-inclusive of the operational projects the city will pursue over the life of the TSP. Rather, these projects represent those that the city can pursue to improve the operational efficiency of specific intersections and roadways. Further, a list of Transportation System Management and Options (TSMO) strategies will be included in the TSP to assist city staff and policy makers in future discussions regarding capital funding/project priorities.

PROJECT EVALUATION CRITERIA

Evaluation criteria are used to differentiate and identify trade-offs among feasible ideas and determine how well a project meets TSP objectives. To be most effective, these criteria should be measurable and well-defined. This ensures a common understanding of each criterion's meaning, and allows for a clear comparison among different ideas. The TSP criteria listed in Appendix B are organized by project objective, nested into the following eight categories:

1. Safety and health
2. Social equity
3. Access and mobility for all modes
4. Community context
5. Economic benefit
6. Cost effectiveness
7. Climate and energy
8. Ecological function

Evaluation questions are provided for each objective. Each project is evaluated in response to these questions to determine how it meets the objective. The following rating scale is used.

Evaluation Results Rating Scale

●	The project idea addresses the criterion and/or makes substantial improvements in the criteria category
◒	The project idea partially addresses the criterion and/or makes moderate improvements in the criteria category
○	The project idea does not support the intent of, provides minor or incidental benefit and/or negatively impacts the criteria category
N/A	The project idea neither meets nor does not meet intent of criterion. The project idea has no effect, or criterion does not apply

NEXT STEPS

Draft project lists, by category, will be discussed with the TCRG in February 2014 for refinement/revision. A more detailed evaluation of the 20 year projects that result from this meeting(s) will inform discussions about trade-offs and a recommended set of projects for inclusion into the TSP by project category.

The project lists are shown below. A preliminary assessment of the 20 year projects relative to the evaluation criteria follows the lists.

PROJECTS WITHIN 20 YEARS

Figure 1 shows these projects.

West Eugene EmX	
1	The West Eugene EmX extension along West 6th, 7th, and 11th Avenues is funded and underway.
River Road	
2	Improve frequent transit service and multimodal travel along River Road
3	Include a new corridor terminus with bus transfers and auto and bike parking near River Road and Randy Pape Beltline Interchange
Coburg Road	
4	Improve frequent transit service and multimodal travel along Coburg Road and transit connections to Springfield
5	Investigate transit route options for access into downtown via or around the Ferry Street Bridge
MLK	
6	Improve or maintain frequent transit service and multimodal travel along Martin Luther King Jr. Boulevard to Centennial Boulevard in Springfield
30th/Amazon	
7	Provide continued improvements to transit (frequency, service hours, transfers) to achieve frequent transit service and improved multimodal travel in this corridor between downtown and Lane Community College, including 30th Avenue.
Beltline Expressway Management Plan Recommendations[1]	
8	Provide improvements to Beltline Highway, Delta Highway and arterial street system in the vicinity as documented in the Beltline Facility Plan (adoption pending Spring/Summer 2014).
Urbanization of Existing Streets[2]	
9	Upgrade Bertelsen from 18th Avenue to Bailey Hill Road
10	Upgrade Bethel from Highway 99 to Roosevelt
11	Upgrade the north/south section of County Farm Loop
12	Upgrade W 11th from Terry to Green Hill
13	Upgrade Hunsaker Lane/Beaver Street (county has STIP-U funding for a planning/preliminary design study for this project
14	Upgrade Jeppesen Acres Road from Gilham to Providence

[1] Specific improvements will be incorporated into draft TSP once the Facility Plan has been finalized and adopted. These projects are evaluated using the criteria established for the Beltline Facility Plan and are not evaluated using the TSP criteria.

[2] These types of projects may include new pedestrian facilities, bicycle facilities, turn/travel lanes, curb/gutter, drainage treatments needed to align with current city standards and/or policies. Often, these types of projects are referred to as “urban upgrades

Other Projects	
15	Reconstruct Franklin Boulevard as a multi-way boulevard between Walnut Street and Onyx Street
16	Add lanes on the Randy Pape Beltline from Roosevelt to W 11th and provide intersection improvements at the Beltline/W 11th and Beltline/Roosevelt intersections
17	Provide grade-separated crossing of the Beltline Highway for pedestrian and bicycle travel in the vicinity of York or Park
18	Add center turn lane on Martin Luther King Boulevard between Parkway West and Centennial Loop West

PROJECTS BEYOND 20 YEARS

Figure 2 shows these projects.

Urbanization of Existing Streets[3]	
30[4]	Upgrade Summit Drive from Fairmont to Floral Hill Drive
31	Upgrade Van Duyn Road from Western Drive to Harlow Road
Intersection Projects	
32	Provide improvements to address safety and congestion at the Highway 99/Roosevelt Blvd. intersection
Beltline Corridor	
33	Improve frequent transit service along the Randy Pape Beltline corridor – with a possible Crescent Avenue route.
River Crossings	
34	Address an aging Ferry Street Bridge structure (replace in kind, no expansion)
NW Expressway	
35	Provide improvements to provide facilitate freight along the NW Expressway corridor

[3] These types of projects may include new pedestrian facilities, bicycle facilities, turn/travel lanes, curb/gutter, drainage treatments needed to align with current city standards and/or policies. Often, these types of projects are referred to as “urban upgrades”.

[4] There are no Projects 19-29; these project numbers are held in reserve in case more TSP projects are added.

PROJECTS TO COMPLETE UPON DEVELOPMENT

Figure 3 shows these projects.

Local Connectivity	
40[5]	Connect Hyacinth Street between Irvington Drive and Lynnbrook Drive
41	Provide connection between Gilham Road and County Farm Road
42	Extend W 13th Avenue from Bertelsen to Dani Street
43	Provide connection between Enid and Awbrey
44	Extend Colton Way south past Royal Ave to connect with the future extension of Legacy
45	Extend Legacy South past Royal Ave to connect to Roosevelt Blvd. (Roosevelt extension)
46	Construct collectors and other facilities within Crow Road area needed to serve future demand/development
Urbanization of Existing Streets[6]	
47	Upgrade Arrowhead Street from Irvington Drive to Barstow Ave
48	Upgrade Awbrey Lane from Prairie Rd to Hwy 99W
49	Upgrade Bailey Hill Road south from Warren Street to the UGB
50	Upgrade Beacon Drive East from River Rd to Scenic Drive
51	Upgrade County Farm Loop West to east section
52	Upgrade Dillard Road from 43rd Avenue to UGB
53	Upgrade Fox Hollow Road South from Donald to UGB
54	Upgrade Prairie Road from Maxwell to Beltline
55	Upgrade River Loop #1 from River Rd to Dalewood St
56	Upgrade River Loop #2 from River Rd to Burlwood Street
57	Upgrade Royal Ave from Terry St to Greenhill Rd
58	Upgrade Scenic Drive between River Loop #2 to Beacon Drive East
59	Upgrade Spring Creek Drive from River to Scenic Drive
60	Upgrade Wilkes Drive from River Rd to River Loop #1
61	Upgrade Willow Creek Road south from 18th Avenue to UGB

[5] There are no projects 36-39; these project numbers are held in reserve in case more TSP projects are added.

[6] These types of projects may include new pedestrian facilities, bicycle facilities, turn/travel lanes, curb/gutter, drainage treatments needed to align with current city standards and/or policies. Often, these types of projects are referred to as “urban upgrades”

EWEB Property Improvements	
62	Provide improvements to facilitate the EWEB Riverfront Development, which may include: -Intersection improvements at 4th Avenue/Coburg Road: Signalize westbound right-turn movements on 4th Avenue and northbound through movements on Coburg Road (southbound movements would remain unsignalized) -Provision of a relocated highway-railroad crossing, in alignment with the existing 8th Street improvements including track panels, lights, gates, audible warning devices, and upgraded railroad track detection as required by ODOT Rail and/or Union Pacific Railroad -Relocation of the existing signal closest to the 8th Avenue/Hilyard Street intersection to align with the relocated railroad crossing at the existing 8th intersection -Provision of a northbound right-turn lane that will offer storage for vehicles queued on Hilyard Street during train passage. -Provide a new street connection from the overall site to High Street, about 100 feet north of 5th.

Figure 4 combines all three categories of projects: Projects Within 20 Years, Projects Beyond 20 Years, and Projects to Complete Upon Development.

STUDY PROJECTS

11th and 13th Avenues
If 6th and 7th Avenues become too congested to accommodate West Eugene EmX Service, study the need for re-routing along 11th and 13th Avenues
Local Connectivity
Extend Beaver Street north to Wilkes Drive (which is outside Urban Growth Boundary). Would be joint project with County and would require an exception to Oregon's Statewide Planning Goals if provided as a street serving all modes; a goal exception would not be required if it is only a pedestrian and bicycle facility or located inside the UGB.
Improvements to North-South Travel/Circulation south of Downtown
Evaluate north/south circulation options on the Oak/Pearl and Hilyard/Patterson couplets
River Crossings
Study ways to increase capacity over the Willamette River to address bridge crossing congestion issues.
University of Oregon
Explore ways to provide better multimodal connections between the University of Oregon/Franklin Boulevard area and the Autzen Stadium/Duck Village/Chase Gardens area
I-105 Ramps
Analyze options to address weaving, operational and safety considerations at the I-105 southbound off-ramp onto W 6th Avenue

The Beltline Facility Plan is currently underway and should be completed prior to the TSP adoption. The Facility Plan includes recommendations to the Beltline Highway, Delta Highway and adjacent arterial street system to improve safety and the long-term functionality of the Highway between River Road and Coburg Road. This study is a precursor to the National Environmental Policy Act (NEPA) process for the implementation of future projects. The recommendations from the Facility Plan will be incorporated by reference into the TSP.

OPERATIONAL PROJECTS

A sample of possible operational projects is listed below.

NW Expressway
Provide intersection improvements at the NW Expressway and Beltline ramp termini intersections
Arterial Corridor Management
Upgrade traffic signals along key corridors and at key intersections to implement Transportation System Management and Operations (TSMO) strategies that increase the efficiency of the arterial system.
Other Projects
Convert 8th to two-way between High and Washington
Complete conversion of Lawrence Street to 2-way between 6th and 13th
Complete conversion of Charnelton to 2-way for the entire length
Safety improvements at Fifth and Seneca

20 YEAR PROJECT EVALUATION

A draft evaluation of the 20 year projects is shown below. Appendix B provides further details on the evaluation criteria.

20-Year Project Evaluation

Project	Safety & Health	Social Equity	Access & Mobility for All Modes	Community Context	Economic Benefit	Cost Effectiveness	Climate & Energy
Improve frequent transit service and multimodal travel along key corridors							
River Road Coburg Road MLK 30th/Amazon	●	●	●	●	●	◐	●
Urban Upgrades							
Bertelsen Bethel (Hwy 99 to Roosevelt) County Farm Loop (north-south) W 11th (Terry to Greenhill) Hunsaker Lane/Beaver Street Jeppesen Acres Road (Gilham to Providence)	○	○	◐	●	○	◐	○
Other Projects							
Reconstruct Franklin Blvd	○	○	●	●	●	●	○
Beltline Improvements (Roosevelt – W 11th)	◐	○	●	●	●	◐	○
Pedestrian/Bike Bridge over Beltline	◐	●	◐	●	○	○	◐
Add center turn lane on Martin Luther King Boulevard between Parkway West and Centennial Loop West	○	○	○	●	●	●	○
Operational Projects							
Implement TSMO and Other Operational Improvements	◐	○	○	●	●	●	●
Pedestrian and Bicycle Master Plan							
Implement PBMP Priorities	●	●	●	●	●	●	●

Note: Ecological Benefit has not been assessed at this time.

Rating Scale:

● The project idea addresses the criterion and/or makes substantial improvements in the criteria category

◒ The project idea partially addresses the criterion and/or makes moderate improvements in the criteria category

○ The project idea does not support the intent of, provides minor or incidental benefit and/or negatively impacts the criteria category

APPENDIX A – POLICY CONCEPTS

In addition to the goals, objectives, and project lists, the TSP will contain a set of policies. A policy is a statement adopted to provide a consistent course of action, moving the community towards attainment of its goals. The policies describe how the City will make future decisions. The following list reflects topics that could be addressed by policies in the TSP.

- Implement the Frequent Transit Network described in the Regional Transportation System Plan. Coordinate the Frequent Transit Network with Envision Eugene's Key Transit Corridors.
- Recommend a corridor-study approach to the key transit corridors in which multiple modes and access management, as well as future growth and urban design, can be addressed comprehensively. Incremental improvements may take place, but a comprehensive approach is preferred. In this context, "access management" includes physical barriers, such as median islands, that prohibit left turns from the travel lanes.
- Recognize the Pedestrian and Bicycle Master Plan (PBMP) as the guiding document for pedestrian and bicycle improvements and programs.
- Provide/support good bicycle and pedestrian connections to frequent transit lines.
- Introduce a "Complete Streets Network" by providing safe access by all modes between residences and employment, shopping, transit, and to meet daily needs. [Or use 20-minute neighborhood characterization.] Prioritize projects and programs that improve access near Key Transit Corridors and between residences, employment centers, and daily services.
- Work with emergency responders to keep Response Routes functional.
- Support better utilization of Northwest Expressway as a freight corridor and to provide improved general access to the River Road/Santa Clara neighborhoods.
- Roundabouts will be considered as a generally preferred design option *early* in a design process. The actual design and review process and roundabout standards can be developed administratively. [Note: this does not mean that we will necessarily implement roundabouts, but this policy acknowledges that roundabouts are in our toolbox and the public should not be surprised if they are installed.
- LOS-type standards that are used as a development review tool must be balanced and inclusive to address multiple modes of travel and quality of life issues that auto-focused LOS standards do not capture.
- Cross-over easements (from property to property) should be considered in future code amendments to facilitate access management and minimize the need for as many driveways.
- Support multimodal access into the downtown and other concentrated employment areas through the use of Transportation Management Associations and other innovative techniques that reduce demand for automobile travel at times of peak congestion.
- Review the parking code so that automobiles are not favored over other modes (when facilities for other modes are present). Example: reduce or eliminate the requirement for a minimum number of parking spaces along Key Transit Corridors.
- Improve multimodal connections between neighborhoods and the frequent transit network. [example: bike-share facilities and bike lockers at transit stations]
- Support and incorporate the Eugene Airport Master Plan into the TSP.

- Support more frequent, higher speed passenger rail between Eugene and Portland, Seattle, and Vancouver, BC. Retain a passenger rail station in downtown Eugene.
- Support freight by rail.
- Support ongoing improvements to the Amtrak Station, such as:
  - Provide transit service closer to Amtrak Station
  - Add two rail sidings to benefit freight and passenger rail.
- Reduce dependence on single-occupant automobile travel. Provide options and choice for those who do not, cannot, or choose not to own or drive a vehicle alone. Priority shall be given for safety improvements, starting with the most vulnerable (pedestrians).
- Support reasonable and reliable travel times for freight and movement of goods in the Eugene-Springfield region. (existing TSP policy)
- Promote intermodal linkages for connectivity and ease of transfer among all transportation modes [existing TSP policy], including intermodal transfers for freight (e.g., air, rail, and trucks).
- Use technologies to provide dependable, real time freight scheduling and corridor congestion management (e.g., messages to smart phones about expected delays, alternate routes).
- Use technologies and services to reduce reliance on privately owned automobiles (e.g., bike share, car share, ride share, telecommute).
- Explore methods of removing crashed and stalled vehicles from travel lanes more quickly.
- Re-evaluate street design standards to promote complete multi-modal street networks and provide context sensitive design options.
- Consider methods to finance filling gaps in the sidewalk network (ex: to connect new development to the broader street network and transit, gaps in developed areas with limited potential to provide sidewalks in the near term, etc.).
- Explore alternate measures to the standard Levels of Service (LOS and V/C) to describe function of streets, such as reducing time of delay, total corridor (rather than intersection) travel times, and average travel delay (rather than peak hour/peak 15 minutes).
- Support County improvements to 30th Avenue and Gonyea Road (outside of the UGB).
- Support the Regional Transportation Options Program.

APPENDIX B – EVALUATION CRITERIA

1. Safety and Health

Project Objectives	Evaluation Criteria
1. Double the percentage of pedestrian, bicycle, and transit trips by the year 2035.	Will the project or program substantively improve city-wide mode split, as reported as percentage of commute trips taken by pedestrians, cyclists, and transit?
2. Improve community health by increasing physical activity as part of the transportation system.	Is the project or program likely to increase walking or bicycling?
3. Support the reduction in quantities of harmful airborne pollutants associated with transportation.	What is the project or program's ability to reduce airborne pollutants, based on available LRAPA7 data on criteria pollutants?
4. Improve safety and security for all users, especially for the most vulnerable; strive for zero fatalities.	What is the project's ability to reduce fatalities and injuries? Will the project address known safety concern areas, provide safe and attractive pedestrian and/or bicycle facilities, and address areas that are otherwise considered unsafe? (Combined assessment)

2. Social Equity

Project Objective	Evaluation Criteria
1. Use future transportation investments to reduce or eliminate disparities between neighborhoods in access, economic benefits, safety, and health.	What impacts does the project or program have on areas with greater proportions of low income, minority, youth and/or elderly population than the city as a whole?

[7] LRAPA, Lane Regional Air Protection Agency measures particulate matter (PM2.5) and ozone.

3. Access and Mobility for All Modes

Project Objective	Evaluation Criteria
1. Foster neighborhoods where 90 percent of Eugene residents can meet most daily needs without relying heavily on an automobile.	Does the project or program improve access to typical daily destinations within a 20-minute walk, bicycle trip, or bus ride?
2. Improve the comfort and convenience of travel, especially for walking, bicycling, carpooling, and riding transit.	Does the project or program improve the comfort, safety, or convenience for walking, cycling, carpooling, or riding transit? This could include filling a gap in a sidewalk or bicycle facility, a carpool program to reach new customers, or improving safety or comfort while waiting for the bus.
3. Maintain a network of Emergency Response Streets to facilitate prompt emergency response.	Does the project improve roadway network connectivity for Emergency Response Streets?
4. Complete safe, comfortable, and direct sidewalk and bikeway networks between key destinations, transit stops, and residential areas.	Does the project idea add bicycle and pedestrian facilities linking key destinations, transit stops, and in residential areas?
5. Support Lane Transit District's efforts to provide high-capacity, frequent transit service, on the Frequent Transit Network.	Does the project add or enhance frequent transit to primary transit network, connect to primary transit network, or facilitate the ability to implement or add transit on identified future and existing transit routes? Does the project reduce or remove delays on existing transit service? Does the project increase the reliability of existing or future transit service?

4. Community Context

Project Objective	Evaluation Criteria
1. Ensure consistency between transportation investments and all relevant adopted and accepted local plans, such as: - Envision Eugene, - A Community Climate and Energy Action Plan for Eugene, - Airport Master Plan, - Long Range Transit Plan, - Pedestrian and Bicycle Master Plan, etc.	Yes/No – Is project consistent with current planning efforts?

5. Economic Benefit

Project Objective	Evaluation Criteria
1. Support redevelopment priorities by promoting compatible transportation investments along key transit corridors and in core commercial areas, including downtown.	Does the project or program reduce duration or level of delay, or increase twenty minute multi-modal access along key transit corridors and near core commercial areas?
2. Encourage infrastructure and programs that allow residents to reduce expenditures on fuel and vehicle use.	Does the project or program reduce vehicle miles traveled and/or improve speed consistency?
3. Support predictable travel times between key origins and destinations for high priority trips such as transit and regional freight movement.	Does the project or program improve travel time reliability along key transit and freight corridors (as applicable)?
4. Increase access to employment centers via foot, bike, and transit, while improving the quality of the traveling experience.	Does the project or program improve the likelihood of employees walking, bicycling, or riding transit to major employment centers?
5. Support access and visibility of businesses that rely on drive-by traffic by balancing congestion with economic development goals.	Does the project or program remove a large percentage of potential customers for a major commercial center? Does the project or program make it prohibitively difficult to access commercial areas by all modes?

6. Cost Effectiveness

Project Objective	Evaluation Criteria
1. Optimize benefits relative to public, private, and social costs over the plan's time horizon.	Does the project or program benefit the other seven categories compared to the costs (public, private and social) of the project or program?
2. Maximize the efficiency and life of the current transportation system.	To what extent does the project or program use and take advantage of existing network, preserve or maintain existing facilities, or modernize existing facilities to function more optimally?
3. Favor transportation investments that have potential funding for both implementation and ongoing maintenance.	How competitive is the project or program to receive funding from existing funding sources and potential future funding sources?

7. Climate and Energy

Project Objective	Evaluation Criteria
1. Focus on transportation programs and projects that help to: a. reduce total community-wide fossil fuel use by 50% by 2030 b. reduce vehicle miles traveled per capita by 10% by the year 2020 c. reduce community-wide greenhouse gas emissions 10% below 1990 levels by 2020	What is the potential for the project or program to affect mode split (away from cars) and/or reduce VMT? What is the potential for the project or program to improve speed consistency (without substantially reducing travel time) and thereby reduce GHG emissions?

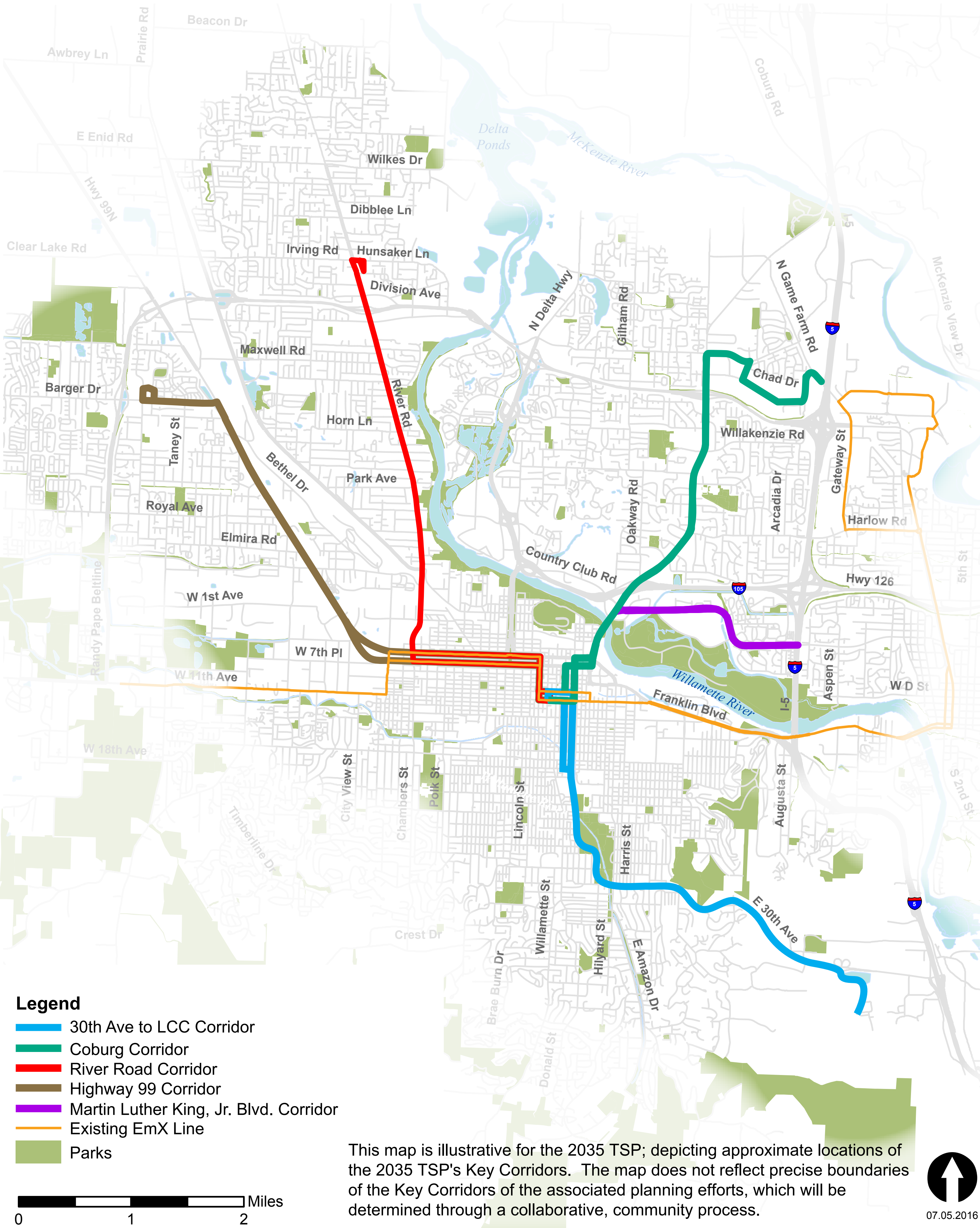
8. Ecological Function

Project Objective	Evaluation Criteria
1. Improve water quality and lower the rate of stormwater runoff from transportation infrastructure.	What is the net change in impervious surface area (e.g., total width of facility, including sidewalks or other impervious features) associated with the project? Does project incorporate mitigation, such as runoff detention and filtration opportunities?
2. Reduce the urban heat island caused by paving that absorbs and re-radiates heat.	What is the amount of net additional paved surface? Does the project incorporate mitigation, such as additional tree canopy? What is the ROW availability and potential impacts to landscaping strips? Is the increase able to be mitigated?
3. Foster transportation investments that avoid damaging and improve habitat areas, where possible.	Does the project or program increase or decrease the functionality or quality of habitat areas?

Appendix E: Key Corridors Map

Corridor Overview

MovingAhead



Legend

- 30th Ave to LCC Corridor
- Coburg Corridor
- River Road Corridor
- Highway 99 Corridor
- Martin Luther King, Jr. Blvd. Corridor
- Existing EmX Line
- Parks

Miles 0 1 2

This map is illustrative for the 2035 TSP; depicting approximate locations of the 2035 TSP's Key Corridors. The map does not reflect precise boundaries of the Key Corridors of the associated planning efforts, which will be determined through a collaborative, community process.

07.05.2016

Appendix F: Eugene Pedestrian and Bicycle Master Plan (2012)

Eugene Pedestrian and Bicycle Master Plan

March 2012

CH2MHILL Angelo planning group alta PLANNING + DESIGN

EUGENE

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The Eugene Pedestrian and Bicycle Master Plan was 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, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds.

Cover photo credits (clockwise from upper left): Ted Sweeney, Lindsay Selser, Larisa Varela, Kayre Axe

Table of Contents

Photo credit: Briana Orr

Introduction

The Eugene Pedestrian and Bicycle Master Plan ("the Plan") provides the City of Eugene with the projects and policies necessary to create a first-class city for bicycling and walking, reduce overall carbon emissions, and provide for a well-designed, integrated, safe, and efficient multi-modal transportation system. The City of Eugene currently has a total of 157 miles of bikeways (41 miles of shared-use paths, 81 miles of bike lanes, and 35 miles of signed routes). This Plan proposes that the City of Eugene develop 25.2 miles of sidewalks, 12.1 miles of shared-use facilities, and 110.9 miles of bikeways within the next 20 years.

The Eugene Pedestrian and Bicycle Master Plan serves as the basis for the Pedestrian and Bicycle elements of the City's Transportation System Plan (TSP). The Project Study Area consists of the outer extent of the Eugene city limits and Urban Growth Boundary.

The Plan was 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 (DLCD), and by the City of Eugene. Working with the TGM program, the City of Eugene hired the consulting team of Alta Planning + Design, CH2M Hill, and Angelo Planning Group to prepare the Plan. The project began in May 2010 and was accepted by Council on March 12, 2012.

This document is Volume I of the Eugene Pedestrian and Bicycle Master Plan. Volume II contains all final project memoranda that document the planning process used to complete the Plan, and is intended to serve as a technical reference for implementation.

Photo: Wind Home Photography

Photo credit: Fred Sproat

Planning Process

This section summarizes the process used to develop the Eugene Pedestrian and Bicycle Master Plan.

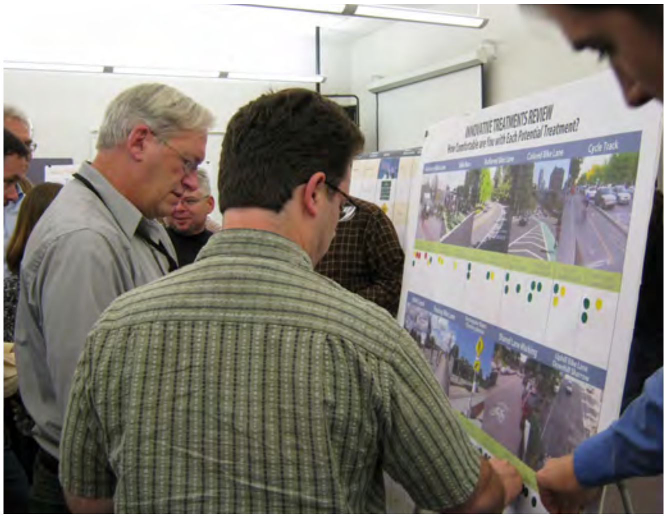
Project Management

The project management team consisted of representatives from the City of Eugene, the Oregon Department of Transportation, and the consulting team. The project management team met regularly throughout the project to guide the technical work and review project deliverables.

The City of Eugene invited representatives from Lane County, the Lane Transit District, the University of Oregon, and departments within the City of Eugene (Emergency Services, Parks and Open Space, Planning and Development, and Traffic Operations) to form a Technical Advisory Committee (TAC) to represent their organizational perspective on the Pedestrian and Bicycle Master Plan effort. TAC members were invited to comment on each draft project deliverable. The TAC also met in person in January 2011 to discuss the system recommendations and the Design Toolkit, in February 2011 to discuss policies and implementation, and in July 2011 to further discuss the policies.

Public Involvement

The City of Eugene identified members of the public who could represent a variety of groups and populations, including liaisons to neighborhood groups, accessibility groups, the Sustainability Commission, school districts, higher education institutions, and the Bicycle and Pedestrian Advisory Committee (BPAC). These representatives were invited to join the Project Advisory Committee (PAC). The PAC reviewed all draft project deliverables. They also met seven times throughout the project to advise the project management team about goals, policies, existing conditions, the Design Toolkit, system recommendations, prioritization, and funding. All PAC meetings were open to the public and were well-attended.



Materials prepared for public meetings allowed participants to give feedback on the evolution of the Plan.

Members of the Public Advisory Committee met throughout the project.

Three public open houses were hosted as part of the project. They occurred in October 2010, and in March and September 2011. The first open house invited members of the public to comment on goals and objectives, existing conditions analysis, and concepts from the design toolkit. Attendees were also asked to share their ideas for bicycle and pedestrian facilities recommendations. The second open house offered community members the chance to give feedback on the draft recommendations for both pedestrian and bicycle system improvements. Approximately 70 and 100 community members attended the first and second open houses, respectively. The third open house was held to unveil the draft plan. It was attended by 80 community members.

A project website, www.eugenepedbikeplan.org, was created and then updated throughout the project. The website offered three different input tools: an interactive map of the project area, an online comment form, and an online survey tool. The online interactive map generated over 600 comments from the public on existing conditions and project ideas. The online survey generated an additional 200 responses and over the life of the project an additional 160 comments were submitted to the project team via an online comment form.

Additional methods of outreach included electronic and print newsletters, postings on local pedestrian and bicycle-related blogs, outreach material at other community events, meetings with neighborhood groups, and a survey distributed to the city's 20 neighborhood associations.

Plan and Policy Review

At the beginning of the project, project staff reviewed numerous local planning documents to inform the goals, policies, and projects developed in this Plan. Documents reviewed include TransPlan, the Central Lane Metropolitan Planning Organization Regional Transportation Plan, the Eugene-Springfield Metro Plan, the Arterial and Collector Street Plan, the Central Area Transportation Study, the Eugene Growth Management Ordinance, the Eugene Pedestrian and Bicycle Strategic Plan, the Eugene Parks, Recreation and Open Spaces Comprehensive Plan, and the May 2010 draft of the Community Climate and Energy Action Plan.

Policies in the Eugene-Springfield Metro Plan and TransPlan were reviewed and found to be consistent with the policies recommended in this Plan. Therefore, no policy amendments to these documents are recommended. The policies recommended in this plan will become official when the City of Eugene adopts a new Transportation System Plan.

Goals, Objectives, and Policies

The following goals, objectives, and policies were developed with input from the Project Advisory Committee

Policies play an important role in creating a walking- and bicycling-friendly city.

and the Technical Advisory Committee. These policies are recommended to be adopted as part of the Eugene Transportation System Plan development that is currently underway. Recommended actions to support proposed goals and policies can be found in Project Memorandum 9 – Implementation (see Volume II).

The Plan has four levels in its framework:

Goal: Pursuit of this statement underpins all of the Plan's objectives and projects.

Objectives: The City has identified three principal objectives for achieving the goals of the Plan.

Policies: A guide to the City and community members on how to achieve each objective.

Performance measures: How the City will track the progress of our goal and objectives. These measures should be tracked and reported on annually in order to evaluate the progress towards achieving our goal and objectives.

> "Eugene is a place where walking and biking are integral to the community's culture, where the city's livability, sustainability, and overall quality of life are enhanced by more people walking and biking, and where these activities are safe, convenient, and practical options for everyone."
>
> *Vision statement from the Eugene Pedestrian and Bicycle Strategic Plan 2008*

Goal: By the year 2031 Eugene will double the percentage of trips made on foot and by bicycle from 2011 levels.

Performance Measures:

- Percentage of trips to work in Eugene made by walking and bicycling as measured by the Census Bureau's American Community Survey.
- Annual bicycle and pedestrian counts performed by the City of Eugene.

Objective 1—Network: Create 20-minute neighborhoods by providing accessible, efficient, and convenient methods for pedestrians and bicyclists to travel to the places where they live, shop, work and play by expanding and improving Eugene's bicycle and pedestrian network.

The pedestrian and bicycle network should provide continuous direct routes and convenient connections between destinations, including homes, schools, parks, shopping areas, public services, recreational opportunities and transit. Walking and bicycling should be appealing modes of transportation, which means that infrastructure must be in place to make these modes convenient and enjoyable.

- Policy 1.1: Make bicycling and walking more attractive than driving for trips of two miles or less.
- Policy 1.2: Increase pedestrian and bicycle connectivity between existing residential neighborhoods and nearby commercial areas, parks, and schools.
- Policy 1.3: Require implementation of pedestrian and bicycle facilities as part of redevelopment and new development.
- Policy 1.4: Improve connections to transit for pedestrians and bicyclists.
- Policy 1.5: Construct high-quality pedestrian and bicycle infrastructure to provide safer, more appealing and well-connected facilities.
- Policy 1.6: Build pedestrian and bicycle facilities on new roadways, and retrofit older roadways to complete the pedestrian and bicycle system, using routes and facility designs identified in this plan.
- Policy 1.7: Construct bikeways along new and reconstructed arterial and major collector streets.
- Policy 1.8: Provide a continuous sidewalk network along all city streets that have been upgraded to urban standards.
- Policy 1.9: Develop diversified financial resources to implement this plan.

Walking and bicycling facilities must address the needs of a wide range of users to be truly successful.

Performance Measures:

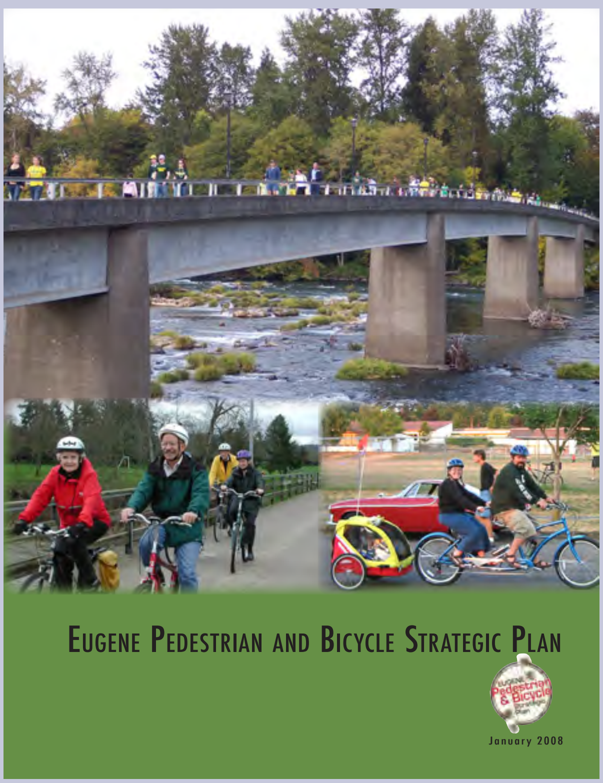
- Number of miles of sidewalk.
- Number of miles of all bikeways.
- Percentage of arterial and collector streets served by sidewalks.
- Progress towards implementing the total number of miles of new sidewalks proposed in this plan.
- Progress towards implementing the total number of miles of bikeways proposed in this plan.

Objective 2—Safety and Equity: Build a system that addresses the needs and safety of all users, including youth, the elderly, people with disabilities, and people of all races, ethnicities and incomes.

The City recognizes the great diversity in abilities, ages, races, ethnicities and incomes within the community as well as the great number of neighborhoods within the City. Sidewalks, pathways, crossings and bicycle routes should be designed so people, including those with mobility and sensory impairments, can easily find a direct route to a destination and so delays are minimized. Sidewalks, pathways, crossings and bicycle routes should be designed and built to be free of hazards and to minimize conflicts with external factors such as vehicles and buildings. These facilities should permit the mobility of residents of all ages and abilities. Bicyclists have a range of skill levels, and facilities should be designed with a goal of providing for the widest range of ages, ability, and experience possible.

Coordination with Other Plans

Eugene Pedestrian and Bicycle Strategic Plan is a 5-year plan that was adopted administratively by the City Manager. It is a guide for City staff, community members, and organizations to help them develop a more walkable and bikeable city. Whereas the Pedestrian and Bicycle Master Plan directs pedestrian and bicycle infrastructure, the Strategic Plan outlines how to improve education, marketing, and outreach to encourage people to walk and bicycle more, using the infrastructure.



- Policy 2.1: Continually improve bicycling and walking comfort and safety through design, operations and maintenance including development of "low stress" bikeways to attract new cyclists.
- Policy 2.2: Ensure that the transportation system is accessible to people with disabilities, and that an ADA Transition Plan is completed to identify obstacles to access, develop a work plan to remove those obstacles, and identify responsible parties.
- Policy 2.3: Ensure that bicycling and walking facilities are provided for all demographics, including people of different ages, races, ethnicities, incomes, and different neighborhoods.

Performance Measures:

- Number of traffic signals without Accessible Pedestrian Devices.
- List of completed projects from the ADA Transition Plan (once it is completed).
- Annual pedestrian and bicycle crash statistics.
- Density of pedestrian and bicycle facilities in areas with higher concentrations of racial and ethnic minorities and low-income households compared to other parts of Eugene (based on the population definitions established in the Eugene-Springfield 2010 Consolidated Plan).
- Bicycle and pedestrian level of service (LOS) and quality of service (QOS) models.

Objective 3—Support Facilities: Provide support facilities in addition to the pedestrian and bicycle network that encourage walking and bicycling.

In order for walking and bicycling to be fully viable forms of transportation in Eugene, facilities are needed to complement an improved network. These facilities should enhance the convenience of these modes. Partnerships among city departments and with transit agencies, private developers, and companies will be necessary to achieve this objective.

- Policy 3.1: Ensure high quality, flexible and secure bicycle parking at all destinations, and ensure that bicycle parking is considered when parks, schools, and other public facilities are planned.
- Policy 3.2: Provide support facilities for employees who are commuting by walking or bicycling (such as showers, lockers, and bike parking).

- Policy 3.3: Provide bicycle parking facilities near transit stations, on-board bicycle storage, and ensure transit stop design and compatibility with surrounding streetscape.
- Policy 3.4: Provide incentives for existing businesses and other entities to add bicycle parking facilities and pedestrian amenities.
- Policy 3.5: Provide wayfinding tools for pedestrians and bicyclists.
- Policy 3.6: Improve the quality of the pedestrian environment by including facilities such as planter strips and street trees in the design or reconstruction of streets and consider preservation of existing trees whenever practicable.

Performance Measures:

- Number of bike racks or other bicycle parking infrastructure installed in the public right-of-way.
- Number of bike racks or other bicycle parking infrastructure permitted for private development.
- Number of wayfinding signs and markings installed.
- Miles of arterial and collector streets where street trees and planter strips have been added.

The Transportation System Plan (TSP) is a 20-year comprehensive transportation plan that is adopted as policy by the Eugene City Council and serves as the transportation element of the city's comprehensive plan. Recommendations of the Pedestrian and Bicycle Master Plan will be incorporated into the TSP as the pedestrian and bicycle elements.

Benefits of Walking and Bicycling

Helping more Eugene residents and visitors shift their travel to walking and bicycling will provide many benefits to individuals and the community, including:

- Higher levels of individual health and wellness
- Reduced traffic congestion and exposure to crashes
- Healthy business districts and more dollars staying in the local economy
- Better air quality and lower levels of carbon and noxious emissions
- Higher quality of life
- Lower costs for roadway maintenance
- More equitable access to community resources for all

Existing Conditions

Project staff evaluated existing conditions for walking and bicycling in Eugene as a basis for creating recommendations for future facilities. The existing conditions analysis was based on a field review by the technical team of the existing facilities within the study area; data made available through the City's Geographic Information System (GIS), planning, and public works units; crash data provided by the Oregon Department of Transportation (ODOT); existing local, regional, and state plans and policies; and extensive public input provided through the project website (www.eugenepedbikeplan.org) and past Walking and Biking Summits.

Central Eugene offers pedestrians, including many University of Oregon students, many sidewalks.

The team considered existing conditions, deficiencies, and needs for walking and bicycling in each of five sectors that were defined for this project. Highlights from the existing conditions report are below, while the full report can be found in Project Memorandum 3 - Existing Conditions, Deficiencies, and Needs in Volume II of this Plan.

Central Eugene – Central Eugene's street grid, complete sidewalk network, existing bike lanes and routes, and access to the South Bank Path, the Fern Ridge Path and the Amazon Path make walking and bicycling relatively easy. While traffic volumes in the downtown core can be intimidating to less-experienced bicyclists, traffic speeds are lower than on larger suburban roadways. The presence of many bicyclists (especially traveling to and from the University) results in a sense of "safety in numbers." Many people asked for the development of bicycle facilities in central Eugene that provide more separation from auto traffic, particularly to facilitate travel by families and seniors.

South Hills – South of downtown and central Eugene, the South Hills rise sharply and challenge people who walk and bicycle with steep slopes, a non-grid street network, and fast-moving vehicle traffic on some roads. Many roadways have a rural cross-section of two lanes and minimal shoulders that provide little or no accommodation for bicycling or walking. Several roadways have been improved with bike lanes reaching parts of the hills. Curb ramps and marked crosswalks are largely absent from the South Hills.

West Eugene/Bethel/Danebo – West Eugene has flat topography that facilitates walking and bicycling, but the development patterns have left a legacy of cul-de-sac housing developments, disconnected streets, and high-speed/high-volume thoroughfares that make walking and bicycling challenging and, in many cases, unpleasant. Major streets offer sidewalks, but some local streets in this sector of Eugene are missing sidewalks entirely, or have inconsistent sidewalk coverage. Most major streets have bike lanes, but there are few low-traffic bikeways that may be more comfortable for less-experienced bicyclists. In addition, physical barriers including Highway 99, the rail yards, and the Randy Papé Beltline force people traveling by foot and by bicycle to travel out of direction to access a crossing. People value and use the Fern Ridge Path, though they have requested improvements at street crossings and at underpasses where seasonal flooding can occur.

Roadways in Eugene's South Hills have steep climbs and often lack sidewalks and/or bike lanes.

The Fern Ridge Path is well-used for walking and bicycling.

River Road/Santa Clara – The defining factor for pedestrians and cyclists in this part of town is the legacy of a patchwork of streets under city and county jurisdiction, which means that many roads in this part of town are not improved to city standards. As a result, River Road/ Santa Clara has the lowest percentage of streets served by sidewalks in Eugene (though many residents on quiet local streets use the roadway for walking and bicycling without difficulty). People traveling by bicycle in River Road/Santa Clara have only six streets with bike lanes available to them (Maxwell Road, Irvington Drive, Irving Road, River Road and parts of River Avenue and Division Avenue), and few signed bicycle routes exist. River Road is the only north-south roadway that crosses the Randy Papé Beltline, and it is uncomfortable for most pedestrians and cyclists. The West Bank Path is well used, but access to the path can be challenging, particularly for Santa Clara residents

Spring Creek Drive is one of many roads in Santa Clara without bike lanes or sidewalks.

NE Eugene-Willakenzie/Ferry Street Bridge – Most streets in NE Eugene are served by sidewalks, and confident bicyclists have many bike lane choices to traverse this part of town, as every minor arterial roadway as well as Coburg Road (a major arterial) has been provided with bike lanes. Many lower-traffic streets in this part of Eugene do not connect to other lower-traffic streets, forcing pedestrians and bicyclists to use busier streets for longer trips. People report that Coburg Road, in particular, is not conducive to walking and bicycling due to its busy intersections and high vehicle speeds and volumes.

Photo: Fred Sproat

The new I-5 bridge is a portal between Springfield and northeast Eugene.


Photo credit: Fred Sproat

Recommendations

Recommendations for pedestrian and bicycle facilities were created to complete gaps in the existing system and create new facilities that meet the goals of this Plan. Particular attention was paid to completing the sidewalk network along major streets and developing a family-friendly bicycle boulevard network.

Methodology for Development of Pedestrian and Bicycle System

Pedestrian and bicycle system recommendations were developed by:

- Reviewing previously-proposed plans
- Reviewing public input from previous processes
- Considering recommendations and feedback from the Project Advisory Committee, the Technical Advisory Committee, and the general public (from open houses and online comments)
- Conducting field work, and reviewing GIS data, field work notes and photographs, and
- Refining draft proposals based on City staff input

Facility Types

The recommended projects (following) refer to pedestrian and bicycle facility types that are fully defined in Project Memorandum 4 – Best Practices and Design Toolkit (see Volume II). A brief definition of each facility type and purpose is provided below for reference.

Table 1: Facility Types

	**Sidewalks:** Sidewalks are paved walkways adjacent to roadways. Sidewalks are particularly important for basic mobility of people with disabilities. A buffer (whether parked cars or a planted parking strip) between the sidewalk can create more comfort and safety for people walking.
	**Accessways:** These connectors provide direct routes between residential areas, retail and office areas, institutional facilities, industrial parks, transit streets, and neighborhood activity centers.
 Photo: David Roth	**Bicycle Boulevards:** Low-volume and low-speed streets that have been optimized for bicycle travel. Bicycle Boulevard treatments can be applied at several different intensities. The City will determine the exact treatments needed for each corridor during project design, but it is assumed that all Bicycle Boulevards in Eugene will at a minimum have wayfinding signs, pavement markings, traffic calming (if needed to keep vehicle speeds low), and some type of intersection crossing treatments.
	**Shared Use Paths:** Shared-use paths are paved paths separate from the roadway network that are designed for both walking and bicycling. Where space allows and if sufficient additional maintenance funding can be dedicated, an additional unpaved path may be provided alongside the paved path.

Table 1: Facility Types

	**Bike Lane:** Marked space along a length of roadway designated for use by bicyclists. Wheelchair users and some motorized scooters are allowed in bike lanes.
	**Buffered Bike Lane:** A bike lane with additional buffer space between the bike lane and the auto lane or parked cars, used on high volume or high-speed roads, especially with freight or large vehicle traffic.
	**Cycle Track:** Exclusive bicycle facility adjacent to, but separated from, the roadway. Best on roads with few cross streets and driveways, particularly when there are high volumes and speeds.
	**Shared Lane Marking:** Also called “sharrows,” shared lane markings are pavement markings used to indicate shared space for bicyclists and motorists on low and medium volume streets that don’t have room for bike lanes.
 Photo: Shane MacRhodes	**Grade-Separated Crossing:** When an intersection crossing is not safe, a below- or above-grade crossing for pedestrians and bicyclists may be needed. Grade separated crossings include bridges and tunnels that bypass a river, railroad tracks, a highway, or another large roadway.
	**Intersection Improvements:** Intersection improvements can take many forms (see Project Memorandum 4 – Best Practices and Design Toolkit), but all improve the ease, comfort, and safety of bicyclists and pedestrians at intersections.

Street and Facility Standards

The Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways contain Eugene's current design standards for bicycle and pedestrian facilities. This project recommends updated design standards intended to provide clear guidance for City staff and the public about the City's desired standard dimensions for walking and bicycling facilities. For complete details of recommended design standards, see Project Memorandum 6 – Pedestrian and Bicycle System (in Volume II).

Proposed Pedestrian and Bicycle System

See Appendix B for maps of recommended pedestrian and bicycle facilities:

- Map 1: Proposed Pedestrian Network - Central Eugene
- Map 2: Proposed Pedestrian Network - South Hills
- Map 3: Proposed Pedestrian Network - West Eugene/ Bethel/Danebo
- Map 4: Proposed Pedestrian Network - River Road/ Santa Clara
- Map 5: Proposed Pedestrian Network - Northeast Eugene/Willakenzie/Ferry St. Bridge
- Map 6: Proposed Bicycle Network - Central Eugene
- Map 7: Proposed Bicycle Network - South Hills
- Map 8: Proposed Bicycle Network - West Eugene/ Bethel/Danebo
- Map 9: Proposed Bicycle Network - River Road/Santa Clara
- Map 10: Proposed Bicycle Network - Northeast Eugene/ Willakenzie/Ferry St. Bridge

Sidewalk Projects

A total of 38.9 miles of sidewalk improvements were recommended for gaps on all major arterials, minor arterials, and major collectors. Because this document is a citywide plan, sidewalk recommendations were primarily made for arterial and collector level streets, which are more likely to serve longer trips and connect with transit. Sidewalk recommendations for neighborhood collectors and local streets were included where community and City input indicated that the facility would have citywide value.

Recommended sidewalk improvements are shown in Maps 1 – 5. A table showing sidewalks by street, including side of street, facility extent, length and cost estimates, can be found in Appendix A, Table A-1.[1]

The lack of sidewalks on Leo Harris Parkway results in people walking in the streets.

Accessway Projects

A total of 1.6 miles of recommended accessways are shown in Maps 1 – 5. Accessways were recommended where they would create a significantly more direct pedestrian connection, particularly between a neighborhood and a school, and as part of bicycle boulevard corridors. A table showing accessways, including facility extent, length and cost estimates, can be found in Appendix A, Table A-2.[2]

Shared-Use Path Projects

A total of 13.8 miles of recommended shared-use paths are shown in Maps 1 – 5. Shared-use paths were recommended where they could provide scenic/recreational value, take advantage of an existing corridor, or complete or expand an existing pathway network. A table showing shared-use paths, including facility extent, length and cost estimates, can be found in Appendix A, Table A-3. Annual maintenance costs for shared-use paths are shown in Appendix A, Table A-12.[3]

1 For cost estimating purposes, sidewalks were assumed to be 6 feet wide, curb tight, and have included curb and gutter costs.

2 Accessways were assumed to be 8 feet wide, with two ramps per block.

3 Shared-use paths were assumed to be 12 feet wide and constructed of concrete. Cost estimates do not include crossing treatments, potentially required bridges or retaining walls, or amenities including lighting, benches, bicycle parking, interpretive kiosks, etc.

Grade-Separated Crossing Projects

A total of seven recommended grade-separated crossings are shown in Maps 6 – 10 and listed in Appendix A, Table A-4. Grade-separated crossings are expensive projects and were only recommended where they fill a compelling community need that cannot be addressed through another facility type. Further work is needed to determine whether a bridge/overpass or tunnel/underpass is the most appropriate and feasible facility type.

Bridges and other grade-separated crossings provide for critical walking and bicycling connections.

Bike Lane Projects

A total of 36.2 miles of recommended bike lanes are shown in Maps 6 – 10. Bike lanes were recommended where they complete gaps in the existing bike lane network, where they serve streets that by City policy should have bike lanes, and/or where demand for bicycle facilities has been demonstrated.

Three specific projects recommend an uphill bike lane paired with a downhill shared-lane marking (projects on Dillard Road, Chambers Street, and Lorane Highway). A table showing bike lanes, including facility extent, length and cost estimates, can be found in Appendix A, Table A-5. Bike lanes were assumed to be 6 feet wide.[4]

4 For facilities that already have a sidewalk, no road widening was assumed, and no curb and gutter costs were included. For facilities that do not currently have a sidewalk (e.g. that have a rural two-lane cross-section), roadway widening was included in cost estimates. Curb and gutter costs were not included in bike lane cost estimates but rather were addressed through sidewalk improvement cost estimates.

Buffered Bike Lane Projects

A total of 9.3 miles of recommended buffered bike lanes are shown in Maps 6 – 10. Buffered bike lanes were recommended where City staff indicated that street width is likely to be sufficient to implement this facility type. A table showing buffered bike lanes, including facility extent, length and cost estimates, can be found in Appendix A, Table A-6. Annual maintenance costs for buffered bike lanes are shown in Appendix A, Table A-12.[5]

Cycle Track Projects

A total of 5.2 miles of recommended cycle tracks are shown in Maps 6 – 10. Cycle tracks were recommended where there is strong community demand for a separated bikeway and where the City believes a separated bikeway may be feasible and uniquely valuable.

Cycle tracks are an emerging facility type, and specific facility design details will be determined as each project is designed. Because of the wide variation in potential designs, the cost estimates shown for cycle tracks should be seen as more variable than those of other project types, and therefore a higher contingency percentage has been applied. A table showing cycle tracks, including

5 Buffered bike lanes were assumed to be 7 feet wide including a two-foot buffer; no roadway widening was included in cost estimates.

Photo: Wind Home Photography

Shared-use facilities can provide scenic and recreational value, as well as important connections in the pedestrian and bicycle networks.

facility extent, length and cost estimates, can be found in Appendix A, Table A-7. Annual maintenance costs for cycle tracks are shown in Appendix A, Table A-12.

For more information about assumptions related to the design of specific cycle track facilities, see Project Memorandum 6 - System (in Volume II).

Shared Lane Marking Projects

Projects recommended for shared lane markings are those on which no other treatment (such as bicycle boulevard treatment) is recommended. A total of 8.4 miles of shared lane markings are shown in Maps 6 – 10. Shared lane markings were recommended where the street type is inappropriate for bicycle boulevard treatment, but where cyclists will benefit from an enhanced shared roadway. Three specific projects recommend an uphill bike lane paired with a downhill shared-lane marking (projects on Dillard Road, Chambers Street, and Lorane Highway).

A table showing shared lane markings, including facility extent, length and cost estimates, can be found in Appendix A, Table A-8. Annual maintenance costs for shared lane markings are shown in Appendix A, Table A-12.

Bicycle Boulevard Projects

A total of 62.4 miles of recommended bicycle boulevards are shown in Maps 6 – 10. One of this Plan's primary goals is to create a robust bicycle boulevard network, and to that end low-traffic streets in every sector of the city were examined in detail to determine if they were appropriate for bicycle boulevards. These options were then narrowed to recommendations that provide longer corridors, are currently relatively low-traffic/low-stress, connect to community destinations such as schools and paths, and/or offer existing or potential crossings of major roadways.

Photo: Shane MacRhodes

This mid-block crossing at Bailey Hill Road creates a clear, safe crossing opportunity for pedestrians

Bicycle boulevards can vary greatly in design and cost (see Project Memorandum 4 - Design Toolkit in Volume II for a detailed discussion of bicycle boulevard levels). The cost estimates used represent a high functioning bicycle boulevard treatment (signs, pavement markings, traffic calming), but each project may vary over or under the cost shown depending on design. A table showing bicycle boulevards, including facility extent, length and cost estimates, can be found in Appendix A, Table A-9. Annual maintenance costs for bicycle boulevards are shown in Appendix A, Table A-12.

Intersections Recommended for Study

A total of 42 recommended intersection improvements are shown in Maps 1 – 5. These are intersections where public input and technical staff review indicate that a stand-alone improvement project should be considered. Further study will be needed to determine the nature of the safety/comfort problem and what types of improvements are appropriate for addressing that problem. The purpose of recording these locations is to provide a record of public input for use by the City; they should be considered high priorities for future study but are not recommended for adoption into the Transportation System Plan.

Possible intersection improvements could serve pedestrian and/or bicycle needs. The City should use engineering judgment and treatments from Project Memorandum 4 - Design Toolkit (see Volume II) to determine what facility type is appropriate.

Cost estimates have not been provided for intersection improvements because the specific design can vary widely. A table showing intersection improvements can be found in Appendix A, Table A-10.

Feasibility Studies

A number of projects were identified as important but requiring further study before a facility recommendation could be created. Feasibility projects are listed below in Table 2 and can be seen on Maps 1 – 5. Cost estimates for feasibility studies can be found in Appendix A, Table A-11.

Table 2: Recommended Feasibility Studies

Name	Description
Alton Baker Park Path Study	Develop lighting and width standards for shared use paths in East Alton Baker Park, particularly east-west routes and connections to the pedestrian and bicycle bridges.
Amazon Park Crossing Study	Examine options for creating an east-west path through Amazon Park to connect neighborhoods on either side of the park. Environmental concerns will be addressed in the study.
Coburg Road	Connect Eugene to the planned Coburg Loop Trail by providing a walking and bicycling facility on Coburg Road. The study must be coordinated with Lane County and the City of Coburg.
Franklin Boulevard	Examine options for improving bicycle and pedestrian access along Franklin Boulevard from the city limits to Alder Street and will be accomplished through planning and development of a multiway boulevard on Franklin as called for in the Walnut Station Mixed Use Center Plan.
Morse Family Farm Path Study	Create recommendations for bicycle and pedestrian circulation through Morse Family Farm to existing and planned routes that connect to the perimeter of the site.
Rail Alignment Westbound	Examine the feasibility of a rails-with-trails project for the Union Pacific (UPRR) rail line within the city limits. The study must be coordinated with UPRR and take into consideration plans for continued and expanded rail service to area businesses. The study should examine existing right-of-way, path alignment options, track crossing issues, connections to adjacent sidewalks and bikeways, and next steps for negotiating with UPRR.
West Bank Path	Examine the feasibility of extending the West Bank Path north to Hileman Landing. Right-of-way ownership and environmental concerns should be addressed in the final recommendation.
Willamette McKenzie Path	Examine options for creating a path north along the east side of the Willamette River and east along the McKenzie River as called for in the Regional Transportation Plan. The study should build on the work done by the Willamette River Open Space Vision and Action Plan and look at land ownership, alignment alternatives, environmental issues, and recreational and scenic value.
South Bank Gap	Examine options and develop a recommended facility for completing the South Bank Path gap between the Frohnmayer and Knickerbocker Pedestrian and Bicycle Bridges. The plan must consider the existing railroad line.
Westmoreland Park Paths	Examine options to create paths through Westmoreland Park to connect to existing on-street walking and bicycling routes that connect to the park.

Citywide Efforts

These are recommendations for citywide efforts, many of which are currently already underway, that would improve ability to walk and bicycle throughout the city.

Accessibility Upgrades: Continue to install ADA devices at intersections, including curb ramps and accessible pedestrian devices. The City should update its ADA Transition Plan to better identify existing transportation facility deficiencies and develop a phased plan to eliminate these deficiencies.

Bike Parking Program: Develop a program to install bicycle parking including bike corrals in the public right-of-way at the request of business owners and members of the public. Installed racks should be tracked in the City's GIS, and an inventory of existing City-installed racks should be undertaken as well. Requests to the program can be used to develop a better understanding of the demand for bicycle parking, and the number of requests and the number of installed racks can be reported on annually as a Plan performance measure.

Count Program: The City of Eugene currently performs annual pedestrian and bicycle counts at approximately 22 locations (as volunteer power permits). This effort should be expanded and stabilized to ensure that data is collected at the same points every year to allow for long-term evaluation of trends in walking and bicycling. In areas that experience a high volume of bicyclists and pedestrians (e.g. shared use paths, etc.) consider installing permanent counters. The results of these counts should be written up in an annual count report and presented to the City Council.

Maintenance Hotline and Website: The City already responds to requests for maintenance if people call or email Public Works Maintenance or enter reports on the City's website. However, many people are not aware of this option for reporting hazards such as overgrown vegetation, malfunctioning traffic signals and street lights, bicycle loop detectors in need of calibration, cracked or heaving sidewalks, etc. Creating an official walking and bicycling hotline and website and publicizing it widely will give people a tool to share information with the City about important maintenance needs. The hotline and website should be listed on City websites, maps and brochures.

Neighborhood Transportation and Livability Program: The Neighborhood Transportation and Livability Program currently installs neighborhood traffic calming in response to resident's requests. This program is an important tool to improve the safety of walking and bicycling in Eugene, and should be continued in the future. Because certain neighborhood-level concerns cannot be addressed in this citywide plan, the Neighborhood Transportation and Livability Program creates a mechanism for identifying spot fixes that will be of high value to individual neighborhoods.

Path Lighting: Many existing Eugene paths have insufficient illumination for safe and comfortable travel during dusk and night conditions. The City will assess lighting along existing paths and upgrade lighting on an ongoing basis to address deficiencies.

Sidewalk Infill Program: The City of Eugene does not currently have a sidewalk infill program that includes a dedicated funding source. Sidewalks are currently installed where required as part of a development or redevelopment project, by property owner request, or as part of a funded transportation project.

20 Minute Neighborhoods Program: Development of a 20 Minute Neighborhoods Program is considered a key implementation step of the Climate and Energy Action Plan. 20 minute neighborhoods are places where people can easily walk or bike to key destinations such as grocery stores, other retail establishments, parks and schools. Coordination between implementation of the Pedestrian and Bicycle Master Plan and the 20 Minute Neighborhoods Program will be critical to the success of both. The 20 Minute Neighborhoods Program should be one factor that is considered when determining project funding priorities.

Wayfinding and Route Signs: The City is currently installing wayfinding signs on high-use bicycle routes and should continue this effort. Wayfinding signs can be placed along a route to reinforce to users that they are heading in the right direction, and can also be placed at decision points. The City should develop a sign plan that includes a network of wayfinding and route signs, and then bundle projects in a way that makes them grant fundable. The locations of bikeway signs should be updated in the city's GIS to improve maintenance and system enhancement efforts.


Photo credit: Mossbacks Volkssport Club

Implementation

This Plan provides a comprehensive set of pedestrian and bicycle capital improvement projects that, once constructed, will help people walk and bicycle more often for more types of trips. The order in which projects in this Plan are constructed will depend on many factors, including budget and grant availability, community support, and City policies.

The City should regularly revisit the project list to schedule near term projects. There are many factors that can and should affect project implementation, including:

- Any changes to existing grant programs, or creation of new grant or funding programs, that affect the type or number of large-budget projects that can be implemented
- Any changes in City policy that could affect how local or state funds can be spent
- Changes to zoning and land use that will affect where and how development occurs in Eugene (such as through Envision Eugene, the long-term land use planning project currently underway)
- The pace of development, which will affect which projects are implemented through System Development Charges or developer requirements
- Changes to City staff capacity to manage bicycle and pedestrian projects
- Community input (e.g. through the Bicycle and Pedestrian Advisory Committee or neighborhood groups)
- Directives (policy or otherwise) from elected officials and other governing bodies
- Interest from partners (such as Lane County and ODOT) in implementing projects that are partially or entirely within their jurisdiction

Process for Future Prioritization

The City should revisit pedestrian and bicycle project priorities on an annual basis or more often if opportunities arise. The City should assess its staff resources and available/upcoming funding sources to develop a draft list of potential near-term projects. This list should be refined with input from the Bicycle and Pedestrian Advisory Committee; it is recommended that the BPAC focus one meeting each year to address implementation priorities, and that the general public be actively invited to attend and comment on draft priorities at or in advance of the meeting. Criteria used to develop project priorities are described in Memorandum 2 – Methods for Existing Conditions in Volume II of this Plan.

Cost Estimates

The project cost estimates for recommended projects are described in Appendix A. These estimates were developed based on initial planning-level examples of similar constructed projects and industry averages. These costs were then refined with the assistance of a City of Eugene Principal Civil Engineer. More information about the development and refinement of cost estimates can be

Missing sidewalk segments can make walking much more difficult.

Creating bicycle boulevards will make bicycling easier and more appealing in Eugene.

found in Project Memorandum 6 – Pedestrian and Bicycle System in Volume II of this Plan.

Need for Agency Coordination

This Plan, including the Plan's project lists, does not have any legal or regulatory effect on land or transportation facilities that the City does not own. However, to further Objective #1 of having a pedestrian and bicycle network that provides continuous direct routes and convenient connections between destinations, the planning process evaluated some facilities that are not under the City's jurisdiction. As such, the Plan includes proposed improvements to non-City facilities. Without additional action by the governmental entity that owns the subject facility or land (i.e., Lane County or the State of Oregon), any project in this Plan that involves a non-City facility is merely a recommendation for connecting the pedestrian and bicycle network. As in most facility planning efforts, moving towards, and planning for, a well- connected network depends on the cooperation of multiple jurisdictions; the Plan is intended to facilitate discussions between the City and its governmental partners as we work together to achieve a well-connected network. The Plan does not, however, obligate its governmental partners to take any action or construct any projects.

Construction of projects that may affect state highway facilities must be coordinated with ODOT and may need to conform to applicable standards and require ODOT approval. Recommendations from this plan that may affect state highway facilities include grade-separated crossings of state highways, bike lanes and sidewalks on state highways, and improvements at intersections on state highways. Construction of facilities on or crossing state highway facilities may also require an agreement between the City and ODOT that identifies responsibility for operating and maintaining the facility. In Eugene, state highway facilities include I-5, I-105, Randy Papé Beltline, Highway 99 (including 6th and 7th Avenues west of Washington Street), and West 11th Avenue west of Randy Papé Beltline.

Construction of facilities that cross railroad facilities will require a Crossing Order from ODOT Rail, and construction of facilities crossing or adjacent to a railroad facility must be coordinated with the private railroad operator as well as ODOT Rail.

Numerous projects in this Plan are on Lane County facilities or on streets that may be affected by future high-capacity transit development. In all cases, the City of Eugene should work closely with Lane County and/or Lane Transit District to implement these recommendations.

Potential Funding Sources

Projects in the Pedestrian and Bicycle Master Plan can be funded from a variety of local, state, and federal sources. Most state funding programs specific to pedestrian and bicycle facilities are competitive grant programs, and each has different eligibility requirements. Locally-administered programs also have different guidelines for how revenues may be spent. In order to implement the projects in this Plan, the City will need to be creative and persistent about cobbling together monies from many sources or developing a dedicated funding stream altogether (e.g. sidewalk infill). Tables 3 and 4, below, summarize state/federal and local existing funding sources that may be used to implement projects in this Plan. A detailed assessment of current and potential funding sources can be found in Project Memorandum 7 – Funding for the Bicycle and Pedestrian System (in Volume II).

Table 3: State and Federal Funding Sources for Pedestrian and Bicycle Projects

Source	Description	Eligible Project Types	Managing Agency
Highway Safety Improvement Program	Projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways.	On- or off-street projects seeking to reduce serious crashes at highway or railway crossings or on rural roads	Oregon Department of Transportation (ODOT)
New Freedom Initiative	Provides capital and operating costs for transportation services and facility improvements that exceed those required by the Americans with Disabilities Act.	Accessibility projects	US Department of Health and Human Services
ODOT Bicycle and Pedestrian Grants	Biannual competitive grant program for design and construction of pedestrian and bicycle facilities.	Primarily transportation facilities, must be in public right-of-way	ODOT
ODOT Flexible Federal Funds	The intent of this program is to fund sustainable, non-highway transportation projects, connectivity, the use and the overall operation of the transportation system.	Transit, bicycle and pedestrian, and Transportation Demand Management (TDM) projects	ODOT
Oregon Parks and Recreation Local Government Grants	Annual competitive grant program for the acquisition, development, and major rehabilitation projects for public outdoor park and recreation areas and facilities.	Recreation facilities in public parks or designated recreation areas	Oregon Parks and Recreation Department (OPRD)
Recreational Trails Program	Annual competitive grant program; provides funding to states to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses.	Recreation facilities on public property	OPRD
Safe Routes to School	Annual competitive grant program designed to reduce barriers and hazards to children walking or bicycling to school.	Transportation facilities in public right-of-way, parks, or on school property	ODOT
Transportation Enhancements	Biannual competitive grant program; pedestrian and bicycle improvements are one of four project types that are eligible for this program.	Facilities primarily designed for transportation; must be on public property or long-term easement	ODOT
Urban Trails	Designed to address funding gap for bicycling and walking transportation projects outside of roadways. One-time funding program from 2010; future funding is uncertain.	Transportation facilities primarily outside of public right-of-way; must be on public property or long-term easement	ODOT

Table 4: Local Funding Sources for Pedestrian and Bicycle Projects

Source	Description	Eligible Project Types	Managing Agency
Community Development Block Grants	City-managed federal funds from the Federal Department of Housing and Urban Development that can be used to make improvements in low and moderate income neighborhoods, eliminate barriers for people with disabilities, create jobs, and provide affordable housing.	Projects that make the existing transportation system accessible to people with disabilities and projects that improve quality of life or economic development in low income neighborhoods.	City of Eugene
Local Fuel Tax	Local fuel tax intended to provide for street operation, maintenance, and preservation activities.	Under current city policy, the local fuel tax will benefit bicycling and walking only through maintenance of existing facilities.	City of Eugene
Local Improvement Districts/ Assessments	In Eugene, when a street or alley is initially improved to City standards, adjacent property owners are assessed a portion of the costs via development of a local improvement district (LID). This mechanism has also been used in the past to fund sidewalk infill in Eugene.	Urban standards upgrades; sidewalk infill	City of Eugene
Neighborhood Transportation Livability Fund	Formerly called the Traffic Calming Program	Traffic calming projects and pedestrian and bicycle enhancements on the local street network.	City of Eugene
Privately Engineered Public Improvements	Privately Engineered Public Improvements (PEPIs) are typically provided by developers or outside agencies. Common improvements through PEPIs include streets and sidewalks.	Planned public facilities within or close to the area of a private development.	City of Eugene
State Highway Trust Fund	Eugene receives its share of state gas tax and weight mile tax receipts from the State Highway Trust Fund. These monies are currently designated by the City primarily for transportation planning and road operations and maintenance.	Under current city policy, these funds will benefit bicycling and walking through maintenance of existing facilities and through the work of transportation planning staff.	City of Eugene
Street Repair Bond Measure	A bond measure to fix city streets was approved by Eugene voters in November 2008, funding a total of $35.9 million over five years dedicated to 32 specific street projects and at least $350,000 per year allocated to rehabilitation of shared use paths.	Projects designated for repair through the bond measure	City of Eugene
Surface Transportation Program – Urban (STP-U)	Federal funding available to metropolitan areas of at least 200,000 people for transportation projects and planning that can include bicycle and pedestrian components.	A broad range of transportation plans and projects that are consistent with the Regional Transportation Plan. Under existing City policy, the City applies for STP-U funding for infrastructure preservation that can include both streets and off-street paths. The City has also applied for preservation funds with some of the money set aside of pedestrian and bicycle improvements that will be made in concert with the preservation project.	Central Lane Metropolitan Planning Organization
Transportation System Development Charges	Transportation SDCs in Eugene are charges to developers based on trip generation rates and traffic impacts from a proposed project. They can be used to pay for both on- and off-street facilities.	Onsite or offsite transportation infrastructure related to impacts on the transportation system from new development.	City of Eugene
Urban Renewal Areas (Tax Increment Financing)	Eugene has two existing URAs; of these, the Riverfront Plan Area's priorities are well aligned with this Plan, including Eugene Water and Electric Board (EWEB) site redevelopment as well as connecting downtown, the University of Oregon and the Riverfront.	Projects within the Riverfront Plan Area URA that are expected to increase property values	City of Eugene

Development Code

Changes to the City's existing development code will help the City implement the policies and projects in this Plan. This Plan recommends amendments for the City's consideration; however, it is important to note that adoption of the Plan does not obligate adoption of the recommended amendments to the development code. Complete text of recommended code amendments in a format appropriate for adoption can be found in Project Memorandum 10 – Development Code (in Volume II).

Recommended changes will:

- Streamline and improve bicycle parking requirements, including simplifying bicycle parking use categories, increasing bicycle parking for multi-family housing, and creating bicycle parking requirements for transit stations. Minimum short- and long-term bicycle parking requirements were created for simplified use categories.
- Allow bicycle parking and pedestrian amenities to be placed within required building setbacks in order to allow developers more flexibility to install bicycle and pedestrian facilities if desired.
- Ensure that preserving pedestrian and bicycle connections are considered when public right-of-way is eliminated through the vacation of existing streets or easements.
- Require additional bicycle parking installation if a developer claims an adjustment that reduces the number of required vehicle parking spaces because they can demonstrate that alternatives to driving will result in lower vehicle demand for their site.
- Require that school districts receive notification as part of the subdivision review process to ensure that Safe Routes to School staff have the ability to review and comment on impacts to bicycle and pedestrian access to schools before plans are approved.

Bicycle parking facilities make arriving by bike a more feasible option.

Photo credit: Wind Home Photography

Appendix A: System Tables

Introduction

Appendix A contains detailed information about recommended projects as shown on Maps 1 – 10 in the Master Plan (Volume I), including facility name, project extent, length of project, and cost estimate for each project. Each project has a unique identification number that corresponds to its segment ID in the GIS databases.

Project Priorities

Projects included in this Plan have been assigned one of two rankings: 20-year projects, which are projects the City intends to implement within the 20-year horizon of this plan, and future projects, which will be implemented beyond the 20-year planning horizon of this Plan. These tiers were based on the City's assessment of how much funding can realistically be obtained annually over twenty years.

Cost Estimate Development

The cost estimates provided in this Appendix A represent planning-level construction and maintenance cost estimates. They are intended to provide the City with an "order of magnitude" estimate for the project cost so that projects can be prioritized and so that next steps can be taken (including soliciting funding, preliminary and final design, etc.).

Cost estimates shown are fully burdened costs that include design/engineering, administration, construction, and contingency costs.

For more information about how these cost estimates were developed and what factors may affect final construction costs, see Project Memorandum 6 – Pedestrian and Bicycle System in Volume II of this plan.

Please note the following about project cost estimates:

- Right-of-way acquisition is not included in cost estimates.
- High cost alternatives were used to generate these estimates. For example, Volume II of this Plan identifies five levels of intensity for bicycle boulevards from less expensive Level 1 to more expensive Level 5. Estimates use the high-end to establish an expectation of future costs. Many projects will be implemented as part of a street project which may lower costs or the project scope may include fewer components than the estimates indicate.
- Where a roadway is one-way for only part of a recommended project, the entire project has been estimated assuming two-way facilities.
- Costs have been rounded to the nearest thousand dollars.
- Costs are provided in 2010 dollars.
- Adjustments were made on a project-by-project basis where known conditions exist that will increase costs such as extreme topography or bridge expansion.
- For projects that currently have a rural two-lane profile, and for which an upgrade to full urban standards can reasonably be expected to be part of the TSP update that is currently underway, no cost estimate has been provided because a stand-alone bicycle/pedestrian cost estimate does not accurately reflect how the project will be implemented. Likewise, for new extensions of roadways, like the Roosevelt Extension, no cost estimates for bike lanes were developed. These projects are identified as "See TSP" in the cost column of each table where these projects exist.

Sidewalk Improvements

A total of 38.9 miles of sidewalk projects have been recommended. Fully burdened project construction costs are listed below by project. Project costs were estimated as an "infill" installation where curb and gutter already exist.

Sidewalk infill projects are by nature piecemeal, and segments along the same street have been combined in Table 1 for clarity to represent the total length of sidewalk infill along that facility by side of the street.

Table A-1: Sidewalk Improvements

Project ID	Name/Location	Extent	Side of Street	Length (miles)	Cost	Priority Tier
533	15th Avenue	Eastern terminus to Buck Street	North side	0.09	$37,000	20-Year
516	16th Avenue	Riverview Street to Augusta Street	North side	0.05	$19,000	20-Year
519	16th Avenue	Riverview Street to Augusta Street	South side	0.05	$19,000	20-Year
532	Acorn Park Street	Acorn Park to Buck Street	West side	0.13	$77,000	20-Year
531	Acorn Park Street	Fern Ridge Trail to Acorn Park	West side	0.22	$88,000	20-Year
346	Agate Street/Kimberly Drive	E 31st Avenue to Dogwood Drive	North side	0.21	$128,000	20-Year
342	Amazon Parkway	E 20th Avenue to E 26th Avenue	West side	0.47	$189,000	Future
344	Amazon Parkway	E 27th Avenue to sidewalk north of E 29th Avenue	South side	0.21	$85,000	Future
515	Augusta Street	Gap south of 16th Avenue	East side	0.05	$22,000	20-Year
435	Avalon Street	Echo Hollow Road to eastern terminus	South side	0.23	$95,000	Future
324	Bailey Hill Road	Bertelsen Road to east of S Louis Lane	South side	0.63	See TSP	20-Year
326	Bailey Hill Road	W 5th Avenue to W 7th Avenue	East side	0.13	$54,000	Future
325	Bailey Hill Road	W 5th Avenue to W 7th Avenue	West side	0.15	$59,000	Future
295	Bertelsen Road	Roosevelt Boulevard to W 1st Avenue	East side	0.31	$127,000	Future
286	Bertelsen Road	W 18th Avenue to city limits	East side	1.26	See TSP	20-Year
285	Bertelsen Road	W 18th Avenue to city limits	West side	1.27	See TSP	20-Year
292	Bertelsen Road	W 1st Avenue to Henry Court	West side	1.11	$560,000	20-Year
293	Bertelsen Road	W 1st Avenue to W 13th Avenue	East side	0.84	$424,000	20-Year
315	Bethel Drive	Highway 99 to Roosevelt Boulevard	North side	1.01	$408,000	Future
314	Bethel Drive	Highway 99 to Roosevelt Boulevard	South side	1.60	$648,000	20-Year
322	Chambers Street	North of Em Ray Drive	East side	0.02	$8,000	Future
319	Chambers Street	Over railroad	West side	0.02	$8,000	Future
364	City View Street	W 27th Avenue to W 28th Avenue	West side	0.05	$27,000	20-Year
316	Coburg Road	North of Game Farm Road to start of Coburg Loop	East side	0.04	$17,000	20-Year
283	County Farm Road	Northern terminus to Coburg Road	East side	0.64	$258,000	Future
282	County Farm Road	Northern terminus to Coburg Road	West side	0.73	$296,000	Future
284	Crescent Avenue	Coburg Road to midblock gap	North side	0.27	$110,000	20-Year
289	Dillard Road	Amazon Drive to Hidden Meadows Drive	North side	1.43	$865,000	20-Year
354	Donald Street	E 35th Avenue to E 39th Avenue	West side	0.32	$191,000	20-Year
352	Donald Street	Gap at E 34th Avenue	West side	0.05	$30,000	20-Year
353	Donald Street	Gap south of E 34th Place	West side	0.03	$18,000	20-Year
347	E Amazon Drive	Snell Street gap	East side	0.08	$33,000	20-Year
429	E Tandy Turn/Firwood Way	East side of Tandy Turn, north side of Firwood	East side/ north side	0.13	$54,000	20-Year
290	Fir Lane	Existing to Maurie Jacobs Park	South side	0.04	$18,000	20-Year
288	Fox Hollow Road	Donald Street to Cline Road	South side	0.47	$287,000	Future
442	Friendly Street	Gap north of W 17th Avenue	West side	0.02	$9,000	20-Year
441	Friendly Street	W 17th Avenue to W 18th Avenue	West side	0.05	$19,000	20-Year
280	Gilham Road	Mirror Pond Way to Ayers Road	West side	0.53	$214,000	Future
281	Gilham Road	Mirror Pond Way to Honeywood Street	East side	0.58	$234,000	Future
340	Goodpasture Island Road	Happy Lane to Stonecrest Drive	North side	0.18	$74,000	20-Year
305	Goodpasture Island Road	West side of overpass to Happy Lane	North side	0.31	$870,000	20-Year

Project ID	Name/Location	Extent	Side of Street	Length (miles)	Cost	Priority Tier
304	Goodpasture Island Road	West side of overpass to Happy Lane	South side	0.29	$822,000	20-Year
406	Green Hill Road	Barger Drive to Firestone Drive	East side	0.30	See TSP	Future
521	Green Hill Road	Firestone Drive to Royal Avenue	East side	0.67	See TSP	20-Year
366	Hawkins Lane	Gap north of Park Forest Drive	East side	0.05	$32,000	Future
365	Hawkins Lane	Park Forest Drive to W 25th Avenue	East side	0.02	$14,000	Future
367	Hawkins Lane	S Lambert Street to W 18th Avenue	West side	0.36	$217,000	Future
313	Highway 99 Y	Roosevelt Boulevard to Garfield Street	North/East side	0.99	$804,000	20-Year
312	Highway 99 Y	Roosevelt Boulevard to Garfield Street	South/West side	1.04	$842,000	20-Year
432	Hilliard Lane	Lund Drive to River Road	South side	0.25	$100,000	20-Year
351	Hilyard Street	E 36th Place to Dillard Road	East side	0.17	$101,000	Future
428	Holly Avenue	Tabor Street to Gilham Road	South side	0.35	$141,000	Future
279	Howard Avenue	N Park Avenue to River Road	North side	0.85	$344,000	Future
278	Howard Avenue	N Park Avenue to River Road	South side	0.89	$359,000	Future
272	Hunsaker Lane	River Road to Beltline Road	South side	1.05	See TSP	20-Year
427	Hyacinth Street	Irvington Drive to Irving Road	West side	0.81	$326,000	20-Year
273	Irving Road	Across NW Expressway	North side	0.23	$92,000	20-Year
274	Irving Road	Across NW Expressway	South side	0.21	$86,000	20-Year
360	Jefferson Street	North of train tracks to 1st Avenue	East side	0.11	$44,000	20-Year
358	Jefferson Street	North of W 25th Avenue	East side	0.07	$60,000	20-Year
357	Jefferson Street	North of W 25th Place	West side	0.02	$16,000	20-Year
355	Jefferson Street	North of W 28th Avenue	West side	0.03	$23,000	20-Year
359	Jefferson Street	South of W 24th Avenue	West side	0.03	$21,000	20-Year
356	Jefferson Street	W 25th Place to W 26th Place	East side	0.05	$37,000	20-Year
433	Lake Drive	Howard Avenue to Horn Lane	West side	0.41	$132,000	20-Year
323	Lorane Highway	Chambers Street to Crest Drive	North side	0.14	$84,000	Future
275	Maxwell Road	Gap from NW Expressway bridge to Prairie Road	South side	0.16	$95,000	20-Year
276	Maxwell Road	Labona Drive to Prairie Road	North side	0.50	$1,205,000	20-Year
294	N Bertelsen Road	Cross Street to Roosevelt Boulevard	West side	0.14	$58,000	Future
438	N Danebo Avenue	Barger Drive to Souza Street	West side	0.16	$63,000	Future
436	N Danebo Avenue	Gap north of Souza Street	East side	0.11	$45,000	Future
437	N Danebo Avenue	Gap south of Barger Drive	East side	0.08	$34,000	Future
298	N Danebo Avenue	Gap south of Roosevelt Boulevard	East side	0.16	$95,000	20-Year
297	N Danebo Avenue	Gap south of Roosevelt Boulevard	West side	0.02	$8,000	20-Year
300	N Danebo Avenue	Pacific Ave to Fern Ridge Path	West side	0.42	$170,000	Future
299	N Danebo Avenue	Train tracks to Fern Ridge Path	East side	0.69	$279,000	Future
296	N Danebo Avenue	Unthank Avenue to end of gap	West side	0.06	$26,000	20-Year
541	N Garden Way	Various locations south of Harlow	West side	0.15	$60,000	20-Year
336	N Terry Street	Trevon Street to Trevon Street	East side	0.20	$80,000	Future
341	Norkenzie Road	Linda Avenue to Donovan Drive	West side	0.04	$14,000	Future
434	Park Avenue	Howard Avenue to Northwest Expressway	East side	0.49	$199,000	20-Year
362	Polk Street	South of W 2nd Avenue	East side	0.03	$13,000	20-Year
337	Prairie Road	Irving Road to Highway 99	East side	0.92	$370,000	Future
338	Prairie Road	Kaiser Avenue to Federal Lane	East side	0.30	$120,000	20-Year
277	Prairie Road	Maxwell Road to Highway 99	West side	0.04	$14,000	Future
535	Queens Way	Cal Young Road to Buena Vista Elem.	East side	0.06	$23,000	20-Year
320	River Road	Chambers Connector	West side	0.04	$16,000	Future
518	Riverview Street	Gap north of 16th Avenue	West side	0.01	$7,000	20-Year
330	Roosevelt Boulevard	Gap west of Maple Street	South side	0.05	$22,000	Future
328	Roosevelt Boulevard	N Danebo Avenue to N Bertelsen Road	South side	0.72	$290,000	Future
334	Seneca Road	Gap south of 5th Avenue	East side	0.31	$126,000	20-Year

Project ID	Name/Location	Extent	Side of Street	Length (miles)	Cost	Priority Tier
335	Seneca Road	North of W 7th Place	West side	0.06	$23,000	20-Year
331	Seneca Road	Roosevelt Boulevard to railroad	East side	0.19	$78,000	Future
332	Seneca Road	W 1st Avenue to gap south of W 5th Avenue	West side	0.36	$256,000	20-Year
333	Seneca Road	W 1st Avenue to railroad	East side	0.07	$29,000	20-Year
267	Spring Creek Drive	River Road to Scenic Drive	South side	0.39	$157,000	20-Year
339	Valley River Drive	Valley River Way to Goodpasture Island Road	South side	0.23	$743,000	Future
431	Valley River Path connector	East Bank Trail to Valley River Drive	N/A	0.05	$31,000	20-Year
430	Valley River Way	Valley River Drive to North Bank Path	East side	0.12	$70,000	20-Year
309	W 11th Avenue	Gap between Commerce Street and Bertelsen Road	South side	0.15	$60,000	20-Year
327	W 11th Avenue	Gap west of Bailey Hill Road	North side	0.03	$13,000	20-Year
310	W 11th Avenue	Green Hill Road to Terry Street	North side	1.01	$407,000	20-Year
311	W 11th Avenue	Green Hill Road to Terry Street	South side	1.03	$417,000	20-Year
308	W 11th Avenue	Near Bertelsen Road	North side	0.18	$74,000	20-Year
307	W 11th Avenue	West of Obie Street	North side	0.24	$99,000	20-Year
306	W 11th Avenue	West of Obie Street	South side	0.03	$13,000	20-Year
440	W 15th Avenue	Chambers Alley to Chambers Street	North side	0.03	$12,000	20-Year
287	W 18th Avenue	Bertelsen Road to Wester Drive	South side	1.00	$403,000	Future
271	W 24th Avenue	Friendly Street to Madison Street	North side	0.13	$77,000	20-Year
270	W 24th Avenue	Monroe Alley to Monroe Street	South side	0.03	$19,000	20-Year
363	W 24th Avenue	West of Jefferson Street	South side	0.04	$22,000	20-Year
268	W 24th Street	Gap at Adams Street	South side	0.07	$42,000	20-Year
301	W 29th Avenue	Washington Street to Lincoln Street	North side	0.06	$29,000	20-Year
302	W 29th Avenue	Washington Street to Lincoln Street	South side	0.08	$38,000	20-Year
269	W 2nd Avenue	Gap west of Chambers Street	South side	0.05	$19,000	Future
349	W Amazon Drive	Snell Street to Larch Street	West side	0.09	$35,000	20-Year
348	W Amazon Drive	Snell Street to Martin Street	West side	0.33	$135,000	20-Year
530	Warren Street	Timberline Drive to Summit Terrace Drive	East side	0.31	$247,000	20-Year
439	Westleigh Street	Gap between Bailey Hill Road and accessway	South side	0.03	$13,000	20-Year
350	Willamette Street	W 39th Avenue to UGB	West side	1.22	$737,000	20-Year
			Grand Total	**38.86**	**$19,106,000**	
			20-Year Total	**25.15**	**$12,794,000**	

Accessway Improvements

A total of 1.6 miles of accessway projects have been recommended. Cost estimates include clearing and grading a 12' corridor, concrete paving (8'), and ADA curb ramps (2 every 400') plus 25% contingency. Fully burdened project construction costs are listed below by project.

Table A-2: Accessway Improvements

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
536	28th Avenue Connector	Lincoln Street across Willard School	0.13	$103,000	Future
263	Avalon Street	N Terry Street to eastern terminus	0.23	$187,000	20-Year
261	Awbrey Park Elementary School	Lynbrook Drive to Spring Creek Drive	0.21	$166,000	20-Year
522	Bristol Street Connector	Sylvan Street to Augusta Street	0.15	$119,000	20-Year
265	Central Boulevard Connector	Between Laurelwood Golf Course and E 29th Avenue	0.05	$40,000	20-Year
387	Deertrail Path Connector	Dellwood Drive to Lawrence Street	0.06	$49,000	Future
472	E 25th Avenue Connector	Gap east of University Street	0.01	$9,000	20-Year
254	Ellen Avenue Connector	Greinier Street to Lambert Street	0.03	$25,000	20-Year
477	Hendricks Park Connector	Elk Avenue to Hendricks Park	0.03	$27,000	Future
259	Holly Avenue Connector	Delta Oaks Drive to Holly Avenue	0.02	$17,000	Future
478	Hyacinth Street	Northern terminus to Argon Avenue	0.08	$65,000	Future
256	Lincoln Street	W 30th Avenue to W 31st Avenue	0.08	$62,000	20-Year
373	Polk/Grand Connector	Polk Street to Grand Street	0.11	$86,000	Future
537	Ruth Bascom Connector	Coburg Road to High Street (along RR)	0.07	$58,000	Future
260	Sheldon Park Connector	Gilham Road to Benson Lane	0.17	$133,000	20-Year
258	Spyglass Connector	Spyglass Drive to Greenview Street	0.06	$49,000	Future
255	W 27th Avenue	Madison Street to Jefferson Street	0.07	$53,000	20-Year
		Grand Total	**1.56**	**$1,248,000**	
		20-Year Total	**1.19**	**$955,000**	

Shared-Use Path Improvements

A total of 13.8 miles of shared-use projects have been recommended. Cost assumptions include site demolition, clearing (25' width), excavating (16' width), erosion controls, base course (13' width), concrete (12' width), and shoulder treatments including lighting plus 40% contingency. Fully burdened project construction costs are listed below by project.

Table A-3: Shared-Use Path Improvements

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
228	12th Avenue connector	Olive Street to Oak Street	0.15	$339,000	20-Year
403	15th Avenue Connector	15th Avenue to Franklin Boulevard	0.04	$98,000	20-Year
500	30th Avenue to Amazon Path Connector	Gap south of Amazon Parkway	0.02	$36,000	20-Year
249	Amazon Drive footbridge	Replacing existing footbridge	0.01	$28,000	20-Year
529	Amazon Path Connector	Amazon Path to 28th Street	0.09	$200,000	20-Year
221	Arbor Drive	Western terminus to West Bank Path	0.05	$118,000	20-Year
196	Avalon Street	Candlelight Drive to N Danebo Avenue	0.11	$240,000	20-Year
225	Avalon Street connector	Legacy Street to Amazon Channel	0.15	$346,000	20-Year
243	Beltline Path	Roosevelt Boulevard south to 11th Ave	1.11	$1,684,000	20-Year
462	Chad Drive to I-5 connector	Chad Drive western terminus to I-5 Path	0.47	$894,000	20-Year
368	Deertrail Path	Sundial Street to Monroe Street	0.34	$651,000	Future
481	Division Avenue	Edgewood Drive to Beaver Street	0.54	$1,015,000	20-Year
17	E 30th Avenue	Agate Street to LCC	1.63	$2,465,000	Future

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
21	E 30th Avenue	Hilyard Street to Agate Street	0.72	$1,354,000	20-Year
232	Fern Ridge Path #2	Amazon Channel from Green Hill Road to Royal Avenue	0.27	$502,000	20-Year
199	Fern Ridge Path #3	West of Green Hill Road along Amazon Channel	0.95	$1,789,000	20-Year
246	Fern Ridge Path channel crossing 1	Crossing Amazon Channel south of Royal Avenue	0.01	$34,000	20-Year
247	Fern Ridge Path channel crossing 2	Crossing south of 11th Avenue and east of Greenhill Road	0.02	$56,000	20-Year
248	Fern Ridge Path channel crossing 3	Crossing Amazon Channel north of UPRR tracks	0.03	$70,000	20-Year
229	Fern Ridge Path Connector	Arthur Street to Fern Ridge Path	0.11	$239,000	20-Year
217	Fern Ridge Path Connector #2	Grant Street to Fern Ridge Path connector	0.02	$50,000	20-Year
216	Fern Ridge Path Connector #3	Buck Street northern terminus to Fern Ridge Path	0.04	$92,000	20-Year
230	Fern Ridge Path connector #4	Murin Street to Fern Ridge Path	0.05	$106,000	20-Year
250	Fern Ridge Path Connector #5	Fern Ridge Path to 11th Avenue	0.07	$148,000	20-Year
233	Fern Ridge Path extension to Avalon/ Green Hill Road	Green Hill Road to Royal Avenue	0.70	$1,319,000	20-Year
245	Fern Ridge Path to Commerce Street Connector	Northern corner of Commerce Street to Fern Ridge Path	0.10	$1,000,000*	20-Year
448	Fern Ridge Path to Jefferson Alley Path	Fern Ridge Path to Jefferson Alley	0.05	$121,000	20-Year
508	Franklin Boulevard	Alder Street to Onyx Street	0.40	$756,000	20-Year
376	Franklin Boulevard Path	Riverview Street to South Bank Path	0.35	$663,000	20-Year
218	Hansen Lane Connector	River Road to West Bank Path	0.11	$258,000	20-Year
224	Jessen Path	Beltline Path to Green Hill Road	1.85	$2,795,000	20-Year
223	Maynard Avenue Connector	Maynard Avenue eastern terminus to West Bank Path	0.14	$308,000	20-Year
220	McClure Lane Connector	McClure lane eastern terminus to West Bank Path	0.08	$173,000	20-Year
222	Merry Lane	Terminus to West Bank Path	0.18	$408,000	20-Year
197	Monroe/Friendly fairgrounds connector	13th Avenue to 16th Avenue	0.25	$560,000	20-Year
242	Moon Mountain Drive	E 30th Avenue to existing Moon Mountain southern terminus	0.77	$1,455,000	Future
227	North Bank Path Connector	Valley River Way to North Bank Path	0.01	$32,000	20-Year
454	Oakmont Way to I-105 Crossing connector	Oakmont Way to I-105 Crossing	0.12	$278,000	Future
501	Rasor Park Connector	River Road to West Bank Path	0.12	$270,000	20-Year
377	South Bank Path	Garden Avenue to railroad underpass	0.26	$500,000	20-Year
211	Spring Connector	Central Boulevard to E 30th Avenue	0.22	$495,000	20-Year
219	Stephens Avenue Connector	River Road to Stephens Drive	0.08	$180,000	20-Year
513	Stults Gap Connector	Stults Gap	0.13	$304,000	20-Year
475	W Amazon Drive	Ridgeline Trail to north of Martin Street	0.36	$677,000	20-Year
213	West Bank Path	Owosso Bike Bridge to Formac Avenue	0.37	$707,000	20-Year
231	Wilson Street to Fern Ridge Path	Wilson Street to Fern Ridge Path	0.13	$284,000	20-Year
		Grand Total	**13.78**	**$25,097,000**	
		20-Year Total	**10.91**	**$20,248,000**	

**Cost based on previous scoping work.*

Grade-Separated Crossing Improvements

A total of seven grade-separated projects have been recommended, with an approximate total length of 0.9 miles. For the purposes of cost estimation, grade-separated crossings were assumed to be for pedestrian/bicycle use only, and 14' in width. Cost estimates were based on similar local projects and industry standard rates, and were then compared against several Eugene-area projects. Annual maintenance cost estimates have not been provided because the specific designs vary.

Table A-4: Grade-Separated Crossings

Project ID	Name/Location	Length (miles)	Cost	Priority Tier
14	Avalon Street over Randy Pape Beltline	0.09	$3,756,000	Future
463	Beltline crossing at I-5	0.24	See TSP	20-Year
13	Bethel Drive to N Park Avenue over train tracks	0.23	$8,826,000	Future
15	I-105 crossing at Sorrel Way City Park	0.13	$4,996,000	Future
12	Park Avenue overpass over Randy Pape Beltline	0.09	$4,110,000	20-Year
8	Rail crossing at Alder Street	0.11	$3,646,000	20-Year
			Grand Total: $25,334,000	
			20-Year Total: $7,756,000	

Bike Lanes

A total of 36.2 miles of bike lane projects have been recommended. Bike lane costs assume installation on both sides of the roadway and no road widening. Removal of striping, re-striping, and installing pavement markings and wayfinding signs are all included in the estimate as is a 25% contingency. Fully burdened project construction costs are listed below by project.

Table A-5: Bike Lanes

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
506	13th Avenue	Chambers Street to Jefferson Street	0.81	$104,000	20-Year
28	Bailey Hill Road	S Bertelsen Road to UGB	0.88	See TSP	20-Year
70	Bailey Hill Road	W 5th Avenue to W 7th Avenue	0.15	$23,000	20-Year
71	Bailey Hill Road	W 7th Avenue to W 11th Avenue	0.27	$35,000	20-Year
42	Beaver Street	Lone Oak Avenue to West Bank Path	0.23	See TSP	20-Year
45	Bertelsen Road	W 18th Avenue to Bailey Hill Road	0.57	See TSP	20-Year
61	Bethel Drive	Highway 99 to Roosevelt Boulevard	1.66	See TSP	20-Year
48	Broadway	High Street to Alder Street	0.40	$51,000	Future
30	Chambers Street	Graham Drive to Crest Drive	0.64	$83,000	20-Year
445	City View Street	W 11th Avenue W 18th Avenue	0.50	$65,000	20-Year
27	Coburg Road	North of N Game Farm Road to UGB	0.19	See TSP	20-Year
62	Coburg Road	UGB to start of Coburg Loop	0.58	$74,000	20-Year
66	Dillard Road*	Amazon Drive to Skyhawk Way	2.21	$114,000	20-Year
32	E 20th Avenue	Willamette Street to Amazon Parkway	0.14	$21,000	20-Year
38	Fox Hollow	Donald Street to Cline Road	0.49	$63,000	20-Year
538	Garfield Street	Roosevelt Boulevard to W 6th Avenue	0.54	$70,000	20-Year
41	Garfield Street	W 6th Avenue to W 14th Avenue	0.68	$88,000	Future
482	Gilham Road	Ayres Road to terminus	0.61	See TSP	Future
56	Goodpasture Island Road	West side of overpass to Happy Lane	0.34	$44,000	20-Year
58	Green Hill Road	Airport Road to Crow Road	4.48	See TSP	20-Year
63	Highway 99	Roosevelt Boulevard to Garfield Streeet	1.60	$165,000	20-Year
447	Highway 99N	Prairie Road to Barger Drive	0.33	$42,000	20-Year
459	Hilyard Street	E 34th Avenue to Dillard Road	0.44	$57,000	20-Year

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
539	Howard Avenue	N Park Avenue to River Road	0.96	$124,000	20-Year
43	Hunsaker Lane	River Road to Lone Oak Avenue	0.91	See TSP	20-Year
51	Jefferson Sreet	W 5th Avenue to W 28th Avenue	1.90	$196,000	Future
36	Lincoln Street	W 11th Avenue to W 13th Avenue	0.15	$23,000	20-Year
29	Lorane Highway*	Chambers Street to W 29th Avenue	1.35	$70,000	20-Year
455	Oak Patch Road	W 11th Avenue to W 18th Avenue	0.46	$60,000	20-Year
33	Oak Street	E 20th Avenue to E 18th Avenue	0.15	$12,000	20-Year
544	Oakmont Way	Coburg Road to Vernal Street	0.16	$24,000	20-Year
523	Polk Street	W 6th Avenue to W 20th Avenue	1.07	$110,000	20-Year
59	Prairie Road	Maxwell Road to Highway 99	0.11	$17,000	20-Year
502	Roosevelt Extension	Legacy Street to Roosevelt Boulevard	1.38	See TSP	20-Year
400	Royal Avenue	Green Hill Road to existing bike lane	0.88	See TSP	Future
52	Silver Lane	Grove Street to River Road	0.51	$66,000	20-Year
55	Valley River Way**	Valley River Drive to southern terminus	0.36	$46,000	20-Year
39	W 11th Avenue	Green Hill Road to Terry Street	1.05	See TSP	Future
4	W 24th Avenue***	Chambers Street to Jefferson Street	0.83	$107,000	20-Year
404	W 5th Avenue	Bailey Hill Road to Seneca Road	0.36	$47,000	20-Year
57	W 5th Avenue	Seneca Road to W 7th Avenue	0.63	$81,000	Future
54	W 7th Place	Bailey Hill Road to Garfield Street	1.26	$130,000	20-Year
50	Washington Street	W 5th Avenue to W 13th Avenue	0.61	$79,000	20-Year
44	Wilkes Drive	River Road to River Loop 1	1.00	See TSP	20-Year
31	Willamette Street	17th Avenue to 32nd Avenue	1.33	$137,000	20-Year
		Grand Total	**36.16**	**$2,428,000**	
		20-Year Total	**30.01**	**$2,012,000**	

**The recommended treatment for these segments is a bike lane in one direction (uphill) and a shared lane marking in the other direction (downhill). Costs have been adjusted accordingly.*
***Or consider a shared use path*
****Bike lanes from Chambers to Friendly; climbing lane (eastbound) Friendly to Jefferson*

Buffered Bike Lanes

A total of 9.3 miles of buffered bike lane projects have been recommended. Buffered bike lane costs assume installation on both sides of the roadway and no road widening. Removal of striping, re-striping, and installing pavement markings and wayfinding signs are all included in the estimate as is a 25% contingency. Facility is assumed to be 7' wide including a 2' buffer. Fully burdened project construction costs are listed below by project.

Table A-6: Buffered Bike Lanes

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
527	18th Avenue	Chambers Street to Friendly Street	0.61	$106,000	20-Year
484	Coburg Road	Oakmont Way to Oakway Road	0.30	$52,000	20-Year
26	E Amazon Drive*	Hilyard Street to Snell Street	1.28	$178,000	20-Year
23	Harlow Road	Coburg Road to I-5	1.08	$150,000	20-Year
526	River Road	Northwest Expressway to Beacon Drive	4.80	$668,000	20-Year
46	W Amazon Drive*	Hilyard Street to Snell Street	1.21	$168,000	20-Year
		Grand Total	**9.28**	**$1,322,000**	
		20-Year Total	**9.28**	**$1,322,000**	

**Or cycle track*

Cycle Tracks

A total of 5.2 miles of cycle track projects have been recommended. Due to the wide variation in potential designs, cost estimates include standard concrete curb and gutter (both sides), concrete bikeway (9'), wayfinding signs, custom pavement markings, intersection treatments, and a 60% contingency due to potential variation. Fully burdened project construction costs are listed below by project.

Table A-7: Cycle Tracks

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
18	High Street*	E 5th Avenue to E 19th Avenue	1.06	$1,853,000	20-Year
19	Martin Luther King Jr. Boulevard**	Coburg Road to I-5	1.56	$1,360,000	Future
20	Northwest Expressway	Maxwell Road to River Road	2.57	$3,443,000	Future
		Grand Total	**5.19**	**$6,656,000**	
		20-Year Total	**1.06**	**$1,853,000**	

**Project assumed to be a separated, two-way facility on one side of street*

***Project may be a cycle track or a shared use path. Project cost is for cycle track.*

Shared Lane Markings

A total of 8.4 miles of shared lane marking projects have been recommended. Costs estimates include a shared lane marking (every 250') and wayfinding signs (every 400'). A 25% contingency is also included. Fully burdened project construction costs are listed below by project.

Table A-8: Shared Lane Markings

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
369	10th Avenue	Lincoln Street to High Street	0.46	$19,000	20-Year
507	13th Avenue	Jefferson Street to Lincoln Street	0.20	$10,000	20-Year
5	Crocker Road	Irvington Drive to Irving Road	0.86	$36,000	20-Year
409	Dillard Road*	Amazon Drive to Skyhawk Way	2.21	$37,000	20-Year
509	Franklin Boulevard	Onyx Street to Walnut Street	0.60	$25,000	20-Year
456	Friendly Street	W 28th Avenue to Lorane Highway	0.29	$12,000	20-Year
503	High Street	5th to Cheshire Street	0.28	$12,000	20-Year
3	Lorane Highway*	Chambers Street to W 29th Avenue	1.35	$23,000	20-Year
512	Moon Mountain Road	Accessway to Brackenfern Boulevard	0.10	$5,000	20-Year
35	Polk Street	W 20th Avenue to W 24th Avenue	0.33	$14,000	20-Year
540	Quaker Street	W 18th Avenue to Fern Ridge Path	0.38	$16,000	20-Year
505	Stephens Avenue	Stephens Connector to West Bank Path	0.08	$4,000	20-Year
169	Stewart Road	S Bertelsen Road to Bailey Hill Road	0.72	$30,000	20-Year
486	Willamette Street	7th Avenue to 13th Avenue	0.46	$19,000	20-Year
109	Willamette Street	Amtrak Station to E 6th Avenue	0.12	$6,000	20-Year
		Grand Total	**8.43**	**$268,000**	
		20-Year Total	**8.43**	**$268,000**	

**The recommended treatment for these segments is a bike lane in one direction (uphill) and a shared lane marking in the other direction (downhill). Costs have been adjusted accordingly.*

Bicycle Boulevards

A total of 62.4 miles of bicycle boulevard projects have been recommended. There are five levels of bicycle boulevard treatments. Table A-9 includes the following costs for an "average" installation: wayfinding signs (every 400'), pavement markings (every 250'), turning stop signs (4 intersections per mile), median refuge islands (1 per mile), speed humps (every 800'), diverters (1 every two miles) plus a 25% contingency. Fully burdened project construction costs are listed below by project.

Table A-9: Bicycle Boulevards

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
107	15th Avenue	Jefferson Street to Kincaid Street	1.16	$111,000	20-year
469	17th Avenue	Jefferson Street to Alder Street	1.05	$100,000	20-year
93	19th Avenue	Tyler Street to High Street	1.14	$109,000	20-year
524	25th Avenue	Alder Street to Unversity Street	0.29	$35,000	20-year
525	25th Avenue	East of University Street to Emerald Street	0.16	$23,000	20-year
498	27th Avenue	Agate Street to Central Boulevard	0.22	$32,000	20-year
98	31st Avenue	Lincoln Street to Hilyard Street	0.79	$94,000	20-year
386	Adkins/Ione/Best	Coburg Road to Willakenzie Road	0.37	$44,000	20-year
499	Agate Street	24th Avenue to 27th Avenue	0.20	$29,000	20-year
460	Alder Street/Kincaid Street	E 18th Avenue to E 39th Avenue	2.03	$193,000	20-year
162	Arbor Drive	River Road to eastern terminus	0.18	$26,000	20-year
449	Ascot Drive	Harlow Road to Ascot Park Path	0.25	$35,000	20-year
82	Ashbury Drive	Gilham Road to Walton Lane	0.11	$16,000	20-year
471	Augusta Street	Franklin Boulevard/I-5 Ramps to 26th Avenue	0.97	$116,000	20-year
166	Avalon Street	Juhl Street to eastern terminus	0.50	$60,000	20-year
164	Avalon Street	Legacy Street to N Terry Street	0.75	$90,000	20-year
75	Avalon Street	N Danebo Avenue to Haven Street	0.21	$30,000	20-year
165	Avalon Street	Throne Drive to Candlelight Drive	0.14	$20,000	20-year
84	Avengale Drive	Walton Lane to Celeste Way	0.15	$21,000	20-year
167	Berntzen Road	Royal Avenue to Elmira Road	0.25	$30,000	20-year
117	Blair Boulevard	W 2nd Avenue to Monroe Street	0.53	$63,000	20-year
131	Bogart/Satre/Van Duyn	Willakenzie Road to Harlow Road	0.85	$101,000	20-year
141	Bond Lane	Fir Acres Drive to Norkenzie Road	0.38	$46,000	20-year
542	Brittany Street	W 18th Avenue to W 25th Avenue	0.64	$76,000	20-year
91	Broadview Street	Ellen Avenue to Hawkins Lane	0.15	$22,000	20-year
111	Broadway	Charnelton Street to High Street	0.38	$45,000	20-year
110	Broadway	McKinley Street to Charnelton Street	1.70	$162,000	20-year
72	Candlelight Drive	Avalon Street to Royal Avenue	0.51	$60,000	20-year
474	Central Boulevard/E 29th Avenue	27th Avenue to southern terminus	0.40	$48,000	20-year
138	Chad Drive	Erin Way to Coburg Road	0.14	$20,000	20-year
119	Clark Street	Grand Street to Van Buren Street	0.04	$6,000	20-year
123	Clinton Drive	Willagillespie Road to Debrick Road	0.20	$29,000	20-year
146	Copping Street	Owosso Drive to E Howard Avenue	0.28	$34,000	20-year
88	Coventry Way	Brittany Street to Ellen Avenue	0.11	$16,000	20-year
80	Dale Avenue	Downing Street to County Farm Road	0.20	$28,000	20-year
81	Dale Avenue	Riverbend Avenue to Downing Street	0.18	$25,000	20-year
122	Debrick Road	Cal Young Road to Clinton Drive	0.31	$36,000	20-year
134	Delta Oaks Road	Green Acres Road to Holly Avenue	0.08	$12,000	20-year
100	Donald Street	E 32nd Avenue to E 39th Avenue	0.64	$76,000	20-year
101	Donald Street	E 39th Avenue to Fox Hollow Road	1.39	$133,000	20-year
152	Donegal Street/York Street	Irving Road to Ruby Avenue	0.39	$46,000	20-year
108	E 12th Avenue	Oak Street to Hilyard Street	0.45	$54,000	20-year

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
381	E 13th Avenue	Agate Street to Franklin Boulevard	0.18	$26,000	20-year
104	E 15th Avenue	University Street to eastern terminus	0.82	$97,000	20-year
470	E 19th Avenue	Agate Street to Fairmount Boulevard	0.38	$45,000	20-year
172	E 29th Place	University Street to Emerald Street	0.15	$22,000	20-year
458	E 29th Place/Pearl Street/E 28th Avenue/ High Street/E 27th Avenue	Amazon Parkway to Willamette Street	0.47	$56,000	20-year
99	E 33rd Avenue	Willamette Street to Hilyard Street	0.53	$63,000	20-year
494	E 43rd Avenue	Donald Street to Fox Hollow Road	0.49	$59,000	20-year
128	E Tandy Turn	Coburg Road to Firwood Way	0.26	$31,000	20-year
89	Ellen Avenue	Todd Street to Greiner Street	0.14	$20,000	20-year
473	Emerald Street	E 18th Avenue to Laurelwood Golf Course	1.03	$98,000	20-year
137	Erin Way	Snelling Drive to Chad Drive	0.06	$8,000	20-year
451	Fair Oaks Drive	Bedford Way to Eastwood Lane	0.37	$45,000	20-year
125	Fairoaks Drive	Greenview Street to Bedford Way	0.07	$9,000	20-year
407	Ferry Street	E 30th Avenue to E 33rd Avenue	0.22	$32,000	20-year
491	Fillmore Street	W 26th Avenue to w 28th Avenue	0.29	$34,000	20-year
493	Fillmore Street/W 22nd Avenue	W 19th Avenue to Chambers Street	0.28	$34,000	20-year
142	Fir Acres Drive	Western terminus to Bond Lane	0.32	$38,000	20-year
129	Firwood Way	E Tandy Turn to Ascot Drive	0.07	$10,000	20-year
158	Fremont Avenue	N Park Ave to Grove Street	0.30	$35,000	20-year
94	Friendly Street	Fairgrounds to W 28th Avenue	0.98	$117,000	20-year
74	Golden Garden Street	Jessen Drive to Barger Drive	0.50	$59,000	20-year
151	Greenfield Drive/Ferndale Drive	Crocker Road to River Road	0.57	$68,000	20-year
124	Greenview Street	Northern terminus to Fairoaks Drive	0.15	$22,000	20-year
53	Grove Street	Silver Lane to Howard Avenue	0.53	$63,000	20-year
144	Happy Lane	Goodpasture Island Road to accessway	0.09	$13,000	20-year
143	Happy Lane	Russet Drive to Fir Acres Drive	0.07	$9,000	20-year
163	Hilliard Lane	N Park Avenue to eastern terminus	1.06	$101,000	20-year
135	Holly Avenue	Delta Oaks Drive to Gilham Road	0.53	$63,000	20-year
86	Honeywood connector	Honeywood Street to Riverbend Avenue	0.11	$16,000	20-year
85	Honeywood Street	Gilham Road to cul de sac accessway	0.23	$32,000	20-year
161	Horn Lane	Maclay Drive to River Road	0.93	$110,000	20-year
479	Hyacinth Street	Argon Avenue to Irvington Drive	0.14	$20,000	20-year
480	Hyacinth Street	Lynnbrook Drive to southern terminus	0.11	$16,000	20-year
150	Hyacinth Street/Calla Street	Irvington Drive to Irving Road	0.91	$108,000	20-year
139	Jeppesen Acres Road	Gilham Road to Coburg Road	0.69	$82,000	20-year
156	Kourt Drive	Grove Street to River Road	0.58	$69,000	20-year
159	Lake Drive	Howard Avenue to Horn Lane	0.43	$51,000	20-year
132	Lakeview Drive	Gilham Road to Park View Drive	0.34	$41,000	20-year
126	Lariat Drive	Oakway Road to eastern terminus	0.24	$34,000	20-year
114	Lawrence Street	Cheshire Avenue to W 19th Avenue	1.51	$144,000	20-year
467	Lincoln Street	W 27th Avenue to W 29th Avenue	0.19	$28,000	20-year
96	Lincoln Street	W 29th Avenue to W 30th Avenue	0.14	$20,000	20-year
97	Lincoln Street	W 31st Avenue to Crest Drive	0.12	$17,000	20-year
148	Lynnbrook Drive	Lancaster Drive to River Road	0.93	$111,000	20-year
504	Madison Street/Clark Street	Monroe Street to South Bank Path	0.36	$42,000	20-year
488	Mill Street/E 10th Avenue	High Street to E 19th Avenue	0.76	$90,000	20-year
140	Minda Drive	Norkenzie Road to Gilham Road	0.35	$42,000	20-year
95	Monroe Street	Clark Street to W 13th Avenue	0.99	$118,000	20-year
73	N Danebo Avenue	Barger Drive to Avalon Street	0.50	$60,000	20-year
118	N Grand Street	South Bank Path to Clark Street	0.28	$34,000	20-year

Project ID	Name/Location	Extent	Length (miles)	Cost	Priority Tier
157	N Park Avenue	Maxwell Road to Horn Lane	1.30	$124,000	20-year
155	N Park Avenue	Skipper Road to Maxwell Road	0.49	$58,000	20-year
452	Oakmont Way/Sorrel Way/Roan Drive/ Dapple Way	Coburg Road to eastern terminus	0.97	$115,000	20-year
389	Olive Street	W 35th Avenue to W 34th Avenue	0.10	$15,000	20-year
510	Orchard Street	15th Avenue to 19th Avenue	0.30	$36,000	20-year
145	Owosso Drive	River Road to Copping Street	0.38	$45,000	20-year
130	Palomino Drive	Harlow Road to Sorrel Way	0.37	$44,000	20-year
461	Park Avenue	Northwest Expressway to River Road	0.78	$93,000	20-year
133	Park View Drive	Lakeview Drive to County Farm Road	0.35	$42,000	20-year
397	Portland Alley	W 24th Avenue to W 27th Avenue	0.31	$37,000	20-year
106	Potter Street	E 25th Avenue to E 28th Avenue	0.36	$42,000	20-year
374	Robin Hood Avenue/Rio Glen Drive	Western terminus to Debrick Road	0.43	$52,000	20-year
153	Ruby Avenue	Canterbury Street to River Road	0.89	$106,000	20-year
147	Scenic Drive	E Beacon Drive to Wilkes Drive	1.13	$108,000	20-year
485	Scout Access Road	Martin Luther King Jr Boulevard to northern terminus	0.10	$14,000	Future
483	Silver Lane	Park Avenue to Grove Street	0.28	$33,000	20-year
136	Snelling Drive	Benson Lane to Erin Way	0.37	$44,000	20-year
79	Spring Creek Drive	River Road to Scenic Drive	0.53	$63,000	20-year
77	Spyglass Drive	Cal Young Road to southern terminus	0.69	$82,000	20-year
468	Summit Avenue/Sylvan Street	E 19th Avenue to east of Bristol Street	0.63	$76,000	20-year
453	Sunshine Acres Drive/Westward Ho Avenue/Conestoga Way	Harlow Road to N Garden Way	0.75	$89,000	20-year
399	Tyler Street	W 24th Avenue to W 28th Avenue	0.37	$44,000	20-year
105	University Street	E 13th Avenue to E 25th Avenue	0.90	$108,000	20-year
120	Van Buren Street	Clark Street to W 2nd Avenue	0.15	$22,000	20-year
121	Van Buren Street	W 2nd Avenue to Blair Boulevard	0.13	$18,000	20-year
446	W 12th Avenue	Olive Street to western terminus	1.55	$148,000	20-year
92	W 21st/W 22nd Avenue	Hawkins Lane to Chambers Street	1.00	$119,000	20-year
492	W 22nd Avenue	Polk Street and Friendly Street	0.34	$40,000	20-year
398	W 24th Avenue	Portland Alley to Willamette Street	0.06	$9,000	20-year
543	W 25th Avenue	Brittany Street to Hawkings Lane	0.36	$42,000	20-year
489	W 27th Avenue	Jefferson Street to Washington Street	0.07	$10,000	20-year
490	W 27th Avenue	Lincoln Street to Portland Street	0.24	$35,000	20-year
78	W 27th Avenue	Tyler Street to Madison Street	0.42	$50,000	20-year
394	W 27th Avenue	Washington Street to Lincoln Street	0.14	$20,000	20-year
528	W 28th Avenue	Washington Street to Lincoln Street	0.15	$22,000	20-year
388	W 37th Avenue/W 35th Place	Lawrence Street to accessway	0.31	$37,000	20-year
371	W 5th Avenue	Grant Street to Blair Blvd	0.60	$71,000	20-year
476	W Amazon Drive	Fox Hollow Road to Ridgeline Trail	0.41	$49,000	20-year
60	W Amazon Drive	Snell Street to north of Martin Street	0.38	$45,000	20-year
127	W Tandy Turn	Western terminus to Coburg Road	0.23	$33,000	20-year
168	Waite Street	Elmira Road to Roosevelt Path	0.18	$26,000	20-year
83	Walton Lane	Avengale Drive to Ashbury Drive	0.04	$6,000	20-year
393	Washington Street	W 27th Avenue to Lorane Highway/W 29th Avenue	0.18	$25,000	20-year
392	Washington Street	W 29th Avenue to southern terminus	0.13	$19,000	20-year
87	Westleigh Street	Bailey Hill Road to eastern terminus	0.11	$15,000	20-year
		Grand Total	**62.59**	**$7,245,000**	
		20-Year Total	**62.49**	**$7,231,000**	

Intersection Improvements

A total of 42 intersection improvement projects have been recommended for further study. Each should be evaluated separately to determine the barrier and mitigation strategy appropriate in each instance. Neither cost estimates nor annual maintenance cost estimates have been provided because the specific design of intersection improvements can result in widely varying construction and maintenance costs.

Table A-10: Intersection Improvements

Project ID	Name/Location
178	Agate Street/Millrace Drive at Franklin Boulevard
176	Blair Boulevard at 7th Avenue
177	Blair Boulevard at W 6th Avenue
419	Coburg Road and Oakway Road
187	Coburg Road at Harlow Road
186	Coburg Road at Oakmont Way/Sorrell Way
179	E 11th Avenue and Franklin Boulevard
412	E 17th Avenue and Pearl Street
411	E 24th Avenue and Amazon Parkway
183	E 29th Avenue and Amazon Parkway
410	E 30th Avenue and Alder Street
375	E 30th Avenue at University Street
192	Fern Ridge Path at Acorn Park Street
193	Fern Ridge Path at Bailey Hill Road
175	Fern Ridge Path at Bertelsen Road
174	Fern Ridge Path at Chambers Street
184	Fern Ridge Path at City View Street
173	Fern Ridge Path at Danebo
370	Fern Ridge Path at Oak Patch Road
191	Fern Ridge Path at Polk Street
182	Fox Hollow Road at W and E Amazon Drive
408	Franklin Boulevard at E 13th Avenue/Moss Street
195	Garden Way path crossing
421	Green Acres Road and Norkenzie Road
190	Hilyard Street/E Amazon Drive/W Amazon Drive/E 33rd Avenue/E 34th Avenue
189	I-5 path & Harlow Road
420	N Delta Highway and Green Acres Road
185	Pearl Street at E 19th Avenue
417	River Road and E Hilliard Lane
418	River Road and E Howard Avenue
514	River Road and Fir Lane
416	River Road and Horn Lane
426	River Road and Howard Avenue
415	River Road and River Avenue
424	W 12th Avenue and Chambers Street
423	W 12th Avenue and Garfield Street
425	W 18th Avenue and Friendly Street
180	W 19th Avenue at Willamette Street
413	W 1st Avenue and Monroe Street
414	W 5th Avenue and Monroe Street
422	Willagillespie Road and Cal Young Road
188	Willakenzie Road at Cal Young Road

Feasibility Studies

A total of ten feasibility studies have been recommended. The cost estimate provided is for the feasibility study, and not for facility implementation. All studies include a public involvement component.

Table A-11: Recommended Feasibility Studies

Project ID	Name/Location	Cost	Description	Notes/Assumptions
495	Alton Baker Park Path Study	$100,000	Develop lighting and width standards for shared use paths in East Alton Baker Park, particularly east-west routes and connections to the pedestrian and bicycle bridges.	Only consider existing paths.
372	Amazon Park Crossing Study	$25,000	Examine options for creating an east-west path through Amazon Park to connect neighborhoods on either side of the park. Environmental concerns will be addressed in the study.	Initial step would be environmental report determining what options can be considered. The cost of an alignment study will depend on the results of the environmental study.
251	Coburg Road	$20,000	Connect Eugene to the planned Coburg Loop Trail by providing a walking and bicycling facility on Coburg Road. The study must be coordinated with Lane County and the City of Coburg.	Assumes desired cross-section is already known, and that the study would identify right-of-way ownership and plan graphics.
464	Franklin Boulevard	n/a	Examine options for improving bicycle and pedestrian access along Franklin Boulevard from the city limits to Alder Street through planning and development of a multiway boulevard on Franklin as called for in the Walnut Station Mixed Use Center Plan.	Assumes that the cost to design a bikeway facility for Franklin Boulevard would be included in the overall planning and development of a multiway boulevard on Franklin as called for in the Walnut Station Mixed Use Center Plan.
496	Morse Family Farm Trails Study	$30,000	Create recommendations for bicycle and pedestrian circulation through Morse Family Farm to existing and planned routes that connect to the perimeter of the site.	Assumes that the goal of the study is just to link to bikeways connecting to the park. A full site trail study would be more expensive.
226	Rail Alignment westbound	$250,000	Examine the feasibility of a rails-with-trails project for the Union Pacific (UPRR) rail line within the city limits. The study must be coordinated with UPRR and take into consideration plans for continued and expanded rail service to area businesses. The study should examine existing right-of-way, path alignment options, track crossing issues, connections to adjacent sidewalks and bikeways, and next steps for negotiating with UPRR.	Assumes that the City would provide base mapping data (right-of-way width and land ownership), and that the project would include initial negotiations with the railway to gain clarity about alignment options and railway concerns. The outcome would be a preferred alignment, if one is feasible, supported by public involvement and identifying railway concerns and documenting how they will be addressed.
204	West Bank Trail	$200,000	Examine the feasibility of extending the West Bank Path north to Hileman Landing. Right-of-way ownership and environmental concerns should be addressed in the final recommendation.	Includes public involvement, negotiation with landowners, and field work.
205	Willamette McKenzie Trail	$250,000	Examine options for creating a path north along the east side of the Willamette River and east along the McKenzie River as called for in the Regional Transportation Plan. The study should build on the work done by the Willamette River Open Space Vision and Action Plan and look at land ownership, alignment alternatives, environmental issues, and recreational and scenic value.	Includes public involvement, negotiation with landowners, and field work.
212	Millrace Drive to South Bank Path	$100,000	Examine options and develop a recommended facility for completing the South Bank Path gap between the Frohnmayer and Knickerbocker Pedestrian and Bicycle Bridges. The study must consider the existing railroad line.	Same assumption as for segment 226.
534	Westmoreland Park Paths	$30,000	Examine options to create paths through Westmoreland Park to connect to existing on-street walking and bicycling routes that connect to the park.	Assumes that the initial range of pathway options has already been defined.

Maintenance Cost Estimates

Annual maintenance cost estimates have been provided below by facility type. Grade-separated crossings and intersection improvements have not been included because their cost varies widely with design. Cost estimates for sidewalks and accessways have not been included because the maintenance responsibility falls to the adjacent landowner, not the City.

Table A-12: Annual Maintenance Cost Estimates by Facility Type

Facility Type	Annual Maintenance Costs (per mile)
Shared-Use Paths	$30,400
Bike Lanes	$12,000
Buffered Bike Lanes	$19,100
Cycle Tracks - Urban Type	$41,100
Cycle Tracks - Rural Type	$28,200
Shared Lane Markings	$3,000
Bicycle Boulevards	$3,000

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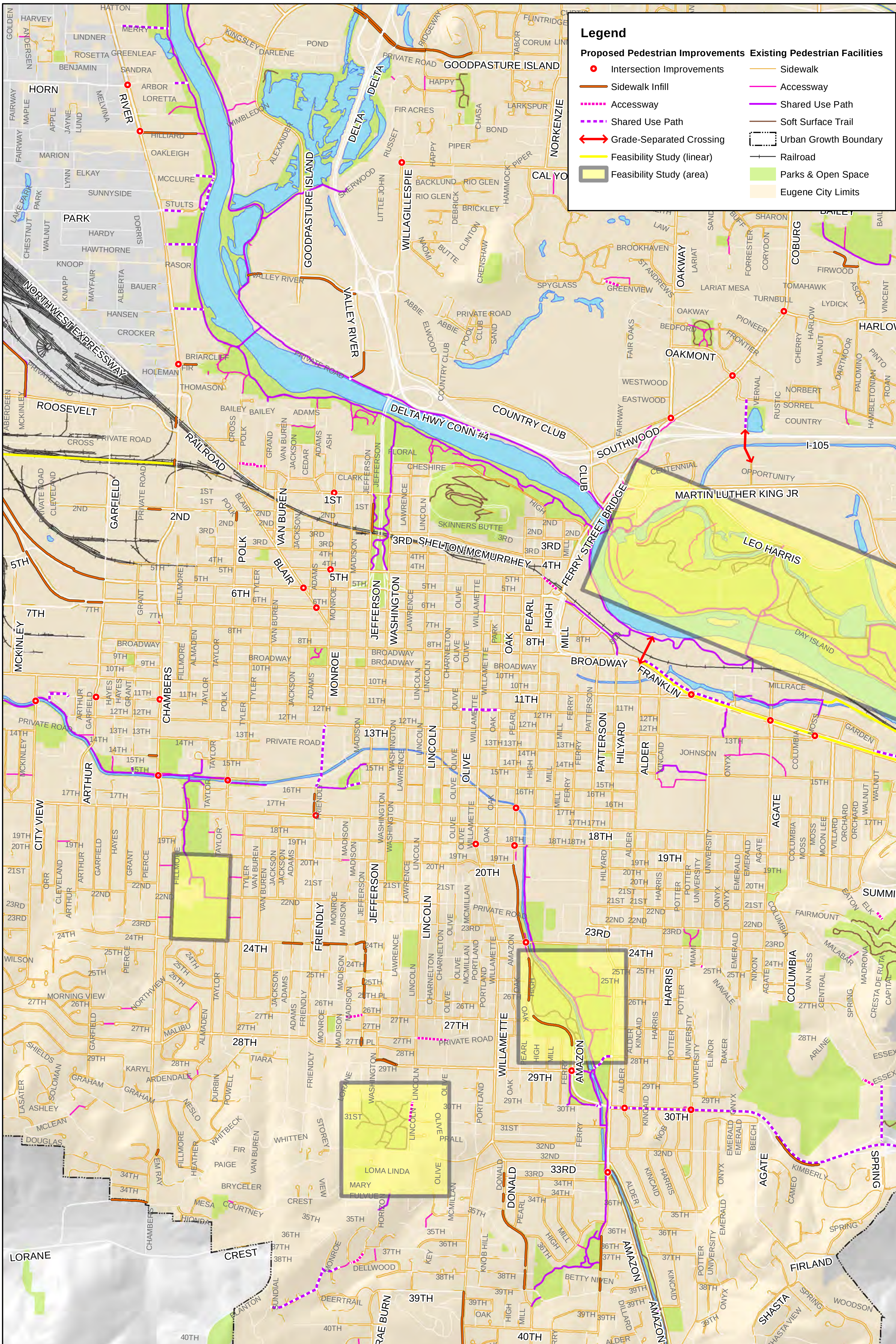
Appendix B: System Maps

Introduction

Appendix B contains maps of recommended pedestrian and bicycle facilities:

- Map 1: Proposed Pedestrian Network - Central Eugene
- Map 2: Proposed Pedestrian Network - South Hills
- Map 3: Proposed Pedestrian Network - West Eugene/Bethel/Danebo
- Map 4: Proposed Pedestrian Network - River Road/Santa Clara
- Map 5: Proposed Pedestrian Network - Northeast Eugene/Willakenzie/Ferry St. Bridge
- Map 6: Proposed Bicycle Network - Central Eugene
- Map 7: Proposed Bicycle Network - South Hills
- Map 8: Proposed Bicycle Network - West Eugene/Bethel/Danebo
- Map 9: Proposed Bicycle Network - River Road/Santa Clara
- Map 10: Proposed Bicycle Network - Northeast Eugene/Willakenzie/Ferry St. Bridge

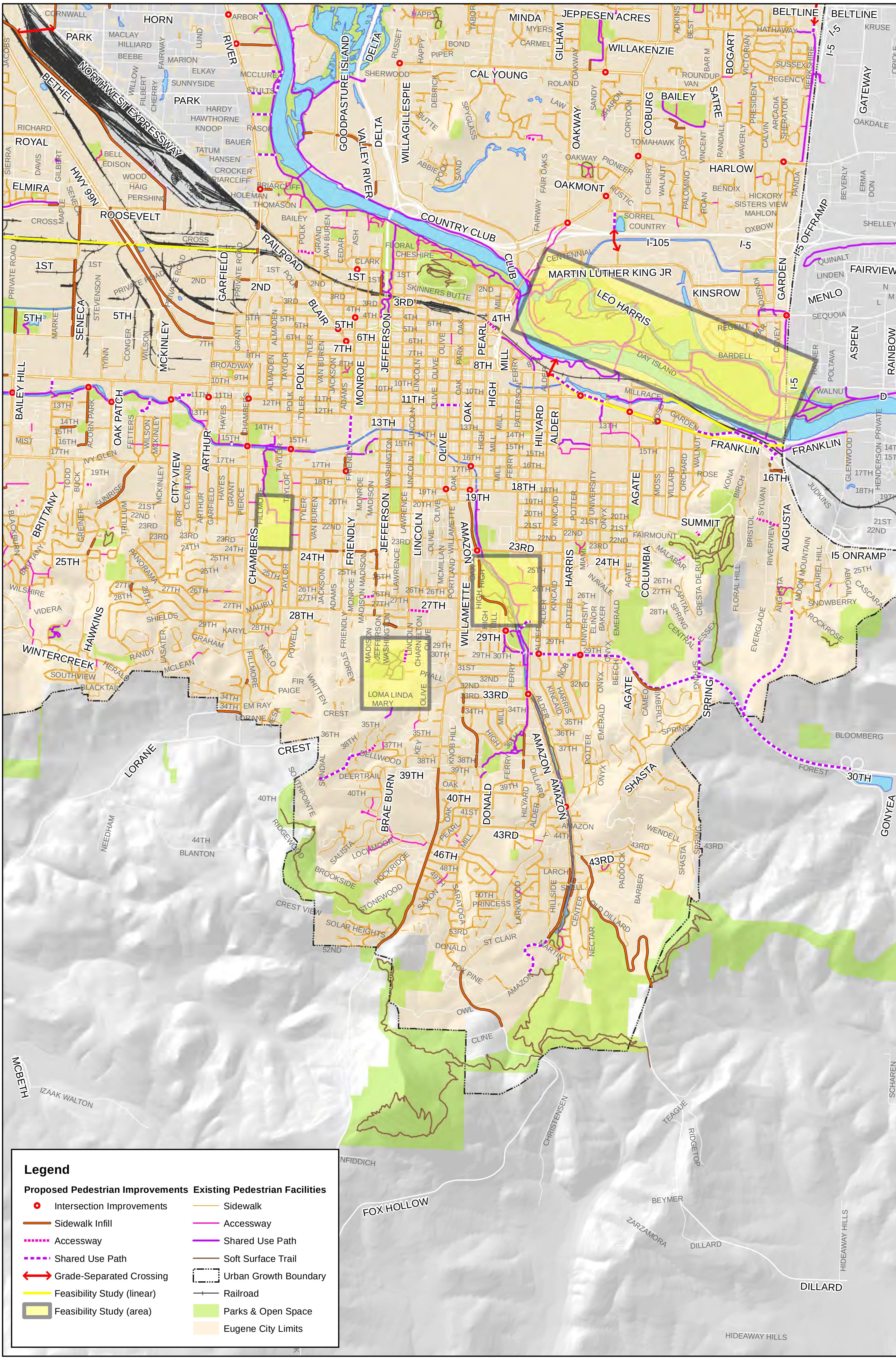


Map 1: Proposed Pedestrian Network - Central Eugene

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles



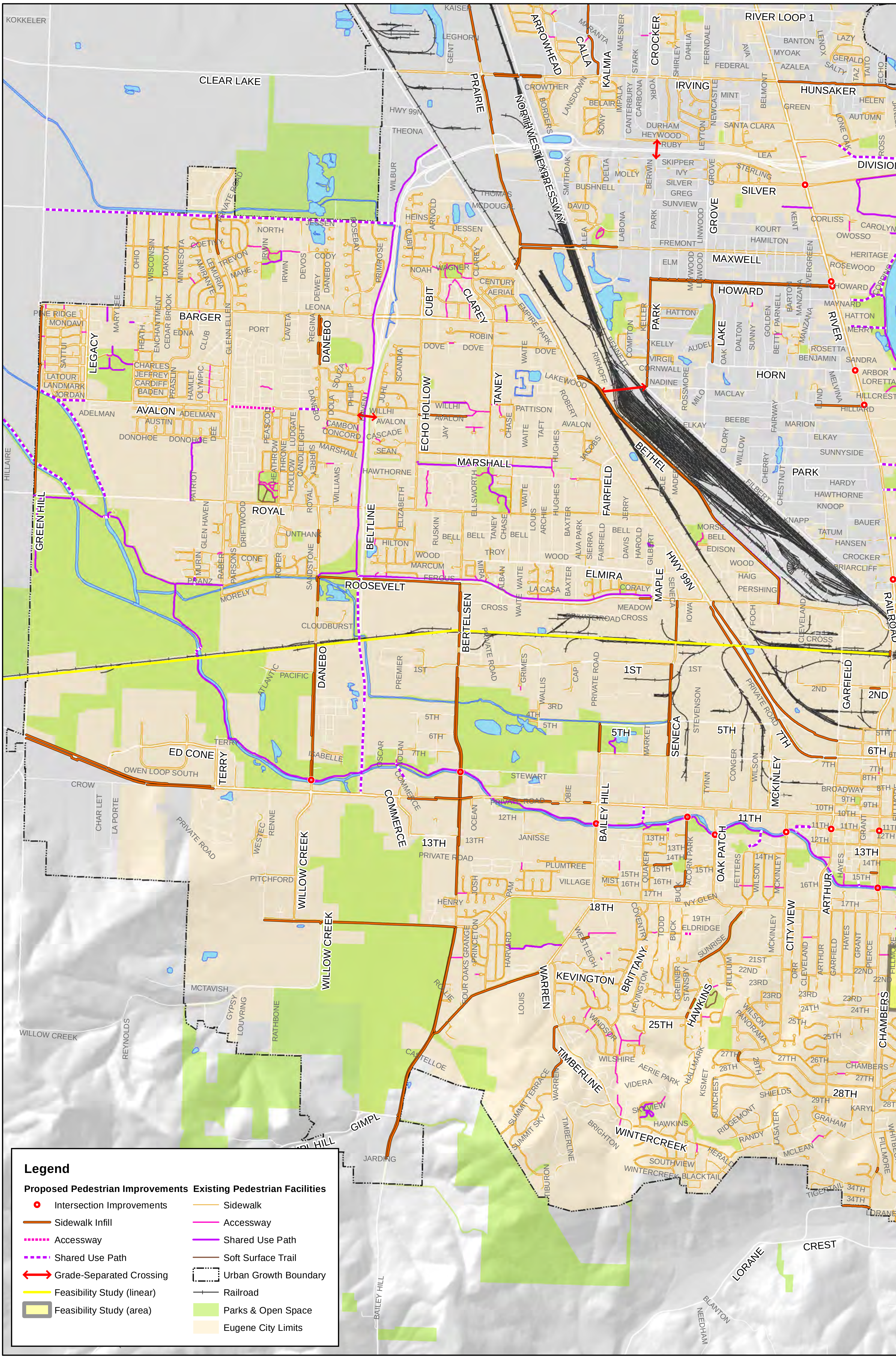
Map 2: Proposed Pedestrian Network - South Hills

City of Eugene

Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles

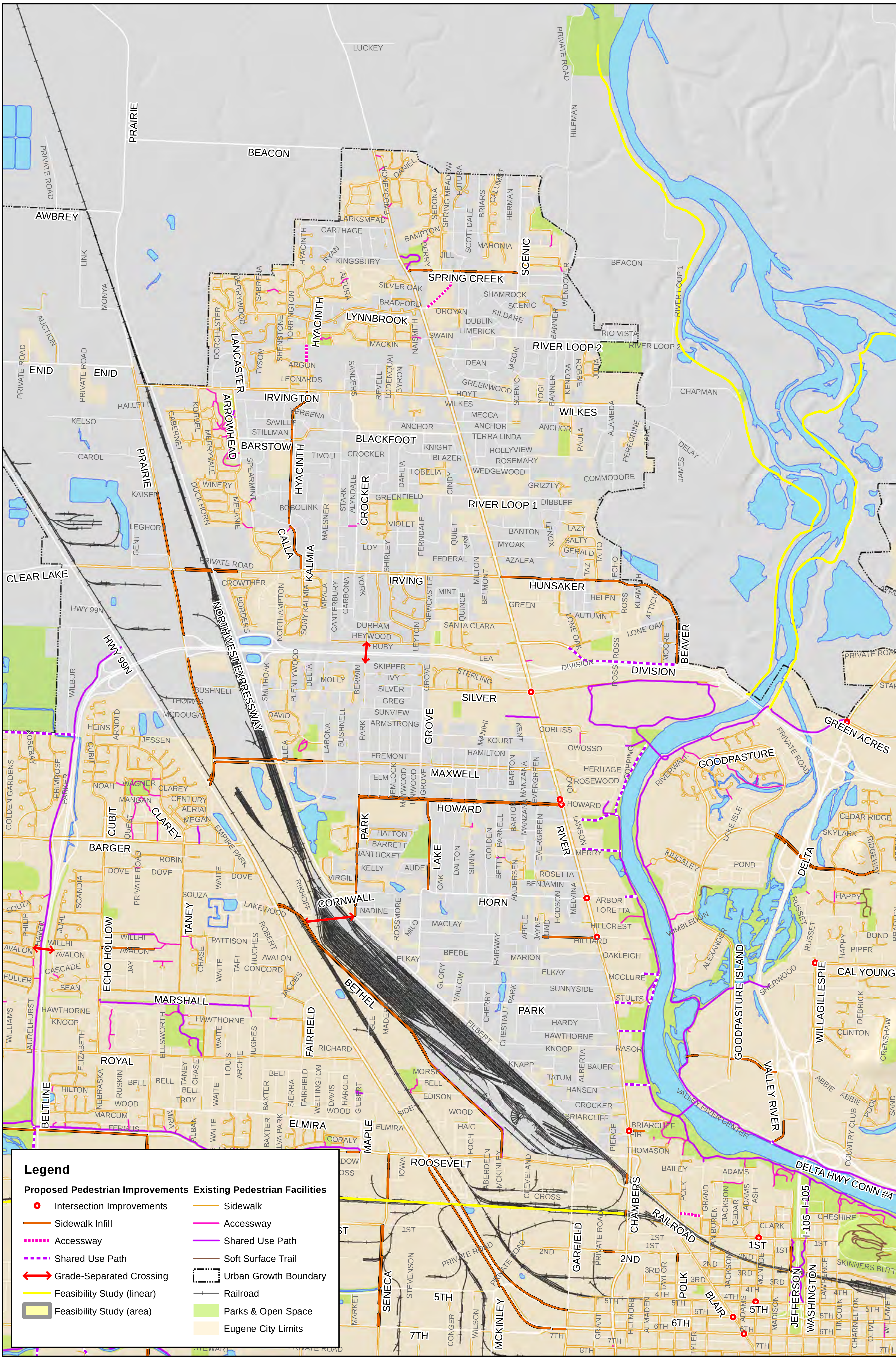


Map 3: Proposed Pedestrian Network - West Eugene/Bethel/Danebo

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles



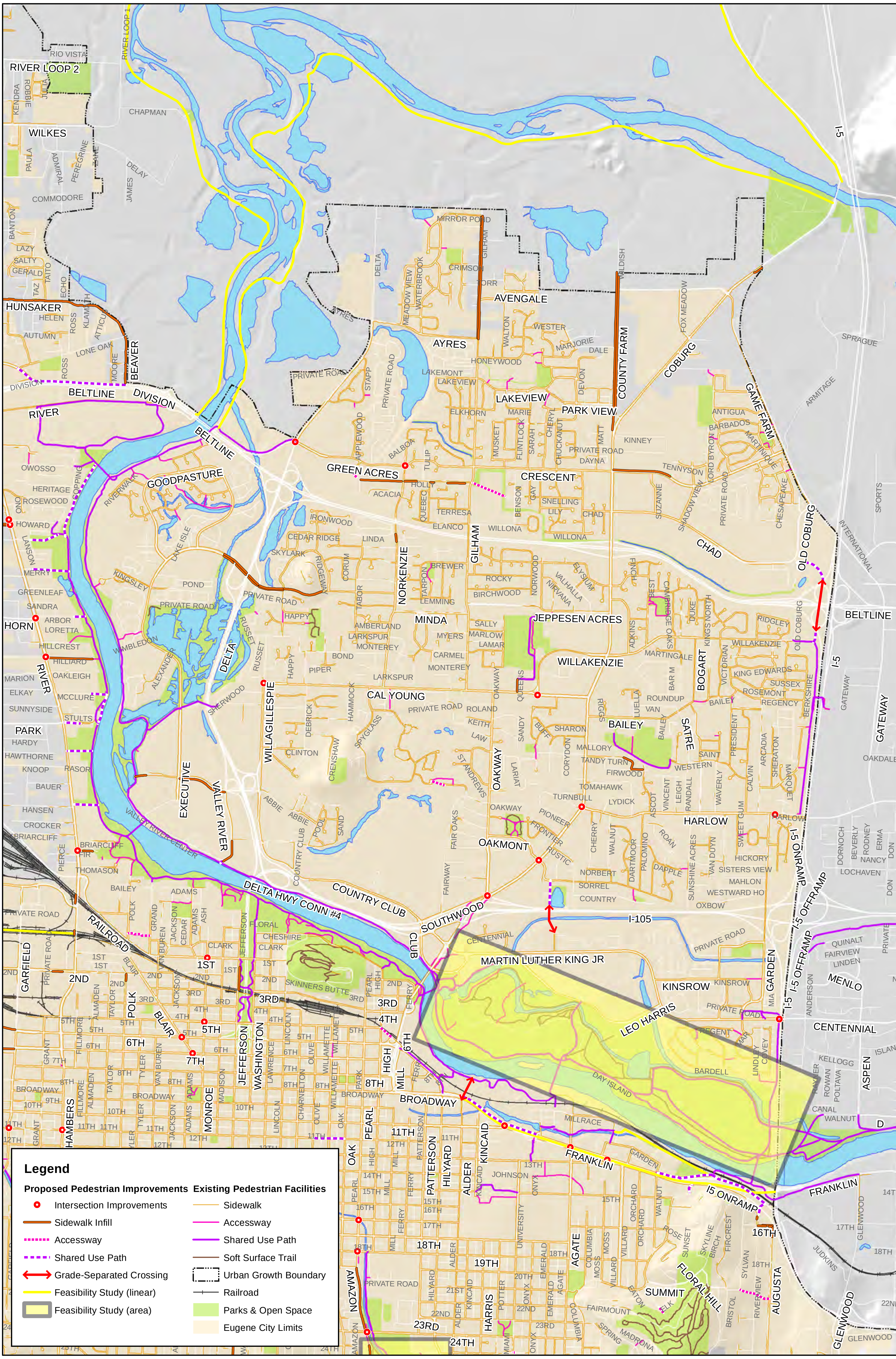
Map 4: Proposed Pedestrian Network - River Road/Santa Clara

City of Eugene

Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles

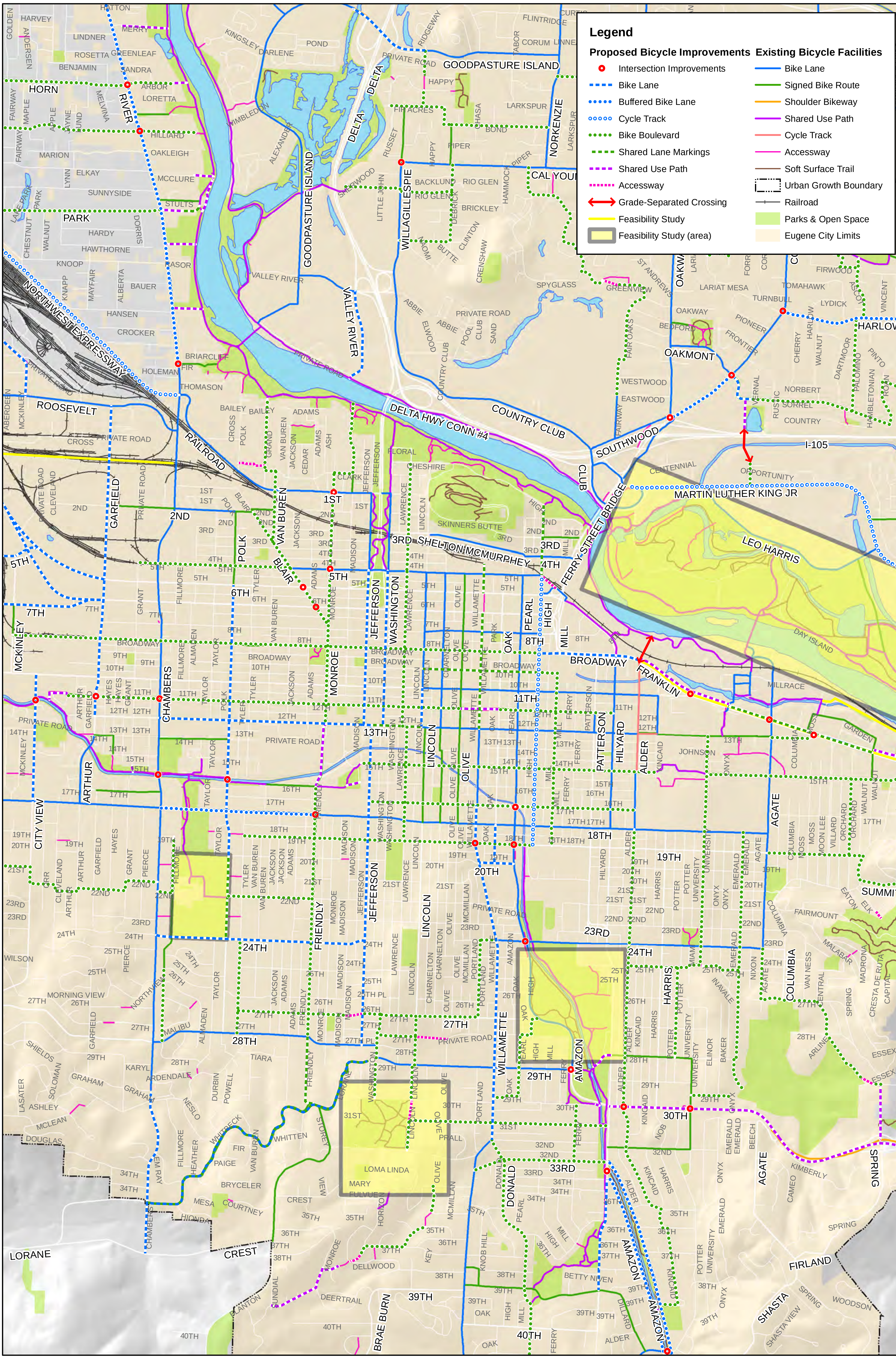


Map 5: Proposed Pedestrian Network - Northeast Eugene/Willakenzie/Ferry Street Bridge

City of Eugene
Eugene Pedestrian and Bicycle Master Plan
Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles

alta PLANNING + DESIGN

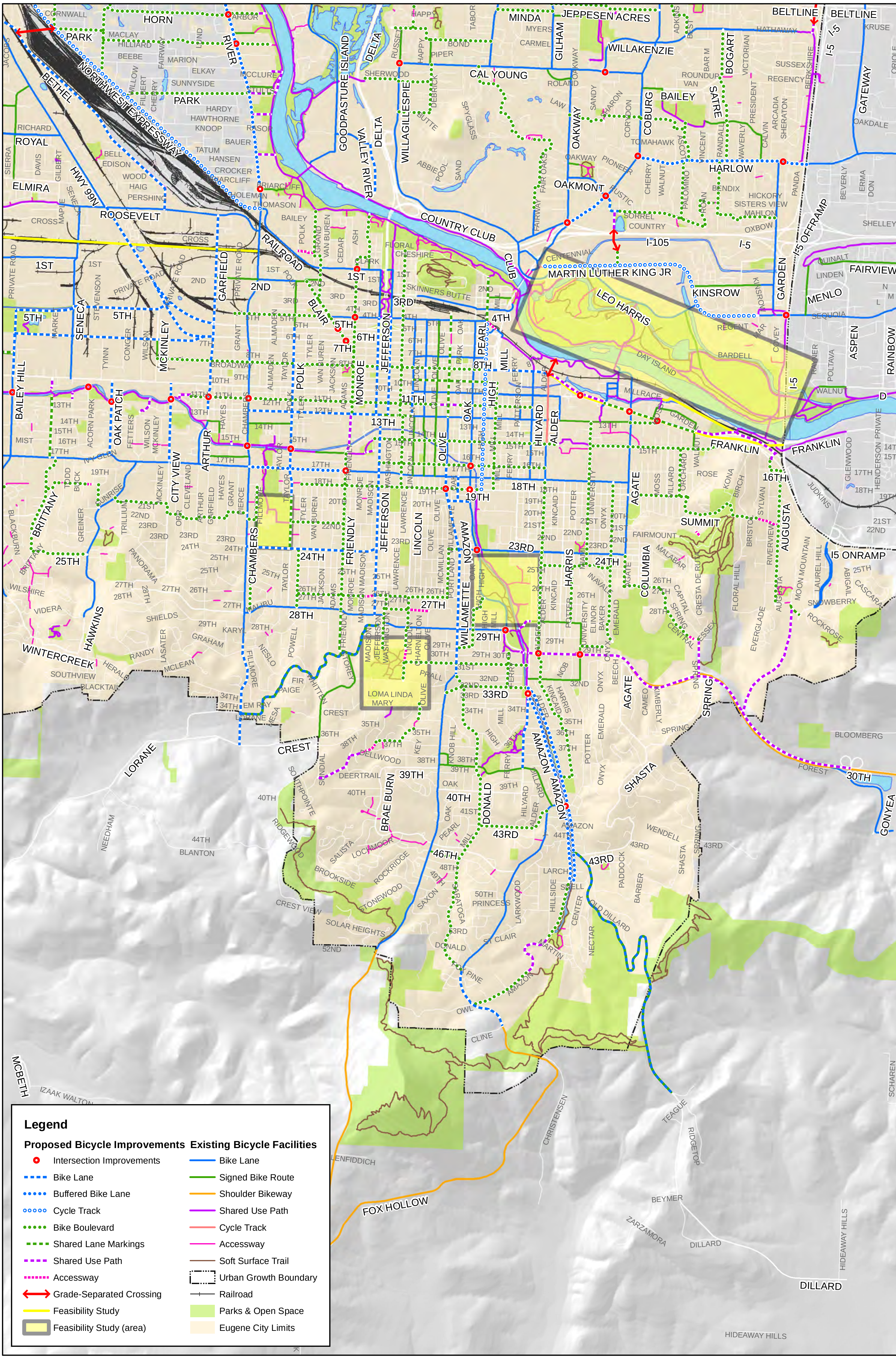


Map 6: Proposed Bicycle Network - Central Eugene

City of Eugene

Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

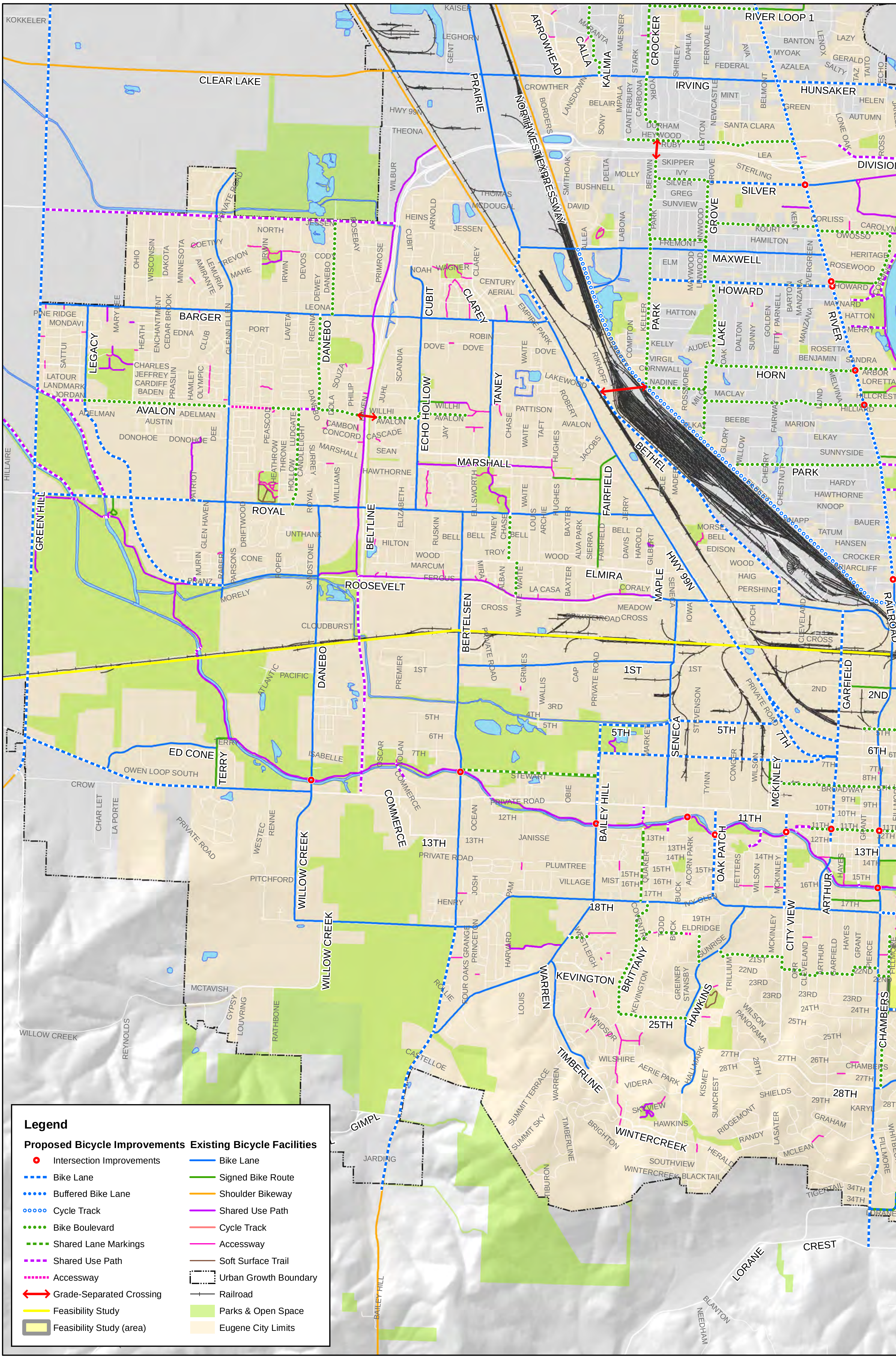


Map 7: Proposed Bicycle Network - South Hills

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

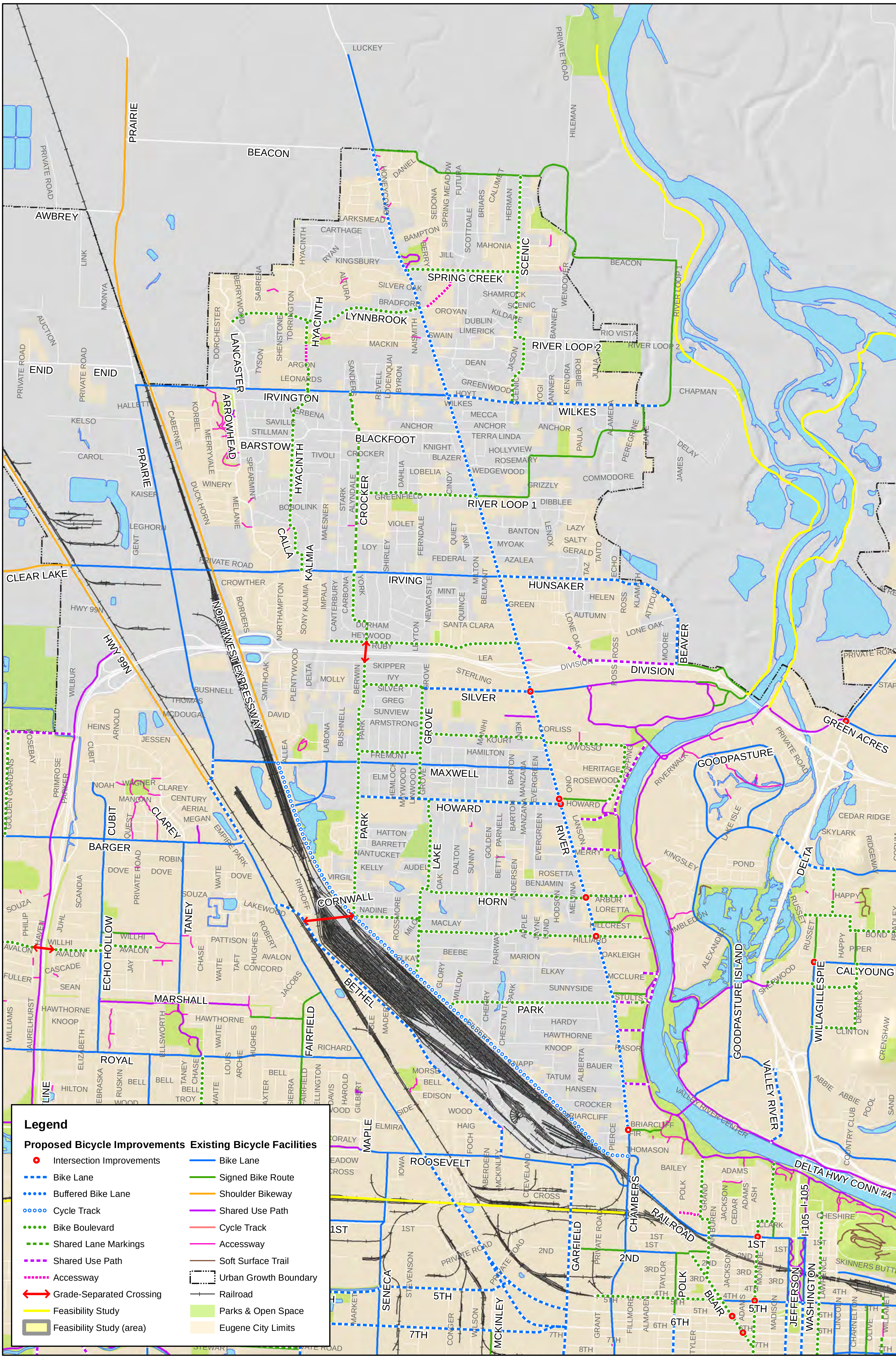
0 0.25 0.5 1 Miles



Map 8: Proposed Bicycle Network - West Eugene/Bethel/Danebo

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

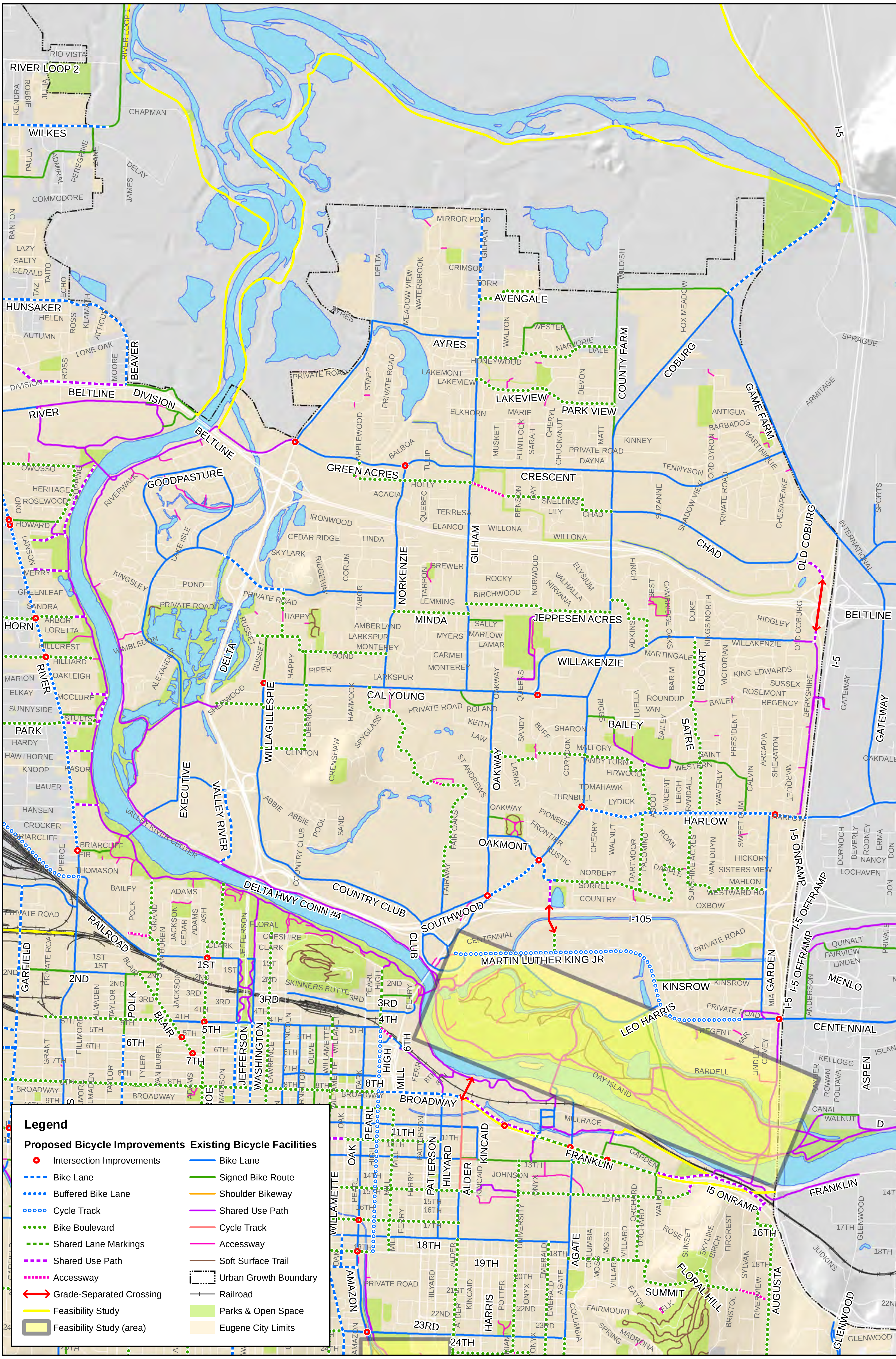
Source: Data obtained from ODOT, LCOG, City of Eugene



Map 9: Proposed Bicycle Network - River Road/Santa Clara

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

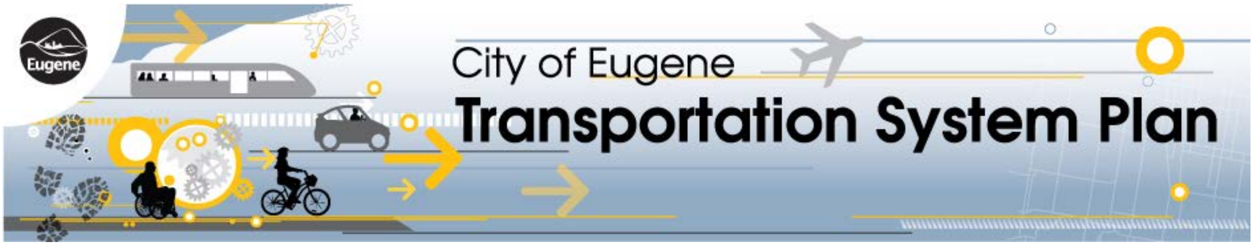


Map 10: Proposed Bicycle Network - Northeast Eugene/Willakenzie/Ferry Street Bridge

City of Eugene
Eugene Pedestrian and Bicycle Master Plan

Source: Data obtained from ODOT, LCOG, City of Eugene

0 0.25 0.5 1 Miles



Appendix G: On the Move: Regional Transportation Options Plan (2014)

ON THE MOVE

REGIONAL TRANSPORTATION OPTIONS PLAN

Central Lane Metropolitan Planning Organization

2014-2024

ACKNOWLEDGEMENTS

Special thanks to the members of the Regional Transportation Options Plan Project Management Team and the Transportation Options Advisory Committee (TOAC) for their participation in, and support for the RTOP strategic planning process.

Additional thanks to the community stakeholders who participated in various focus groups and outreach efforts throughout the planning process. Your contributions enriched the RTOP to truly address the vision, needs, and opportunities for transportation in our community.

PROGRAM PARTNERS

Central Lane Metropolitan Planning Organization

Lane Council of Governments

Point2point

City of Eugene

City of Eugene Sustainability Commission

City of Springfield

City of Coburg

Lane County

Lane Transit District

Trans-Watch / Cogito

PARTICIPATING STAKEHOLDERS

Accessible Services, Lane Transit District

Better Eugene-Springfield Transit

City of Creswell

City of Cottage Grove

City of Eugene Airport

City of Eugene Hilyard Center

City of Veneta

Eugene Area Chamber of Commerce

Eugene Association of Realtors

Good Company

Greater Eugene Area Riders

Homebuilders Association of Lane County

Junction City

Lane Coalition for Healthy and Active Youth

Lane Community College

Lane County Parks

Lane Livability Consortium

Lane Metro Partnership

Lane Workforce Partnership

McKenzie Willamette Medical Center

Northwest Christian College

Oregon Department of Human Services

Oregon Medical Group

Oregon Research Institute

Peace Health Medical Center, RiverBend

Point2point, Lane Transit District

RideSource, Lane Transit District

River Road Recreation District

Senior and Disabled Services, Lane Council of Governments

Springfield Public Schools

Travel Lane County

Willamalane Park and Recreation District

TABLE OF CONTENTS

Executive Summary

The Regional Transportation Options Plan (RTOP) is a regional planning effort, coordinated by the Lane Council of Governments and Point2point, to plan for the most effective application of transportation demand management (TDM), also referred to as transportation options (TO) programs, strategies, and services. The Plan identifies a strategic direction for transportation options (TO) to best address the changing demands for transportation in our metropolitan region over the next ten years.

TRANSPORTATION OPTIONS (TO)

Transportation Options (TO) is a steadily growing component of transportation and mobility planning. TO strategies, programs, and investments enhance traveler opportunities and people's choices to bike, walk, take transit, share rides, and telecommute. TO does not encourage one mode of travel over another, rather TO programs and services offer greater travel choices to enhance mobility and accessibility and to maximize transportation investments.

GUIDING PRINCIPLES

Development of RTOP goals, objectives, and strategies followed a series of guiding principles to focus planning efforts on community priorities:

- Expand TO programs
- Provide cost effective TO
- Address the region's changing demographics
- Integrate information technologies into TO
- Integrate TO into planning and investment
- Create more public and private partnerships

The existing, expanded and new TO programs and services identified throughout the RTOP are summarized into two areas of broad strategic focus, strengthening **access to knowledge and information** and **coordination of partners, programs, services, and planning.**

PROGRAM AND SERVICE RECOMMENDATIONS

The RTOP recommends core programs and services for implementation throughout the region. Each of these recommendations was selected based on ability to address the various identified transportation needs and opportunities; as well as, scalability to expand to diverse community groups; ability to leverage limited resources; and adapt to changing trends and transportation demands. These recommendations are supported by local and regional TO administrators and will be effectively integrated into their long-term strategic planning. Successful implementation of the RTOP requires a foundation of core transportation options programs and services with development of supportive tools and actions.

The RTOP recommends the following core programs and services:

Recommended Program and Services Summary

PROGRAMS AND SERVICES	DESCRIPTION	RECOMMENDATION
Traveler Information and Coordination Tools	Continue TO outreach and education.	Fund general and targeted outreach including businesses, Sunday Streets, transportation fairs, community wide commute challenges etc.
	Create a clearinghouse of accessible travel data for private sector technology investment.	Fund development of a public data clearinghouse for private technology investment in travel information tools
	Enhance online rideshare platform.	Evaluate the Drive Less Connect application and explore alternatives which allow for dynamic ridesharing, creation of closed networks for specific groups, and individual rideshare matching
Smart*Trips*	Individualized Outreach	Annual funding for two neighborhoods, wards, or programs with targeted populations (e.g. seniors, Latino communities, etc.).
School Based Transportation Options	Build off existing Safe Routes to School programs to include coordinated program with ridesharing and transit promotion. Expand program to middle and high schools.	Provide annual base funding for SRTS coordinators to maintain and expand programs, including five additional bicycle and pedestrian safety education classes per district.
Rideshare	Expand existing rideshare programs (carpooling and vanpooling) to leverage trips that are already taking place or are regularly scheduled.	Address the transportation needs of less-traditional markets; including, youth and elderly populations, rural areas, neighborhoods, and non-emergency medical transport to gain improved mobility and accessibility through rideshare.
New Program: **Transportation Options Resource Program**	Program has two components: 1) TO Development Workshops 2) TO Training	Develop the Resource Program to include TO, land use, and code workshops; as well as, a comprehensive travel training program for the region's business, human services, youth, community organizations, etc.
New Program: **Mobility Hubs**	Pilot initial mobility hubs at key locations where multiple modes align. Scale to target area attributes.	Fund development of four pilot locations at the Amtrak station, Eugene Airport, and Eugene and Springfield downtown transit stations.

Section 1: Introduction

WHAT ARE TRANSPORTATION OPTIONS (TO)?

Transportation Options (TO), or as it is commonly known elsewhere as Transportation Demand Management (TDM), is a steadily growing component of transportation and mobility planning.

Transportation options strategies, programs, and investments enhance traveler opportunities and people's choices to bike, walk, take transit, share rides, and telecommute. Such strategies can be used as solutions to problems of system capacity and as a way of creating an efficient transportation system for a multitude of users and uses. Transportation options strategies can lead to transportation and community benefits such as:

- Making more efficient use of the existing transportation Infrastructure
- Supporting community health goals through increased opportunities for physical activity and decreased emissions
- Reducing the amount of money spent on transportation
- Supporting the economy by reducing congestion, thereby improving the movement of freight locally and across the state
- Providing options for the millennial generation who are choosing to drive less
- Providing choices for the growing elderly population who may depend on transportation options

The expansion of TO provides the individual with flexible options, regarding how, when, where and which way they travel. TO does not encourage one mode of travel over another, rather TO programs and services offer greater travel choices to enhance mobility and accessibility and to maximize transportation investments.

BROADENING THE DEFINITION OF TRANSPORTATION OPTIONS (TO)

TO concepts originally developed in the 1970s and 1980s focused on providing alternatives to the single occupancy vehicle (SOV) commute. Today's efforts to manage travel demand have broadened, not only to include commute trips, but all other trips. TO strategies that seek to save energy (reduce fuel consumption), lessen the financial burden on individuals, improve air quality and reduce peak congestion, now encompass school-based and casual trips to the grocery store, shopping mall, recreational sites, and special events. The increasing variability of travel requires a broader approach for TO.

Transportation decisions that effectively integrate TO programs and services can successfully enhance community well-being. The benefits of options planning and implementation range from improved air quality, to compact and connected communities, efficient systems operations, enhanced economic development opportunity, and increased mobility. The cumulative impact of a comprehensive set of TO strategies reaches far beyond the reduction of traffic congestion; they can significantly prolong or reduce infrastructure investment and improve quality of life. Understanding the role that TO can have in influencing other policy issues is a significant shift in traditional transportation systems planning.

PURPOSE OF THE RTOP

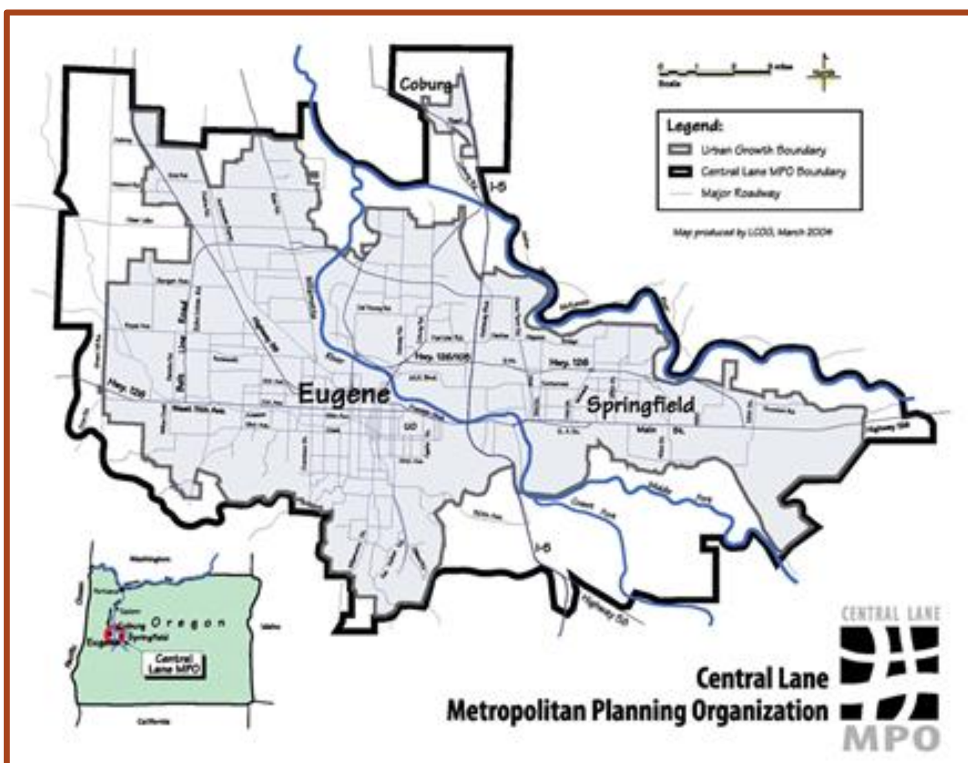
The Regional Transportation Options Plan (RTOP) is a regional planning effort to plan for the most effective application of transportation demand management (TDM/TO) programs and services; and to identify a strategic direction for transportation options for the metropolitan region over the next ten years. The RTOP strategic plan outlines TO strategies, programs, and services that support and further enhance the goals, objectives, and policies of the Central Lane Metropolitan Planning Organization (CLMPO) Regional Transportation Plan (RTP).

The Central Lane MPO covers the Eugene-Springfield metropolitan area, including Coburg. The MPO is the lead agency for regional transportation planning and works cooperatively with surrounding local governments and transit providers to set priorities for TO. Implementation of diverse TO programs and services presented in this Plan will rely heavily on the support from both public and private investment through well-established local and regional partnerships.

RTOP DELIVERABLES

The RTOP delivers two key products for the region:

- A regional TO strategic plan to serve as a baseline for updating the TO portion of the RTP.
- A TO toolkit designed to assist both regional and local governments in strategically addressing their transportation planning goals and expanding the reach of their TO programs.



OPPORTUNITIES FOR TECHNOLOGY

Effective trip planning tools allow users to combine walking, biking, transit, and all other modes together to find the fastest and most efficient trip.

Local opportunities to more effectively integrate traveler information between Lane Transit District (LTD), Amtrak, carshare and potential bikeshare services, the Eugene Airport, and local jurisdictions are essential to support travel decisions.

SECTION 2: TRANSPORTATION INVESTMENTS RESPOND TO CHANGING COMMUNITY FACTORS

Social, economic, and environmental trends impact transportation investments and influence the nature in which people get around. Changes in availability of technology, shifting mobility demands, concerns around public health and issues of long-term funding are dramatically influencing the way in which communities provide for transportation.

AVAILABILITY OF TECHNOLOGY

Traditional TO strategies such as bicycle and pedestrian education, vanpooling, and telecommuting remain vital in serving the transportation needs of the community; however, new opportunities to manage travel demand have emerged in recent years with advancements in technology. Communication tools including smart phones and mobile devices show promise in making personal travel decisions more dynamic and fluid.[1] The availability of real-time traveler information and multi-modal trip planning tools will provide travelers with information to make informed decisions about how they may connect between bus, bike and carpool.

The day-to-day operation of the transportation system is focused on managing demand. Efforts to increase roadway capacity, such as adding lanes, are expensive endeavors that take years to implement. Advanced traveler information technologies, on the other hand, can readily respond to pressures of the transportation system, easing congestion and mitigating demand. Intelligent transportation technologies can inform travelers of road advisories so that they might avoid them by traveling a different route, time or mode. Access to this type of information has significant potential to increase utilization of TO, increasing transit ridership, walking, biking and ridesharing as a means of travel.[2]

1 U.S. Department of Transportation Federal Highway Administration. Integrating Demand Management into the Transportation Planning Process: A Desk Reference. 2012.
2 Shinkle, Doug, Jaime Rall, and Alice Wheet. On the Move State Strategies for 21st Century Transportation Solutions. National Conference of State Legislatures. July, 2012.

OPPORTUNITIES FOR CHANGING DEMOGRAPHICS

Mitigate stress on the existing transportation system by providing transportation programs, services, and technologies that satisfy the needs of all populations.

Local opportunities to adapt to changing demographics include:

- Providing traveler information technologies
- Delivering travel trainings and educational resources
- Enhancing coordination of human services transportation and TO.

CHANGING DEMOGRAPHICS

Transportation planners, engineers and policymakers are confronted with a number of demographic trends that may dramatically affect Americans' future travel patterns and mobility needs. While it is assumed that people will continue to drive personal vehicles for the foreseeable future, it is also anticipated that millennials and baby boomers may heighten the need for nontraditional means of transportation—presenting unique challenges in satisfying a broad spectrum of transportation needs.

Population trends indicate that seniors over the age of 65 will account for approximately 20% of the nation's population by 2030.[3] Currently, in the US, one in five people over the age of 65 do not drive. Increasingly this is placing stress on existing transit and accessible services program. TO strategies offer some relief by creating new cost effective and innovative ways for seniors to maintain mobility while meeting complex travel demands.[4]

Mobility needs of the millennial generation, also present unique challenges as more and more are making the choice not to get their driver's license—eliminating the need for a car by moving to urban settings or seeking low-cost transportation options as a means to save money.[5]

IN OREGON, RENEWED LICENSED DRIVERS DROPPED 32% BETWEEN 2003 AND 2013[6]

Solutions that will educate and inform the transportation decisions of the elderly population will differ from those identified for younger generations. High-tech traveler information technologies may be feasible for the more tech-savvy generations, but not for all. It will be essential for the region to establish a well-rounded effort that includes low-tech, accessible materials for all.

PUBLIC HEALTH CONDITIONS

The existing transportation system is designed to move people and goods efficiently; however, there is a growing awareness throughout communities that transportation systems impact quality of life and public health. Transportation is recognized as a key

3 Shinkle, Doug, Jaime Rall, and Alice Wheet. On the Move State Strategies for 21st Century Transportation Solutions. National Conference of State Legislatures. July, 2012.
4 Ibid.
5 Ibid.
6Oregon Department of Motor Vehicles. http://www.oregon.gov/ODOT/DMV/docs/stats/issuance/renewals.pdf. May 2014.

OPPORTUNITIES FOR PUBLIC HEALTH

Residents in low-income urban areas are more likely to report greater neighborhood barriers to physical activity, such as higher numbers of busy through streets and poor pedestrian and bicycle infrastructure.

Local opportunities to improve public health include:

- Promoting the health benefits of active transportation
- Expanding transportation and health and wellness partnerships
- Leveraging funding between public health efforts and transportation

Source: Black, Jennifer L., and Macinko, James. Neighborhoods and Obesity. Nutrition Reviews . 66.1 (2008): 2–20.

health determinant that broadly influences physical activity and safety.[7]

The steady rise in rates of obesity, diabetes, heart disease and other chronic health conditions is strongly correlated to lack of physical activity. Traditionally, these health conditions have not been linked to transportation; however, it is becoming more evident that the built environment and connectivity of the transportation system strongly influences personal health.[8]

Personal safety and injury are another aspect of public health that is impacted by transportation. Motor vehicle travel has become safer over time, but motor vehicle crashes are still the leading cause of death for people ages 1 through 34.[9] Many Americans view walking and bicycling within their communities as unsafe because of traffic and the lack of sidewalks, crosswalks, and bicycle facilities. These environmental conditions can perpetuate the barriers to active transportation. In some form or another, most trips begin and end as a pedestrian—whether an individual walks to a car, bus, or bicycle—increasing the safety of our streets has the potential to dramatically reduce pedestrian related crashes.

TRANSPORTATION AND COMMUNITY DEVELOPMENT CAN HAVE SIGNIFICANT IMPACTS ON COMMUNITY HEALTH, AS THE URBAN FORM PLAYS A CRITICAL ROLE IN INFLUENCING PHYSICAL ACTIVITY IN RELATION TO WALKING AND BICYCLING.[10]

Barriers to safe and reliable transportation options raise issues regarding equity, as matters of accessibility disproportionately affect communities of concern such as the poor, elderly, people with disabilities, zero car households, and limited English proficiency. These barriers may limit access to jobs, health care, recreation, and healthy foods.[11]

[7] Centers for Disease Control. CDC Recommendations for Improving Health through Transportation Policy.
[8] Ibid.
[9] Ibid.
[10] Community Planning Workshop, Lane Livability Consortium. Core Area Report: Transportation. February 2013.
[11] Centers for Disease Control. CDC recommendations for Improving Health through Transportation Policy.

OPPORTUNITIES TO LEVERAGE LIMITED FUNDING

- Coordinate transportation planning efforts to integrate TO into goals, policies and strategies
- Strategically co-locate transportation investments to improve connectivity for all modes
- Administer TO agreements for new residential, employment, commercial and construction developments
- Establish public and private partnerships that encourage and facilitate investments in TO programs and services within the CLMPO area.

CHANGING FUNDING LANDSCAPE

The nation's ability to fund and maintain our transportation network is nearing a critical juncture. Communities, including the Eugene—Springfield region are stretching budgets to maintain existing infrastructure. Budget shortfalls, and transportation systems that are in a constant state of disrepair, present real and ongoing challenges for the region to not only to meet the needs of today, but to also prepare for the demands of the future.

Motor fuel taxes are the primary federal and state funding revenue for planning, construction, operation and maintenance of transportation infrastructure and systems throughout the CLMPO area. However, due to inflation, rising construction costs, growing use of alternative fuels and more fuel-efficient vehicles—these revenues are not sufficient.[12] These crippling circumstances present challenges for the region to develop innovative funding approaches.

Investments in transportation infrastructure, such as bridges, highways, and roads, have long-term consequences in terms of how the community will fund the maintenance and life-cycle of the investment. Given the current fiscal constraints, planning and development decisions need to explore efficient and cost-effective approaches that utilize existing infrastructure.[13]

Least Cost Planning: Mosaic

The Oregon Department of Transportation (ODOT) is working collaboratively with partners across the state to develop a least cost planning tool called Mosaic. Mosaic offers Oregon transportation planners and decision makers an efficient, transparent way to evaluate the social, environmental, and economic costs and benefits of transportation programs and investments. By supporting decision makers with identifying investments that provide the best value for money, it will help make the most of limited resources.

MOSAIC
Value and Cost Informed Planning

12 Shinkle, Doug, Jaime Rall, and Alice Wheet. On the Move State Strategies for 21st Century Transportation Solutions.
13 Ibid.

On a household level, transportation represents the second largest expense after housing. Households living in auto-dependent locations spend 25 percent of their income on transportation costs. Housing that is located closer to employment, shopping, restaurants and other amenities can reduce household transportation costs to 9 percent of household income.[14] These circumstances present barriers to transportation in terms of affordability and accessibility when adequate TO is not available.

EMERGING ROLE FOR TRANSPORTATION OPTIONS (TO) IN TRANSPORTATION PLANNING AND INVESTMENT

TO programs and services have significant potential to address variability in transportation demand as a result of changing community contexts. TO encourages safe, affordable and sustainable connections between all modes of travel—enabling TO to adapt to changing transportation demands that the traditional transportation system cannot. Integration of TO into system planning will enable communities to make the most of existing infrastructure, create more reliable freight movement, and foster a more dynamic and individualized transportation system to better meet the needs of local travelers and visitors.

14 Center for Transit Oriented Development. "The Affordability Index Toolbox”. Oakland, CA: Reconnecting America. 2008.

SECTION 3: REGIONAL TO PROGRAMS AND SERVICES

Over the last 30 years, the Eugene-Springfield metro area has made several key decisions to support TO programs and services. Building upon an initial focus of Eugene-based commute hour carpooling, the region now supports programs and services that reach region's employers, educational institutions, and residents. Much of the TO programs and services have been based on outreach and education and have focused on voluntary travel behavior adjustments. To date, TO efforts have been relatively successful; yet growth, congestion, and reliance on the single-occupancy vehicle continues to challenge policy makers, planners, engineers, and program managers in providing a balanced and efficient transportation system.

TO programs and services are offered in the region through support and partnerships between Point2point, the CLMPO, the cities of Eugene, Springfield and Coburg, local school districts, and public and private-sector employers.

POINT2POINT PROGRAMS AND SERVICES[15]

For 18 years, Point2point at Lane Transit District (LTD), formerly known as Commuter Solutions, has offered transportation demand management services to the region, promoting non-Single Occupant Vehicle (SOV) options and addressing regional congestion. Point2point accomplishes this through targeted strategic outreach, education, programming, and individualized outreach within the Central Lane Metropolitan Planning Organization (MPO) area.

Group Pass Program

Until 2014, Point2point administered LTD's Group Pass Program (GPP) contracts for the region's businesses, higher education, and schools serving grade 6-12 students. Group passes are annual contractual agreements between an organization and LTD which

[15] Point2point. Point2point Annual Report 2013.

provide unlimited bus riding privileges. LTD now administers the program.

The GPP serves as an alternative to the Student Transit Pass Program, ceased in 2011 due to state financing changes—eliminating free bus passes to more than 24,000 6-12th grade students. With the loss of this funding, LTD made it possible for students to purchase a bus pass at half price, or their school could participate in the GPP. In 2013, 18 schools and school programs representing 1,700 students participated in the GPP. LTD and Point2point staff continue to work with the region's three public school districts to promote LTD passes and the youth 10-Trip Ticket books onsite at schools not covered by the Group Pass Program.

Employer Transportation Coordinator Business Education Program

An Employee Transportation Coordinator (ETC) is an employee that is designated by their employer or is an individual who serves as a volunteer that wants to help reduce air pollution, traffic congestion, and fuel consumption. They work hand-in-hand with Point2point to administer and promote transportation options to their fellow worksite employees. Currently there are 164 ETCs representing Emergency Ride Home/Commuter Club/Group Pass programs throughout CLMPO regional businesses and educational institutions.

Point2point staff support ETCs by informing them about transportation options opportunities or issues via email, attendance at business employee fairs, social media, and annual ETC luncheons. In addition, Point2point provides free trip-planning events for the employees and conduct employee transportation research.

Drive Less. Connect.

Oregon's online ride-matching database, Drive Less Connect, was launched in September 2011 through the joint efforts of Oregon transportation options agencies, Oregon Department of Transportation (ODOT), and statewide Drive Less Save More campaign.

Throughout 2013, Point2point continues to coordinate, administer, and promote the use of Drive Less Connect for ride-matching and trip calendaring purposes via community and employer events, direct mail outreach, and low-cost incentive programs. These activities continue to drive commuters' voluntary use of Drive Less Connect to find rideshare partners and track their non-SOV trips. Drive Less Connect has advanced features that include flexible schedule trip matching for carpool, vanpool, bike buddies, and transit options. Other features include a robust trip calendar module that tracks and reports (personal and regional) money and fuel savings, as well as CO2 reductions.

Vanpool Program

Point2point participates in the multi-jurisdictional partnership, Valley Vanpool. Working with Salem Area Mass Transit District and Cascades West Council of Governments, the program addresses longer commute trips and reduces vehicle miles traveled associated with travel in and out of the CLMPO area.

Due to the increased outreach efforts, four new vanpools were formed in 2013. The reduction in VMT is equal to a 300,000 pound decrease in the amount of CO2 being released in the Willamette Valley.

Emergency Ride Home

The Emergency Ride Home (ERH) Program provides eligible employees with a free taxi ride home in the event of personal or family emergency on a day when they have commuted to work by bus, carpool/vanpool, biking, or walking. The ERH program helps commuters overcome one of the major barriers of using TO. In 2013, Point 2point completed the transition to administering the ERH program online through Drive Less Connect.

Business Commute Challenge

The Business Commute Challenge (BCC) is a week-long competition where local employers and work-place teams join forces to turn their daily commute into a transportation adventure. The event is an opportunity to rethink the daily work commute and discover ways to drive less, save more, and win great prizes donated by local businesses.

School Solutions

In 2004, Point2point expanded its programs and services beyond the work commute to include regional schools. These school services educate and encourage families to try transportation options such as walking, biking, taking the bus, and carpooling for their school commute. Key components of the school program include:

Connect2school Program: a free transportation matching service to help parents find walk, bike, or carpool partners among families who children attend the same school.

Encouragement Programs: stipends to help interested schools conduct events in order to celebrate International Walk and Bike to School Day held annually in October. In 2013, 16 schools participated in this event

Safe Routes to Schools: a K-8 based program to encourage active transportation amount youth. There are currently three Safe Routes to School (SRTS) Coordinators, one each in the, Bethel, Eugene 4J and Springfield Public School Districts. Point2point and SRTS Coordinators continue to implement the Regional SRTS Plan including walking route maps for local elementary and middle schools, and bike and pedestrian safety training to encourage walking and biking to school.

business commute challenge

In 2013 BCC proved a success with 108 businesses representing more than 2,100 participants. Participants reduced their driving by 69,000 miles and saved 70,680 lbs. of carbon dioxide.

The BCC is an effective program that reaches new audiences and sustains mode shifts. In 2013, there were 845 first time registrants and 670 registrants who typically drove alone for their everyday commute.

A follow-up survey was conducted six months after the BCC with an 18% response rate. Of survey respondents, 23% tried a different substantial commute mode, with 90% continuing to use sustainable commute modes. There was a 3% increase of participants who walk, bike, bus, carpool, or telecommuting to work five days a week.

Source: Point2point. Point2point Annual Report 2013.

COMPLETED SMART*TRIPS* IN SPRINGFIELD

Harlow Neighborhood
City of Eugene, 2010

Gateway EmX corridor
City of Springfield, 2012

Hayden Bridge Neighborhood
City of Springfield, 2013

SPRINGFIELD SMART*TRIPS* IN THE WORKS

Main Street corridor
(28th to 48th Street)
City of Springfield, 2014

Main Street corridor
(48th to 62nd Street)
City of Springfield, 2015

"WE LOOK FORWARD TO ENCOURAGING MORE FAMILIES THROUGHOUT THE YEAR TO INCREASE THE PERCENTAGE OF STUDENTS WHO WALK AND/OR BIKE TO SCHOOL!"

-THE VILLAGE SCHOOL EXECUTIVE DIRECTOR

Student Transit Pass Program

Point2point is coordinating efforts with Hamlin Middle School to conduct a Hamlin Bus Pass Research Study. As a noted recommendation in the Lane Livability Consortium's *Assessment of Equity and Opportunity for Affordable Housing Residents Report* to reinstate free or inexpensive youth bus passes for students to help them get to school, after school activities, and employment—the Hamlin Bus Pass Study provides students with free LTD bus passes. LTD will use this study as an opportunity to provide resources to a population in need and seek support for bringing back the Student Transit Pass Program.

Park & Ride Program

Point2point manages 24 Park & Ride (P & R) lots throughout the region. These include shared use and those owned by Lane Transit District (LTD). Point2point works closely with LTD to evaluate the usage of these facilities.

Smart*Trips* Program

Smart*Trips* is a comprehensive transportation options education program that provides households with individualized travel tools aimed at increasing biking, walking, use of public transit, and carpooling. To date, 26,000 households and 650 businesses throughout Eugene and Springfield have had the opportunity to request travel tools and participate in Smart*Trips* neighborhood events. Point2point is collaborating with the cities of Eugene and Springfield to implement the Smart*Trips* Regional Strategic Plan.

In order to evaluate the effectiveness of the Smart*Trips* programs in reducing drive-alone trips, pre- and post-program travel surveys are conducted to measure mode share change in the target area.

Wheels by the Willamette

Point2point partners with the City of Springfield and other local agencies to host an event called "Wheels by the Willamette". This event is hosted three to four times a year throughout the summer and early fall; it is open to the public and designed to encourage walking and biking along the shared use path system. A station is set up on a bicycle path to provide travelers with a free refreshment, bicycle path information, free bicycle safety gear, a bike safety check and tune-up.

Regional CarShare Program

In 2012, Point2point expanded CarShare to the broader region through an agreement with Enterprise CarShare (previously known as WeCar). Seven vehicles are conveniently located throughout the community (six in Eugene, one in Springfield). In 2013, the program was able to incorporate the three off-campus University of Oregon vehicles used by community members. Other potential carsharing opportunities are under discussion.

Congestion Mitigation Program

The Point2point Congestion Mitigation Program's (CMP) primary purpose is to guide community travel options education and promotional efforts to increase use of travel options before, during, and after major regional road construction projects. In addition, Point2point plans to expand this to include targeted roadway corridors that have a traffic level of service that is close to or projected to failing status during peak commute hours.

Point2point continues, in partnership with Lane Council of Governments (LCOG), to provide the region's jurisdictions and general public with congestion mitigation services for road infrastructure projects with significant regional impact. In addition, Point2point provides guidance, financial support, and monitoring for LCOG's KeepUsMoving.info (KUMI) traveler information website.

General Outreach & Education Program

Point2point staff continues to develop outreach and education materials for a variety of audiences. These efforts include, but are not limited to:

- Employer Transportation, Health and Benefit Fairs
- Chamber of Commerce Businesses Expos
- Sustainability Fairs
- Radio Interviews
- Student School Registrations
- Home Shows
- Earth Day Events
- Presentations to higher educational institutions, Sustainable Business Networks, Senior and Disabled Services

SMART*TRIPS* BETHEL RESULTS:

The 2013 SmartTrips Bethel program resulted in a reduction of drive-alone mode share in the target area, with corresponding increases in transit, walk, and bike mode share.

Trips made by:

- walking increased by 26.9%
- bike increased by 10.8%
- transit increased by 6.7%

Based on the demonstrated reduction in drive-alone trips, it is estimated that program area residents will continue to drive 2,416 fewer miles per day following the program, which can be extrapolated to a reduction of nearly 882,000 vehicle miles per year.

Source: City of Eugene. Smart*Trips* Bethel Final Report. 2014.

Planning & Policy Development

Point2point participates in local, regional, and state transportation options planning and policy development. Specifically, Point2point receives direction from the Transportation Options Advisory Committee (TOAC), a subcommittee of the CLMPO's Transportation Policy Committee (TPC). TOAC is a TO specific committee organized through LCOG with jurisdictional representation to guide implementation of the region's TO programs and services. As well, Point2point supports statewide efforts in conjunction with the Transportation Options Group of Oregon (ToGo) and the Statewide TO Topic Plan currently under development by ODOT.

CITY OF EUGENE PROGRAMS AND SERVICES

Smart *Trips* Program

The City of Eugene also administers a Smart*Trips* program for Eugene residents. Smart*Trips* provides community members in the target area with the materials and tools they need to get around Eugene in a variety of ways. A wide range of transportation options allows people to save money, improve their health, and improve the health of their community.

Completed neighborhoods or those with designated funding include:

- Harlow Neighborhood, City of Eugene, 2010
- Whitaker, Jefferson Westside, and Trainsong Neighborhood, City of Eugene, 2011
- East Bethel Neighborhood, City of Eugene, 2013

Additional Smart*Trips* Eugene programs are planned for south Eugene in 2015, west bethel in 2016, and west Eugene along the West Eugene EmX corridor in 2017.

Eugene Sunday Streets

Eugene Sunday Streets is a free community event that premiered in Eugene in summer 2011 and continues annually. Eugene Sunday Streets features a car-free route that opens the streets for people to walk, bike and roll. Activity centers at local parks host free healthy and active activities such as fitness classes, dancing, yoga, slack lining, live music and more. These events work to get more people to use active modes of transportation thus improving our community's livability and health. In 2013 and moving forward, the City of Eugene plans to hold two Sunday Streets events each year.

General Outreach and Education

The City of Eugene develops and distributes informational resources to the community to better educate people about TO, including but not limited to, developing and distributing the Eugene-Springfield Bicycle map and Resource Guide; coordinating a traffic safety education program; and publishing a monthly InMotion e-newsletter that is distributed to over 1,800 people throughout the metropolitan area.

Breakfast at the Bridges

Throughout the late spring, summer and early fall, Breakfast at the Bridges is a monthly event that encourages walking and biking along the shared use path system. The events are hosted by the City of Eugene, in partnership with local bicycle shops, and are designed for path users to grab a quick bite to eat and a cup of coffee, meet City staff, learn more about transportation in Eugene, and get a bicycle safety check all at the same time.

This signature summer event series celebrates the outdoors and encourages active transportation – especially walking and bicycling – to meet larger City goals, including: healthy living, sustainability and a vibrant business community. Breakfast at the Bridges features local advocacy organizations and local businesses who actively work toward these City goals.

TO Planning

City of Eugene TO staff is actively engaged in the development and implementation of a variety of local and regional planning and policy development efforts. These efforts include, but are not limited to:

- The City of Eugene Pedestrian & Bicycle Strategic Plan:
- The Eugene Pedestrian and Bicycle Master Plan
- 20-minute Neighborhood Assessment
- City of Eugene Transportation System Plan

These plans are described in further detail in in Appendix H.

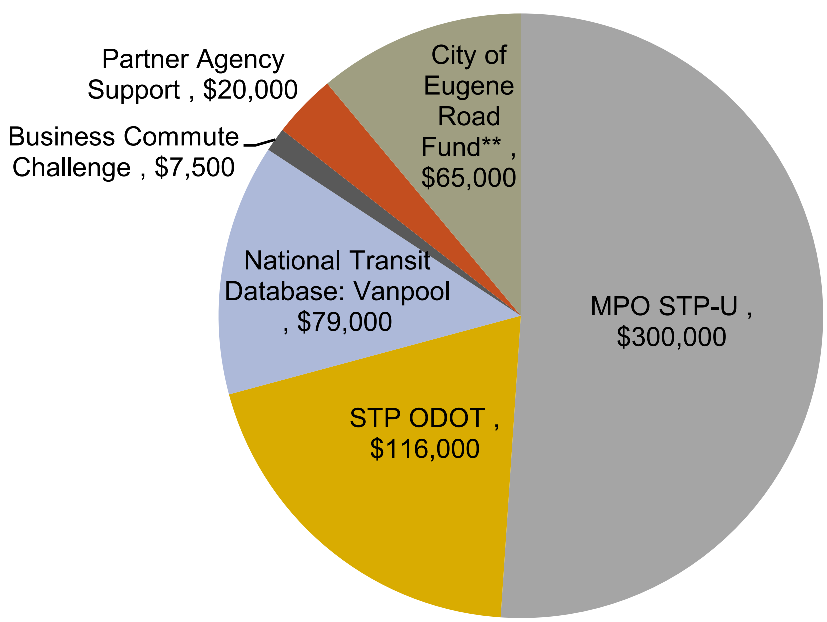
PROGRAM BUDGETS AND FUNDING SOURCES

Transportation planning and related efforts can be funded through a variety of local, state, and federal sources. However, TO revenues represent a fraction of the overall annual Eugene-Springfield transportation budget with many guidelines on how funding can be spent. As it is currently, most funding for existing TO programs and services is derived from the MPO, ODOT and other competitive grant programs.

Point2point receives its primary base funding through the MPO and ODOT, with match provided by the region's jurisdictions, including LTD, as outlined in Figure 1 below. The City of Eugene TO program and services receives its predominant base funding from the city's Road Fund. The region has received funding for special projects, e.g. SRTS mapping, the Regional Transportation Options Plan, Sunday Streets and Drive Less Connect; this regional budget is approximately $700,000. However, this budget is highly variable and not stable from year to year. The chart below clarifies the funding distribution for TO programs and services, match is omitted from the total.

It is evident, that in order to expand the scope of coverage of TO, the region will need to creatively piecemeal together various funding sources, or identify a more secure and stable funding source. For a comprehensive list of local, state, federal and universal funding sources referrer to Appendix I.

Figure 1: Regional TO Programs and Services 2013 Budget[16]*



*The 2013 budget does not include the $700K mentioned for special project, and any attributed local match for federal funding.
**The City of Eugene Road Fund estimated budget if for 2011 -2012.

[16] Point2point. Point2point 2013 Annual Report.

SECTION 4: PLAN DEVELOPMENT

The goals and strategies proposed in the RTOP are derived from four key steps:

- Internal and External Conditions: a review of regional, state, and federal factors, existing conditions, and analysis of strengths, opportunities, weaknesses and threats
- Regional and State Planning: a review of related land use, environmental, and transportation plans' goals, policies, and strategies
- Public Engagement: leverage of concurrent planning processes' public input, targeted stakeholder focus groups, jurisdictional review
- Identification of key regional needs and opportunities

EXISTING TO CONDITIONS

During the initial stages of RTOP development, it was essential to understand the existing conditions, trends and context to effectively plan for TO programs and services. Various internal and external factors, at local, state and national scales, greatly influence the current and future delivery of TO.

Existing Conditions Report

The CLMPO Existing Conditions Report (Appendix A) provides baseline general planning information:

- Existing TO efforts, funding structures and policies;
- Travel characteristics based on commute patterns, mode choice, and vehicle miles traveled (VMT) throughout the CLMPO; and,
- Federal and state political support for TO and TO related initiatives that influence planning at the local level.

SWOT Analysis

To further evaluate the overall strategic position of regional TO programs and services, Point2point developed a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis (Appendix D). The SWOT analysis provided a broad scan of potential opportunities and limiting factors for further enhancing TO for the region; offering context for the development of the RTOP Strategic Plan.

REVIEW OF REGIONAL PLANNING EFFORTS

A number of transportation, land use and economic development plans in the region were reviewed to evaluate the extent in which transportation options are already supported throughout the region. This helps to establish a baseline for any new TO efforts and also identifies potential opportunities for strengthening support for TO through these related plans.

There are several plans in the region that promote enhanced use of transportation options. Appendix H summarizes these plans and their connection to the RTOP; including, but not limited to:

- Coburg Transportation System Plan
- Eugene transportation System Plan
- Springfield transportation System Plan
- Lane Transit District Long-Range Transit Plan
- Regional Transportation System Plan
- Regional Transportation Plan

PUBLIC ENGAGEMENT

The RTOP recognizes the importance and necessity of diverse stakeholder input throughout the planning process. The Plan incorporates comments from past and current public involvement processes including the planning for land use, local and regional transportation, bicycle and pedestrian, climate change, and safety.

Public Participation Approach

The RTOP Public Participation Approach outlines the process to include public input. It describes how the RTOP coordinates, leverages, and builds upon the breadth of public involvement from relevant land use, transportation and other applicable planning efforts within the CLMPO. Reference Appendix B for an overview.

Consultation of Public and Private Entities

CENTRAL LANE MPO CITIZEN ADVISORY COMMITTEE

The CAC, as the then primary citizen review conduit for the Central Lane MPO, served as a key stakeholder in the early RTOP process.

FOCUS GROUPS

The RTOP process hosted two series of five focus groups, in late 2011 through early 2012, regarding current and potential transportation options opportunities in relationship to recreation, employment, education, human services, health/insurance, employers, and economic development. Stakeholders reviewed identified needs and opportunities and the existing transportation options and tools. The discussion served as a foundation to discuss how best TO could meet current and future needs. The meetings explored ways to leverage programs, strategies, and outline implementation possibilities.[17]

In early 2014, two additional focus group sessions were held regarding the implementation and evaluation of draft strategies. These focus groups convened a similar group of representatives from health care and insurance, human services, recreational services, community groups, higher education, schools and economic development. The focus group sessions allowed opportunity for a diverse group of stakeholders to identify potential partnerships and influence how TO strategies may be implemented throughout the region.

CITY INTERVIEWS

A supplemental element of stakeholder outreach included interviews with city managers from the surrounding small cities. An analysis of the qualitative data collected from the focus group discussions

[17] RTOP Public Involvement Approach. 2013.

and small city interviews contributed to the RTOP identification of needs and opportunities for regional transportation options.[18]

TECHNICAL ADVISORY COMMITTEE

The RTOP planning process was guided by extensive involvement from local agency staff. The Transportation Options Advisory Committee (TOAC), served as the RTOP Technical Advisory Committee. TOAC provided data, review, and comments on key RTOP elements. Planning efforts relied heavily on local jurisdictional and agency perspectives that reflected the communities they represent.

Coordination with other planning efforts

Upon the RTOP launch, the region was experiencing an unprecedented degree of simultaneous planning taking place at the local, regional, state and federal levels. The public had multiple mechanisms to provide input through numerous transportation, land use, and climate change planning efforts. With such concurrent planning underway, a high level of jurisdictional collaboration served to share information collected through these processes.[19]

The RTOP provided a prime platform to synthesize transportation options ideas, opinions and perspectives obtained through the variety of current planning processes. A comprehensive list of local and regional planning efforts is documented in Appendix H.

REGIONAL TRANSPORTATION SYSTEM PLAN (RTSP) SURVEY

In 2010 and 2011, an online public survey was developed for the Regional Transportation System Plan (RTSP) planning process. This effort was conducted in coordination with local Transportation System Plans' (TSP) planning efforts, and feedback from the survey directly informed the RTOP.

The survey was active for a four month period. This allowed the region to collect information on the following:

- Usual Mode of Transportation
- Overall Transportation System
- Modes of Transportation
- Future Transportation Values
- Future Transportation System Improvements
- Future Transportation System Funding

Needs and Opportunities

The above steps culminated in the identification of needs and opportunities and the type of TO strategies, programs, and services to best meet current and future regional transportation demand.

[18] Needs and Opportunities Memo. 7.6.2012.
[19] RTOP Public Involvement Approach. 2013.

The RTOP focused on seven directives:[20]

- Provide adequate services for an aging population and support millennials' travel choices
- Consider issues of transportation accessibility and equity for disadvantaged and underrepresented communities
- Recognize the impact that transportation facilities and the built environment have on public health
- Respond to issues of safety for all modes
- Improve transportation network connections and access points
- Increase services to accommodate the commute shed and diverse travel patterns
- Manage congestion and vehicle miles traveled to reduce the need for additional roadway capacity

These directives helped to form the basis for the development of TO jurisdictional toolkits and the strategic plan, to assist regional and local governments in transportation options future expansion.

[20] Needs and Opportunities Memo. 7.6.2012.

RTP GOAL #1

Integrate transportation and land use to support transportation choices, promote all modes of transportation, reduce our reliance on any single mode of travel, and enhance community livability

- Supported by RTOP Goals 3 & 4

RTP GOAL #2

Support regional sustainability by providing a transportation system that considers economic vitality, environmental health, and social equity.

- Supported by RTOP Goals 1,2,3 & 4

SECTION 5: RTOP STRATEGIC FRAMEWORK

The RTOP Strategic Framework outlines goals, objectives and strategies that support, and further enhance, the vision of the Central Lane Metropolitan Planning Organization (CLMPO) Regional Transportation Plan (RTP).

The federally-required RTP includes provisions for meeting the transportation demand of residents over at least a 20-year planning horizon while addressing transportation issues and making changes that can contribute to improvements in the region's quality of life and economic vitality. It includes consideration of all transportation modes: roadways, transit, bikeways and pedestrian circulation, as well as freight movement and regional aspects of air, rail and inter-city bus service.[21]

GUIDING PRINCIPLES

Development of the RTOP Strategic Framework followed a series of principles to guide the TO planning efforts.

EXPAND TO PROGRAMS

Expand TO programs and services to better serve regional transportation needs and opportunities, provide for improved access, and enhance community livability.

PROVIDE COST EFFECTIVE TO

Implement TO programs and services as a least-cost planning approach that supplements the existing transportation system, as a means to reduce future roadway capacity expansion.

ADDRESS THE REGION'S CHANGING DEMOGRAPHICS

Adapt TO programs and services to address the mobility needs of a rapidly aging population; and facilitate the provision of services for those who do not or choose to not own a vehicle.

INTEGRATE INFORMATION TECHNOLOGIES INTO TO

Explore opportunities to effectively integrate traveler information tools and technologies into multimodal travel, in order to improve ease of access and convenience of TO.

[21] Central Lane Metropolitan Planning Organization. Regional Transportation Plan. December 2011.

INTEGRATE TO INTO PLANNING AND INVESTMENT

Leverage transportation planning and infrastructure investments in an effort to establish better connections between all modes of travel.

CREATE MORE PUBLIC AND PRIVATE PARTNERSHIPS

Support and encourage public-private partnerships to leverage transportation investments and strengthen collaborative decision-making.

RTOP VISION

The vision of what TO could provide for the region developed over the course of RTOP planning.

Promote and provide for safe, efficient and equitable transportation options throughout the region that support economically vibrant and livable communities, improve public health through active transportation, and enhance environmental sustainability.

GOALS, OBJECTIVES AND STRATEGIES

The RTOP goals, objectives and strategies listed below address regional transportation needs and opportunities and advance the region towards the stated vision.

Goal 1: Provide transportation options programs and services for greater equity in the community.

Definition and Intent: Provide transportation options that meet the diverse transportation needs of all people, regardless of age, income, race or ability. Transportation options improve equity because they help people become more independent and enhance the accessibility and connectivity of the existing transportation system.

OBJECTIVE 1: Support independent and active travel for all.

Strategy 1.1.A: Develop TO training sessions for local, regional, and statewide public and private human service agencies and community organizations.

Strategy 1.1.B: Continue development of bi-lingual and accessible travel options materials, programs, and services.

Strategy 1.1.C: Establish Safe Routes to Schools (SRTS) programs and services for all of the region's K-8 schools, as outlined in the SRTS Report "Moving Youth Forward."

Strategy 1.1.D: Support the reintroduction of the Student Transit Pass Program.

Strategy 1.1.E: Promote and administer carpool, walking and biking matching services for families of K-12 students.

IMPLEMENTATION CONSIDERATIONS

STRATEGY 2.2.B:
A universal payment system would allow consumers to seamlessly pay for different modes with one payment system, allowing them to transition from transit, bike share, bike parking locations and other travel options.

Implementation:

- Develop a smart card payment management system for the transit network.
- Investigate public and private partnerships to advance smart card functionality for multi-modal options (transit, rail, bike share, car share, etc.)

Goal 2: Provide information to the region's residents, employees and visitors about available options to driving alone.

Definition and Intent: Allow community members a choice in when, where and how they may travel and empower individuals to overcome transportation barriers. Expansion and availability of transportation options and traveler information will improve accessibility and mobility throughout the transportation system for all.

OBJECTIVE 2: Deliver transportation options information tools and technologies that enable travelers to better manage individual trips.

Strategy 2.2.A: Support the development of a multi-modal mobile to mobile and web-based trip planning tools.

Strategy 2.2.B: Develop a universal payment management system for all modes.

Strategy 2.2.C: Implement bicycle and pedestrian way finding signage at major destinations and intersections throughout the MPO.

Strategy 2.2.D: Continue to offer ride-matching services and support efforts to enhance the functionality of the region's rideshare tools.

Strategy 2.2.E: Encourage employers to offer flexible schedules.

Strategy 2.2.F: Support the adoption of real time passenger information for fixed-route transit and carpool services.

Strategy 2.2.G: Update KeepUsMoving.info website to optimize the accessibility of information.

OBJECTIVE 3: Enhance connectivity between transportation modes to support mobility and "last mile" trips.

Strategy 2.3.A: Pilot a mobility hub concept that allows travelers access to transportation options and information at specific locations.

Strategy 2.3.B: Develop a regional bike sharing program.

Strategy 2.3.C: Support public and private investment in bicycle parking improvements throughout the region.

Strategy 2.3.D: Evaluate the effectiveness of the region's park and ride network.

Strategy 2.3.E: Foster public and private investments in vanpooling and other rideshare programs throughout the Willamette Valley.

Strategy 2.3.F: Continue to promote the growth and investment of the private sector in car-sharing within the metropolitan area.

IMPLEMENTATION CONSIDERATIONS

STRATEGY 3.4.C:
Smart*Trips* is an individualized outreach strategy that uses education and incentives to encourage people to try new ways of making trips. This program is dedicated to helping people address barriers to choosing transportation options.

Implementation:

Expand Smart*Trips* model as a vehicle for other populations to benefit from individualized outreach, i.e.:

- Affordable housing developments
- Senior housing and 55+ communities
- Gender, ethnicity, and age specific efforts
- New residential program

Goal 3: Encourage transportation options as a means to improve community health, enhance the environment, and strengthen local economies.

Definition and Intent: Improve ease of access for TO so as to enhance livability and quality of life for the region. There are many health, environmental, and economic benefits of transportation options that support long-term community priorities and values, including, but not limited to, increasing physical activity, maintaining connections to critical services, improving air quality, preserving open-space, reducing traffic demand, and strengthening system efficiency—including the movement of freight and goods.

OBJECTIVE 4: Coordinate and administer regional TO outreach and educational campaigns.

Strategy 3.4.A: Promote the use of state and federal TO incentives and tax credits.

Strategy 3.4.B: Coordinate joint public and private sponsored TO encouragement and educational campaigns.

Strategy 3.4.C: Implement a regional Smart*Trips* program.

Strategy 3.4.D: Expand and improve ease of access to transit through Group Pass Programs.

Strategy 3.4.E: Coordinate and promote Emergency Ride Home (ERH) incentive program services to regional employees and employers.

Strategy 3.4.F: Expand Employer Programs to address all trips made by employees.

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Goal 4: Integrate transportation options programs and services with local, regional and state transportation planning.

Definition and Intent: Focus on excellence in the provision of transportation options through coordination with transportation planning among local agencies and jurisdictions (Lane Transit District, Cities of Eugene, Springfield and Coburg, and Point2point) and regional and state partners. The coordination of transportation investments and the integration of transportation options enables a cost-effective and efficient approach to intermodal planning.

OBJECTIVE 5: Integrate transportation options in planning to optimize investments.

Strategy 4.5.A: Enhance partnerships with higher education institutions to facilitate incorporation of TO into their transportation planning, programs and services.

Strategy 4.5.B: Incorporate TO programs and services into transportation and land use developments.

Strategy 4.5.C: Integrate recommendations from the Central Lane MPO Scenario Planning process.

Strategy 4.5.D: Incorporate applicable TO programs into the region's Safety and Security Plan.

Strategy 4.5.E: Provide congestion mitigation outreach services for regionally significant road construction projects and identified congested corridors.

Strategy 4.5.F: Consider integration of applicable State Transportation Options Plan policy guidance for regional transportation planning, programming and investment.

THE STRATEGIC PLAN HIGHLIGHTS:

Continuation of Existing Programs and Services: the region can continue to provide with minimal expansion of coverage.

Expanded Programs and Services: that reflect expanded scope coverage to better meet the needs of the community.

New Programs and Services: beyond what the region provides today.

STRATEGIC PLAN

The RTOP Strategic Plan provides additional context for the regional TO programs and services addressed in the strategies above. The Strategic Plan goals, objectives, and strategies are detailed below in Tables 1-3.

The Strategic Plan provides a comprehensive set of TO programs and services that, once implemented, will provide for greater choice of travel. The order in which programs and services in this plan are implemented will depend on many factors, including budget and grant availability, community support, policy direction, and partner priorities and capacity. Implementation will be reviewed by the local and regional TO providers and administrators on an ongoing basis. Existing, expanded and new TO programs and services and implementation strategies will be outlined in further detail in internal strategic plans.

Strategic Focus

While it is important to note that all of the programs and services identified are unique in terms of what they provide, whom they target, and how they connect, and educate—all of these efforts can be summarized into two areas of broad strategic focus: **access to knowledge and information** and **coordination of partners, programs, services, and planning.**

ACCESS TO KNOWLEDGE AND INFORMATION

Access to information is recognized as one of the greatest barriers to TO. Enhancing the ease of access to information—whether it is in regards to the proximity of bicycle paths, sharing of rides with neighbors or traffic congestion—can have a dramatic effect on TO awareness. Information has the potential to increase the convenience of TO, by giving people more information about options they have for getting around. This Plan recognizes the need to offer tools that enable travelers to make informed travel choices based on cost, availability, location, and time.

COORDINATION OF PUBLIC AND PRIVATE EFFORTS

Many of the strategies documented in the Strategic Plan rely heavily on interagency and multijurisdictional collaboration. Not only is it essential that transportation planning be coordinated so that efforts and investments are consistent with one another, but also, for the purposes of leveraging financial resources

Partnerships and collaborative efforts are often able to attract funding at higher levels, leverage outreach, and spur interest or support from private entities. Private investments include the expansion of infrastructure, programs and services (e.g. a multi-modal trip planning tool). Additional public support can come from sponsorship or underwriting of multimodal trip planning tools, carpool matching or other TO information websites.

Strategic Plan: Existing, Expanded and New TO Programs and Services

Table 1: Continuation of Existing Programs and Services

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 1.1.E: Promote and administer carpool, walking and biking matching services for families of K-12 students	MPO	School Solutions is a program that provides carpool, walking and bike matching services to all families of K-12 students. Safe Routes to School (SRTS) is one component of this effort. SRTS advocates for and promotes the practice of safe bicycling and walking to and from schools throughout the Eugene-Springfield area. SRTS promotes these services to target schools that are K-8th grade. This specific TO effort is focused on school aged populations; additional TO programs and services are provided for other community sub-groups i.e. employers, adults, etc.	•Ongoing support for SRTS program and maintenance may allow for the expansion of school based TO services to provide additional outreach to high schools •Enhanced development and promotion of transit and ridesharing networks at the high school level •Potential for more progressive implementation in the Springfield School District, since this is a new and independent program
Strategy 2.2.G: Update KeepUsMoving.info website to optimize the accessibility of information	MPO	KeepUsMoving.info (KUMI) provides user-friendly information for the public about road construction projects and available transportation options. KUMI efforts engage construction project managers throughout the region to improve pre-construction coordination.	No proposed expansion of coverage.
Strategy 2.3.E: Foster public and private investments in vanpooling and other rideshare programs throughout the Willamette Valley	MPO / ODOT	A vanpool is a group of commuters sharing their ride in a passenger van. Vanpools can lower the transportation cost of commuters. Commuters can enjoy the scenery and reduce the stress of driving. Point2point promotes and provides management support for Valley Vanpool which provides vanpooling services for the mid and southern Willamette Valley. The State of Oregon is currently researching best practices regarding vanpooling programs and it is uncertain how this will influence vanpooling throughout the Willamette Valley.	No proposed expansion of coverage.

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 2.3.F: Continue to promote the growth and investment of the private sector in car sharing within the metropolitan area	MPO / ODOT	Car sharing programs allow people to reserve a car by the hour. Custom programs can be developed for universities, businesses, governments and organizations resulting in transportation savings. Models include returning cars to designated parking locations (e.g., Enterprise Car share) or dispersed locations (e.g., Car2Go). Car sharing can also take place informally through a informal matching services such as a peer2peer approach (e.g., Get around), where neighbors, friends, etc. can rent out their personal car for an hourly rate with third party insurance coverage. Car sharing services are currently managed through a regional contract with point2point and Enterprise CarShare.	·Promote formalized car sharing to universities, businesses, governments, organizations and the broader community ·Promote informal peer2peer car sharing services when available ·Explore market requirements for Car2Go

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·MPO (Sustained MPO Funding Allocation)
·MPO/ODOT (Combination of Sustained MPO and Supplemental ODOT Funding)
·1-time (Competitive 1-Time Funding)
·No Existing Funding

Table 2: Expanded Programs and Services

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 1.1.B: Continue development of bi-lingual and accessible travel options materials, programs, and services	MPO	The region has diverse traveler information needs for translated materials, audio and visual aids and sight-impaired tools. These resources help people to better navigate and manage their individual trips. Accessible information and materials that do not rely on advanced technology or devices are critical resources in conveying information to all populations.	·Thoroughly explore the region's resource demands for managing special needs materials ·Develop a process for managing bilingual and special needs requests for materials throughout the region (there is potential to partner with LTD Accessible Services) ·Emphasize development of sight-impaired resources including Braille (LTD - online audio description of routes and services), and sign language translatior and services Partner with local agencies such as Centro Latino Americano and Downtown Languages, Inc.
Strategy 1.1.C: Establish Safe Routes to Schools (SRTS) programs and services for all of the region's K-8 schools, as outlined in the SRTS Report "Moving Youth Forward"	1-time	Safe Routes to School (SRTS) advocates for and promotes the practice of safe bicycling and walking to and from schools throughout the Eugene Springfield area. "Moving Youth Forward" outlines a strategic approach to increase the number of children walking and biking to school. The strategy highlights opportunities to leverage, support, and enhance existing programs and services to better reach students within the MPO area.	·Secure long-term funding for SRTS program maintenance and expansion. · Maintain and expand bicycle and pedestrian education and safety training through the City of Eugene's River House Outdoor Program; with a goal of offering these services in every elementary (pedestrian) and middle (bicycle) school in the region.
Strategy 2.2.C: Implement bicycle and pedestrian way-finding signage at major destinations and intersections throughout the MPO	1-time	The presence of way finding signage provides travelers with information about nearby destinations and transportation options. There has been local momentum for incorporating wayfinding signage throughout the community. The City of Eugene has developed a comprehensive wayfinding signage plan and, as a result of Sustainable Cities Year (SCY), the City of Springfield has initial way finding recommendations available online.	Work with jurisdictions to inventory locations for additional signage not identified in existing MPO plans including, but not limited to, public libraries, the Eugene Airport, Amtrak, shopping centers and malls, park and rides, and high volume EmX and transit stations.

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 2.2.D: Continue to offer ride-matching services and support efforts to enhance the functionality of the region's rideshare tools	MPO / ODOT	Regional and statewide rideshare matching tools can be tailored to the needs of the community and diverse community groups.	Assess the features and capacity of existing rideshare tools and determine potential expansion: •*Research potential rideshare regulations and legal implications* •*Identify sub networks within the existing rideshare tool that target non-traditional audiences and pilot a ridesharing campaign to engage these groups, i.e. schools, elderly, geographic communities.* •*Support the development of dynamic (unplanned trips) ridesharing, through the functions of the existing rideshare tools or private application.* •*Market ridesharing and vanpooling opportunities in rural areas through established networks, i.e. community groups, churches, restaurants* In collaboration with LTD's Accessible Services, work to incorporate TO strategies and services into service planning and delivery. •*Enhance the functionality of the rideshare tool to address non-emergency medical transportation needs and conduct a pilot campaign.* •*Investigate a reimbursement program for non-emergency medical transportation through rideshare. (i.e. drivers would receive Medicaid reimbursement for a medical shared trip)* •*Incorporate the medical rideshare concept into the TO Training Strategy*
Strategy 2.3.D: Evaluate the effectiveness of the region's park and ride network	MPO	Determine strategic park and ride site locations with consideration given to anticipated growth of the transit system, and land use, and development. Point2point conducts annual park and ride inventory.	•Conduct an ongoing strategic assessment of the region's existing and future park & ride network to balance the addition of new locations. •Promote park and ride locations, i.e. online interactive park and ride map on Point2point's website

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 3.4.B: Coordinate joint public and private sponsored TO encouragement and educational campaigns	MPO / ODOT	Encouragement and educational campaigns are often incentive-based programs that seek to encourage people to explore active and healthy transportation choices. Existing local campaigns that encourage behavioral change, include: Business Commute Challenge, Sunday Streets, Breakfast at the Bridges, Dump the Pump, State Drive Less Challenge, etc.	Develop scope of encouragement and educational campaign •*Evaluate effectiveness of existing encouragement and educational campaigns* •*Develop a regional TO health, safety and prevention encouragement and educational campaign, i.e. establish and maintain regional partnerships with Community Care Organizations (CCOs) to encourage TO as a health prevention strategy* •*Implement campaigns that connect with new residents, i.e. provide TO resources for new area residents as part of a "Welcome" community orientation packet. Work with Chambers of Commerce to highlight available transportation options in relocation packets and on websites* •*Partner with BRING's ReThink Program to engage local businesses in TO* •*Develop and pilot an intercity TO commute challenge, i.e. between Corvallis and Eugene* Explore potential sponsorships and partnerships with local public and private entities, i.e. health care or insurance providers, Community Care Organizations, ODOT, car share vendors, LCHAY, Bicycle Transportation Alliance (BTA), local or regional businesses, etc.
Strategy 3.4.C: Implement a regional Smart*Trips* program	1-time	Smart*Trips* is an individualized outreach strategy that uses education and incentives to encourage people to try new ways of making trips. This program focuses on helping people address barriers to choosing healthy and sustainable transportation options. Smart*Trips* has been shown to be effective at reducing vehicle miles traveled (VMT) and single occupancy vehicle trips in target neighborhoods. The regional program is funded through 2017.	Secure long-term funding for Smart*Trips* as a standard core service of the region's TO efforts Expand Smart*Trips* model as a vehicle for other populations to benefit from individualized outreach, i.e.: •*Affordable housing developments* •*Senior housing and 55+ communities* •*Gender, ethnicity, and age specific efforts* •*New resident program*

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 3.4.D: Expand and improve ease of access to transit through Group Pass Programs	MPO / LTD	Group Pass Program is an annual contractual agreement between an employer or an organization and LTD to provide discounted transit passes for unlimited transit use. The Commuter Club Transit Voucher Program is a component of the Group Pass Program. This service includes subsidies by employers for less frequent transit use.	•Promote the Group Pass Program along congested corridors, as identified in the Congestion Management Process •Explore funding models for the Group Pass Program •Initiate a Commuter Club Transit Voucher outreach campaign to local employers •Promote the Group Pass Program to middle and high schools throughout the MPO (in the absence of the Student Transit Pass) •Explore expansion of Group Bus Pass Program to affordable housing developments, large residential developments, and neighborhood associations
Strategy 3.4.E: Coordinate Emergency Ride Home and Emergency Transportation Coordinators as complimentary employer incentive programs	MPO / ODOT	An Employee Transportation Coordinator (ETC) is someone who works hand-in-hand with Point2point to administer and promote transportation options (bus, carpool, vanpool, bike, walk, compressed work week, and telecommute) to employees at their worksites. Employers enroll in this program to provide employees, who use transportation options other than a single occupancy vehicle to get to work, with assurance that they have a ride home in the event of an emergency.	Emphasize the role of ETCs through the development of an ongoing engagement strategy •*Develop an annual calendar of ETC events, i.e. -Transportation Fairs* •*Deliver a monthly ETC newsletter* Expand ETC model to include organizations, agencies, and housing complexes as a key component in community travel training •Research the potential of program expansion to the broader community, not restricting ERH to place of employment
Strategy 3.4.F: Expand Employer Programs to address all trips made by employees	MPO	Employer Programs offer education and information for workplace transportation that cut travel costs, reduce air pollution and increase physical activity. Regional Employer Programs emphasize changing commute travel habits.	Expand Employer Programs to include all trips made by employees; including, trips to the grocery store, running errands, traveling to medical appointments, etc. •*Emphasize TO for all trips made by employees through existing programs and services, i.e. BCC, Oregon Driveless Challenge and* SmartTrips •*Run a pilot outreach campaign at key large area employers*
Strategy 4.5.A: Enhance partnerships with higher education institutions to facilitate incorporation of TO into their	MPO	Local Higher Education Institutions provide TO resources for students, faculty, staff and visitors accessing campus, including: walking, biking, transit, bike share, car share, carpooling and driving.	•Engage University of Oregon, Lane Community College and NW Christian University Transportation program planning offices and student leadership body

transportation planning, programs and services			•Engage with student housing

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for implementation:
Strategy 4.5.E: Provide congestion mitigation outreach services for regionally significant road construction projects and identified congested corridors	MPO	Congestion mitigation program activities include targeted outreach along key corridors that exceed level of service standards, experience high levels of congestion due to development, major road construction, events, or transit corridors that may experience reduction in service. Point2point, in coordination with Lane Council of Governments, provides comprehensive information to jurisdictions for congestion mitigation, including management of KeepUsMoving.Info.	•Identify and prioritize congested corridors •Pilot TO outreach campaigns to prioritized geographic areas and corridors. •Develop a TO corridor outreach campaign (similar to Smart*Trips*) and tailor options that are appropriate for the corridor •Expand outreach campaigns to include EmX corridors

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·MPO (Sustained MPO Funding Allocation)
·MPO/ODOT (Combination of Sustained MPO and Supplemental ODOT Funding)
·1-time (Competitive 1-Time Funding)
·No Existing Funding

Table 3: New Programs and Services

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for the region:
Strategy 1.1.A: Develop TO training sessions for local, regional, state public and private human service agencies and community organizations	No Existing Funding	No TO training currently exists for community based agencies, groups or organizations.	As part of TO Resource program, provide travel training to key organizations offers a low-cost approach to train the trainers for broader outreach. Frequent TO trainings allow agencies, community groups, and organizations to determine the best TO for populations served; and improve access to jobs, recreation, healthy food, etc. •Develop a collaborative TO training module and program with input from LTD Accessible Services and local jurisdictions •Target trainings to administrators, staff, and case workers of the United Way Agency Directors Organization, Human Services Network, Lane Work Force Partnership, Catholic Community Services, Oregon Department of Human Services, LCOG's Senior & Disabled Services Division, Lane Community College's Successful Aging Institute, Centro Latino Americano, Downtown Languages, Inc., school districts, Kids Sports, DMV, Travel Lane County, etc. •Work with low income housing providers to offer trainings with affordable housing developments throughout the community.
Strategy 1.1.D: Support the reintroduction of the Student Transit Pass Program	No Existing Funding	The Student Transit Pass Program allowed middle and high school students throughout the LTD service area to ride the bus for free. The 2011 Oregon Legislature ceased the program funding mechanism with changes to the Business Energy Tax Credit program. In the absence of the Student Transit Pass Program, Lane Transit District administers reduced youth fare tickets and makes available the Group Pass Program (GPP) for individual schools.	•Explore ongoing and secure funding options to reintroduce a Student Transit Pass Program •Market the Group Pass Program for all middle and high schools in the interim
Strategy 2.2.A: Support the development of a multi-modal mobile to mobile and web-based trip planning tool	No Existing Funding	Lane Transit District is preparing open source data for fixed-route services at this time that will be incorporated into the LTD website.	Real time transit passenger information can be accessible through personal computers, public kiosks, reader boards, and personal mobile devices. Open sourcing real time transit data will improve the quality of multi-modal trip planning tools and capabilities •Create a clearing house of public data with accessible application programming interface (API) for private sector technology development •Monitor the development of real-time passenger information coinciding with LTD website development •As funding permits, incorporate real time displays as part of new construction at EmX stations and retrofit other high-benefit locations. (No other real time

passenger information platform displays are planned for at this time.)

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for the region:
Strategy 2.2.B: Develop a universal payment management system for all modes	No Existing Funding	A universal payment system would allow consumers to seamlessly pay for different modes with one payment system, allowing them to transition from transit, bike share, bike parking locations and other travel options.	•Develop a smart card payment management system for the transit network. •Investigate public and private partnerships to advance smart card functionality for multi-modal options (transit, rail, bike share, CarShare, etc.) •Collaborate with statewide partners to coordinate fare management systems for seamless travel
Strategy 2.2.E: Encourage employers to offer flexible schedules	No Existing Funding	Innovative workplace policies have potential to reduce work-related travel, increase flexibility and enhance productivity. Flexible scheduling can include, but are not limited to, compressed work weeks, flexible daily hours, or teleworking.	•Establish and maintain a clearinghouse of options for video conferencing and other communication technologies •*Update and evaluate resources every year to keep current with technology trends* •*Promote the availability of these resources (i.e. GoTo Meeting and conference call technologies) to local employers, agencies, and community organizations. Include in TO training sessions.* •Promote the benefits of flexible scheduling to local employers
Strategy 2.2.F: Support the adoption of real time passenger information for fixed-route transit and carpool services	No Existing Funding	Lane Transit District is preparing open source data for fixed-route services at this time that will be incorporated into the LTD website. Availability of real time passenger information will influence Strategy 2.2.A and the development of multi-modal trip planning tools.	Real time transit passenger information is a critical component for dynamic trip planning tools. Availability of this data may enable the private sector to pioneer mobile and online applications for the region that will help inform travel decisions. •Monitor the development of real-time passenger information coinciding with LTD website development. •As funding permits, incorporate real time displays as part of new construction at EmX stations
Strategy 2.3.A: Pilot a mobility hub concept that allows travelers access to transportation options and information at specific locations	No Existing Funding	One of the greatest barriers to use of available TO is lack of information. A mobility hub aligns available transportation options (transit, bike parking, Car sharing, bike share, etc.) with traveler information at key locations (e.g., transit stations, airports, rail depots, and major commercial centers) for ease of access to modal choices. Hubs are scalable to available options and can support basic (information static kiosks) to more complex functions (i.e. reader boards, interactive kiosks, physical co-locating of bike sharing and car sharing facilities).	•Coordinate transportation planning with regional partners to co-locate transportation options infrastructure (bike parking, car sharing) with facilities (park & rides) •Target initial hubs to enhance information access and multi-modal connections at the airport, Amtrak station, and Springfield and Eugene transit stations. (Additional locations could include, but not exclusive to, Springfield and Eugene public libraries, City Hall, and Department of Human Services (DHS) locations.)

		The airport, train and bus stations are examples of existing mobility hubs that can improve multi-modal connections.	•*Seek support from the Chambers of Commerce* •Integrate mobility hub platforms with Smartphone trip-planning applications.

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for the region:
Strategy 2.3.B: Develop a regional bike sharing program	No Existing Funding	Bike share programs offer automated self-service bicycle rentals for short, one-way trips. Membership based, the service has a dense network of stations conveniently located near major destinations. Bike share offers access to a bike when you need one without the individual ownership costs and barriers including: maintenance, storage, and theft. The University of Oregon bike share will launch with B-cycle technology on campus in 2014, and will be open to the public. B-cycle will additionally assist the University in operating the projected 4-station, 40-bike system. The City of Eugene and Lane Transit District are conducting a Bike Share Feasibility Study for completion in 2014.	·Expand the UO bike share program for a broader program within the City of Eugene as feasible, based on density, demand, and development ·Evaluate the results of the Bike Share Feasibility Study initiated by the City of Eugene and LTD for support strategies
Strategy 2.3.C: Support public and private sector investment in bicycle parking improvements throughout the region	No Existing Funding	Availability and type of bicycle parking are critical factors that influence people's ability to use bicycles as a viable form of transportation. The region implements ongoing efforts to improve bicycle parking. A Regional Bike Parking Study was completed in 2013. The study provides the region planning information about short and long-term bicycle parking facilities, security and management considerations.	·Implement recommendations from the Regional Bike Parking Study •*Advocate for code changes in the City of Eugene and Springfield to accommodate demand and design recommendations.* •Support an electronic long term bike parking system that is compatible with the universal payment management system
Strategy 3.4.A: Promote the use of state and federal TO incentives and tax credits	No Existing Funding	TO incentives include monetary benefits, i.e. the Bicycle Commuter Tax Benefit, parking cash-out, etc.	Incorporate into TO Training sessions •*Research available tax incentives & strategies to promote* •*Provide informational resources on the Point2point website* •*Conduct an annual review of existing incentive information*
Strategy 4.5.B: Incorporate TO programs and services into transportation and land use developments	No Existing Funding	Transportation and land use developments are inherently geared towards anticipating future demand. Changing demographics, public health awareness, and economic conditions over the long-term may indicate an increased demand for multi-modal connections to satisfy public need. The City of Eugene implements TDM agreements with local developers that are interested in managing parking.	·Collaborate with jurisdictions to develop a systematic approach for incorporating transportation options into major new developments or redevelopments •*Develop a TO Resource Program to serve as a source of how TO applies to land use development* •*Partner with affordable housing developments for improved access to transportation options to decrease overall household transportation costs*

Strategy	Funding Allocation*	What the region is doing today:	Opportunities for the region:
Strategy 4.5.C: Integrate recommendations from the Central Lane MPO Scenario Planning Process	No Existing Funding	Scenario Planning identifies activities will facilitate the region's understanding of strategies to reduce greenhouse gas emissions from auto and light truck travel. Scenario planning for greenhouse gas emission reduction evaluates combinations of land use development alternatives and transportation system alternatives.	·Update TO work plans based on Scenario Planning outcomes ·Coordinate with local jurisdictions and planning managers to integrate Scenario Planning outcomes
Strategy 4.5.D: Incorporate applicable TO programs into the region's Safety and Security Plan	No Existing Funding	The Safety and Security Plan will provide the region an opportunity to collect data, analyze and understand the transportation safety conditions in the region, to develop safety policies and recommended actions to reduce serious crashes, and to consider safety performance measures. The Metropolitan Planning Organization (MPO) is in the initial planning stage of the regional Safety and Security Plan in 2014.	·Evaluate the impacts of TO on transportation safety ·Incorporate TO safety travel training programs, i.e. Safe Routes to School, Eye-to-Eye Safety campaign •*Emphasize TO safety education and outreach to areas with a high percentage of Latino residents*
Strategy 4.5.F: Consider integration of applicable State Transportation Options Plan policy guidance for regional transportation planning, programming and investment	No Existing Funding	The State TO Plan is scheduled for completion in late 2014 or early 2015. The Oregon Department of Transportation (ODOT) is developing Oregon's first Transportation Options Plan (TO Plan). The TO Plan is one of several statewide transportation mode and topic plans that further refine and implement the Oregon Transportation Plan's (OTP) goals, policies, strategies, and key initiatives.	·Coordinate with statewide partners to develop the Statewide Transportation Options Plan strategic framework ·Update local and regional transportation options planning based on the Statewide TO Plan recommendations

·MPO (Sustained MPO Funding Allocation)
·MPO/ODOT (Combination of Sustained MPO and Supplemental ODOT Funding)
·1-time (Competitive 1-Time Funding)
·No Existing Funding

SECTION 6: PROGRAM AND SERVICE RECOMMENDATIONS

The RTOP serves as the region's transportation options strategic direction to address the goals and policies as outlined in the Central Lane Regional Transportation Plan (RTP). Outlined on the following pages are the key recommended core programs and services to implement throughout the region. Each of these recommendations was selected based on ability to address the various identified transportation needs and opportunities; as well as, scalability to expand to diverse community groups; ability to leverage limited resources; and ability to adapt to changing trends and transportation demands. The recommendations are supported by local and regional TO administrators and will be effectively integrated into their long-term strategic planning. Successful implementation of the RTOP requires a foundation of core transportation options programs and services with development of supportive tools and actions.

Table 4: Recommended Program and Services Summary

PROGRAMS AND SERVICES	DESCRIPTION	RECOMMENDATION
Traveler Information and Coordination Tools	Continue TO outreach and education.	Fund general and targeted outreach including businesses, Sunday Streets, transportation fairs, community wide commute challenges etc.
	Create a clearinghouse of accessible travel data for private sector technology investment.	Fund development of a public data clearinghouse for private technology investment in travel information tools
	Enhance online rideshare platform.	Evaluate the Drive Less Connect application and explore alternatives which allow for dynamic ridesharing, creation of closed networks for specific groups, and individual rideshare matching
Smart*Trips*	Individualized Outreach	Annual funding for two neighborhoods, wards, or programs with targeted populations (e.g. seniors, Latino communities, etc.).
School Based Transportation Options	Build off existing Safe Routes to School programs to include coordinated program with ridesharing and transit promotion. Expand program to middle and high schools.	Provide annual base funding for SRTS coordinators to maintain and expand programs, including five additional bicycle and pedestrian safety education classes per district.
Rideshare	Expand existing rideshare programs (carpooling and vanpooling) to leverage trips that are already taking place or are regularly scheduled.	Address the transportation needs of less-traditional markets; including, youth and elderly populations, rural areas, neighborhoods, and non-emergency medical transport to gain improved mobility and accessibility through rideshare.
New Program: **Transportation Options Resource Program**	Program has two components: 3) TO Development Workshops 4) TO Training	Develop the Resource Program to include TO, land use, and code workshops; as well as, a comprehensive travel training program for the region's business, human services, youth, community organizations, etc.
New Program: **Mobility Hubs**	Pilot initial mobility hubs at key locations where multiple modes align. Scale to target area attributes.	Fund development of four pilot locations at the Amtrak station, Eugene Airport, and Eugene and Springfield downtown transit stations.

For program and service estimated projected costs please refer to the project summaries on pages 47 through 52. Some of the expanded recommendations may include a portion of programmed funding from the current FY15-18 Statewide Transportation Improvement Plan (STIP) process; however, are included so as to provide a more complete representation of anticipated program and service costs for the future.

TRAVELER INFORMATION AND COORDINATION TOOLS

Program and Service Description

One of the greatest barriers to the use of TO is the lack of awareness of existing programs and services. Providing information about transportation options through a variety of communication conduits is essential. Outreach is key to increase awareness and address barriers to use of TO.

Recent advances in technology enable the region to enhance current methods of outreach and education to support informed travel decision-making. Communication tools including, smart phones, mobile devices and interactive displays, allow for more real-time and flexible (“dynamic”) integration of traveler information.

Recommended are three key traveler information and coordination tools:

1) TO Outreach and Education: Continue general public outreach as the base for all TO information, establishing a higher level of regional awareness (i.e. rideshare campaigns, Sunday Streets events, transportation fairs and community events).

2) Enhanced TO Rideshare Platform: Enhance the online rideshare platform for multiple networks and provide the necessary tools for both closed rideshare networks to serve targeted groups (e.g.,KidSports), and dynamic ridesharing options (Uber, Lyft, Sidecar) to serve the general public.

3) Data Clearinghouse: Integrate technology applications with general, targeted outreach, through the creation of a data clearinghouse. Emerging technologies require public transportation (i.e. transit real-time information) and infrastructure data (i.e. street data) be made available for use by public and private sectors.

Program Elements	Programmed Funding	Estimated Projected Costs	
	2015	**2016**	**2017**
TO Outreach & Education	$240,000	$250,200	$255,500
Enhanced TO Rideshare Platform	Closed network fees are covered under Expanded Rideshare.		
Data Clearinghouse	TBD	TBD	TBD
Total	**$240,000**	**$250,200**	**$255,500**

Implementation Considerations

- TO Outreach and Education:
  - TO outreach and education is programmed through 2015. Cost estimates include Point2point program management, key services management (e.g. SRTS and SmartTrips regional coordination, Drive Less Connect staffing), outreach FTE, and materials. The listed amount reflects STP-U funding. ODOT Region 2 provides funding to augment these services.
- Enhanced TO Rideshare Platform:
  - Status of the rideshare platform is subject to Drive Less Connect status.
  - Under the current rideshare tool, iCarpool called Drive Less Connect (DLC) in Oregon, any changes to the platform is subject to approval by multiple jurisdictions (State of Oregon, State of Washington, King County Metro) and could take a substantial amount of time.
- Data Clearinghouse:
  - No estimate is provided for the costs of managing a data clearinghouse at this time. It is suggested that Lane Council of Governments be the coordinator given its regional role.
  - Creation of a data clearinghouse and standardized application programming interface enables the private sector and third parties to invest in the creation of trip planning tools and other mobile applications.

Timeline

- TO Outreach and Education: Immediate and ongoing
- Enhanced Rideshare Platform: Upon funding, immediate
- Data Clearinghouse: Upon funding, 3-6 months

SMART *TRIPS*

Current Program and Service Description

Smart*Trips* is a comprehensive TO outreach and education program that provides households with individualized travel tools aimed at increasing biking, walking, use of public transit, and carpooling. This program is dedicated to helping people address barriers to choosing transportation options.

The Smart*Trips* model is extremely flexible and can be tailored to target diverse communities and groups. There is significant opportunity to expand Smart*Trips* as a vehicle for other populations to benefit from individualized outreach, i.e.: affordable housing developments; senior housing and 55+ communities; gender, ethnicity, and age specific efforts; and new residential programs. The scalability of the Smart*Trips* program and the integrated metrics establish this program as an effective and measurable tool for enhancing TO for the region. The expanded Smart*Trips* program would provide annual funding for two neighborhoods, wards, or programs with targeted populations (e.g. seniors, Latino communities, etc.).

Program Elements	Programmed Funding				Estimated Projected Cost	
	2014	2015	2016	2017	2016	2017
Eugene	$0	$130,000	$120,000	$133,000	$0	$0
Springfield	$130,200	$155,100	$0	$0	$158,400	$161,700
Total	**$130,200**	**$271,100**	**$120,00**	**$133,000**	**$158,400**	**$161,700**

Implementation Considerations

- The current SmartTrips program is funded through 2017, with funding for Point2point through 2015, and the City of Eugene through 2017. Program costs are subject to the number of households or individuals in the target area.
- The regional target is two programs per year.
- There is no dedicated funding identified for programs after 2017.
- Consider the potential expansion of the program to the City of Coburg.
- Potential to include more intensive program follow-up to evaluate long-term effectiveness.
- Opportunity to implement a less-intensive program to be able to provide outreach to more target communities.

Timeline

The current SmartTrips program is programmed through 2017.

- Program development and implementation: Upon funding, 3- 6 months

SCHOOL BASED TRANSPORTATION OPTIONS

Program and Service Description

Regional efforts for school based TO primarily focus on Safe Routes to School. SRTS advocates for and promotes the practice of safe bicycling and walking to and from schools throughout the Eugene-Springfield area. Since 2004, the region has significantly invested in school based TO, through encouragement programs (Walk and Bike to School Day), school district SRTS coordinators, bicycle and pedestrian safety education, and the formerly funded Student Transit Pass Program.

Continuation and expansion of School based TO and SRTS regional efforts creates opportunities to leverage investment in existing programs to better reach students within the MPO area. Current School Based TO can be enhanced to include support for three district wide SRTS programs that provide targeted outreach to all elementary, middle and high schools, five additional bicycle and pedestrian safety education classes per district, with development and promotion of ridesharing networks and transit.

Program Elements	Programmed Funding*		Estimated Projected Costs	
	2014	2015	2016	2017
4J SRTS Program	$76,000	$76,000	$105,700	$107,900
Springfield SRTS Program	$49,500	$49,500	$78,600	$80,300
Bethel SRTS Program	$40,500	$40,500	$69,400	$70,900
Jane Higdon Foundation Grant	($22,000)	($22,500)		
Total	**$144,000**	**$144,000**	**$253,700**	**$259,100**

**SRTS program costs include bicycle and pedestrian education classes.*

***Estimate includes an additional $27,500 for the expansion to high schools and additional bicycle and pedestrian safety education classes.*

Implementation Considerations

- The current SRTS program is funded through 2015. Bicycle Safety Education costs approximately $2,500 per class and Pedestrian Safety Education costs $1,000 per class. Support for these programs is allocated through the general SRTS program budget. No dedicated funding is currently provided.
- An expanded SRTS program for all high schools may cost the regional up to $10K per district per year to allow for additional FTE. The size of the school district will influence the overall budget for this expansion.
- The inclusion of five additional Bicycle Safety and five Pedestrian Safety education classes for 2016 and 2017 would cost approximately an additional $17,500 per district per year.
- Bicycle education has received $22,000 from the Jane Higdon Foundation Grant for 2014 and 2015 to supplement program costs. It is unknown whether this support is likely to continue.
- Potential for more progressive implementation of SRTS programs in the Springfield School District, since this is a new independent program.

Timeline

The current SRTS program is funded through 2015. The next funding request will take place for fall 2016.

- Program development and implementation: Upon funding, immediate and ongoing.

RIDESHARE

Program and Service Description

Rideshare refers to carpooling and vanpooling, in which a vehicle uses the available capacity to carry additional passengers. Rideshare is one of the most cost effective transportation options, producing minimal incremental costs because these programs make use of existing vehicle capacity. Rideshare programs can be appropriate in most geographic settings and tend to be particularly effective in areas that are not well served by public transit, have relatively low-density, or longer distances between home and work.

Rideshare services connect one traveler with another. The existing program targets primarily commuters. Program expansion addresses the transportation needs of diverse community groups including, youth and elderly populations, rural areas, and neighborhoods. Expansion could include the implementation of up to16 new geographic networks that address the needs of these community groups. Coordination potential exists with other regional ridematching services such as the Trillium Community Care Organization (CCO) and LTD/RideSource's Non-Emergency Medical Transportation Brokerage, where appropriate.

Program Elements	Estimated Projected Costs		
	2015	**2016**	**2017**
Program Maintenance*	$151,100	$151,100	$154,300
Program Expansion**	$15,300	$4,600	$4,700
Program Expansion Support	Covered under TO Travel Training Maintenance (described below)		
Total	**$166,400**	**$155,700**	**$159,000**

**Maintains existing level of funding for Drive Less Connect and vanpool programs.*

***Estimate for expanding to include16 additional geographic networks, based on the existing tool.*

Implementation Considerations

- Maintenance for the current ridematching platform is supported by ODOT funding for operating costs ($20K software fees), and promotion of site, campaigns, and outreach staff time (up to $65K); and through the National Transit Database for vanpool support ($63K FTE).
- There are anticipated changes regarding the eligibility of funding staff time for ridematching in the near future.
- Continuation of funding appears unlikely. Costs represent staff FTE, outreach & media promotion and materials, and licensing fees.
- Expansion of ridematching platform is dependent on Drive Less Connect, changes to this platform are unknown at this time.
- Program expansion to create 16 new geographic networks (such as a neighborhood association or ward, costs 1,500 set up under current DLC operating fees).
- Potential to expand for both public and private providers and services.

Timeline

- Program Maintenance: Immediate and ongoing
- Program Expansion: Upon funding, 6 months – 1 year

TRANSPORTATION OPTIONS RESOURCE PROGRAM

Program and Service Description

The TO resource Program has two distinct components to broaden the reach, awareness, and application of TO:

1) ***TO Development Workshops:*** Provide periodic workshops to train local jurisdictions to work with developers, realtors, engineers, architects, etc. on how TO can apply to existing land use regulations and code requirements, development application review processes, TO agreements and monitoring, etc. The Resource Program will serve as an on-call regional TO information source.

2) ***TO Training:*** Create a TO training program that builds off of the existing Employee Transportation Coordinator program, to leverage TO information dissemination and coordination through trainings.

Travel trainings provide a cost effective way to broaden the reach and expand the awareness of TO throughout the region. Trainings provide staff from the region's agencies, community groups, organizations, and employers the information and access to TO resources. The trainings can be tailored to determine the best TO for populations served, and identify the most applicable program or service for accessing jobs, recreation, healthy food or medical care.

The TO training is an extremely flexible concept that can be tailored for diverse organizations, agencies, and groups. Example trainings could reach United Way agencies, housing developments, human resources staff, human services caseworkers, youth sports coordinators, medical facilities, and senior centers, etc. TO training offers a least-cost approach for broader outreach through knowledgeable and community-based travel trainers.

Program Elements	Estimated Projected Costs		
	2015	2016	2017
TO Development Workshops*	$10,200	$10,400	$10,600
TO Training Program Development**	$25,500	$5,200	$5,300
TO Training Delivery (FTE required)***	$30,600	$31,200	$31,900
Total	**$66,300**	**$46,800**	**$47,800**

**Assumes two workshops per year.*

***Initial start-up costs include curriculum development and material production.*

****Assumes .25 FTE covers up to two trainings per month with follow up support.*

Implementation Considerations

- Provide two TO development workshops per year. The Transportation Options Advisory Committee (TOAC) meetings could be used as an avenue for land use application review training.
- Development of a TO Development Workshop and Training program may necessitate additional FTE, approximately .5 FTE.
- To create initial schedule, trainings will be announced through a variety of methods including initial presentations to service coordination meetings at United Way, Dept. of Human Services, Travel Lane County, etc.
- Potential to reduce demand for accessible services vehicles through coordination with LTD RideSource

Timeline

Program launch targeted for spring 2015.

- Program development: Upon funding, 3 months
- Program schedule and initial training: 1 month

MOBILITY HUBS

Program and Service Description

Mobility hubs ("modal interchanges") are connectivity points in a transportation network with concentration of transportation services, information (static and/or electronic) and infrastructure. Hubs are scalable and adaptable to reflect current and future transportation options depending on target area characteristics and can include: transit information, way finding and interpretive signage (static and electronic), touch screen kiosks providing local transportation options, tourism and travel information, bike racks, car share, bike share, pocket maps/brochures of local retailers, tourist destinations, restaurants, lodging, etc.).

Program Elements	Estimated Projected Costs		
	2015	2016	2017
Hub Development*	$61,300	Subject to expansion	Subject to expansion
Hub Maintenance**	$5,100	$5,200	$5,300
Total	**$66,400**	**TBD**	**TBD**

**Cost does not include traveler information software.*

***Includes hub maintenance, updates, and outreach.*

Implementation Considerations

- The four initial hub locations will require coordination with agency or entity (Amtrak Station, LTD, Eugene Airport)
- Coordinate efforts with the University of Oregon bike share to provide transportation connections for campus staff, students and visitors.
- Promotion of ridesharing at Eugene Airport requires authorization.
- Local and state regulation of "for hire" dynamic ridesharing services such as Uber or Lyft may be required, see: City Rideshare Regulation, State Rideshare Regulation
- Hubs provide opportunities for private-public partnerships for traveler information including smart phone application developers, tourism, and local and regional businesses.
- Dependent on the establishment of a data clearing house.

Timeline

- Initial coordination, purchase and development: Upon funding, 3-6 months
- Hub installation: 6 months – 1 year

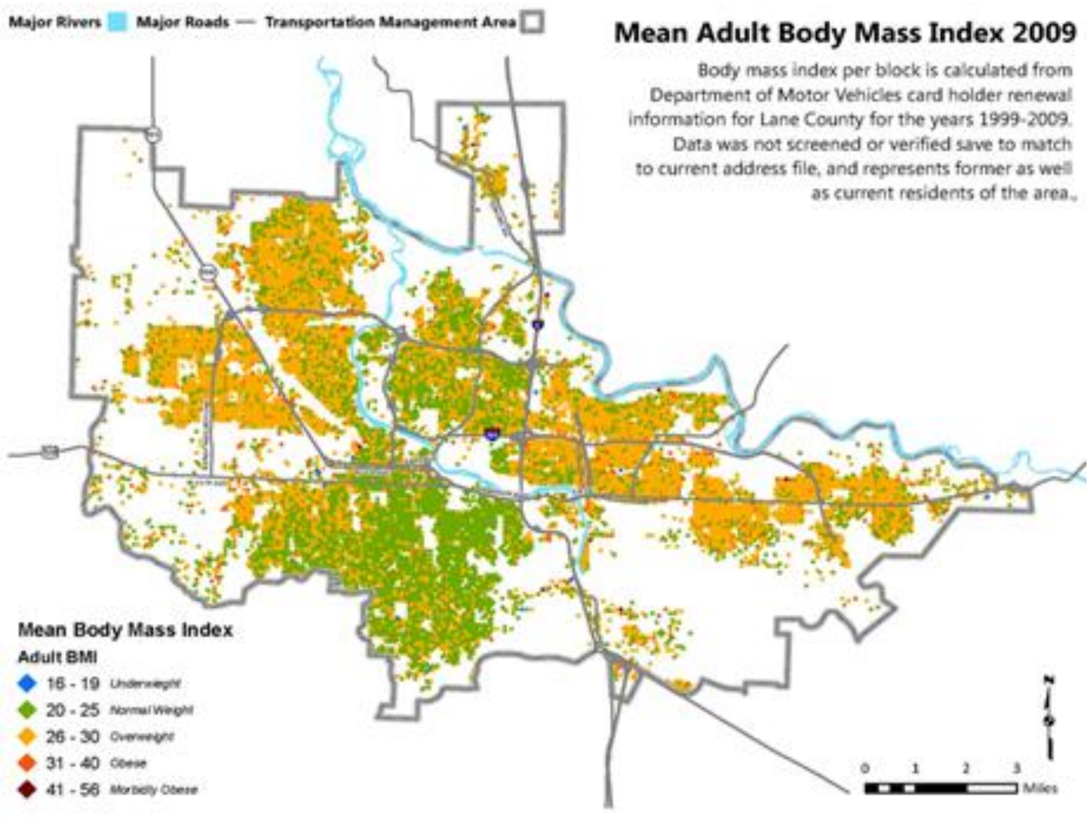
SECTION 7: PLAN IMPLEMENTATION AND MONITORING

TARGETED APPLICATION

Increasing active transportation is a promising approach to counteract issues at the forefront of both public health and transportation such as, obesity, congestion, air and noise pollution. As part of the RTOP planning process, Lane Council of Governments conducted a 20-Minute Neighborhood Walkability Analysis. Walkability is the extent to which the built environment is friendly to the presence of people living, shopping, visiting, enjoying or spending time in an area—and can have a significant impact on utilization of TO. The assessment looks at several key factors that influence walkability and layers them together to create a heat map that helps the region recognize the areas of town that are highly walkable.

The mapping tools generated through this analysis serve as a resource for community planning. They can be utilized to target specific areas for the application of TO programs and services, informing the implementation of priority strategies.

Figure 2: 20-Minute Neighborhood Walkability Analysis[22]



[22] Lane Council of Governments. 20-Minute Neighborhood Walkability Analysis for the Eugene-Sprignfield Metropolitan Area. September, 2012.

POINT2POINT IMPACTS IN 2013:

In 2013, Point2point worked to reduce single occupancy vehicle use through the Oregon Drive Less Challenge, Drive Less Connect, Business Commute Challenge, Vanpools, Smart*Trips*, and public outreach throughout the community.

These efforts resulted in:

- An estimated 2,913,373 non-SOV miles saved
- 2,330,698 pounds of CO2 reduced
- Accumulative household savings of $614,430

PERFORMANCE MEASURES

Numerous transportation options performance measures have value to demonstrate the success of regional programs and services. Capturing the qualitative and quantitative impacts of program areas warrants careful consideration as to which measures realistically, effectively, and accurately reflect TO programs and services' value, effectiveness, and provide the financial accountability for the regional investment.

The performance measurement framework described below provides regional criteria for determination of transportation options measures.

Table 5: TO Performance Measure Requirements[23]

PERFORMANCE MEASUREMENT CRITERIA	DESCRIPTION
Consistent	Comparable data should be collected year after year. This means data needs to be collected and reported the same way each time on the same geography.
Readily Available	Data should be drawn from existing data sets wherever possible.
Useful	Data collected should meaningfully inform how the suggested TO/TDM strategies are performing and what adjustments are prudent to make.
Timely	Data should be collected on a regular basis.
Reported	Data and findings must be recorded and transmitted to partners, decision makers, and the public to inform additional actions.

Based on this framework, there are several general categories of performance measures most recognized as suitable for TO programs and services including inputs and outputs, and key outcomes.

Inputs reflect the number of TO activities or efforts a TO program provides with its resources. Outputs or activity-based measures like the number of outreach events or rideshare registrants serve as strong supporting indicators to assist with programmatic planning and strategic management. Outcomes, such as reduction of single occupant vehicles (SOV), vehicle miles traveled (VMT), mode split, and associated greenhouse gas (GHG) reduction reflect key TO

[23] Southeast Michigan Council of Governments. Smart Growth America, TDM Performance Measures. December 2013.

performance outcomes at a regional level and quantifies results of the inputs and outputs. To address this distinction, the following table outlines proposed performance measures, targeted programs, and associated tiers.[24]

- Tier 1: Primary Regional Performance Measures
- Tier 2: Secondary Regional & Programmatic Performance Measures
- Tier 3: Programmatic Planning Measures

Table 6: TO Performance Measures

PERFORMANCE MEASURE LEVEL	MEASURE	METHOD
TIER THREE – Programmatic Measures		
Input Activity Measure Shows quantitative data on the number of activities or efforts by TO programs. Refers to actions or activities on the part of the program.	• # of outreach events held • # of presentations given • # of new organizations recruited • # of trainings provided	Tracked directly by Point2point and City of Eugene
TIER TWO – Regional and Programmatic Measures		
Output Activity Measures Shows quantitative data on the number of activities or results by the customer, clients. Refers to the programs actions/activities and response of intended recipients.	• # of event registrants and/or people engaged • # of new rideshares formed (vanpools and carpools) • # of ride matching networks formed • # of new partnerships	Tracked directly by Point2point, City of Eugene, and through Drive Less Connect (DLC) reports, Smart*Trips* evaluations, BCC report, and Safe Routes to School (SRTS) monitoring
TIER ONE – Regional Measures		
Outcome Measures Quantifies the results of the input and output activities. Extrapolation of input/output data.	• VMT reduced • SOV trips reduced *Fuel saved* *GHG reduced* *Air pollutants emissions reduced by mode* *Commuter costs saved (e.g. auto maintenance saved)* • Increased TO Mode Split • Populations engaged	Calculated based on outputs (e.g. carpool trips taken), along with survey data or other info (e.g. share of those trips that would have been taken by drive alone, average trip length) in order to estimate outcomes Environmental impacts can be calculated based on information on travel impacts combined with emission factors or fuel economy information Sources: Smart*Trips*, Drive Less Connect (DLC), Safe Routes to School (SRTS), Business Commute Challenge (BCC), Household Survey.

[24] TO is broad range of strategies, programs and services not a distinct project such as a roadway investment where travel delay or speed can be calculated to assess performance. Establishing effective TO measures presents a challenge given the difficulty of quantifying the aggregate impacts of education, marketing and outreach initiatives on changing travel behavior.

APPENDICES

The following appendices are available to view or download at www.regionalto.org:

A. Existing Conditions Report
B. Public Involvement Approach
C. Needs and Opportunities Analysis
D. Strengths, Opportunities, Weaknesses and Threats (SWOT) Analysis
E. City of Eugene Transportation System Plan (TSP) Toolkit
F. City of Springfield Transportation System Plan (TSP) Toolkit
G. City of Coburg Comprehensive Plan Toolkit
H. Past and Present TO Policy Framework
I. Funding Sources

Appendix H: Design Standards and Guidelines for Eugene Streets, Sidewalks, Bikeways and Accessways (1999)

Design Standards and Guidelines For Eugene Streets, Sidewalks, Bikeways and Accessways

November 1999

INTRODUCTION

Within a city, a large share of the public right-of-way is devoted to transportation facilities. A facility may be a street, sidewalk, bikeway, or access way which is used by automobiles, trucks, transit vehicles, bicycles, or pedestrians.

This document contains design standards for arterial, collector and local streets to ensure the safe and efficient operation of each facility type for all users and judicious use of the public space. The standards contained in this document apply to new construction, reconstruction, and improvements to existing unimproved streets, except as specified in this document. The standards apply to both public and private streets unless specified otherwise.

Situations may arise where the design standards cannot be rigidly applied. Under special circumstances, some flexibility of the standards will be necessary to create a design that is sensitive to the specific needs and features of the location. For example, reconstructions of existing streets may be difficult due to the limitations of existing right-of-way. There may be trees, buildings, or other features which result in the need for a narrower street cross-section.

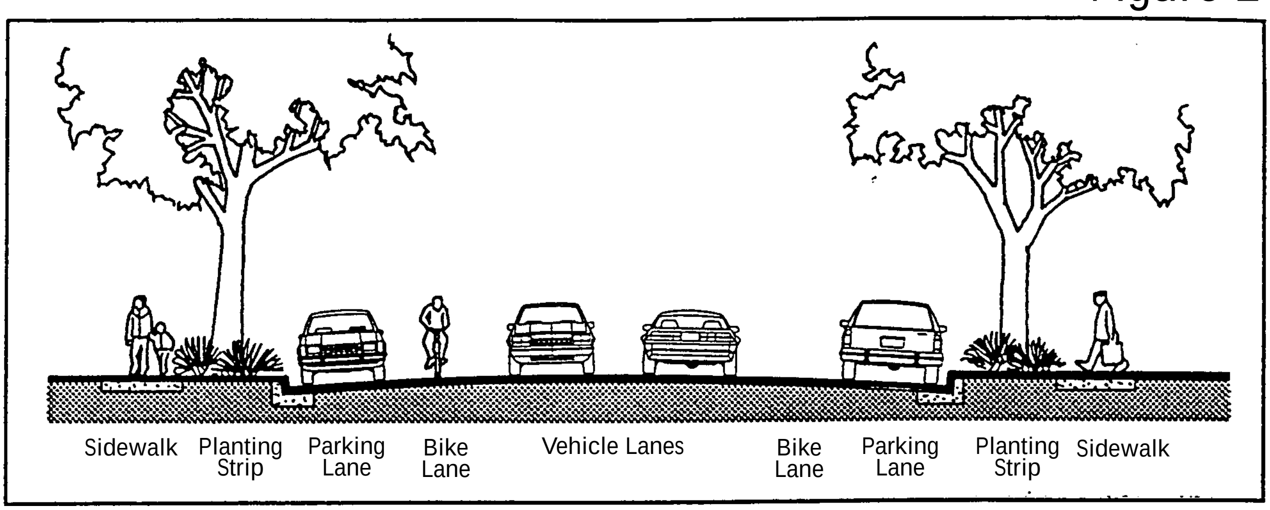
Street designs must consider the needs of people with disabilities, such as visually impaired pedestrians and pedestrians in wheelchairs. Every effort should be made to locate street hardware away from pedestrian locations and provide a surface free of bumps and cracks which create safety and mobility problems. Smooth access ramps shall be provided where required.

The determination of the pavement width and total right-of-way shall be based on the operational needs for each street as determined by a technical analysis. The technical analysis shall use forecasted demand volumes that reflect the maximum number of pedestrians, bicyclists, parked vehicles and traffic expected when the area using the street is fully developed. As the analysis identifies specific needs such as bike lanes, parking or turn lanes, the width of the street can be established.

Figure 1 illustrates elements which are typically incorporated in the transportation right-of-way such as sidewalks, planting strips, parking spaces, on-street bicycle lanes, and vehicle travel space, which may include left-turn lanes and/or median islands

The width, size, and/or design of the elements frequently differ depending on whether the roadway is classified as a local, neighborhood collector, major collector, minor arterial, or major arterial street. In the functional hierarchy of streets, collector and arterial streets are considered to be major streets. Local street types are considered to be minor streets and are further divided into sub-classifications depending on the function and location of the street.

Figure 1



ARTERIAL AND COLLECTOR STREETS

This section identifies standards for the design of Eugene's major streets; that is, those streets that function as arterials or collectors. Typically, arterial and collector streets carry significant amounts of traffic, much of it having longer trip distances and requiring somewhat higher speeds and less land use access than local streets. Arterials and collectors carry higher volumes of traffic than local streets, and require special design considerations and a high degree of inter-connectivity. At the same time, arterials and collectors must provide for public transit, bicycle, and pedestrian travel, usually at a higher level than local streets. Arterials and collectors must be designed to accommodate these users, and to provide for their safety, comfort, and convenience.

Table 1 contains a summary of typical widths for arterial and collector street elements such as right-of-way, pavement, sidewalk, bicycle lanes, and planting strip areas.

Arterial and Collector Street Standards — Table 1

Street Type	R.O.W. Width	Paving Width: No Parking	Paving Width: Parking One Side (A)	Paving Width: Parking Two Sides (A)	Setback Sidewalks (C)	Planting Strips (D)	Bicycle Lanes
Major Arterial	100'-120'	68'-94'	68'-94'	68'-94'	2 @ 6' Min.	2 @ 9'-6" Min.	2 @ 5'
Minor Arterial	65'-100'	34'-70'	34'-70'	34'-70'	2 @ 6' Min.	2 @ 8'-6" Min.	2 @ 5'
Major Collector	60'-75'	32'-44'	32'-44'	32'-44'	2 @ 6' Min.	2 @ 8' Min.	2 @ 5'
Neighborhood Collector with no Bike or Transit Facilitites	40'	20'(10/10)			1 @ 6' (B)	2 @ 7'	None
	40'		27'(7/10/10)		1 @ 6' (B)	2 @ 7'	
	45'		27'(7/10/10)		2 @ 6'	1@6'/1@7'	
	46'			34'(7/10/10/7)	2 @ 6'	2 @ 7'	
Neighborhood Collector with Bike Routes Only	45'	24'(12/12)			1 @ 6' (B)	2 @ 7'-6"	None
	45'		31'(7/12/12)		1 @ 6' (B)	1@ 7'/1@8'	
	50'	24'(12/12)			2 @ 6'	2 @ 7'	
	50'		31'(7/12/12)		2 @ 6'	2 @ 7'	
	50'			38'(7/12/12/7)	2 @ 6'	2 @ 7'	
Neighborhood Collector with Bike Routes & Transit	55'	28'(14/14)			2 @ 6'	2 @ 7'-6"	None
	55'		35'(7/14/14)		2 @ 6'	1@7'/1@8'	
	55'			43'(7/14/14/7)	2 @ 6'	2 @ 7'-6"	

A. Parking bays alternate with planting strip on Neighborhood Collectors.
B. Sidewalks on one side of the street are allowed only if the design qualifies as an exception.
C. Setback sidewalk dimension includes 5' paved sidewalk and 1' reserve strip behind the walk.
D. Planting strip dimension includes 6" curbs.

Arterial and Collector Street Types and Functions

In general, the primary function of arterial streets is to provide a high degree of vehicular mobility; however they also serve a secondary role to provide land access. Arterial streets are used as primary bicycle, pedestrian, emergency response routes, and transit routes.

Some major arterials are freeways or expressways, which have unique geometric criteria for their design and function. Because their characteristics necessitate separate design standards, they are not addressed in this document.

In general, the primary function of collector streets is to assemble traffic from the interior of an area and deliver it to the closest arterial street. Collectors provide for both mobility and access to property and are designed to fulfill both functions. They usually serve shorter trip lengths and have lower traffic volumes than arterial streets. Collector streets are also used as important emergency response routes and are frequently used as transit routes.

Arterials and collectors are divided into several sub-classifications:

- Major Arterials
- Minor Arterials
- Major Collectors
- Neighborhood Collectors

Major Arterials: Major arterials are the primary "arteries" for intra-urban travel. They provide for through travel movements and for travel from the city to outside destinations. One of the key characteristics of urban major arterials is the high degree of connectivity they provide within the urban area. These streets and highways connect various parts of the region with one another and with the "outside world", and serve as major access routes to various regional destinations. The design of major arterials typically limit property access and on-street parking to improve traffic capacity for through traffic. In Eugene, major arterials typically have four or more lanes, sidewalks and planting strips, striped bicycle lanes, and raised median islands or two-way left turn lanes.

Minor Arterials: Minor arterials also provide a high degree of vehicular mobility in that they connect nearby rural areas to cities and function within cities as conduits for a large proportion of intra-urban trips. They provide the next level of urban connectivity below major arterials. Minor arterials sometimes provide intra-regional connectivity; in most cases their main role tends to be serving intra-city mobility. In Eugene, a typical minor arterial contains two lanes plus a center turn lane, bike lanes, planting strips, and sidewalks. Some minor arterials are only two lanes wide, while others contain up to 4 lanes plus turn lanes or median islands. On-street parking is provided on some minor arterials.

Major Collectors: Major collectors assemble traffic from the interior of an area and deliver it to the closest arterial street. These streets provide for both mobility and land access to property and are designed to fulfill both functions. Major collectors are found in residential, commercial and industrial areas. Major collectors frequently have continuous left turn lanes and are normally provided with sidewalks, planting strips, and striped bike lanes; provision for on-street parking varies by location. Major collectors may be designed with raised medians to reduce conflicts, provide a pedestrian refuge, restrict turning movements, limit land access, or to furnish an aesthetic separation between traffic lanes.

Neighborhood Collectors: Neighborhood collectors are found only in residential neighborhoods and provide a high degree of access to individual properties. This street type does not apply to commercial and industrial areas, nor to most multifamily residential areas. As a rule, both right-of-way and paving widths are narrower than major collectors. Left turn lanes are only infrequently used on neighborhood collectors, and then only at intersections with higher volume streets. Neighborhood collectors are required to have sidewalks and planting strips. A great deal of flexibility exists for on-street parking on this street type. On most neighborhood collectors, bicycles share the travel lane with other motor vehicles, eliminating the need for striped bicycle lanes. Exceptions to this can occur in situations where traffic volumes or speeds, roadway geometry, or other factors suggest that striped lanes will provide a safer design.

Arterial and Collector Street Design Standards and Guidelines

The typical design elements found within the right-of-way for arterial and collector streets are: vehicle lanes, bicycle lanes (with some exceptions), drainage and curbs, planting strips, street lighting, sidewalks, and utilities. Optional features include median islands and on-street parking. All of these design elements are specified within a designated paving width and right-of-way width for each particular street, based on the specific needs and setting of that street.

Design Standards

Design standards in this document are required for the following types of street improvement projects in Eugene (unless otherwise specified in the wording of the particular standard):

- Newly constructed arterial and collector streets.
- Major reconstruction of existing arterial and collector streets, to upgrade the street to urban standards through reconstruction of the roadbed and addition of curbs, gutters and sidewalks.
- Major widening of existing improved arterial and collector streets that results in adding one or more through vehicular travel lanes.

For all other types of street improvement projects, these standards are to be considered as desirable design guidelines but are not mandatory.

The standards are not intended to apply to construction of or improvements to freeways and expressways.

Design Guidelines

In addition to spelling out the minimum design standards for arterial and collector streets, this plan also provides a set of Design Guidelines to help design professionals and the general public reach a consensus on the best possible design for any particular street improvement project. While the Design Standards can be regarded as specifying a set of "minimum tolerable" conditions for certain attributes of arterial and collector streets, the Design Guidelines found in this chapter are to be used as a working manual of best design practices for constructing, reconstructing, and improving Eugene's major street network.

Criteria for Exceptions

Design standards in this chapter must be met except when an exception can be justified through consideration of the following:

1) Topography or slope constraints;

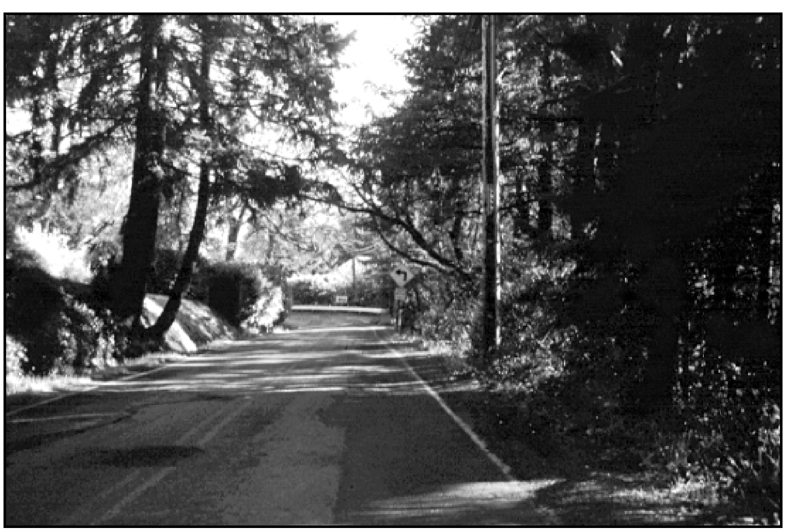
2) Significant trees or other vegetation;

3) Other natural resource constraints, including wetlands, wildlife habitat, etc.;

4) Historic resources;

5) Insufficient right-of-way, and inability to obtain additional right-of-way at reasonable cost and within a reasonable time frame for the project;

6) Adopted Council policies, including those found in neighborhood plans.



Design exceptions might be considered for streets with topographic, vegetation, or right-of-way constraints like this street in the South Hills

Pavement and Right-of-Way Widths

Design Guidelines

1) Determination of total pavement width should balance consideration of the available right-of-way; pedestrian, transit, emergency responder, and bicyclist needs; overall street function, and traffic capacity needs.

2) Wide streets can present an impediment to pedestrian crossings. Pedestrian refuge medians and/or landscaped medians with pedestrian refuges should be designed into arterial and collector street intersections with more than three travel lanes, whenever possible, to reduce crossing distances and improve safety and comfort for pedestrians and motorists.

3) As an alternative to widening streets in built-up areas with right-of-way constrictions, consider creating paired, one-way street designs where the street layout permits.

4) Where needed, right-of-way width may be increased to accommodate high-occupancy-vehicle (HOV) lanes or exclusive transit lanes, as indicated in adopted plans.

5) Utility manhole covers and other infrastructure access elements should not be place within bicycle lanes on new streets.

6) An initial determination of required Right-of-Way and pavement widths for new street construction and street reconstruction projects will be made by City of Eugene staff.

Pavement and Right-of-Way Width Design Standards

1) Depending on the projected traffic volumes and any circumstances unique to the location, curb-to-curb pavement widths for major arterial streets typically range from 68' to 94' with total right-of-way widths ranging from 100' to 120'.

2) Curb-to-curb pavement widths for minor arterial streets typically range from 34' to 70' with total right-of-way widths ranging from 65' to 100'.

3) Pavement widths on major collector streets typically range between 32' and 44' with total right-of-way widths ranging between 60' and 75'.

4) Pavement widths for Neighborhood Collector streets range from 20' to 43' with total right-of-way widths ranging from 40' to 55' depending on a number of factors, including availability of on-street parking, need for shared use of travel lanes with bicycles, and use of the street by transit vehicles.

5) Utility placement and design of curbs and drainage facilities shall be in accordance with adopted Local Street Design Standards.

Wide streets can present an impediment to pedestrian crossings

Vehicle Travel Lane Widths

Design Guidelines

1) Travel lane width is a function of the use of the lane, the type of vehicle served, and the speed of the vehicle. All of these factors, as well as whether the lane is an “inside” lane or an “outside” lane should be considered in determining travel lane width.

2) Lane widths should be wider on higher-speed streets than on lower-speed streets.

3) Outside lanes may require a wider width to accommodate turning trucks and buses, and to reduce the effects of adjacent obstructions like parked cars. If a bicycle lane is present, outside lanes need to be wide enough to provide for safety and comfort of bicyclists adjacent to those lanes.

4) Typical travel lane widths:

a) Major Arterials. Travel lanes are typically 12' wide on major arterial streets.

b) Minor Arterials. Travel lanes are typically 11' wide on minor arterial streets.

c) Major Collectors. Travel lane widths are typically 11' wide on Major Collector streets, although wider lane widths may be required for industrial areas or other areas with significant amounts of large truck traffic.

d) Neighborhood Collectors. Typical travel lane widths on Neighborhood Collector streets range from 10' to 14'. The design width shall be determined by the use of the street: narrower lane widths are permitted on streets used only by motor vehicles; wider lane widths may be needed on streets which are used by a mix of motor vehicles, bicycles, and/or transit vehicles.

Vehicle Travel Lane Width Design Standards

1) The minimum travel lane width on Major and Minor Arterial streets is 11'.

2) The minimum travel lane width on Major Collector and Neighborhood Collector streets is 10'.

Sidewalks

Design Guidelines

1) Sidewalks and other pedestrian improvements are vital to the function of arterial and collector streets designed for multi-modal use. Walking can serve as a sole transportation mode or function as a link in a multi-modal trip. Sidewalks promote transit use by providing the link from home to bus (and vice versa). Sidewalks provide critical access to all properties; commercial, residential, industrial and public.

2) Sidewalks and other pedestrian improvements are essential components of all new street projects as well as major reconstruction projects.

3) Setback sidewalks on both sides of the street are the preferred pedestrian design choice for arterial and collector streets. Setback sidewalks:

a) provide for physical separation of pedestrians from vehicle traffic, an important consideration where pedestrians must walk next to higher speed traffic,

b) provide a safe and comfortable environment for pedestrians,

c) provide a safe and comfortable environment for motorists by fully separating pedestrians from vehicles,

d) provide for compatibility with Americans with Disability Act requirements for curb ramps and driveway aprons,

e) provide space between the sidewalk and the curb for street trees, and landscaping plantings,

f) provide a distinct green edge to the street, further distinguishing the different uses of the street and contributing to traffic calming by presenting a more attractive area of travel,

4) Alternating setback and curbside sidewalks or meandering sidewalks are an acceptable design alternative in areas where constraints (like significant trees and other natural features) and right-of-way limitations exist. In such places, on-street parking or bicycle lanes mitigate the negative impacts of curbside sidewalks.

5) Sidewalks should be located on both sides of arterial and collector streets. Where sidewalks exist on only one side of the street, access to transit is difficult and pedestrian safety as well as motorist comfort is compromised by requiring the pedestrian to cross the street to gain access to a sidewalk. This is particularly true on arterial and collector streets that have higher traffic volumes that move at higher speeds.

Missing sidewalk segment makes access to transit difficult

6) To promote pedestrian use and access to transit, sidewalks should be continuous along all arterial and collector streets. Existing gaps in the pedestrian system should be closed.

7) Sidewalks should be designed with adequate width to accommodate all existing or anticipated uses, including loading and unloading of people from on-street parking, walking traffic, window shopping traffic, bicycle parking, and use of street furniture.

Wider sidewalks accommodate more intensive pedestrian traffic in areas where pedestrian volumes are higher

Sidewalk Design Standards

1) Setback sidewalks with a minimum width of 5 feet (see Figure 2) are the standard except for the following situations:

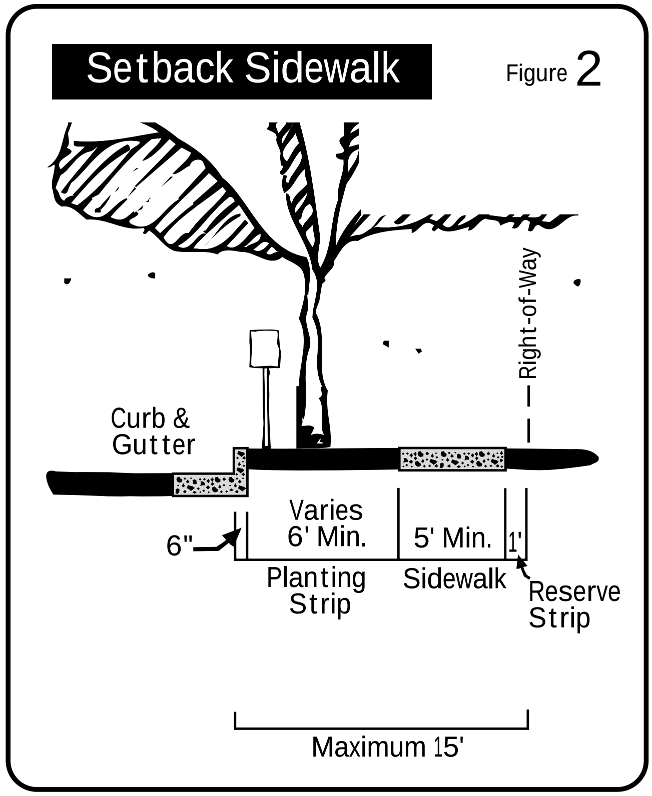
a) Alternating setback and curbside or meandering sidewalks shall be permitted in areas where constraints (like significant trees and other natural features) and right-of-way limitations exist.

b) Sidewalks in commercial areas shall be designed to provide adequate space for pedestrian travel, street furniture, and related uses. Curbside sidewalks in pedestrian-oriented commercial areas shall be a minimum of 10 feet wide, and shall incorporate tree wells in lieu of landscaped planter strips.

2) Sidewalks shall not have obstructions such as mailboxes, signs or utilities that reduce the usable width of the sidewalk below 5'.

3) Sidewalks shall be continuous along the full frontage of a development.

4) All driveway entrances and other curb cuts shall be constructed flush with the adjacent street surface.



Setback sidewalks are the preferred pedestrian design choice for Eugene's streets

Bikeways

These standards address on-street bicycle facilities. See separate standards at end of document for off-street bicycle path and accessway facility requirements.

Design Guidelines

1) Striped bicycle lanes are the preferred bikeway design choice for arterial and major collector streets to provide a high level of mobility for bicyclists. A shared roadway generally is sufficient for Neighborhood Collector streets.

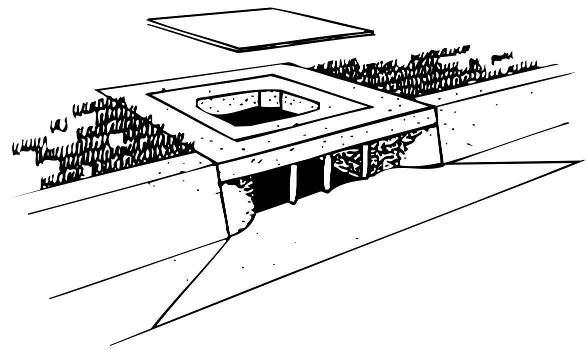
2) An interconnected street system is an important factor in providing convenience and continuity of travel for bicyclists.

3) On-street bicycle lanes and off-street paths will be constructed in those locations indicated in adopted plans.*

4) Bicycle signing and pavement markings should be consistent throughout the bikeway system per the 1995 Oregon Bicycle and Pedestrian Plan guidelines.

5) Curb inlets are the preferred design option for storm water facilities. Where installation of curb inlets is not possible, catch basins with approved bike-proof covers are an acceptable alternative. (See Figure 3)

Curb Inlet Figure 3



6) Avoid designing continuous right turn lanes on major streets with bicycle lanes.

** Striped bicycle lanes will be added to existing arterial and major collector streets which are already improved to urban standards only in cases where such bike lane projects on specific streets are included in the adopted TransPlan.*

On-street bike lanes provide a high level of mobility for bicyclists

Bicycle Lane Design Standards

1) Striped bicycle lanes are required on Major and Minor Arterial streets and Major Collector streets when those streets are newly constructed, are constructed to urban standards, or are widened for major vehicular capacity increases.* (These situations are defined elsewhere in this document as Major Projects, and are considered projects which may be initiated by the City if they have been included in the adopted TransPlan.)

2) Bicycle lanes shall be a minimum of 5' wide and shall be free from obstacles such as drainage grates and utility covers.

** On Neighborhood Collector streets, bicycles generally share the travel lane with motor vehicles, therefore, striped bicycle lanes are not usually required on these streets. Exceptions to this standard may occur on particular Neighborhood Collector streets, if specified in city-adopted plans or policies.*

On-Street Parking

Design Guidelines

1) Appropriate levels of on-street parking should be provided on certain streets to:

a) increase pedestrian comfort and safety by buffering pedestrians from automobile traffic;

b) support increased economic activity by increasing the visibility of storefronts and signage to motorists parking on the street;

c) support increases in development density and reduction of development costs for small business by reducing the need for on-site parking;

d) support traffic calming efforts on a street by introducing "friction" and narrowing the perceived width of the street;

e) provide spaces for on-street passenger and freight loading and unloading in intensively developed areas;

f) provide space for visitor parking in residential areas; and

g) reduce speeding by reducing the width of overly-wide streets.

2) On-street parking decreases the capacity of the adjacent travel lanes between 3% and 30% depending on the number of lanes and the frequency of parking maneuvers. Balance the demand for through-traffic movements, with local access requirements, and with the attributes listed in On-Street Parking Guideline #1, when deciding where to provide on-street parking.

3) Parallel parking is the preferred parking layout for on-street parking on Eugene's streets. On-street diagonal parking can be considered as an option in certain circumstances and on a case-by-case basis. Optimal circumstances for provision of diagonal parking include adequate overall street width and low volume, low speed vehicular traffic.

4) To avoid expensive retrofits, provide for on-street parking based on the planned, rather than the existing, land use pattern and densities.

5) Parking lanes on arterial streets may need to be wider than other streets to provide an extra margin of safety between parked cars and adjacent bicycle lanes or vehicle travel lanes.

6) On-street parking may be provided on major arterial streets only after a parking demand and supply study has been completed and the desirability and feasibility of on-street parking has been verified. A parking study shall

Parking bays, like this one on 5th Avenue, allow on-street parking while reducing overall street width consider, among other factors, the nature of adjacent land uses, the degree to which the street is nearing design capacity, and the presence of bicycle lanes on the street.

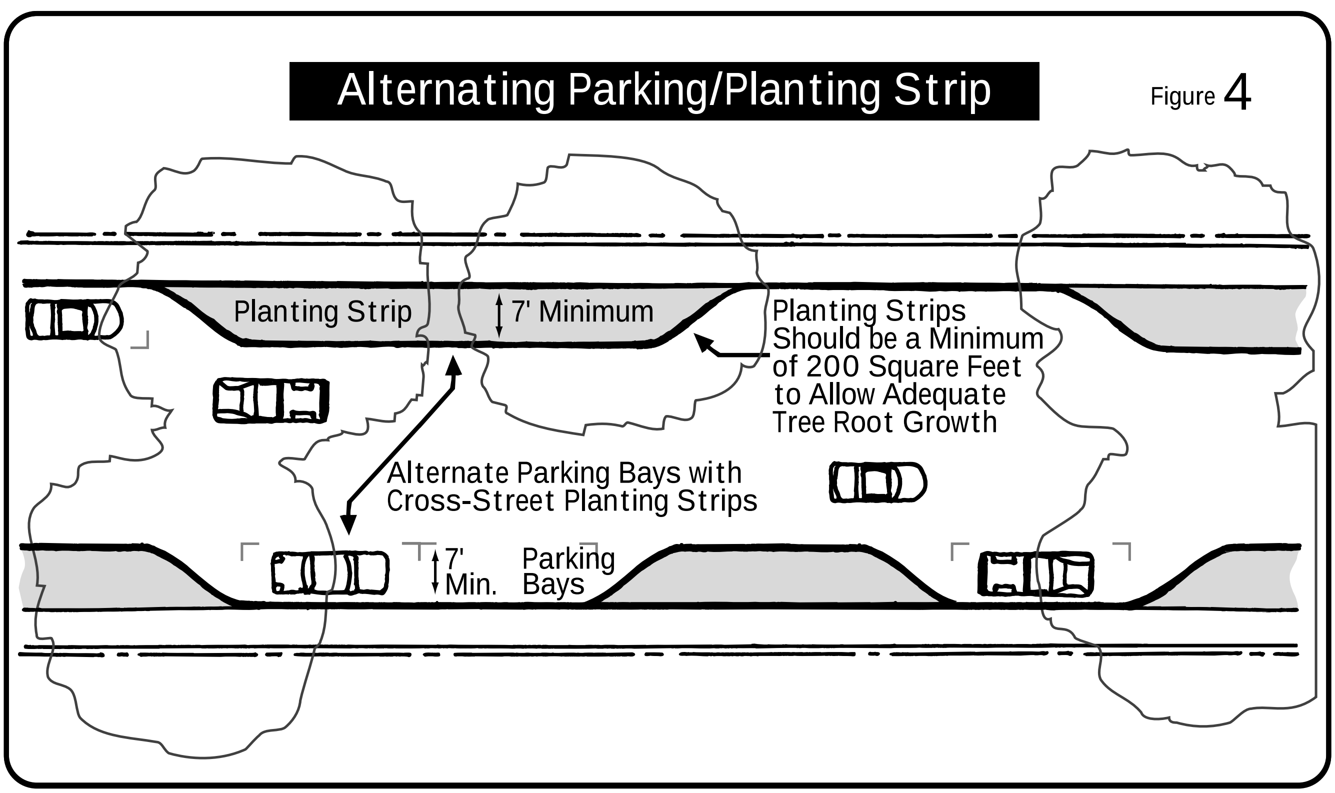
7) As a general rule, parking lanes should be marked at 7' to encourage motorists to park closer to the curb.

8) When parking is permitted on arterial or collector streets, it may be provided in parking bays which are interspersed with curb extensions and planting strips. The parking areas shall alternate with the planting strip areas as shown in Figure 4.

On-Street Parking Standards

1) Parking lane widths on arterial and collector streets shall be a minimum of 7' in width.

Major arterial streets, like Coburg Road, are designed with no on-street parking



Planting Strips and Street Trees

Design Guidelines

1) Street trees should be provided along all arterial and collector streets to:

a) Separate and define the boundaries between pedestrian areas and vehicle use areas. This separation reduces the impacts of traffic volumes and speeds on pedestrians and adjacent land uses;

b) Provide tranquility on the street, slowing the pace and intensity of street activity and enhancing the well being of pedestrians and motorists;

c) Provide shade in the summer and allow sunlight in the winter;

d) Reduce the automobile scale of major streets to human scale;

e) Provide the motorist with a vertical wall, helping motorists to gauge their speed;

f) Create an outdoor room which helps provide a sense of enclosure and security;

g) Reduce air pollution;

h) Provide identity to the street, orientation of the street within the system of streets within a city, and provide a status and prestige to addresses along the street;

i) Reinforce the design and hierarchy of the arterial and collector street system; and

j) Intercept rainfall and absorb stormwater runoff.

2) Provide continuous, uniformly and closely spaced tree plantings to create a continuous canopy along the length of and across the width of the street. Tree spacing should connect to form a continuous tree canopy over the street. A minimum spacing as low as 10 feet is possible depending on the tree species. Closer tree plantings can be achieved when the diameter of the tree trunk will remain relatively narrow.

Planting strips allow for planting of large-scale, high- canopy street trees on major streets

Motorists and bicyclists on the approach to a street must be able to clearly see between trees.

3) Street trees should be planted within center medians. Trees planted within the median reduce the perceived width of the street. This guideline does not apply when there is a strong terminating view, or in downtowns areas where strong architectural features should be allowed to dominate the streetscape.

Trees planted within median islands reduce the perceived width of the street.

4) Plant street trees in planting strips in areas with less intensive pedestrian and commercial activity, or in tree wells with or without tree grates in areas with more intensive pedestrian and commercial activity.

5) Street trees should be of mixed rather than uniform species to reduce the potential for disease killing off whole populations of trees along a street.

Tree grates are sometimes used in more urban settings

6) Large-scale, deciduous, canopy trees are preferred for street tree plantings

7) Select tree species whose canopies do not encroach into pedestrian headroom or into tall curbside vehicles such as buses.

8) Preserve existing mature trees through flexible street designs, where possible.

9) Encourage agreements with private developers and landowners to plant and maintain trees and other right-of-way plantings.

10) Ensure proper sight distance and other safety considerations in designing and landscaping planting strips. Maintenance of street trees within planting strips and medians should be ensured to avoid reduction of sight distance. Certain trees with small trunk diameters can be brought forward, especially in conjunction with the use of curb extensions.

11) Consider the potential for utilizing planting strips and medians for stormwater treatment purposes.

12) The width of a planting strip between curb and sidewalk should be based on the figures in Table 1. The minimum planting strip widths shown in Table 1 shall be regarded as strongly preferred. Total width will be determined by available (or obtainable) right-of-way, other design features, and site-specific constraints.

13) Generally, street trees shall be spaced at intervals between 10 and 50', depending on the species. The average spacing of street trees is 30'.

14) Trees at the ends of medians should be maintained with a high canopy to maintain sight distance and permit space for traffic control devices on the median nose. Median tree planting should be extended to the intersection if median widths permits and the median is not required for traffic control devices.

Routine tree maintenance is necessary to ensure healthy street trees

15) Along Minor Arterial, Major Collector and Neighborhood Collector streets, planting strips and parking lanes may be constructed within the same area, as depicted in Figure 4.

16) Street trees should be planted a minimum of 35’ from the midpoint of the tangent of the curb radius at any intersection.

Planting Strip and Street Tree Design Standards

1) Planting strips at least 6 feet wide, measured from face of curb to near edge of sidewalk, are required on both sides of arterial and collector streets.

2) Planting strips shall be used for the placement of street trees, signs, street furniture, and, to a limited degree, utilities.

3) Street trees shall be planted within the planting strip on arterial and collector streets. The planting of street trees is governed by standards and specifications in Public Works Administrative Rule R-7.280 which:

a) establishes policies and requirements for planting and establishment of street trees;

b) establishes application procedures;

c) establishes Street Tree Plan requirements;

d) establishes standards and procedures to be utilized in development of a Street Tree Plan, including standards for tree selection; tree quality; tree size; tree condition; planting location; planting procedures; establishment requirements; and tree trimming, pruning and removal; and

e) identifies trees that are permitted to be planted within the street right-of-way.

Raised Medians

Design Guidelines

1) Arterial and collector streets may have a raised median area to decrease the potential for accidents, restrict turning movements, limit land access, furnish an aesthetic separation between opposing traffic, encourage lower vehicle speeds, provide a refuge area for pedestrians or vehicles, increase the efficiency and capacity of the street, and provide space for tree and landscape plantings.

2) Medians can be used as part of an overall corridor access management strategy to reduce vehicle conflicts, increase capacity, and reduce accidents.

3) Ensure that U-turns can be negotiated at downstream intersections or median breaks when medians are used for access management.

4) Wide streets can present an impediment to pedestrian crossings. Pedestrian refuge medians and/or landscaped medians with pedestrian refuges should be designed into arterial and collector street intersections with more than three lanes, whenever possible, to reduce crossing distances and improve safety and comfort for pedestrians.

5) Medians that function to limit turns, limit land access, or reduce mid-block accidents can be relatively narrow and still provide the necessary channelization.

6) On streets with constrained right-of-way where it is desirable to provide a median for access management, pedestrian refuge, or aesthetic purposes, consider reducing the number of travel lanes in each direction, or the width of the lanes.

A landscaped median on Terry Street

7) Medians should be used in conjunction with major driveway consolidations.

Medians can be relatively narrow and still provide their intended function

8) Medians should be used for access management on main corridors and on streets with heavy traffic volumes to improve capacity and distribute traffic to side streets and to parking.

9) Coordinate placement and design of medians to accommodate maintenance operations (such as street light maintenance, utility work, etc.) and to insure adequate operating space for fire and emergency medical equipment.

10) Medians at critical intersections can have a specialized dropped, low curb where emergency responders require specialized access.

11) Landscaped medians are used to provide an aesthetic separation between travel lanes and must provide adequate room for tree root growth. The width of landscape medians is <u>variable</u>, depending on the varieties of trees and shrubs planted in the median. (See Figure 7)

Raised Median Design Standards

1) Standards for raised medians are the same for both arterial and collector streets.

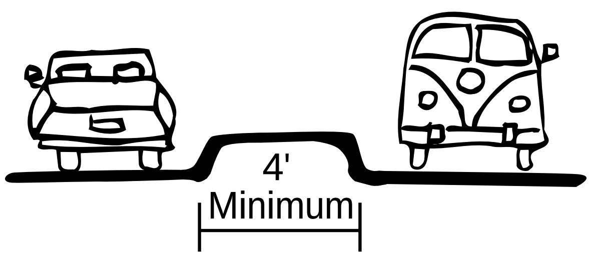
2) The preferred raised median width is 10' when used to limit land access or control turning movements. The minimum width of medians used for this purpose shall be 4'. (See Figure 5).

3) Medians used as a pedestrian refuge shall be a minimum of 6' in width to enhance pedestrian safety. (See Figure 6). Medians used as a pedestrian refuge or to facilitate pedestrian and bicycle movements shall be designed with at-grade cuts at all intersections.

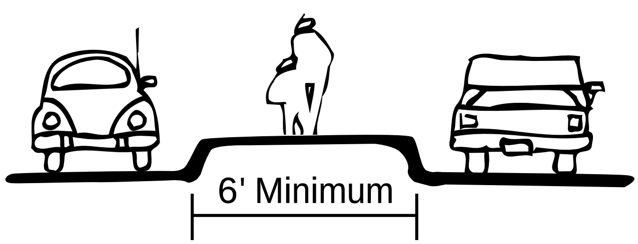
4) The preferred raised median width for provision of turning bays is 14'; the minimum width for this type of median is 12'.

5) Raised medians shall be designed at standard (6") curb height.

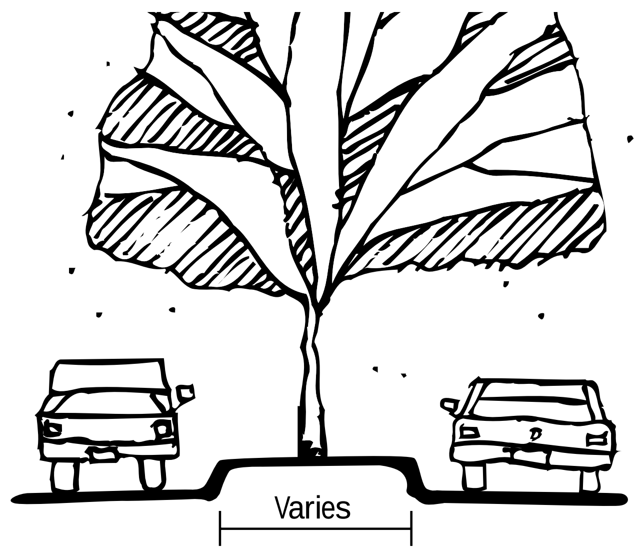
Channel Median Figure 5



Pedestrian Refuge Figure 6



Landscaped Median Figure 7



Left Turn Lanes

Design Guidelines

1) Arterial and collector streets may have a continuous two-way left turn lane to channelize and remove turning traffic from through traffic lanes, or to provide additional separation between traffic moving in opposite directions.

2) Continuous two-way left turn lanes are most useful on streets where driveways and intersections are frequent.

3) The preferred width for provision of a painted continuous two-way left turn lane is 12 feet.

4) Left turn lanes at intersections and continuous left turn lanes may be required on major collector streets in commercial, industrial, and multi-family residential areas.

5) Neighborhood collector streets shall not be designed with continuous left-turn lanes but left turn lanes at intersections with higher volume streets may be required.

Left Turn Lane Design Standards

1) All left turn lanes on collector and arterial streets shall be a minimum of 10' in width.

A center turn lane on River Road

Mid-block Crossings

Design Guidelines

1) The preferred location for pedestrian crossings is at intersections. However, mid-block pedestrian crossings can be considered and installed under certain conditions. Decisions to install mid-block crosswalks and refuges should be based on appropriate traffic “warrants” to minimize potential adverse effects of inappropriately placed crossings.

This mid-block crossing improves pedestrian safety on Willakenzie Road near Sheldon High School

2) Mid-block crossings may be used to provide street-crossing points for pedestrians on major streets in areas with infrequent intersection crossings or where the nearest intersection crossing creates substantial out-of-direction travel.

3) Where warrants are met, mid-block crossings can be used to:

a) provide pedestrians with reasonable opportunities to cross streets during periods of heavy traffic, and when there are few naturally occurring gaps in the approaching traffic streams;

b) provide pedestrians reasonable crossing places when there are long distances between signalized intersections;

c) meet the needs of pedestrians crossing between high pedestrian generators, such as a parking lot on one side of the street serving an office complex or hospital on the other side of the street;

d) provide visual cues that allow approaching motorists to anticipate pedestrian activity and unexpected stopped vehicles;

e) help channel pedestrians to the nearest available crossing point;

f) help facilitate access to and use of public transit;

g) help motorists identify important school crossings; and

h) make pedestrian behavior more predictable.

4) Generally, an engineering evaluation will be used to determine the need for mid-block crossings on major streets where one or more of the following conditions exist:

a) protected intersection crossings are spaced greater than 600 feet, or so that crosswalks are located more than 400 feet apart in high pedestrian volume locations, or areas with frequent elderly and school pedestrian traffic, and

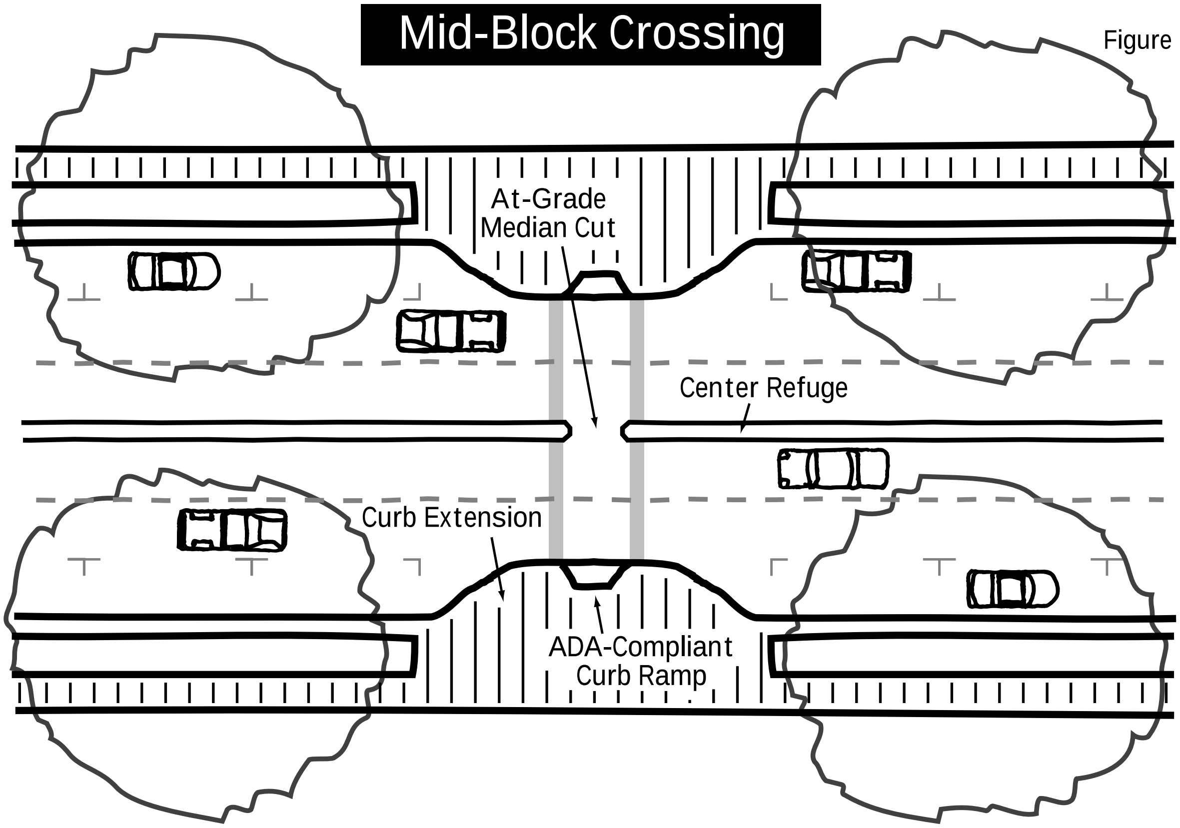
b) speeds on the roadway are 40 m.p.h. or less with pedestrian crossing volumes (for peak four hours) exceeding 25 on streets with average daily traffic (ADT) volumes exceeding 10,000. At locations where significant numbers of pedestrians are children, elderly, or disabled, minimum crossing thresholds are 10 pedestrians per hour (peak four hours) on streets with average daily traffic (ADT) volumes exceeding 10,000. An engineering investigation to determine adequate sight distance, traffic speeds, gap availability and pedestrian volumes shall determine the applicability of the above criteria.

5) Where right-of-way, travel lane, and bike lane configuration allow for their construction, curb extensions and/or raised median islands should be provided at mid-block crossings to increase pedestrian and driver visibility, and to reduce pedestrian crossing distances. (See Figure 8).

6) Mid-block crossings should be marked with ladder-style (continental) markings to increase visibility.

7) The need for mid-block pedestrian crossings will be evaluated by the City of Eugene Public Works Transportation Division. A determination of the need for a mid-block crossing will be issued by the Division and will be based on relevant factors established by the Manual on Uniform Traffic Control Devices (MUTCD) including sight distance, vehicle speed, accident records, illumination, traffic volumes, type of pedestrian, nearby pedestrian generators, and other factors that are used to satisfy a warrant. Mid-block crossings may be provided with pedestrian-activated signals and appropriate advance warning devices upon a finding, based on traffic engineering study, that the location satisfies warrants established in the Manual for Uniform Traffic Control Devices. Established school crossings are high-priority locations for such studies.

Mid-Block Crossing Figure 8



8) Mid-block crossings will be illuminated.

9) Where mid-block crossings penetrate raised medians, the median will be provided with at-grade cuts or with Americans with Disabilities Act ADA-compliant wheelchair ramps. (See Figure 8)

10) Crossing points shall be supplemented with advance crosswalk warning signs for vehicle traffic.

Ladder-style markings increase driver awareness of pedestrian crossing areas

Intersections

Design Guidelines

1) Intersection design should consider the trade-offs between increasing vehicle capacity, transit needs, and improving pedestrian and bicycle mobility and safety in situations where conflicts are evident.

2) Multi-modal intersection design should consider and accommodate appropriate level of service, design speed, and types of traffic.

3) All modes of travel should be accommodated in multi-modal intersections. Intersection widening for additional turn lanes to relieve congestion should provide for and encourage transit movements, as well as safe pedestrian and bicycle movements.

4) The preferred location for pedestrian crossings is at intersections. However, mid-block pedestrian crossings can be installed if warrants are met. (See Mid-Block Crossing Standards).

5) Wide streets can present an impediment to pedestrian crossings. Pedestrian refuge medians and/or landscaped medians with pedestrian refuges should be designed into arterial and collector street intersections with more than three lanes, whenever possible, to reduce crossing distances and improve safety and comfort for pedestrians.

6) Generally, provide striped crosswalks at stop controlled intersections when the minimum hourly pedestrian crossing volume (for peak four hours) exceeds 25 on streets with average daily traffic (ADT) At locations where a significant number of pedestrians are children, elderly, or disabled, minimum crossing thresholds are 10 pedestrians per hour on streets with average daily traffic (ADT) identified in the above cited references. Use this guideline as long as the basic criteria governing sight distance speeds, etc. are met. For details regarding this guideline, see references cited in the Mid-Block Crossing section.

7) Median signal heads and pushbuttons should be considered for placement on unusually wide intersections.

8) Provide right lanes at intersections for buses to use for “queue jump” operations. The lane may be exclusive to transit or could include other vehicles sharing the right turn lane. Additional widening on the far side of the intersection should be considered for far-side bus stops and bus merge areas.

9) Avoid intersection designs with dual right-turn lanes, particularly with one of the lanes being a shared through-right turn lane.

Areas with multiple curb cuts increase accident potential and reduce the efficiencya of the street

10) Reduce crossing widths at intersections by either providing curb extensions into the street equal to the width of on-street parking (but not interfering with bicycle lanes) or reduce curb return radius to the maximums stated under the curb return radius section. Exceptions include narrow streets with short crossings, intersections with exclusive right turn lanes, or intersections with a high volume of right turning trucks and buses. (See Figure 9).

11) Extend bicycle lanes up to intersection stop bars or crosswalks. Where bicycle lanes cross through intersections, "skip" markings shall be used to delineate the lane.

12) At intersections with exclusive right-turn lanes, the bicycle lane should be placed to the left of the right-turn lane.

13) Provide bicycle crossing intervals at signalized intersections to accommodate a 10 m.p.h. crossing.

14) Design of any curb return should consider its "effective" radius provided by the presence of bicycle lanes, parking, and other details before increasing radius size to accommodate bus or truck use.

15) The design of curb return radii should take into account the width of the two intersecting streets, the design vehicle (such as an LTD bus), lane widths, presence of bicycle lanes or on-street parking, etc. In each case, LTD staff and Transportation Division staff shall be consulted to determine the smallest acceptable radius for the benefit of pedestrian and bicycle movement, that adequately provides for bus and truck turns at the intersection. (See Figure 26 in Transit Facilities section of Design Standards and Guidelines).

16) Design of channelized right turn islands (slip lanes) can be considered in locations where street crossing distances, traffic volumes or traffic speeds jeopardize pedestrian safety or comfort. (See Figure 11).

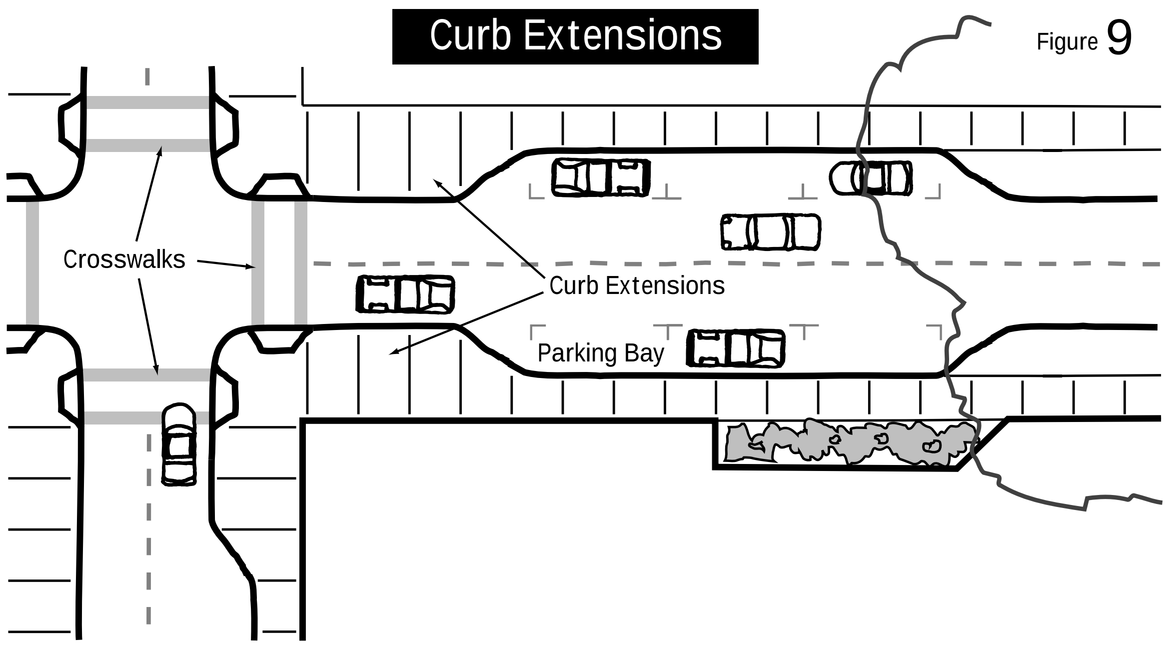
17) Striped crosswalks are to be used:

a) at all signalized pedestrian crossings

b) at all intersections on designated school routes

Curb Extensions

Figure 9



18) Avoid striping crosswalks at unsignalized intersections with inadequate sight distance. Either mitigate the inadequate sight distance or direct pedestrians to alternative crossing locations. Minimum intersection sight distance is based on local, state, or AASHTO guidelines.

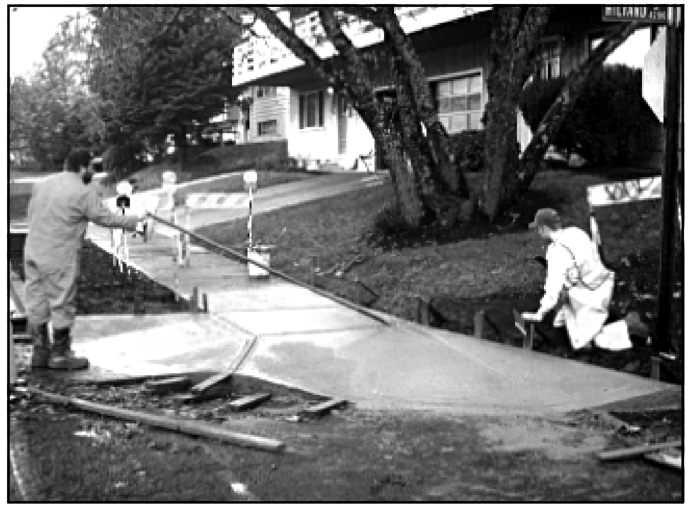
19) If a raised median nose extends into the crosswalk, provide an ADA-compliant channel through the median.

20) Use local, state, or AASHTO guidelines to determine decision and stopping sight distance triangles at uncontrolled and stop controlled intersections before striping a crosswalk.

21) Provide illumination for intersections with striped crosswalks.

22) Signal timing for pedestrians shall be based on MUTCD standards.

23) Provide signal heads (Walk/Don't Walk) at all signalized intersections, except where pedestrian movements are prohibited.



Curb ramps improve street access for those who use wheelchairs

24) Provide pedestrian pushbuttons at all vehicle activated signals except where pedestrian movements are prohibited.

25) Provide pedestrian pushbuttons and signal heads on median refuges at signalized intersections where median refuges are used.

26) Provide ADA-compliant wheelchair ramps (two per corner) at all intersections.

Push buttons at signalized crossings improve conditions for pedestrians

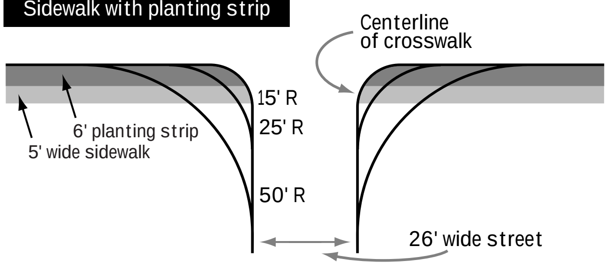
Curb Return Radii Design

Effect of Corner Radii on Pedestrian Crossing Distances

Figure 10

Setback Sidewalk

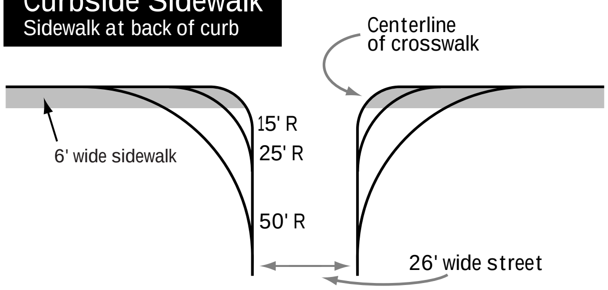
Sidewalk with planting strip



Radius	Crossing Distance	Increase Crossing	Percent Increase
15 feet	26 feet	+0 feet	0%
25 feet	36 feet	+10 feet	38%
50 feet	65 feet	+39 feet	150%

Curbside Sidewalk

Sidewalk at back of curb



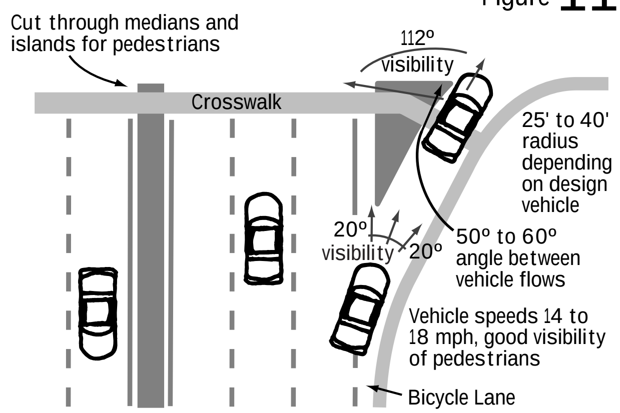
Radius	Crossing Distance	Increase Crossing	Percent Increase
15 feet	37 feet	+11 feet	42%
25 feet	50 feet	+24 feet	92%
50 feet	89 feet	+53 feet	203%

27) Install bicycle detectors at traffic-actuated intersections. Provide pavement markings identifying the location of the detector. If bicycle detectors cannot be installed, provide pedestrian pushbuttons accessible from bicycle lanes.

28) Curb return radii and the configuration of medians must be designed to facilitate pedestrian crossings, while accommodating bus and major freight movement. Primary design consideration shall be for pedestrian movements. (See Figure 10).

Right Turn Slip Lane Design

Figure 11



Adjacent Land Use

Design Guidelines

1) Site planning and design of buildings adjacent to arterial and collector streets can significantly contribute to the creation of environments that support walking, bicycling, and transit use. Site and building design is an opportunity to redirect private investment to support multi-modal transportation and increase transit ridership.

2) Buildings should face the street in all transit oriented development and nodal development areas within the city. Orienting the front entrance of buildings to the street is fundamental to increasing regional and local accessibility to transit, walking and bicycling. It also facilitates pedestrian access and supports pedestrian activity on the street.

3) Discourage residential fencing along arterial and collector streets that isolates the development from the street. Encourage residential building orientation to the street by providing for on-street parking wherever possible, and by encouraging on-site parking access via alleys.

4) Attempts should be made, wherever possible, to consolidate multiple driveways on arterial streets into single access points.

Design Standards

1) To minimize the visual and circulation impacts of extensive sections of fencing along major streets, bicycle and pedestrian accessways or street connections shall be provided at intervals not to exceed 600 feet.

Residential fencing that isolates development from the street is discouraged in the plan

Traffic Calming

Design Guidelines

1) Traffic calming techniques should be applied on selected arterial and collector streets throughout the city, as funding and opportunity permits, to address a variety of quality of life and traffic operations concerns. Traffic calming devices can be used on major streets to:

a) Keep traffic flowing at a reasonable level of service;

b) Reduce traffic speeds;

c) Reduce traffic-related noise levels;

d) Reduce traffic volumes in selected areas;

e) Ensure fair and appropriate distribution of traffic throughout a neighborhood;

f) Improve safety and travel conditions for motorists, pedestrians and bicyclists;

g) Improve traffic circulation;

h) Reduce the need for traffic regulation and heightened law enforcement in problem area;

i) Reduce air pollution levels; and

j) Provide increased opportunities for neighborhood revitalization.

2) Traffic calming techniques should not be applied in isolation. Neighborhood-wide traffic calming studies should guide the placement and choice of traffic calming devices.

3) Traffic calming devices used on major streets should not significantly reduce emergency response times or impede delivery of transit services.

4) All new major street projects and major street reconstruction projects should be evaluated for potential application of traffic calming devices and techniques to those streets.

5) All traffic calming devices should be planned and designed in keeping with sound engineering and planning practices, and with careful consideration of long-term, cost-effective maintenance.

6) All traffic calming devices should be planned and designed with significant input by residents and businesses in the affected areas.

A narrow median, curb extensions, and recessed parking calm traffic on E. Broadway, a downtown collector street

7) The following table (Figure 12) should be used as a guideline for initial evaluation of appropriate traffic calming strategies for various types of streets.

Traffic Calming on Major Streets

Figure 12

Traffic Calming Device	Major Arterial	Minor Arterial	Major Collector	Neighborhood Collector
Roundabouts	Yes	Yes	Yes	Yes
Traffic Circles	No	No	No	Yes
Raised Crosswalks	No	No	Yes	Yes
Curb Extensions	No	Yes	Yes	Yes
Parking Bays	Yes	Yes	Yes	Yes
Chicanes	No	Yes	Yes	Yes
Street Closure	No	No	No	No
Half Diverter	No	No	No	No
Diagonal Diverter	No	No	No	No
Star Diverter	No	No	No	No
Raised Median	Yes	Yes	Yes	Yes
Pavement Surface Modification	Yes	Yes	Yes	Yes
Speed Actuated Signing	No	No	No	No
Speed Humps	No	No	No	No
Speed Tables	No	No	No	Yes
Landscaped Roadway	Yes	Yes	Yes	Yes
Midblock Neckdown	No	No	Yes	Yes
Angled Slow Point with Median	No	No	Yes	Yes

Street Lighting and Streetscape Features

Design Guidelines

1) The streetscape is defined as the built and planted elements of a street which define the street's character.

Street design features such as these light fixtures along 5th Ave. help define the street's character

2) Provide continuity of streetscape features along the length of any street identified as a specific district or area.

3) Provide street lighting on arterial and collector streets to:

a) Enhance safety for all modes of travel.

b) Illuminate the street and sidewalks but minimize unwanted spillover light.

c) Enhance the overall safety and appearance of the street and its immediate environment.

4) Provide pedestrian-scale lighting, where appropriate, to provide a separation from street traffic and spatial definition that is human scale. Pedestrian-scale street lights should be lower than conventional street lights, should be spaced more closely, and should provide more illumination of the sidewalk. To provide identity to certain districts, consider special light standards such as antique replicas.

5) Provide kiosks, benches, newspaper racks, trash cans, bus shelters, cafe tables, hanging flower baskets and chairs to increase the number of opportunities for people to socialize and spend leisure time outdoors along public streets.

6) Provide opportunities for "stationary" pedestrian activities. Stationary activities are either standing or sitting, where people choose to stay in a place to observe or participate in public outdoor activities. Seating can be either primary (chairs and benches, such as those found at a cafe or transit stop), or secondary seating (low walls, steps, or fountain edges, where people spontaneously collect).

Design Standards

1) Street lighting shall be provided on arterial and collector streets, in accordance with standards of the Illumination engineering Society of North America (IES).

Streetscape Features

Design Guidelines

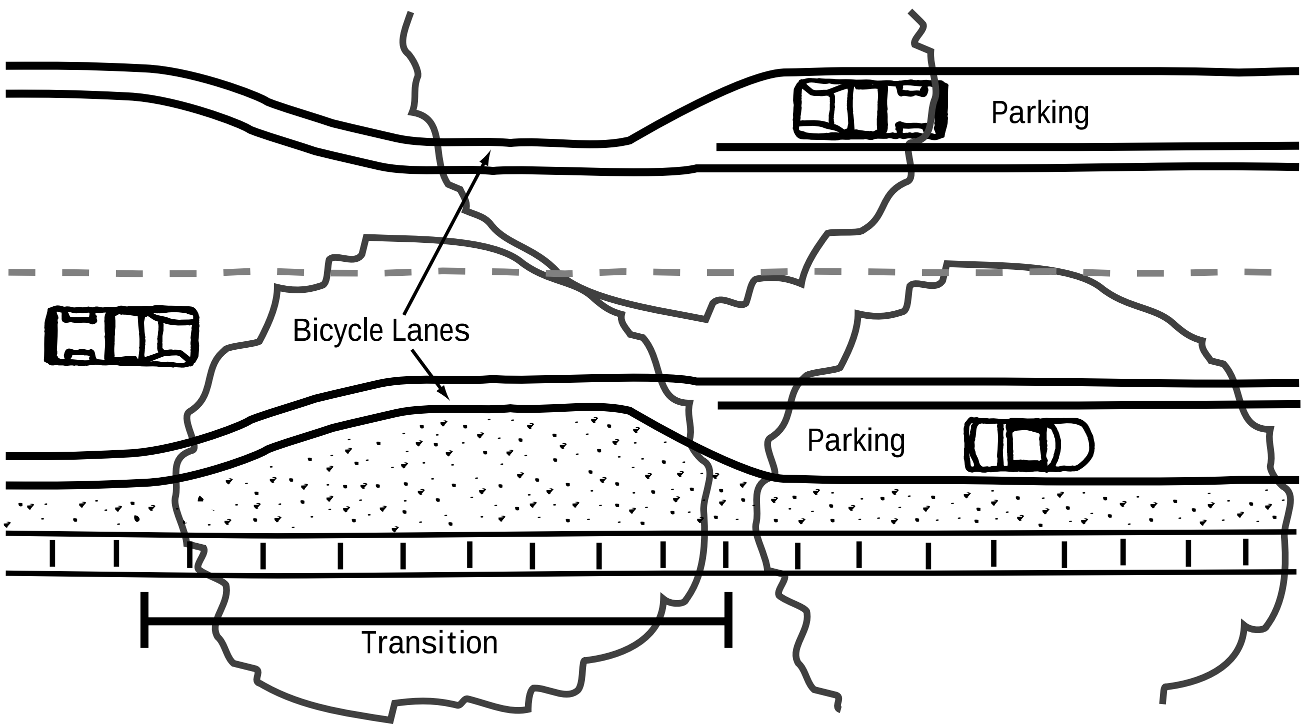
1) Transitions occur in areas where land use type, right-of-way width, or street type change. Transitional areas provide opportunities for gateways or other design treatments that mark or signify change.

2) Street transition treatments should be located at intersections or at the boundaries of significant changes in land use.

3) Use transitional treatments to improve unattractive "leftover" areas, and to provide identity and continuity to street design.

4) Use curb extensions as a landscaped transition from wider streets to narrower streets. (See Figure 13).

Street Design Transitions Figure 13



Use curb extensions as a landscape transition from a wider street to a narrower street

LOCAL STREETS

Local streets are the framework around which communities are built. Although the primary function of local streets is to provide access to properties fronting on the street, to a great extent, they also determine the form and character of cities and neighborhoods. The pattern and design of local streets help shape neighborhood image and identity, and can influence whether or not an area feels safe. Local streets can also influence the degree of communication neighbors have with one another, the extent to which residents use alternate modes of transportation, and the population's general feelings of well-being and comfort related to their immediate environment.

The design and appearance of local streets should convey this purpose through the use of relatively narrow widths, short lengths, frequent connections with other streets, and alignments which encourage slow traffic speeds and discourage through traffic.

Table 2 contains a summary of typical widths for local street elements such as right-of-way, pavement, sidewalks and plant strip areas, and traffic volume thresholds.

Local Street Standards

Table 2

Type of Street	R.O.W. Width	Paving Width			(Setback) Sidewalks Ⓐ	Planting Strips Ⓑ	Average Daily Traffic (ADT)
		No Parking	Parking One Side	Parking Two Sides			
1-way Alley Ⓒ	20'	12'			None	None	NA
2-way Alley Ⓒ	20'	16'			None	None	
Access Lane Ⓓ	40'		21' (7/14)		1 @ 6'	7' and 6'	<250
Access Lane Ⓓ	55'			28' (7/14/7)	2 @ 6'	2 @ 7'-6"	ADT
Low-Volume Res. Ⓓ	45'	20'(10/10)			2 @ 6'	2 @ 6'-6"	250
Low-Volume Res. Ⓓ	45'		21'(7/14)		2 @ 6'	2 @ 6'-0"	to 750
Low-Volume Res. Ⓓ	55'			28'(7/14/7)	2 @ 6'	2 @ 7'-6"	ADT
Med.-Volume Res. Ⓓ	50'	20'(10/10)			2 @ 6'	2 @ 9'-0"	>750
Med.-Volume Res. Ⓓ	55'		27'(7/10/10)		2 @ 6'	2 @ 8'-0"	ADT
Med.-Volume Res. Ⓓ	60'			34'(7/10/10/7)	2 @ 6'	2 @ 7'0"	
Commercial/ Industrial	55'-70'		30'-44'		Curbside/ Setback	2 @ 6'-0" Min.	NA

A. Setback sidewalk dimension includes a 5' paved walk and 1' strip behind the walk. For curbside sidewalks, the sidewalk dimension includes a 5' paved walk and 6" curb (5'-6" total); the 1' strip behind the walk is added to the planting strip dimension.
B. Planting strip dimension includes 6" curb. For curbside sidewalks, an additional 6" would be added to the planting strip dimension.
C. In addition to the ROW width, alleys require a minimum setback of 2' on each side for a minimum 24' backup distance.
D. Additional parking to accommodate occasional high parking demand may be provided in congregate parking areas such as parking bays.

Local Street Sub-Classifications

Local streets are divided into several sub-classifications:

- Alleys
- Access Lanes
- Low Volume Residential Streets
- Medium-Volume Residential Streets
- Commercial-Industrial Streets

Alleys: Alleys are streets that provide secondary access to residential properties where street frontages are narrow, where the street is designed with a narrow width to provide limited on-street parking, or where alley access development is desired to increase residential densities.

Access Lanes: These streets are designed for primary access to a limited number of properties. On this street type, the residential environment is dominant and traffic is subservient. Access Lanes can be constructed as cul-de-sacs, loop streets, or short streets connecting two other streets. Access lanes generally serve 25 or fewer homes and traffic volumes are less than 250 Average Daily Traffic (ADT).

Low-Volume Residential Streets: These streets are designed for primary access to individual residential property as well as access to adjacent streets. As with the Access Lane, the residential environment is dominant. Traffic volumes are relatively low (250-750 ADT).

Medium-Volume Residential Streets: These streets are designed for primary access to individual residential property and to connect streets of lower and higher function and access the major street network. These streets are designed to accommodate higher traffic volumes (750-1,500 ADT).

Commercial/Industrial Streets: These streets are designed for primary access to commercial and industrial properties and to connect to the major street network. They are designed to accommodate higher traffic volumes and freight.

Local Street Design Standards

The typical design elements found in a local street right-of-way are: sidewalk and planting strip areas, parking lanes, vehicle traffic lanes, parking lanes, drainage and curbs, planting strips, sidewalks, utilities, street lighting, and occasionally a center median. The standards in paragraphs A-M below apply to both new and existing unimproved local streets, unless otherwise stated.

A. Vehicle Lanes

1) Two 10' vehicle traffic lanes are required on local residential streets when traffic volumes are expected to exceed 750 vehicles per day.

2) On local residential streets with traffic volumes less than 750 vehicles per day, a single 14' traffic lane may be permitted for both directions of vehicular travel. The single traffic lane is intended to create a “queuing street”, such that when opposing vehicles meet, one of the vehicles must yield by pulling into a vacant portion of the adjacent parking lane. This queuing effect has been found to be an effective and safe method to reduce speeds and non-local traffic.

3) Two 12' wide vehicle traffic lanes are required on local commercial and industrial streets.

4) In special circumstances, such as where a local street intersects with a collector or arterial street, additional width may be required for safe turning movements.

B. Medians

1) Center medians are a design option for Low-Volume and Medium-Volume Residential Streets, but the street design must ensure the minimum 14' clear lane needed for fire apparatus.

2) Medians shall be landscaped with groundcover, trees, and shrubs less than 3' in height.

C. Parking Lanes

1) Parking lanes are 7' wide on local streets.

2) Additional parking to accommodate occasionally high parking demands may be provided in congregate parking areas, such as parking bays.

D. Bike Lanes

1) Because of the low projected traffic volume and speed, striped bicycle lanes are not required on local streets. However, the design shall comfortably accommodate the shared use of the roadway by bicyclists and motorized traffic.

E. Drainage and Curbs

1) Drainage inlets shall be bicycle-safe as required by ORS 810.150. Curb inlets as shown in Figure 14 shall be used unless alternate style is required or approved by the City Engineer.

2) Combined vertical curb and gutter shall be used on all streets with an enclosed drainage system.

3) A modified rolled curb with a slightly rounded top and bottom may also be used as shown in Figure 15; however, no other rolled curb designs are permitted. Gutter width shall be 18" wide measured from the face of the curb.

4) In private alleys paved with asphalt, inverted concrete curbs as illustrated in Figure 16 are required to prevent the pavement edge from breaking down. Inverted curbs are also required in Access Lanes that utilize grassed swales for drainage.

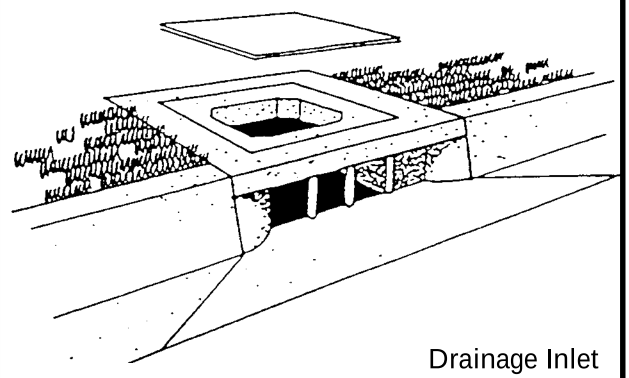
F. Sidewalks

Note: the following standards are required for newly constructed local streets, and recommended guidelines for existing local streets.

1) Sidewalks are required along all new local streets and shall be a minimum of 5' wide.

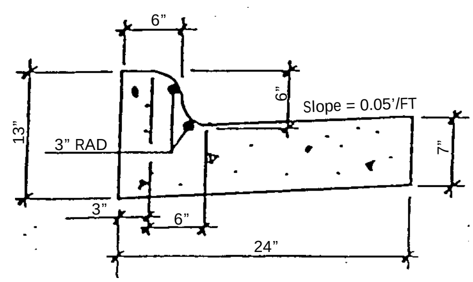
2) Generally, setback sidewalks are required along both sides of the street.

Figure 14



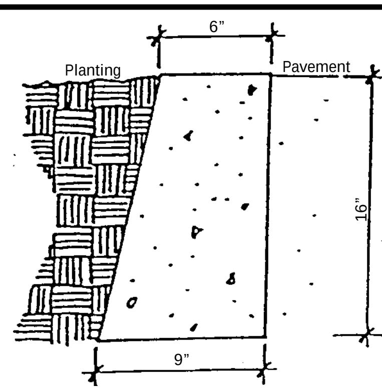
Drainage Inlet

Figure 15



Modified Rolled Curb

Figure 16



Inverted Curb

3) Setback sidewalks shall be set back from the street by a planting strip not less than 6' wide.

4) Sidewalks shall not have obstructions such as mailboxes, utility poles, or signs that reduce the usable width of the sidewalk below 5'.

5) Curbside sidewalks and sidewalks on one side of the street are permitted for Access Lanes, in special circumstances, such as to reduce excessive impacts to topography, wetlands, drainageways, and other natural features; in infill situations to match existing configurations; or on existing unimproved streets. In these situations, the sidewalk may be placed adjacent to the street to reduce overall right-of-way. Curbside sidewalks are also permitted for Commercial/Industrial Streets.

G. Utilities

1) The primary location for utilities is in a public utility easement (PUE) adjacent to the right-of-way.

2) Utility facilities such as electric transformers, hydrants and junction boxes may be located in the planting strip, but should be sited as close to the property line as possible to avoid conflicts with street trees.

3) Utilities are required to avoid conflicts with stormwater-related conveyance and treatment facilities.

H. Street Lighting

1) Street lighting shall be provided on local streets in accordance with IES standards.

I. Pavement and Right-of-Way Widths

1) Depending on the projected traffic volumes and any circumstances unique to the location, pavement widths for local residential streets (not including alleys) range from 20' to 34', with total right-of-way widths ranging from 40' to 60'.

2) Pavement widths for local commercial and industrial streets range from 30' to 44', with total right-of-way widths ranging from 55' to 70'.

J. Cul-de-sacs

1) Maximum length for a cul-de-sac is 400 feet, measured from the centerline of the intersecting street to the radius point of the cul-de-sac bulb.

2) A cul-de-sac will normally terminate in a standard cul-de-sac bulb. In the event that a standard bulb is not feasible, a “Y” or “T” turnaround may be used.

3) Cul-de-sacs constructed with 20' of paving and more than 150 feet in length must provide a 12' emergency vehicle, bicycle, and pedestrian accessway from the bulb to an adjacent street.

K. Traffic Calming Devices

1) Occasionally it is necessary to employ various techniques to reduce vehicle speeds and/or shift traffic to more appropriate routes. These techniques are commonly referred to as “traffic calming” measures. Traffic calming measures can also be incorporated in the construction of new streets to prevent problems from developing in newly constructed or future residential areas. Traffic calming devices are intended for use on local streets but may be used on collector streets. The application of these techniques is based on a case-by-case basis using engineering judgement. Planning and design should be coordinated with nearby residents as well as emergency and other service providers who will be affected by their use. Table 3 indicates which techniques are suitable for existing and new streets.

L. Grade

1) New street grades in excess of 20% are prohibited. Maximum grade of 15% with up to 200' lengths of grade up to 20% is allowed, but there shall be no intersections or driveway access in areas with grades above 15%.

M. Private Streets and Alleys

1) Private local streets are required to be designed to the same standards as public streets in the following categories:

a) Intersection configuration (spacing and intersection angles).

b) Minimum centerline radius length (American Association of State Highway and Transportation Officials (AASHTO) standard).

Traffic Calming Device Locations — Table 3

Traffic Calming Device	Existing Street	New Streets
Traffic Circles	■	■
Speed Hump *	■	■
Raised Crosswalks	■	■
Curb Extensions	■	■
Chicanes	■	■
Traffic Diverters ** Full Diverters - Street Closure Half Diverter Diagonal Diverter	■	
Median Barrier	■	■
Forced Turn Channelization	■	■
Parking Bays	■	■
Pavement Surface Modifications	■	■
Speed Actuated Signing	■	■

* New speed humps are to be installed only at the direction of the City Traffic Engineer.
* * Installation of diverters or street closures is subject to provisions of Chapter 5 of the Eugene Code, 1971.

c) Grade: Maximum grade of 15% with up to 200' lengths of grades up to 20%, but no intersections or driveway access in areas with grades above 15%.

d) Sight distance.

e) Width: Minimum 20 feet

f) Curb height where necessary for roof drains, safety or ADA requirements

g) Street alignments in relation to natural resource sites and water-related features.

2) Sidewalks are required, but reduced sidewalk width is allowed, curbside or meandering sidewalks that don't parallel the street are allowed, and sidewalks are allowed on one side of the street. Sidewalks must meet ADA requirements, which allows a minimum width of 3' provided that "passing space" is provided at reasonable intervals, not to exceed 200 feet.

3) Private alleys are required to comply with the standards for public alleys in the following categories:

a) Intersection configuration

b) Grade

c) Width and setback requirements

d) Curb requirements (if asphalt)

4) The structural design and construction inspection for private streets and alleys shall remain the developers responsibility. Certification by a licensed engineer that a structural design meeting the public design standards outlined above has been completed shall be submitted with the land use application.

Exceptions to Address Topography and Natural Resources

Occasionally, streets are constructed in locations which require special accommodations such as in hilly areas, or near wetlands, canals, dense vegetation, or sensitive plants and animals. In these cases, specific considerations should be made to minimize negative impacts. For example, wide streets along steep slopes require much larger hillside cuts than narrow streets.

Generally, the range of local street types make it possible to construct or improve local streets in accordance with the design standards. In certain situations, however, exceptions should be made. Exceptions could result in construction of meandering sidewalks, sidewalks on only one side of the street, or curbside sidewalk segments instead of setback walks. Exceptions are allowed when one or more of the following conditions exist.

1) Physical conditions that preclude development of a public street. Such conditions may include, but are not limited to, topography or the existence of natural resource areas such as wetlands, ponds, streams, channels, rivers, lakes or upland wildlife habitat areas, or a resource on the National Wetland Inventory or under protection by State or Federal law; or

2) Buildings or other existing development on adjacent lands, including previously subdivided but vacant lots or parcels, physically preclude a connection now or in the future, considering the potential for redevelopment.

BICYCLE/PEDESTRIAN PATHS

Bicycle/pedestrian paths are facilities that are physically separated from motorized traffic by an open space or barrier and serve a mixture of users such as cyclists and pedestrians as shown in Figure 17. Paths shall be a minimum of 12' wide with 2' wide unpaved shoulders on each side.

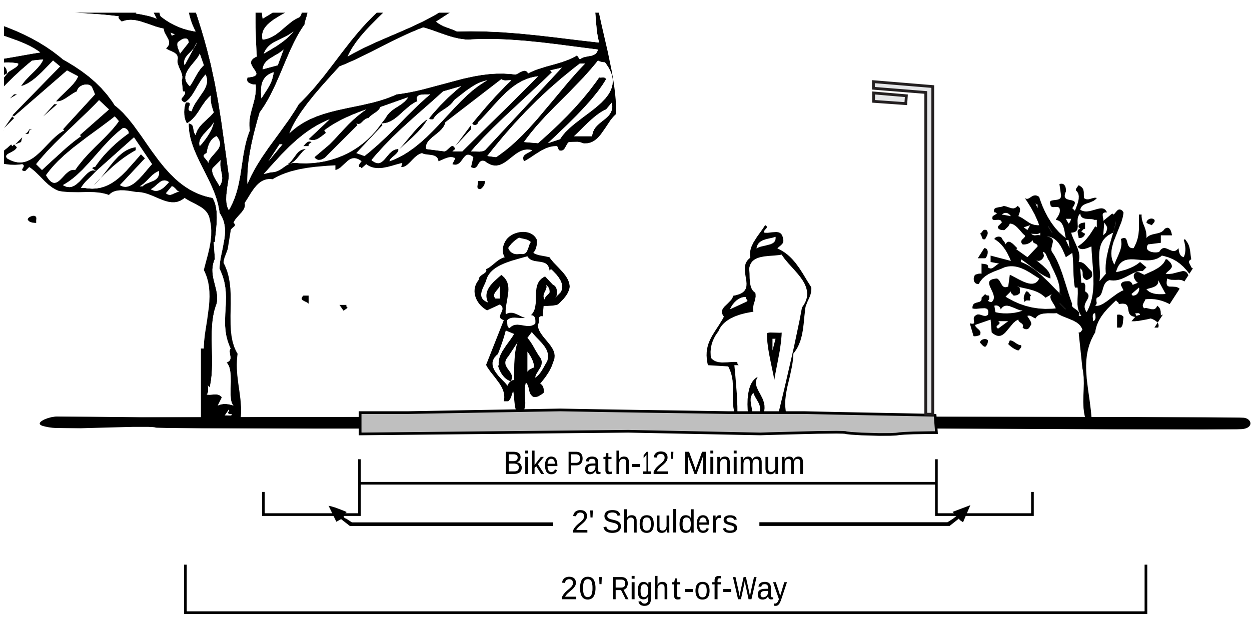
Concrete is the preferred surfacing, with saw cuts for expansion. Asphaltic concrete may be used, depending on soil or other conditions, such as projected use by maintenance or emergency vehicles. Pavement, sub-base and shoulder design shall be determined following an engineering analysis of the design variables and shall meet design criteria established by the City Engineer. Paths should have 3' of shy distance from the edge of the path to any fixed object.

Paths shall be lit and shall comply with IES standards.

Paths shall be designed to minimize motorized traffic. Bollards are not the preferred option and should be used only if warranted. If used, bollards should be painted with white reflective paint, and should be placed in the center of the path and pavement guide separators shall be placed a minimum of 20' in front of the bollards.

The AASHTO Guide for Development of Bicycle Facilities shall be followed for other standards for bicycle path construction such as super-elevation, overhead clearance, minimum radii, lighting and sight distances.

Example Bike Path Dimensions Figure 17



PEDESTRIAN AND BICYCLE ACCESS WAYS

Access ways are interconnecting paved walkways which provide pedestrian and bicycle passage such as between two cul-de-sacs or between subdivision plats. Access ways shall be a minimum of 10' wide on a 10' right-of-way. They shall be constructed of Portland cement concrete with a typical depth of 5" concrete over a 1" base of crushed rock. The dimensions for the pavement and crushed rock are based upon the heaviest vehicle which will use the access way and the native soil conditions. Final pavement and base design shall be determined following an engineering analysis of the design variables.

Access ways which function as a secondary fire access shall be constructed to support 55,000 pound vehicles. Fire access ways shall be paved a minimum of 20' wide on a 20' right-of-way unless a narrower width is approved by the City Manager or designee.

Access ways shall be designed to minimize motorized traffic. Bollards are not the preferred option and should be used only if warranted. If used, bollards should be painted with white reflective paint, and should be placed in the center of the path.

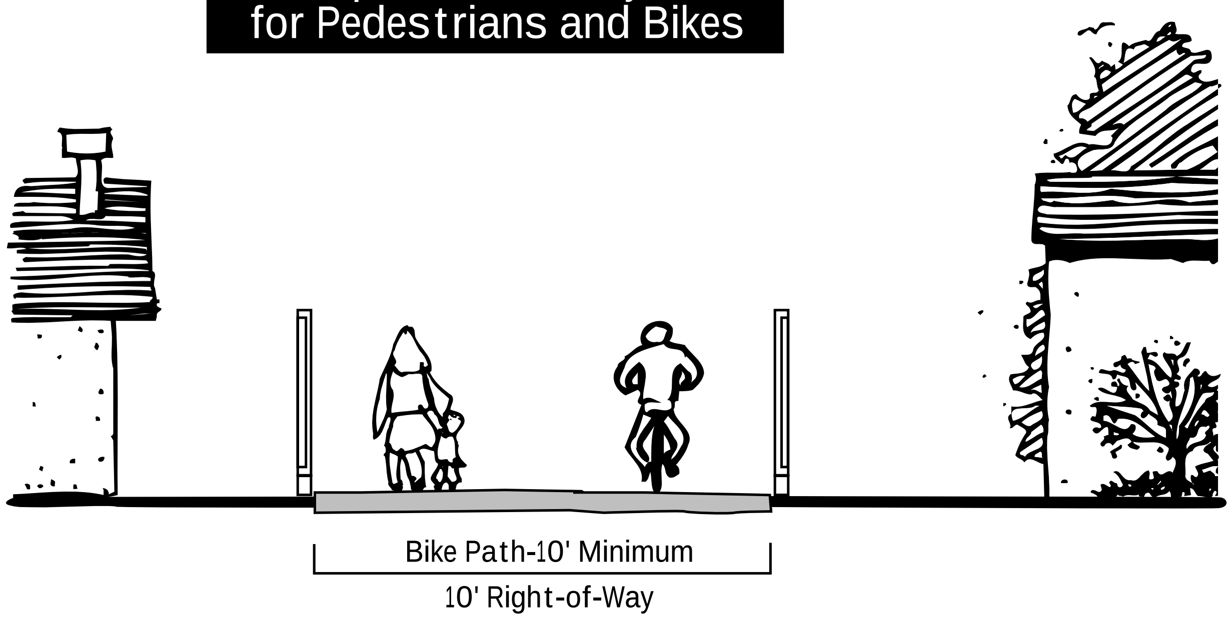
Access Way Dimensions Figure 18

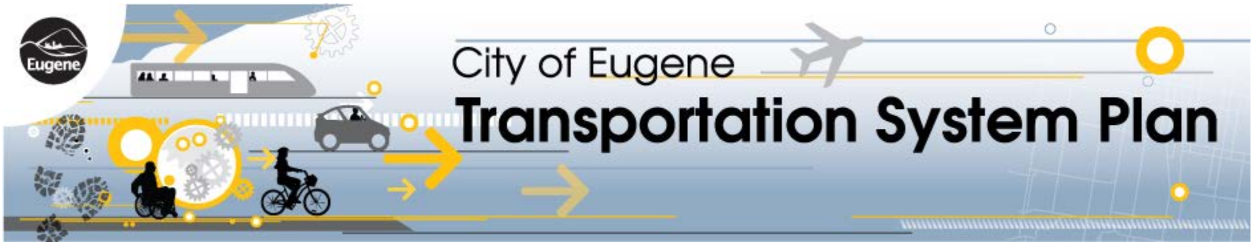
Type	Description	Pavement Width	Total Right-of-Way
Access Way	Not a Fire Access	10'	10'
Access Way	Fire Access	20'	20'

Access way surfaces shall be designed to drain water to the side or sides of the access way. Drainage systems which collect surface water along the centerline of the access way (similar to paved alleys) are not permitted.

Adequate vision clearance shall be provided at the ends of public access ways as required in Chapter 9 of the Eugene Code. Access ways shall be as straight as possible between connecting streets.

Example Access Ways for Pedestrians and Bikes Figure 19





Appendix I: Eugene Transportation System Plan: Public Involvement Plan

Eugene Transportation System Plan: Public Involvement Plan

PREPARED FOR: Eugene Transportation System Plan Project Management Team

PREPARED BY: Brandy Steffen, CH2M HILL
Kristin Hull, CH2M HILL

CC: Theresa Carr, CH2M HILL

DATE: July 8, 2010

This memo describes the proposed public involvement plan for phase 1 and 2, to support development and adoption of the Eugene Transportation System Plan (TSP). Implementation of the plan will require the support of the City of Eugene, the Oregon Department of Transportation (ODOT), Department of Land Conservation and Development (DLCD), and the Lane Council of Governments (LCOG); as well as coordination with the projects listed above. Effective documentation of public input will make it easier for the project team to incorporate community ideas and concerns, and for community members to make a connection between their input and decisions.

Goals of the Public Involvement Plan

The project is committed to an approach that is consistent with the Oregon Statewide Planning Goal 1 (Citizen Participation). The Eugene TSP public involvement approach:

- Provides early and ongoing opportunities for stakeholders to raise issues and concerns that can be considered through equitable and constructive two-way communication between the project team and the public.
- Provides complete and timely information to the public about ways to comment and help develop the TSP.
- Proactively informs and encourages the participation of all stakeholders regardless of race, ethnicity, age, disability, income, or primary language.
- Builds widespread community understanding of findings and decisions.

This document covers two components of the public involvement structure, the project teams' decision process and structure, which will remain the same for the entire project lifespan, and the public involvement process and tools, which will change during the next phase of project work.

Decision Process and Structure

This portion of the memo identifies the decision milestone, process, and decision-making structure. This information will not change over the life of the project.

A key element of the approach is a structured decision process, clear decision milestones and well-defined roles and responsibilities. Thorough and thoughtful consideration of issues at each decision point by all of the project stakeholder groups helps to ensure quality decisions that will not have to be revisited later in the project because something of significance has been omitted or improperly addressed. The clear identification of decision points creates an expectation in stakeholder groups for meeting the deadlines and staying on schedule as a way to avoid additional meetings.

Defining the decision structure—groups that will be involved and how they will participate—provides a "level playing field" for all stakeholders and answers questions typically asked by stakeholders:

- Who will make the decisions?
- How can I influence the decisions?
- When will I have an opportunity to participate?
- Who will consider my input?

Proposed Decision-Making Structure

The proposed decision-making structure for the Eugene TSP is shown on Figure 1. The composition, roles, and responsibilities of each group are described below.

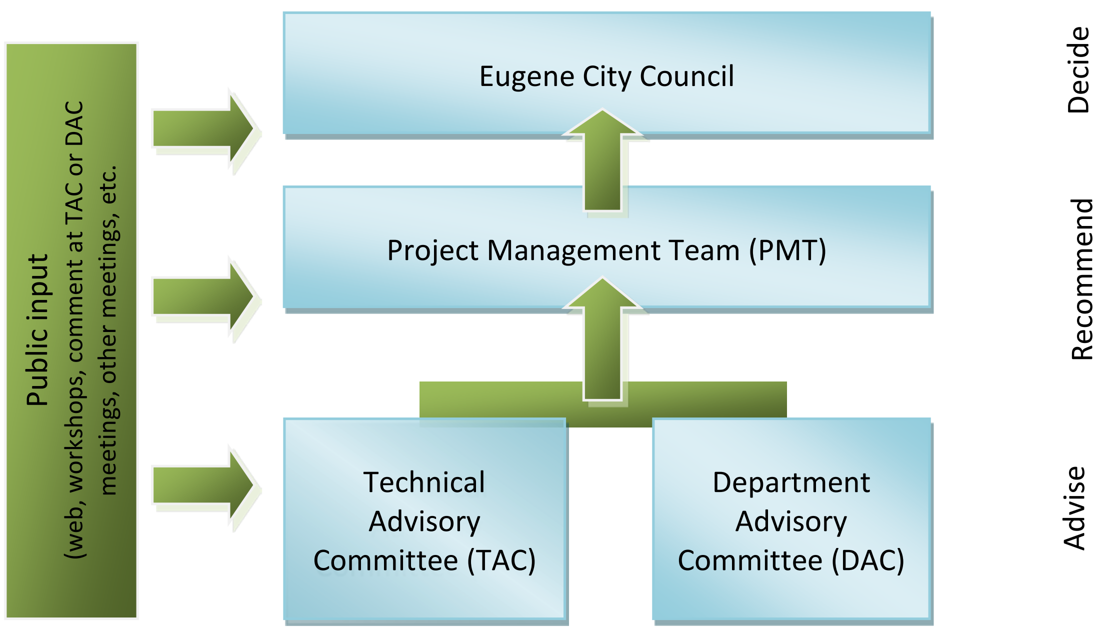


FIGURE1
Decision-Making Structure

Eugene City Council

The Eugene City Council will ultimately adopt the completed TSP. This will then be followed by Lane County co-adoption and acknowledgement by DLCD.

Technical Advisory Committee

The Technical Advisory Committee (TAC) is expected to include representatives from the City of Eugene, ODOT, Lane Transit District, Lane County, and the Eugene/Springfield School District, among others. The City of Eugene will be responsible for compiling the TAC roster. Responsibilities of the TAC include:

- Provide technical feedback at key milestones, by reviewing and commenting on the key deliverables.
- Represent the interests of their agencies or jurisdictions in group deliberations.
- Communicate project progress to their fellow elected or appointed officials, and to their constituents.
- Provide input to the PMT on technical issues related to the planning efforts.

Department Advisory Committee

The Department Advisory Committee (DAC) will provide a balanced representation of stakeholder interests, affected communities, and geographic areas as well as a communication link with those interests and communities. Members will include leaders of neighborhoods affected by the project, agency staff representatives, representatives of local and regional business groups and advocates for key interests, including different modes, environmental representatives and civic groups. The City of Eugene will be responsible for creating the DAC roster. Responsibilities of DAC members include:

- Represent their constituents' perspectives during group deliberations.
- Communicate project progress with their constituents.
- Review and comment on the key deliverables (provide input to the PMT on policy issues).
- Support the public involvement process.

Project Management Team

The Project Management Team (PMT) will be comprised of the ODOT Project Manager, the City of Eugene Project Manager, the LCOG Project Manager, and the consultant project manager, with participation from other key staff resources as needed. The PMT's responsibilities include:

- Management of project scope, schedule, and budget at a day-to-day level.
- Direction, production, and quality assurance of technical and public/agency involvement work.

- Assurance of an open, transparent process that incorporates full consideration of public input.
- Develop recommendations to the City Council.

Proposed Decision Process

The decision process for the Eugene TSP will be organized into the following decision points as described below:

- Prepare Goals and Objectives
- Develop Performance Measures and Policies
- Identify Existing and Future Need
- Identify Alternatives
- Evaluate Alternatives
- Prepare Recommendations
- Prepare and Adopt Plan

Prepare Goals and Objectives

The consultant team will work with the PMT, the TAC, the DAC, and the community to develop goals and objectives for the TSP effort. These will include what the TSP is intended to address, and how it will be addressed. Goals and objectives will serve as the basis for the performance measures and will be used to evaluate alternatives.

Develop Performance Measures and Policies

This next decision step creates supporting policies, based on goals and objectives, which serve as the basis of the TSP. It also develops performance measures to assist in evaluating and identifying alternatives. This will build from the goals and objectives and add qualitative and quantitative performance measures for gauging the effectiveness of alternatives—how well they solve the identified problems and how well they perform against the broad range of stakeholder values. The measures will be reviewed by the TAC and DAC, and discussed at a public workshop.

Identify Existing and Future Need

This decision point will ask for agreement on the description of existing and future deficiencies to be addressed by the TSP, with input from the public. The TAC and DAC will also review this statement of need. This phase will also rely on the evaluation of existing and future conditions.

Identify Alternatives

The PMT, DAC, and TAC will discuss ways to address needs through projects and programs, preferably in a workshop setting. At this point, all concepts -- alternatives or solutions that could potentially solve the identified problem – are considered. The aim is to ensure stakeholders have been consulted and all of their ideas get put "on the table."

Evaluate Alternatives

Alternatives will be reviewed in detail against the objectives and performance measures. Finally, alternatives for further study will be selected and refined. The narrowing of alternatives would reflect input gathered at a public workshop and from the TAC and DAC.

The remainder of the project decision points would be in future phases 3 and 4 of the project, for which another Public Involvement Plan would be prepared.

Proposed Schedule

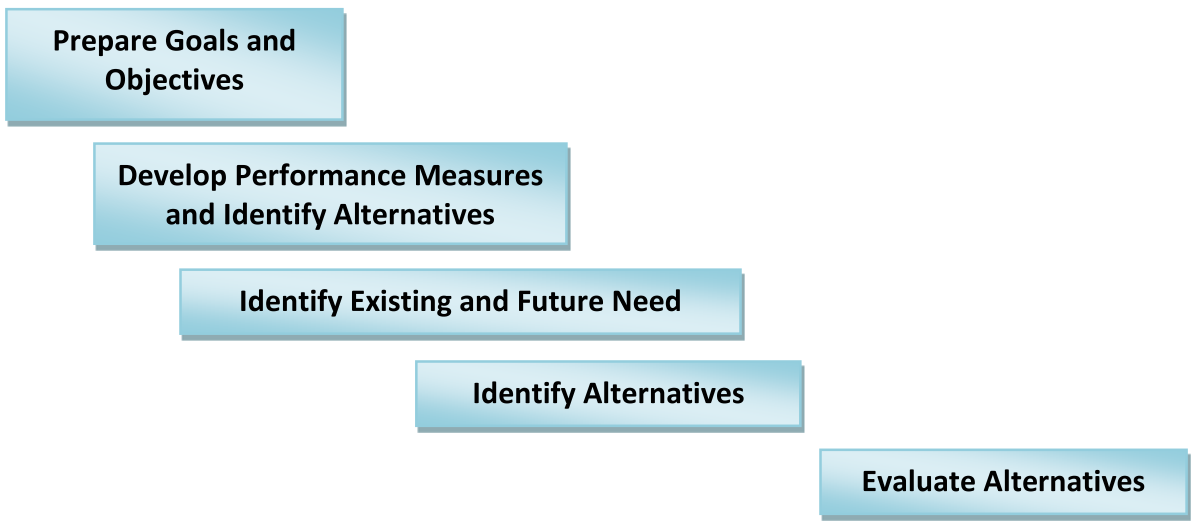


FIGURE2
Proposed Schedule

Public Involvement Process and Tools

This portion of the memo identifies key public involvement activities that will be conducted during the project by the consultant team or agency staff members. This information will be updated during phase 3 of work for the project, to reflect current levels of effort by the project team.

Public outreach prior to each of the project decision points will be used to provide the public with meaningful opportunities to affect project outcomes. Community members will be provided an opportunity to comment on issues at hand. Effective documentation of public input will make it easy for community members to make a connection between their input and decisions.

Public input will be actively considered by the DAC and TAC in making recommendations at each decision point. The public also will have opportunities to provide input to decision-makers throughout the project. Documentation of the public involvement process will be provided in a technical report, including discussion of ways public input influenced the project outcome.

Stakeholders

Stakeholders in the process include local governments, transportation stakeholders, neighborhood and business stakeholders, media, advocacy groups, and Eugene and Lane County residents.

Table 1
Stakeholder Categories and Organizations

Stakeholder category	Examples
Local Governments	Lane Transit District, Lane Council of Governments, City of Eugene, City of Springfield, Lane County
Transportation stakeholders	Oregon Trucking Association, Bicycle Transportation Alliance
Media	Register Guard, local TV and radio stations, Oregon Daily Emerald (University of Oregon paper), Eugene Weekly
Advocacy Groups	Eugene Chamber of Commerce, Friends of Eugene, Friends of Delta Ponds, Sustainability Commission
Residents	Neighborhood associations, Eugene School District

Environmental Justice Outreach and Compliance

Regardless of concentration, members of all of these groups will be invited to participate in the planning process and accommodations will be made (e.g., translation services and transportation) to encourage their participation. As the project progresses, more information about area demographics will be available and will shape the outreach to these communities. Translation services and other special accommodations, such as provisions for the sight or hearing impaired, will be provided at all meetings upon request.

Public Information

The project does not assume any printed mailers (postcards) to be sent via the consultant team, but will rely on press releases and electronic notifications to inform the public about the project and answer common questions. Press releases will be posted on the ODOT Region 2, City of Eugene, and other web pages as appropriate. Press releases will also be transmitted to area news outlets, as suggested in the stakeholder list. A standard template will be used for the Plan to help keep all messaging consistent. Press releases will be published in advance of public events. A project logo will be designed and will be used on all project public information to create a unified “brand” for the project.

A contact list of interested parties will be developed by the City, including USPS mailing and email address for distribution of mailers and announcements. This list will not be publically distributed. The project will also rely on the DAC and TAC members to announce upcoming meetings to their constituents and distribution mailing lists.

Task	Responsibility	Schedule	Review
Press releases	City will distribute	Before public events	ODOT/CH2M
Advertisements	City will distribute	Before public events	ODOT/CH2M
Post Press Release to websites	City, ODOT, LCOG	Before public events	

Media Outreach and Advertising

The City will write and distribute press releases to all local media outlets (suggested in the stakeholder list). Media will be invited to attend all major public meetings in the hope that the media outlets will advertise the events, both before and after they occur.

Stakeholder Interviews

The City will identify a list of stakeholders that will be interviewed in the early phases of the planning process. These stakeholders could include those listed in the above table, or others as necessary. A summary will be produced to capture the overall perspectives of these stakeholders to share with the DAC and TAC, in addition to posting to the project website.

Project Website

A project web page will be developed to give the public a convenient way to stay informed about the project's progress and meeting schedule. The web page will be hosted and maintained by the consultant, in conjunction with the other TSP projects that are taking place at this time. This will help create a cohesive look for the area, while also providing a local look at transportation issues in Eugene. The site will include text, graphics, and links to PDF graphics and reports. The web page will include the following information:

- Project overview
- Project schedule
- Past and upcoming meetings
- Materials from open houses including displays and summaries
- Project deliverables (maps, evaluation criteria, alternatives, recommendations)

The project team will also post an online questionnaire/survey following each of the public workshops, to provide community members with an opportunity to provide input outside of the meetings. These will be developed and administered by the City, but imbedded into the project website.

The project website will be updated periodically by the consultant team to keep current information available for the public. Additionally, any opportunity to coordinate with existing web-based processes (such as Facebook) will be made.

Public Workshops

Three public workshops will be held for the TSP. The general goals for the events will be to inform the public and interested stakeholders about the plan's process. Specifically the first event will discuss the project goals, objectives, expected growth and needs. The second event will allow the public to review and comment on the preliminary concepts, while the third event will allow the public to review and comment on the refined concepts.

These events can be held in many venues; in place of a traditional open house (such as the City Library or City Hall). The project team may alternatively decide to host a booth at the farmers' market where people can learn about the project and provide input or have a station at other local events that residents/businesses will already be attended. If possible, either format should coordinate with the other TSP projects that are occurring in the area, to attract a larger public representation.

Task	Lead	Schedule
Produce an Open House Plan	CH2M HILL	To be determined
Schedule dates and locations of open houses	City of Eugene	To be determined
Design and produce displays, comment form, and other materials	CH2M HILL	To the City one week before the event for review
Summary of event and comments gathered	CH2M HILL	Within one week of event

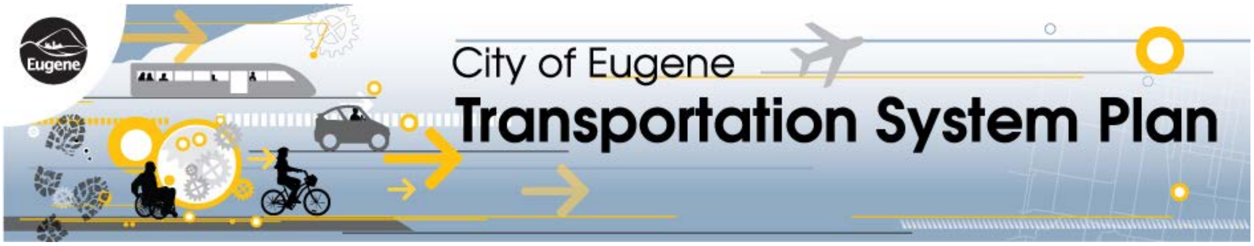
Project Briefings

The Consultant Project Manager will participate in up to three rounds of briefings with local decision-makers to share information and invite participation. In addition, the PMT may wish to meet with neighborhood and community interest groups, and/or provide press releases to neighborhood and interest groups before key public meetings for their use in newsletters and email newsletters. Neighborhood and interest groups are important way to reach out to community members and encourage participation in project events.

Other Outreach Activities

In addition to the above, the City will conduct additional public outreach opportunities as necessary. These activities are expected to include the following, but could include other items as the plan progresses:

- Provide handouts/material about the plan to other events conducted by the City of Eugene or in the general area
- A variety of school-based programs can be used to gather input about the project or increase attendance at public meetings. One simple school-based outreach program is to conduct a coloring contest for elementary school children where a coloring sheet is sent home with children. Children send their art entries to the City of Eugene, the art is displayed at public events, and the winners are rewarded with a small prize. Through this process, parents are made aware of the project and might choose to attend a public meeting where their child's art will be displayed.
- To talk with a greater number of community members about the proposed project, a small number of community locations (schools during other events, Valley River Center, Farmer's market, University of Oregon, etc.) should be selected to host a table and discuss the project with passers-by. This strategy is an effective way to raise awareness about the project and to offer community members a chance to ask questions of staff.



Appendix J: Lane Transit District Long Range Transit Plan (2014)

Long-Range Transit Plan

Lane Transit District
March 2014

What is the Long-Range Transit Plan?

The Long-Range Transit Plan (LRTP) is strategically laid out to provide a clear understanding of our existing conditions and our responsibilities to the community. The Plan identifies future uncertainties that will challenge how LTD operates and provides services. It then establishes a framework of goals, policies, and strategies to address those challenges and suggests performance measurements to track progress.




Creating a Livable Community

In everything Lane Transit District does, we carry the community and its aspirations forward.

Transit services enable the residents of our community to connect to jobs, school, doctor's appointments, shopping, family and friends, and much more. Transit makes a significant contribution towards establishing a community identity, supporting vibrant commercial and social exchanges, improving physical health, and guiding sustainable neighborhood and regional development. In that context, we take responsibility for joining with our regional partners to create a livable community.

LTD is more than just a bus service; we are a leader in the community. We work with our community partners to push the envelope by seeking innovative ways to deliver the best transit service and transportation options possible to advance the community's goals.

LTD MISSION STATEMENT

LTD's mission statement calls on the organization to enhance the community's quality of life by:

DELIVERING: reliable, responsive, and accessible public transportation services
OFFERING: innovative services that reduce dependency on the automobile
PROVIDING: progressive leadership for the community's transportation needs

THREE GUIDING PRINCIPLES FOR THE FUTURE

As we plan for the future, it is appropriate to establish a set of guiding principles based on our mission statement. These guiding principles are based on a triple bottom line structure that tells how transit influences the economy, equity, and the environment in our community.

Economic Prosperity

LTD strives to provide transit services that support the economy by:

• Providing reliable and affordable connectivity between jobs and employees
• Facilitating compact urban growth
• Spurring downtown and neighborhood renewal
• Increasing business activity and efficiency by enabling businesses to locate near each other and attract related industries and suppliers, as well as new customers

Social Equity

LTD strives to provide transit services that support social equity by:

• Providing affordable access to school, shopping, medical services, friends, and family
• Enhancing accessibility for youths, senior citizens, and people with disabilities

Healthy Environment

LTD strives to provide transit services that contribute to a healthy environment by:

• Providing an efficient mode of transportation
• Reducing greenhouse gas emissions from transportation
• Operating sustainable services that use resources wisely

Long-Term Planning: LRTP

The Long-Range Transit Plan (LRTP) affords LTD the opportunity to develop a framework that establishes goals, policies, and strategies to meet the long-term (20-year) transit service needs of the community.

The Plan can help LTD be more nimble and efficient in everyday decision-making efforts while providing a path toward achieving the long-term vision of a livable community. The LRTP considers a broad spectrum of issues—economic and resource volatility, environmental preservation, social equity, and transportation demands—that may affect transit service in the future.

As an organization, LTD must keep in mind that there are variables that we do not have control over (i.e. fuel prices and climate change) that will affect the way we go about executing our vision. The strategies presented in the LRTP lay the foundation for adapting to future trends and uncertainties.

Why Now?

Changes in the planning relationship among Eugene, Springfield, and Lane County will soon lead to the adoption by each agency of individual Transportation System Plans (TSPs). The regional plan (TransPlan), adopted in 2001 by each of these agencies and LTD, contains transit goals and policies that serve as the region's transit elements. TransPlan will be replaced by a Regional Transportation Systems Plan (RTSP), which is currently being developed by the Metropolitan Planning Organization (MPO). Given the importance of coordinating land use, transit, and other transportation modes, LTD developed the Long-Range Transit Plan.

The Long-Range Transit Plan is a way for us to lay out strategies to accomplish our mission.



OAK
ONE WAY

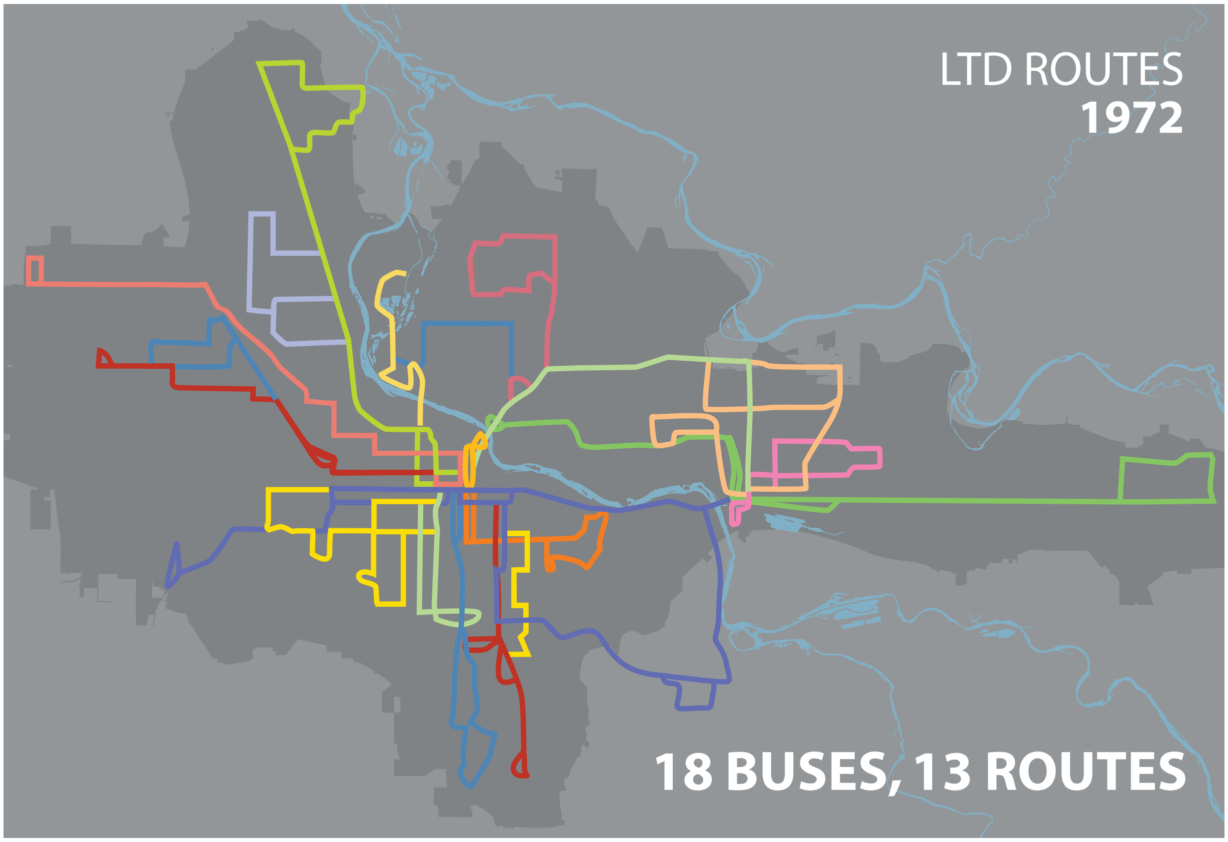
By The Numbers

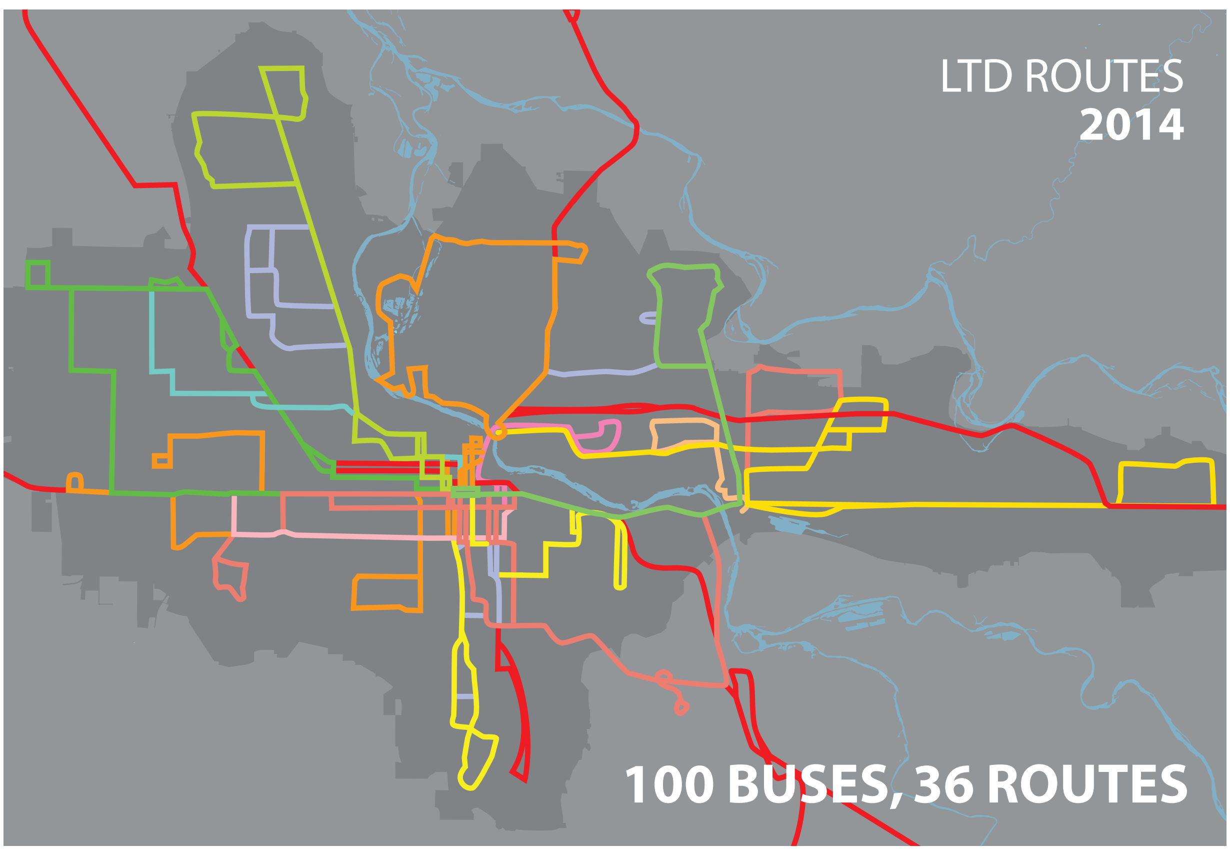
LTD's service area population:	298,300
Annual riders:	11.3 million
Weekday riders:	38,300
Average operating expense per passenger mile:	84¢
Annual fare received, 20% of operating costs:	$6.9 million
Annual payroll tax received, 72% of operating costs:	$24.9 million
Average boardings per revenue hour:	46
LTD current employees:	302
Riders who are age 30 or younger:	64%*
LTD trips that are commute trips:	64%*
Riders who are students:	56%*

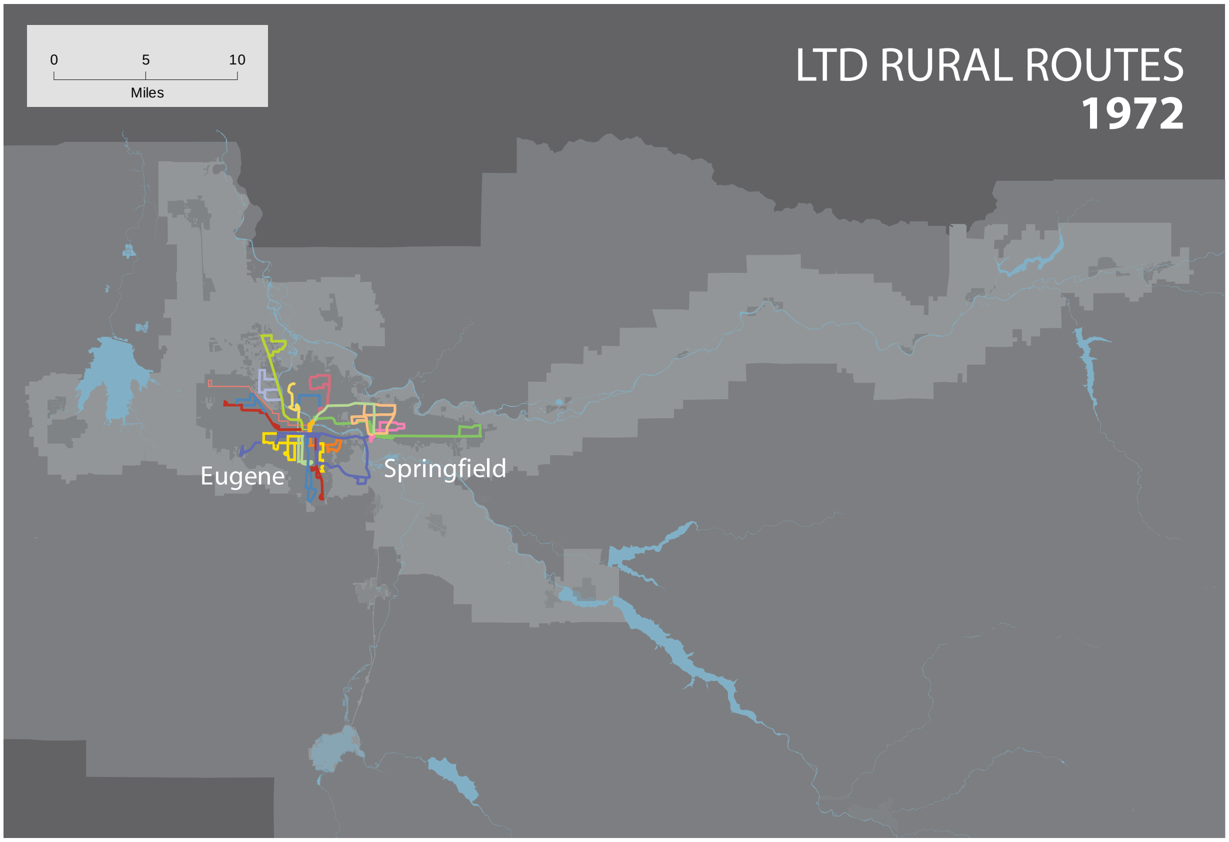
BY THE NUMBERS SOURCES:
Lane Transit District:
FY 2012-2013
*Lane Transit District:
Origin & Destination Study, 2011

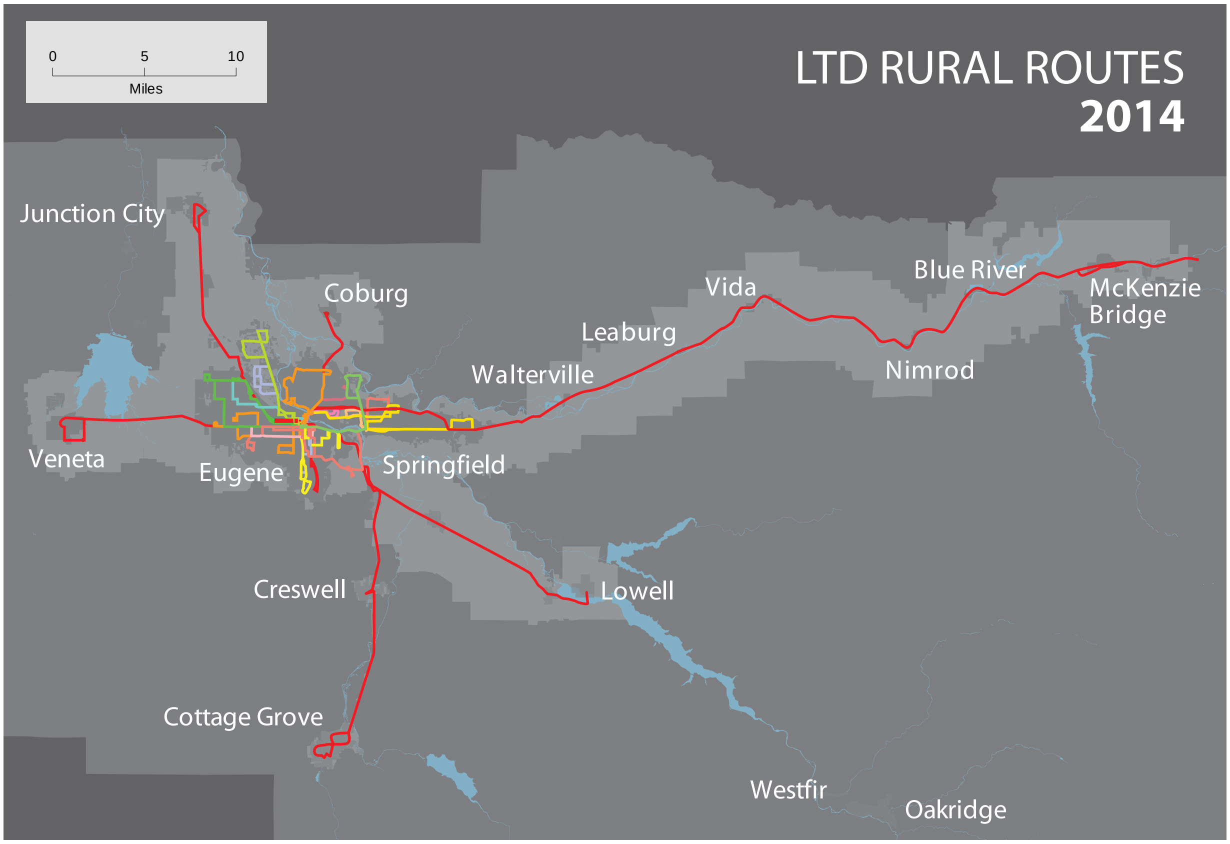
LTD's History

Since 1970, LTD's mission has been to provide transit service for the Eugene-Springfield area. While LTD provides many other services to the community, transit service is the most visible and utillized service offered by the District.


LTD ROUTES
1972
18 BUSES, 13 ROUTES


LTD ROUTES
2014
100 BUSES, 36 ROUTES


0
5
10
Miles
LTD RURAL ROUTES
1972
Eugene
Springfield


0
5
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Miles
LTD RURAL ROUTES
2014
Junction City
Coburg
Vida
Blue River
McKenzie Bridge
Leaburg
Walterville
Nimrod
Veneta
Eugene
Springfield
Creswell
Lowell
Cottage Grove
Westfir
Oakridge

Opportunity to Build the Future

A successful past is but an opportunity to build the future.

It is LTD's goal to continue to be a well-managed transit operation that:

• Supports the economy by providing reliable and affordable connectivity between jobs and employees. Transit facilitates more compact urban growth. This in turn leads to increasing efficiencies by enabling businesses to locate near each other. The clusters of economic activity attract related industries and suppliers as well as additional customers.

• Supports community development by providing community members with access to school, shopping, medical services, friends, and family.

• Supports a healthy environment by providing a sustainable source of mobility. Productive transit service provides one of the most energy-efficient methods of transporting community members to where they need to go.

As reported in the National Transit Database, in a comparison of operating characteristics of peer transit agencies with similar service area populations, LTD performed above average in many areas. (See TABLE 1 on page 18 for details.) However, looking out over the next 10 to 20 years, key uncertainties challenge LTD's ability to provide these benefits as the community grows. The following material provides an overview of the strategic context that LTD operates within, followed by descriptions of the broad strategic uncertainties that form the foundation for LTD's long-range planning.

LOCAL POPULATION AND EMPLOYMENT TRENDS

The population of the Central Lane Metropolitan Planning Organization region is expected to grow by 25 percent between 2010 and 2035. Employment in the region is expected to grow by 41 percent during that same period. Should land-use patterns and travel behavior continue as they exist today, a forecast of trends from 2010 to 2035 points to several issues:

- Congestion could rise dramatically, increasing the cost of travel and reducing the efficiency of transit operating within the region's roadway network.
- Without a balanced approach to the development of future transportation system improvements, little change will be made in the transportation choices available to the regions; the proportion of drive-alone auto trips will likely increase while the proportion of alternative modes use will likely decrease.
- The density and physical location of technical, professional, manufacturing, service, and retail jobs throughout Lane County has potential to influence the span of transit service and frequency. Transportation choices available to the region and the proportion of drive-alone auto trips will likely increase while the proportion of alternative mode use will likely decrease.

UNCERTAINTY IS IN OUR FUTURE

LTD is one entity functioning within many complex community systems. The natural environment, globalization of the economy, advances in technology, national politics, Oregon's economy, social impacts of income inequality, and local visions for growth and prosperity— all interact with each other and with the services LTD provides. How each plays out in ways that will impact LTD is uncertain, creating a general ambiguity regarding strategic decision making. This ambiguity raises several questions for LTD and other partners as the region engages in collaborative planning. The primary interrelated forces that form the surrounding strategic context and the operational environment include:

ENERGY

The price of gasoline has risen dramatically since the early 1990s, and projections indicate prices will continue to rise. Rising gasoline prices increase the cost of single-occupant vehicle trips and increase demand for transit. At the same time, high gas prices may trigger the use of more fuel-efficient vehicles and alternative fuels that could, in theory, maintain personal vehicle operating costs at current levels. LTD may be affected by changing fuel prices, as the cost of oil rises. LTD may need to reduce services or take advantage of innovative technologies.

CLIMATE

Climate change may increase domestic migration throughout the United States. More people may seek refuge in the temperate climate of the Northwest, increasing stress on local transportation systems. Increasing concerns over a changing climate also may drive national and state policies for greenhouse gas reductions. Implementation of these policies may favor transit service in place of single-occupant vehicle travel and may encourage the use of new, lower carbon fuels to operate transit vehicles.The changing environmental climate may affect the demand for LTD services and the policy context in which LTD operates.

ECONOMICS

Rising federal, state, and local debt may put fiscal pressure on governments to reduce funding for local transit agencies. This economic volatility has the potential to negatively influence the provision of transit service. Constrained funding may impact LTD's ability to continue and expand services.The composition of the local, employed workforce and the physical location of employers also may affect transit need and receipt of benefits. An increase in transit ridership has the potential to correlate with a decrease in employment, as more people look for cost effective means of travel. However, this may be offset considering fewer people may ride transit as they no longer need transport to work-related activities.

POPULATION

National trends indicate younger generations are increasingly making lifestyle decisions that are different than their parents'. Younger generations are more commonly trading car ownership for biking, walking, and transit use. On the other end of the spectrum, the proportion of older adults is increasing as the baby boomer generation ages and life expectancies increase. Generally, older populations are less mobile and drive less than other adults. Changing demographics will likely have a strong influence on the demands for travel, and driving culture may result in more LTD transit users.

Many factors, such as costs of automobile travel, population growth, changing lifestyles, and public policy, point to a likely increase in demand for LTD's transit services.

HOW DO WE RESPOND?

Many of the uncertainties that have potential to influence LTD's ability to provide services can be summarized by two areas of broad strategic focus: RESOURCES and COMMUNITY CONNECTIVITY.

The first focus - RESOURCES - concerns issues related to key components LTD needs to deliver on its vision. These issues include revenue and cost management, labor availability (including emerging skill sets), and partnerships - those relationships with public agencies and the private sector that will be necessary to leverage the services LTD provides.

The second focus - COMMUNITY CONNECTIVITY- concerns issues related to strategies and investments LTD can make to improve its connections to riders (continue to overcome barriers to the use of transit), improve connections to other modes (bicycle and pedestrian modes), and coordinate transit investments with broader community visions (e.g., Envision Eugene and Springfield 2030).

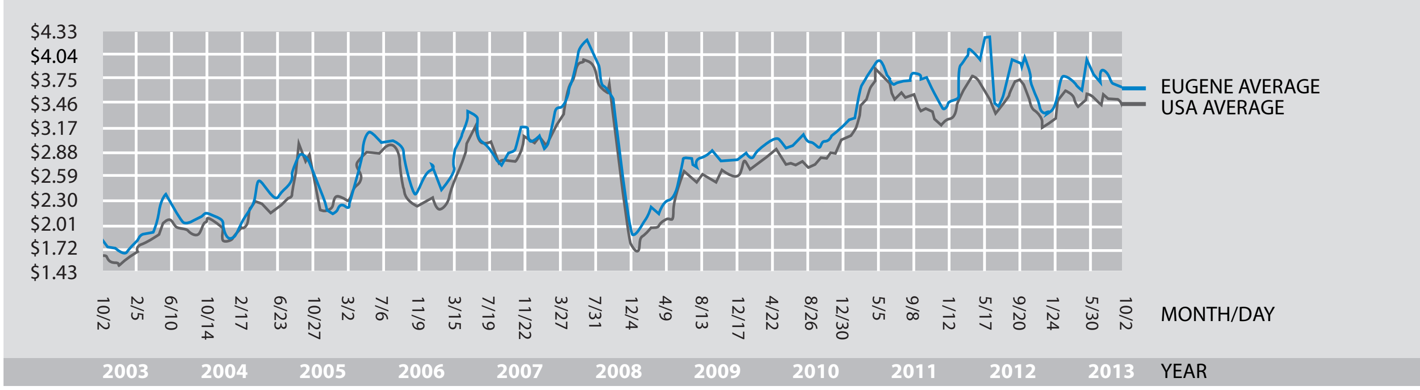
RESOURCES

The fluctuation and limited availability of critical resources is an ongoing strategic focus for LTD operations and services. Limitations on the availability of resources, whether it is due to costs or other factors, create challenges for LTD. Specific resources posing challenges include revenue and cost management, labor, and partnerships. Each of these challenges is described briefly below.

RESOURCE AND COST MANAGEMENT

With transit operational costs expected to rise on average of 3.5 percent annually, increasing revenues will be needed just to sustain existing service levels. Growing our services will require a combination of additional revenue and effective management of key cost areas (i.e., labor, fuel, healthcare, and pensions). Fares, payroll taxes, and federal funding play critical roles in providing the funding needed to sustain and enhance LTD's services. The variability of these revenue sources challenges LTD's capacity to absorb increasing fuel and personnel costs while also avoiding reductions in service levels. Federal policy on transit is somewhat incoherent and shifting, and as a result, federal funding for transportation infrastructure and operations is inconsistent. Similarly, state policy on transit is virtually non-existent. Outside of support for capital projects, the state's support for transit operations has been inconsistent at best. Strategically, LTD will want to engage with the state and other transit districts to evolve the state's financial role in supporting transit. We also may need to begin discussions regarding local options for revenue generation. The most volatile element of LTD's operational costs is associated with fuel. LTD will face uncertain energy costs due to fuel price volatility and emerging propulsion technologies. The LTD Long-Range Financial Plan assumes fuel costs will increase by 5 percent per year compared to the 3.5 percent increase associated with overall costs. The complexity of propulsion technologies will continue to evolve. While technology trends are uncertain, systems will likely become more complex and efficient—influencing both the skill sets required to maintain new technologies and the costs of operations.

FIGURE 1: Average Retail Fuel Prices



WORKFORCE DEVELOPMENT

Like other transit agencies, personnel wages, health care, and pension costs are a significant portion of LTD's operating costs. Personnel costs will also likely reflect an increasing and uncertain trend. For example, as the complexity of fleet technologies evolve over time—so must the capacity of LTD's workforce. Personnel must have advanced skills that not only enable them to work on cutting-edge systems, but also have the capability to be adaptive and creative in ways that can facilitate the absorption of innovative new strategies. Changing demographics, new generations with different values entering the labor force, and the demand for a creative and adaptive workforce will also be relevant factors in strategic decision-making for LTD and other partners in the years ahead.

FIGURE 1 SOURCE:

GasBuddy.com:
Historical Price Chart, 2013

PARTNER RESOURCES

Healthy, well-functioning partnerships have always been a critical resource contributing to LTD's success. LTD currently has partnerships across a broad spectrum of public agencies, elected officials, the local business community, users of the system, nonprofits, community organizations, vendors, consultants, education and research institutes, and other transit operators throughout the country. To fully leverage LTD's investment in and contribution to our region, existing relationships will need to be sustained and deepened, and emerging partnerships will need to be fully developed. An example of a deepening partnership is the City of Eugene and LTD partnership in the West Eugene EmX project. Staff from both agencies have met to discuss the design and construction of the EmX project as it relates to economic development, land use, and other transportation system interests of the City. This is expected to lead to improved coordination of resources and improve the overall outcomes of LTD's investment.

COMMUNITY CONNECTIVITY

An underlying purpose of LTD's services is to connect the community. The community benefits when we effectively understand the needs of our ridership (both current and emerging), and make efficient connections between our services and other modes of travel in the region. In addition, coordinating and collaborating with our partners, particularly the major metropolitan cities, enables us to better leverage the significant investments we make in our service and capital infrastructure. As Eugene, Springfield, and surrounding communities continue to grow and regional transportation demands diversify, there is uncertainty as to how LTD can most effectively provide services that meet emerging demands. Changing demographics, the economic climate, environmental policy, and social values influence the nature of travel. How people "connect" to work, shop, and areas of recreation will likely result in new mobility markets. LTD's role in making those connections also may need to change and anticipate travel trends that not only physically connect people, but also provide travel information in accessible and functional formats.

CONNECTING TO RIDERS AND EMERGING MARKETS

When we consider mobility markets as a source of uncertainty, one end of the spectrum can be defined by changes in the demand for transportation stemming from dramatic shifts away from the dominant form of transportation—the single-occupant automobile. On the other end, mobility markets might change very little if technology or social climates continue to support that prevalence. The dynamics of these factors and the way they interact will determine demand for travel, and in particular LTD services.

Shifts in local and regional labor markets, residential land use patterns, and access to efficient technologies, (e.g. broadband internet communications and electric vehicles), are factors that influence travel behaviors at the community scale and will continue to play a role in defining the demand for LTD services. Technological connectivity is another concept that has potential to support emerging mobility markets, while serving to attract new riders. Even though it is uncertain how technologies will progress, more transportation providers are implementing mobile device applications and electronic fare cards. These innovative and accessible technologies can be attractive to riders because they simplify travel and put transit service more on par with the auto.

CONNECTING TO OTHER MODES
LTD's services are part of a broader system of modes, several of which can be part of making a complete trip. For example, some users of LTD ride a bike to a station, park their bike, ride a bus to a stop, and walk to their destination. A transit system that is designed to connect neighborhoods to economic, occupational, and recreational centers will continue to be a fundamental element of a viable regional transportation strategy in the future.

To better serve existing demand and to meet emerging mobility markets, there will be increasing need to effectively connect pedestrian, bicycle, and auto modes to the transit system. The physical infrastructure needed to support a highly connected transportation network requires significant investment and collaborative planning, which ties back into the importance of partnerships.

CONNECTING TO BROADER COMMUNITY VISIONS
LTD benefits when we can align our investments in service and infrastructure with the broader visions of the communities we serve. Connecting to the economic development, social equity, and environmental stewardship goals of the broader community ensures that we are providing access. Connections between employers and workers, customers and businesses, and providing access for people who have physical disabilities or few alternatives, helps to enhance the livability of the community.

Improved transit service has been identified as a significant component towards achieving the broader community vision– the Lane Livability Consortium, Envision Eugene, Springfield 2030, and other local planning mechanisms developed by Eugene and Springfield are examples of this. Integrating LTD's plans for growth and development with these visions ensures that we fully leverage our investments and are contributing most effectively to the growth and prosperity of the region's residents.

TABLE 1: Comparative Operating Characteristics of Select Transit Properties

SYSTEM LOCATION*	POPULATION	PER SERVICE AREA POPULATION			OPERATING EXPENSES PER BOARDING	BOARDINGS PER REVENUE HOUR
		REVENUE HOURS	BOARDINGS	PASSENGER MILES		
Ann Arbor, MI	212,492	0.82	28	87	$3.44	33.8
Bakersfield, CA	466,353	0.64	15	49	$3.25	23.0
Bellingham, WA	201,923	0.62	25	76	$2.78	40.9
Colorado Springs, CO	559,409	0.22	5	31	$4.19	21.5
Fort Collins, CO	143,986	0.54	15	51	$3.24	27.9
Livemore, CA	166,972	0.67	10	50	$6.75	15.4
Olympia, WA	161,000	1.24	28	118	$4.88	22.6
Reno, NV	327,768	0.76	23	81	$3.35	30.8
Salem, OR	206,500	0.76	20	66	$4.40	26.7
Santa Cruz, CA	254,538	0.85	23	139	$5.43	26.8
Vancouver, WA	365,750	0.71	18	92	$4.45	26.0
MEAN (AVERAGE)	280,041	0.72	19	116	$4.09	28.4
LANE TRANSIT DISTRICT	**293,800**	**0.85**	**38**	**145**	**$2.95**	**45.0**

*Properties selected based on providing a level of service comparable to LTD or providing service to a university.

TABLE 1 SOURCE:
National Transit District:
Database Report, 2011

STRATEGIC ISSUES SUMMARY

Recognizing these issues is the first step towards developing a long-term strategic decision-making process for LTD. It is imperative for LTD to examine current capacities and functions and how they may need to adapt to future unknown circumstances. The interaction of these unknown circumstances, however, results in a general ambiguity directly impacting decisions on future strategy. Table 2 below provides a summary of the key strategic issues LTD should consider throughout decision-making processes.

TABLE 2: Summary of Strategic Issues

Key Resource Issues

REVENUE AND COST MANAGEMENT	WORKFORCE DEVELOPMENT	PARTNER RESOURCES
Sustaining a level of service while adapting to the uncertainties in future funding from state and federal sources	Obtaining the skill sets needed to handle advancements in technologies associated with the operation and maintenance of transit vehicles	Sustaining and deepening existing relationships
Managing payroll tax fluctuations in a manner that facilitates a sustainable level of service over multiple years	Fostering an organizational culture that can adapt to the rapid change anticipated in the coming years	Fully developing emerging relationships
Examining appropriate funding options needed to meet the transportation needs of the community	Managing personnel costs	
Monitoring fuel volatility and cost trends to determine the appropriate balance of new propulsion technologies		

Key Community Connectivity Issues

CONNECTING TO RIDERS AND EMERGING MARKETS	CONNECTING TO OTHER MODES	CONNECTING TO BROADER COMMUNITY VISIONS
Being able to anticipate changes in the demand for transit brought about by shifts in the factors that influence transportation behavior	Monitoring technology uses and how they impact transportation decisions and costs	Ability to collaborate with partners (both private and public) to plan and invest in intermodal systems of connectivity
	Incorporating new technologies that increase the ease of using transit	

LRTP FRAMEWORK ELEMENTS

The success of the LRTP will essentially rest on its ability to serve as a framework for addressing the strategic challenges summarized in Table 2 on page 20. That framework is made up of a set of goals, policies, strategies, and performance measures, which is presented in Section 3. These elements are briefly defined below:

GOALS
The framework has six goals that articulate LTD's objectives for the future.

POLICIES
There are a number of polices outlined for each goal.

STRATEGIES
Each policy has strategies associated with it that provide LTD with potential tactics for reaching the overarching goals.

PERFORMANCE MEASURES
Performance measures connect long-range planning to daily actions, and they allow LTD to monitor progress.

ADDRESSING LTD'S STRATEGIC ISSUES

CONNECTING ISSUES TO GOALS
A first step in evaluating the extent to which a plan has the potential to address an agency's issues is to assess the connection between the issues facing that agency and the goals that have been set in the plan. Table 3, on page 23, provides a summary of how the goals developed for LTD's LRTP connect to the strategic challenges identified in this section. This assessment shows that the proposed goals are framed in a manner that covers the range of anticipated strategic challenges facing LTD over the next 20 years.

TABLE 3: Mapping Strategic Issues to Goals

STRATEGIC CATEGORY	STRATEGIC CHALLENGE	RELATED GOALS
REVENUE AND COST MANAGEMENT	•Sustaining a level of service while adapting to the uncertainties in future funding from state and federal sources •Managing payroll tax fluctuations in a manner that facilitates a sustainable level of service over multiple years • Examining appropriate funding options needed to meet the transportation needs of the community •Monitoring fuel volatility and cost trends to determine the appropriate balance of new propulsion technologies	**Goal 5**: Use LTD's resources sustainably in adapting to future conditions
WORKFORCE DEVELOPMENT	•Obtaining the skill sets needed to handle advancements in technologies associated with the operation and maintenance of transit vehicles •Fostering an organizational culture that can adapt to the rapid change anticipated in the coming years •Managing personnel costs	**Goal 5**: Use LTD's resources sustainably in adapting to future conditions
PARTNER RESOURCES	•Sustaining and deepening existing relationships •Fully developing emerging relationships	**Goal 5**: Use LTD's resources sustainably in adapting to future conditions **Goal 6**: Engage the regional community in LTD's short- and long-term planning processes
CONNECTING TO RIDERS AND EMERGING MARKETS	•Being able to anticipate changes in the demand for transit brought about by shifts in the factors that influence transportation behavior	**Goal 1**: Provide attractive travel options to improve ease of connectivity throughout LTD's service area **Goal 3**: Ensure equitable and accessible transit service throughout LTD's service area **Goal 4**: Maintain and enhance safety and security of LTD's services **Goal 6**: Engage the regional community in LTD's short- and long-term planning processes
CONNECTING TO OTHER MODES	•Monitoring technology uses and how they impact transportation decisions and costs •Incorporating new technologies that increase the ease of using transit	**Goal 1**: Provide attractive travel options to improve ease of connectivity throughout LTD's service area **Goal 3**: Ensure equitable and accessible transit service throughout LTD's service area **Goal 4**: Maintain and enhance safety and security of LTD's service
CONNECTING TO BROADER COMMUNITY VISIONS	•Ability to collaborate with partners (both private and public) to plan and invest in intermodal systems of connectivity	**Goal 2**: Sustain and enhance economic prosperity, environmental health, and quality of life in the community through investment in transit service and infrastructure **Goal 6**: Engage the regional community in LTD's short- and long-term planning processes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Strategic Framework

A clear and well–defined strategic framework with goals, policies, and strategies will give the organization a common direction.

There are many questions and uncertainties for how the future may unfold. Given this general sense of ambiguity, what will be LTD's role in the community in the coming future? How do we begin to prepare? What are the indicators that will guide our path along the way? Paying close attention to many of the uncertainties presented in Section 2 will enable LTD to most effectively respond to broader signals of change. The strategic framework will give LTD the confidence and commitment to meet not only organizational goals as a transit provider, but also the broader goals and vision for the community as a whole. The integration of a strategic framework into daily services and operations will result in positive outcomes for LTD and the community in which we serve. The LRTP is a way for LTD to lay out strategies into a cohesive framework to succeed in our vision and to coordinate community partners. Outlining these strategies helps LTD and its partners to better understand regional priorities and opens a dialogue about a shared vision.

What is the Frequent Transit Network?

The community invests significant resources into the transit service provided by LTD. The purpose of the Frequent Transit Network (FTN) is to leverage that investment by tying it to the density and other elements of adjacent development.

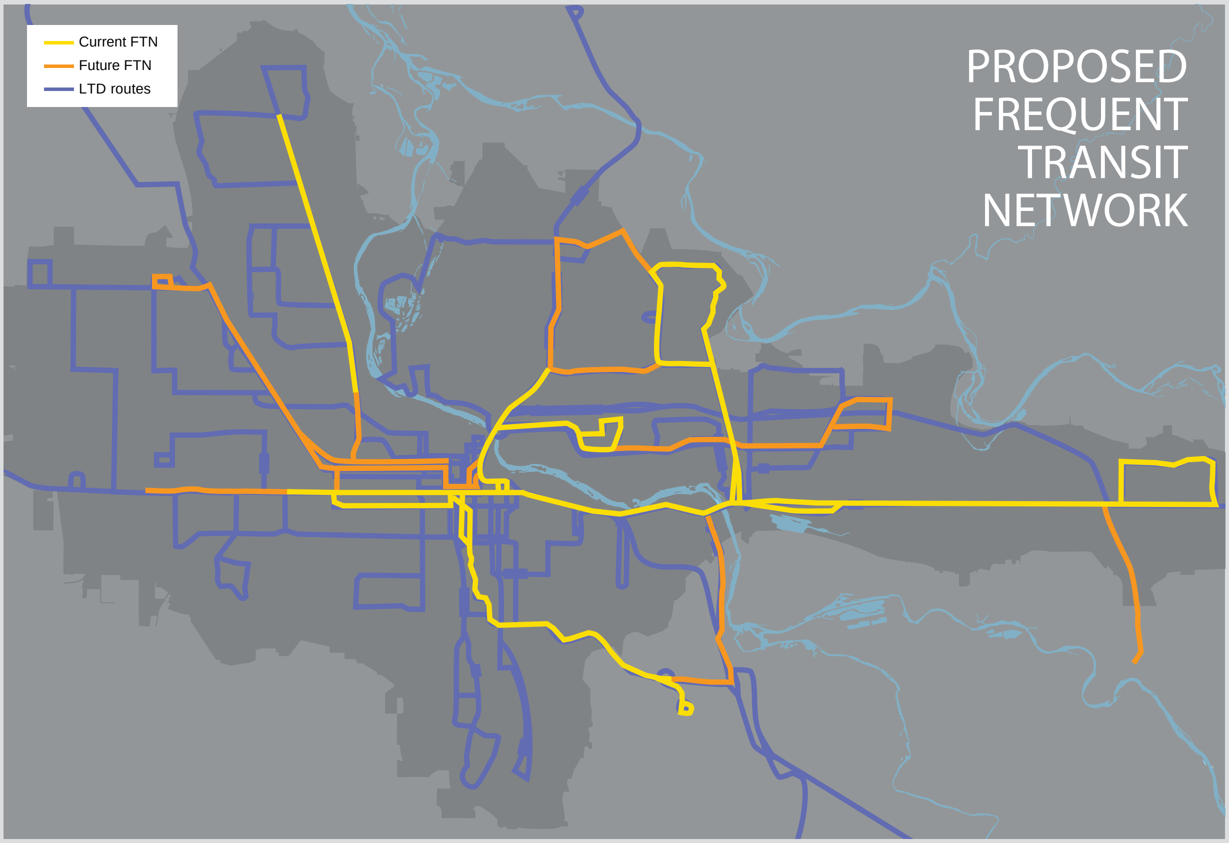
Characteristics of an FTN Corridor:

- Enables a well-connected network that provides regional circulation
- Compatible with and supportive of adjacent urban design goals
- Operates seven days a week in select corridors
- Service hours are appropriate for the economic and social context of the area served
- Coverage consists of at least 16-hours-a-day, and area riders trip origins or destinations are within ¼-mile-straight line distance
- Average frequency of 15 minutes or better
- Transit service is reliable and runs on schedule
- Transit stations are high quality with amenities, including bicycle and pedestrian connections to stations and end-of-trip facilities, such as bike parking and bike share

What is Bus Rapid Transit?

Bus Rapid Transit (BRT) is the highest level of service available within the FTN.

BRT is a permanent, integrated system that uses buses or specialized vehicles on roadways or dedicated lanes to efficiently transport passengers. BRT system elements (running ways, stations, vehicles, fare collection, intelligent transportation systems, and branding elements) can easily be customized to community needs, and result in more passengers and less congestion.



GOAL 1: Provide Attractive Travel Options to Improve Ease of Connectivity Throughout LTD's Service Area

LTD seeks to provide service that presents a variety of attractive travel options for residents in the Eugene and Springfield metropolitan region. Ridership is a key indicator of transit attractiveness; reliable and high-frequency transit service with enhanced multi-modal connections to metropolitan commercial, residential, and employment centers will increase the attractiveness of LTD services.

POLICY 1.1 Implement a network of higher capacity, frequent transit corridors serving existing and proposed high-density land uses throughout the Eugene-Springfield metropolitan region that provide viable alternatives to personal vehicle trips.

DEFINITION AND INTENT: The Frequent Transit Network (FTN) is a regional initiative to better connect areas of more active development to transit and is given priority in the Eugene and Springfield Transportation System Plans. The community invests significant resources into the transit service provided by LTD. The 2014 operating budget for LTD's services is $39 million. To best leverage that investment, LTD's service should be tied to the level of development along those corridors. Transportation and land use management strategies can be used to improve multi-modal balance and transit travel time, reduce operating costs, increase productivity, and make transit a more attractive transportation option. The intent of this policy is to coordinate the decisions we make on corridor-level investments with the growth and development strategies of the Eugene and Springfield metropolitan region.

Strategy 1.1. A Encourage transit supportive development along FTN corridors through collaboration, such as public-private partnerships.

Strategy 1.1. B Review zoning changes made in conjunction with Envision Eugene, Springfield 2030, and other cities' comprehensive plans as they relate to the FTN.

Strategy 1.1. C Develop level of service guidelines based on land-use characteristics, including residential, employment and commercial density, mix of uses, and building types.

Strategy 1.1. D Work with local agency partners to incorporate elements of transit infrastructure in roadway design, (e.g., queue jumps and transit signal priority) in a manner that improves and maintains the speed and reliability of transit in the region.

POLICY 1.1 REFERENCE:

Lane Council of Governments:
TransPlan, TSI Transit Policy 2, 2002

City of Eugene:
Draft Transportation System Plan, 2013

POLICY 1.2 As part of the FTN, continue to expand the Bus Rapid Transit (BRT) network on corridors, if it can be shown to increase transit mode split, possess feasible financing for operating and capital costs, and demonstrate local government support.

DEFINITION AND INTENT: BRT represents the highest level of transit service available within the FTN. The expansion of the BRT system is subject to its ability to increase transit mode split, obtain funding, and gain local government support. Government support for BRT is highly dependent on garnering general public and business approval for related projects.

Strategy 1.2.A Conduct analysis to evaluate mode share, government support, and financing of the FTN.

POLICY 1.3 Outside of the FTN, expand local and connecting transit service to areas with sufficient employment, activity, and residential density to support transit service.

DEFINITION AND INTENT: In a regional context, it is important for LTD to efficiently allocate resources in a manner that connects outlying portions of the community to opportunities and services in the metropolitan area, while maintaining the provision of higher frequency service on major corridors. Transit connections to these areas will preserve system productivity through ridership.

Strategy 1.3.A When considering the retention and expansion of service, prioritize services with sustainable financing.

POLICY 1.2 REFERENCE:

Lane Council of Governments:
TransPlan, TSI Transit Policy 2, 2002

City of Springfield:
Draft Transportation System Plan, 2013

POLICY 1.4 Support transportation options through improvement of infrastructure and services that strengthen accessibility and increase pedestrian, bicycle, ridesharing, and transit usage.

DEFINITION AND INTENT: Most transit users connect either as a pedestrian or bicyclist. It is important to coordinate with our regional partners to improve and enhance the interconnection of transit, bicycle, and pedestrian modes.

Strategy 1.4.A Support improved multimodal connectivity, such as wayfinding and pedestrian and bicycle facilities that increase connections to transit.

Strategy 1.4.B Develop supportive infrastructure for improved intermodal connectivity through capital investments such as future EmX expansions, park-and-ride facilities, rideshare, vanpooling, bike parking, etc.

Strategy 1.4.C When implementing passenger boarding improvements, coordinate with the cities within the service area to improve safe, comfortable, and direct access to transit stops for pedestrians and bicyclists; such as coordinating the reconstruction of streets and sidewalks around BRT stations.

Strategy 1.4.D Assist with the development of accessible traveler information technologies that enhance ease of travel between all modes.

Strategy 1.4.E Coordinate the integration of transit system technologies with transportation technologies implemented by local public and private partners.

Strategy 1.4.F Coordinate the integration of travel system technologies with transportation technologies implemented by statewide partners, such as ODOT and Tri-Met.

POLICY 1.5 Fully integrate transit investments with development plans throughout Eugene, Springfield, and Coburg.

DEFINITION AND INTENT: Transit investments are intimately linked to land-use goals of local jurisdictions. It is essential that LTD work closely with the land-use agencies to leverage mutual objectives.

Strategy 1.5.A Support the adoption of transit-supportive land use regulations and urban design standards.

Strategy 1.5.B Work with partner agencies to evaluate the development of a Transit-Oriented Development program in connection with FTN corridors.

POLICY 1.4 REFERENCE:

City of Eugene:
Draft Transportation System Plan, 2013

City of Springfield:
Draft Transportation System Plan, 2013

Central Lane Metropolitan Planning Organization:
Draft Regional Transportation Options Plan, 2013

POLICY 1.5 REFERENCE:

Central Lane Metropolitan Planning Organization:
Draft Regional Transportation Options Plan, 2013

POLICY 1.6 Coordinate transit investments with local development planning for cities outside of the metropolitan area.

DEFINITION AND INTENT: Cities that surround the greater Eugene-Springfield area are continuing to grow, increasing transit demand to and from these communities. The intent of this policy is to be cognizant of the growth of cities outside the metropolitan area and to seek opportunities for co-investing the improvement of the community.

Strategy 1.6.A Consider long-range plans of outlying communities to anticipate changes in the provision of transit service.

GOAL 2: Sustain and Enhance Economic Prosperity, Environmental Health, and Quality of Life in the Community Through Investment in Transit Service and Infrastructure

Quality of life is greatly influenced by economic, social, and environmental conditions throughout the region. LTD can help to sustain and increase prosperity in the community by focusing resources on a transit system that connects people to their homes, jobs, schools, services, and other opportunities. Forms of active transportation, such as transit, also can increase physical activity as riders walk to more services and destinations, improve air quality by reducing auto travel, and stimulate social interactions. Coordinating infrastructure investments with community partners would afford the opportunity to invest in the system, as well as the health and prosperity of the community.

POLICY 2.1 Implement a network of higher capacity, frequent transit corridors serving existing and proposed high-density land uses throughout the Eugene-Springfield metropolitan region that provides viable alternatives to personal vehicle trips.

DEFINITION AND INTENT: It is important to recognize the significance of aligning transit with land use in strengthening economic vitality. Investment in public transportation affects the economy in terms of employment, wages, and business income. Public transportation establishes connections to jobs and creates immediate employment and income by supporting manufacturing, construction, and public transportation operation activities. Long-term effects of investment have the potential to improve economic efficiency, increase business output, and local tax revenues as access to timely and reliable transit connections improve.

Strategy 2.1.A Actively develop and maintain relationships with economic development interests throughout the region.

Strategy 2.1.B Collaborate with regional partners to align transit service and infrastructure investments with economic development goals of the region.

POLICY 2.1 REFERENCE:

Central Lane Metropolitan Planning Organization: Regional Transportation Plan, 2011

POLICY 2.2 Prioritize transit-related infrastructure investments along FTN corridors.

DEFINITION AND INTENT: Given that the FTN corridors are associated with higher density development and thus will likely result in higher ridership and increased productivity, investment in the FTN is likely to yield the most effective outcomes.

Strategy 2.2.A Work with federal, state and local partners to secure funding for transit investment priorities in the region.

Strategy 2.2.B Reflect transit investment priorities in the LTD Capital Improvements Program and the Long-Range Financial Plan.

Strategy 2.2.C Seek co-investment opportunities with regional partners along FTN corridors such as aligning investments in economic development, affordable housing, and other modal investments.

GOAL 3: Ensure Equitable and Accessible Transit Service Throughout LTD's Service Area

Transit is an essential community service that provides personal mobility and freedom for people of every walk of life. The role of transit is to create connections and serve people efficiently, affordably and safely. Persons with limited transportation options who depend on public transit have the greatest need for linkages to jobs, essential goods and services, and will be given special consideration in transit planning.

POLICY 3.1 The allocation of resources for accessible service should consider the following priorities: 1) maintain a sustainable level of service for people who depend on public transportation; 2) respond to pressures of growth and demand within the limits of resource availability; and 3) optimize the resources to accommodate emerging community needs.

DEFINITION AND INTENT: Because of the scarcity of resources, it is important that priorities be established for the allocation of accessible service to enhance quality of life for transit riders. The provision of transit service should consider future capacity needs as the local population increases and ages over time. Increasing frequency and span of service has direct impacts on fleet capacity, which is especially important in terms of the limited space for mobility devices on a bus.

Strategy 3.1.A Collaborate early with Eugene and Springfield to gain understanding about the relationship with economic development, multi-family housing, and other community services within proximity of transit routes, with priority within FTN corridors.

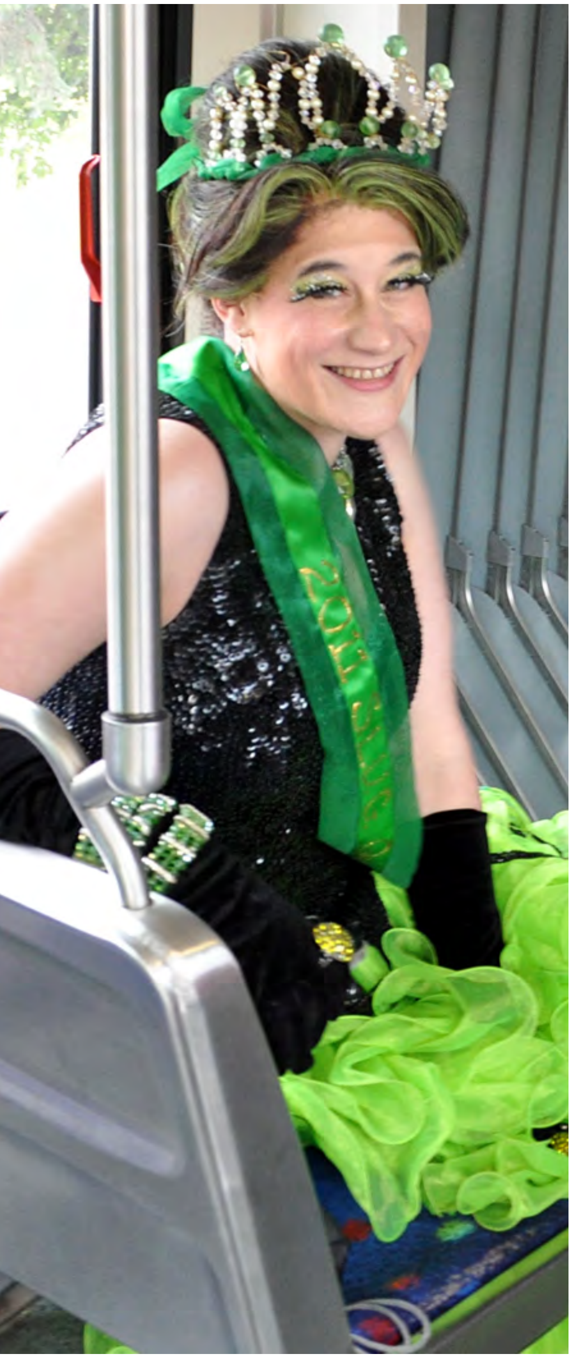
Strategy 3.1.B Strengthen connectivity of medical transportation services through coordination of the RideSource Call Center and health care providers.

Strategy 3.1.C Maximize ridesharing and grouped ride services to address nonmedical transportation needs.

Strategy 3.1.D Develop strategies to provide cost-effective and equitable human services transportation beyond the District through coordination with rural areas and small cities.

POLICY 3.1 REFERENCE:

Lane Transit District:
Lane Coordinated Public Transit Human Services Transportation Plan, 2013



POLICY 3.2 Ensure that no individual be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any LTD program, service, or activity.

DEFINITION AND INTENT: LTD's standards as a transit provider go above and beyond the regulatory standards for administering service. Every effort will be made to ensure full access of all populations to LTD services, and prevent discrimination and preserve social justice through the impacts of programs, policies, and activities. All phases of transit planning emphasize the importance of public involvement and will analyze the distribution benefits and impacts of service decisions.

Strategy 3.2.A Implement the LTD Title VI Compliance Plan to provide meaningful access to LTD services, information, and receipt of transit benefits.

POLICY 3.3 Implement strategies that reduce financial barriers to riding transit for transit-dependent populations.

DEFINITION AND INTENT: Transit-dependent populations, including low-income households and K-12 students, may have financial constraints that make it difficult to afford riding transit regularly. These constraints can serve to limit the access these populations have to jobs, school, and other community services. The intent of this policy is to identify and implement viable options for reducing financial barriers to transit use by those populations most vulnerable to a lack of accessibility to key services and activities. Additional benefits can include making transit a more viable travel option and instilling transit riding habits in K-12 students.

Strategy 3.3.A Work with schools to make using transit a more viable option for K-12 students (e.g., finding funding to re-implement the student group pass program for grades 6-12).

Strategy 3.3.B Work with strategic partners to explore opportunities for providing transit passes to low-income populations, potentially through a Group Pass Program or other pricing strategies.

POLICY 3.2 REFERENCE:

Lane Transit District:
Title VI Compliance Plan, 2012

Central Lane Metropolitan Planning Organization:
Title VI Plan, 2009

GOAL 4: Maintain and Enhance Safety and Security of LTD's Services

Practicing and continually enhancing transit safety and security is a key value of LTD. Maintaining safety while riding the transit system and also enhancing security at transit stations and stops will ensure that the community is secure and comfortable while waiting for and riding the transit system.

Lane Transit District's System Safety Program Plan (SSPP) and the Emergency Preparedness and Security Plan (EPSP) integrate safety and security into all Lane Transit system operations.

POLICY 4.1 Maintain safety and security as a core value in all operational, planning, and strategic decisions.

DEFINITION AND INTENT: The dynamic operating environment of LTD means that safety is more than a priority. Safety is a core value integrated into organizational culture through which all decisions are made. This includes everything from hiring and training employees to operating and maintaining vehicles. Managing safety and security are critical components of a fully functioning and resilient organization, and thereby improve performance in all areas of business.

Strategy 4.1.A Restructure the LTD SSPP to comply with Federal safety requirements.

Strategy 4.1.B Implement LTD's SSPP. Strategies include improved lighting of high-use pedestrian and bicycle areas and crossings, and utilization of safety controls during system modification.

Strategy 4.1.C Coordinate with agency partners to implement safety improvements for routes used by LTD.

Strategy 4.1.D Implement strategies of the LTD EPSP including increased surveillance and bolstering the presence of security forces.

POLICY 4.1 REFERENCE:

Lane Transit District:
Emergency Preparedness and Security Plan, 2008

Federal Highway Administration:
Moving Ahead for Progress in the 21st Century, 2012

GOAL 5: Use LTD's Resources Sustainably in Adapting To Future Conditions

The fluctuation and limited availability of critical resources, e.g. funding, fuel, and personnel, are ongoing strategic issues for LTD operations. Resource limitations can create real challenges for the provision of service, ultimately affecting LTD's ability to meet community need. LTD is a publicly funded agency and must be judicious and innovative in its use of taxpayer dollars. Therefore LTD must be cognoscente of the long-term planning context and the various economic, social, and environmental forces that may influence transit demand.

POLICY 5.1 When making investments in transit service and infrastructure, consider long-term system interactions between social equity, economic opportunity and efficiency, and environmental preservation.

DEFINITION AND INTENT: When making investments in LTD's services and infrastructure, it is important to evaluate those investments using a broad range of factors. It is the intent of this policy to apply the triple bottom line approach throughout LTD decision-making processes, placing priority on projects and services that deliver the best mix of benefits at costs that are financially sustainable.

Strategy 5.1.A Develop a triple bottom line process for the evaluation of LTD programs and services.

Strategy 5.1.B Measure, monitor, and document LTD programs and services considering sustainability and efficiency metrics, including environmental stewardship, cost management, and service equity.

Strategy 5.1.C Adopt management techniques that enable continuous improvement in operational efficiency.

Strategy 5.1.D Participate in regional sustainability reporting, e.g. through the City of Eugene Climate and Energy Strategy Plan (CEAP) and other similar efforts.

Strategy 5.1.E Actively engage network of partners to advance regional sustainability efforts.

POLICY 5.2 Identify and implement a sustainable level of service that minimizes fluctuation in the provision of public transportation.

DEFINITION AND INTENT: Current funding is subject to the economic cycles of the national, state, and local economies. During downturns in the economy, LTD has been required to reduce services that may have been added during periods of economic growth. The intent of this policy is to develop and implement a strategy that maintains service at a sustainable level.

Strategy 5.2.A Develop and define the concept of a sustainable level of service.

Strategy 5.2.B Develop a resource allocation plan that advises the LTD reserve policy.

POLICY 5.3 Seek resources that allow the provision of a desired level of transit service to the region.

DEFINITION AND INTENT: It is the intent of this policy to engage the broader community in the discussion of a desired level of service in order to fully leverage capital investment. Transit provides many community benefits in terms of direct mobility and indirect access; therefore, it is important to sustain resources needed to provide the desired level of service that meets community need.

Strategy 5.3.A Develop a desired level of transit service framing strategy to manage the community dialogue process.

Strategy 5.3.B Collaborate with federal, state, and local partners to identify funding that enables LTD to sustain an appropriate level of transit service.

POLICY 5.4 Respond effectively to major shifts in emerging economic, social, and environmental trends.

DEFINITION AND INTENT: To be prepared for uncertainties facing the organization, LTD needs to develop the capacity to adapt quickly to changes in its operating environment. The intent of this policy is to enhance LTD's ability to maintain consistent operations over the long term.

Strategy 5.4.A Monitor and evaluate internal and external long-term trends, such as labor costs, workforce skills, and transportation demands.

Strategy 5.4.B Develop internal strategies to adapt to changes in funding, technology, and other conditions, revealed through long-term monitoring.

POLICY 5.5 Maintain standards that balance the allocation of fixed-route service by considering a range of service elements including productivity, customer convenience, comfort and safety, and service reliability.

DEFINITION AND INTENT: Route evaluation and service level determination are subject to a standardized process that provides transparency and a framework for decision making. Service levels will weigh both immediate and long-terms needs of the community in comparison to cost effectiveness.

Strategy 5.5.A Use the LTD Fixed-Route Service Policy for the evaluation and allocation of bus service.

POLICY 5.5 REFERENCE:
Lane Transit District:
Fixed-Route Service Policy, 2011

GOAL 6: Engage the Regional Community in LTD's Short- and Long-Term Planning Processes

LTD decision making can be improved upon by enhancing public involvement throughout the service area. Through engagement processes, LTD strives to provide opportunity for high-quality interaction that fosters in-depth dialogue with community representatives, stakeholders, and the general public. Strategies will be employed that seek to engage diverse populations, with special consideration given to communities who may be underrepresented in traditional planning processes. These strategies support two-way communication that not only assists LTD planning, but also educates people in the community of services available to them.

POLICY 6.1 Engage the community through broad and diverse collaboration.

DEFINITION AND INTENT: LTD serves a very diverse community. It is important that the District works to ensure that the diverse values and perspectives are reflected in LTD's decision making. The intent of this policy is to seek collaborative methods for public engagement.

Strategy 6.1.A Develop a District-wide public outreach framework that guides public engagement strategies, establishes outreach targets, and outlines an evaluation process.

Strategy 6.1.B Provide multiple avenues of communication with members of the community, including public meetings, a comprehensive and interactive website, and an active presence in local planning processes.

Strategy 6.1.C Implement recommendations of the Lane Livability Consortium regarding strategies to broaden community participation.

POLICY 6.2 Establish working relationships with public, private, and non-profit organizations invested in community building.

DEFINITION AND INTENT: LTD recognizes that building a community requires the development of strong partnerships with an array of public and private organizations that share LTD's value in enhancing community livability. The coordination of efforts among these partners can lead to increased organizational efficiency of community resources. It is important to recognize that some communities are less represented than others when policymaking bodies debate and decide what should be done with transit resources.

Strategy 6.2.A Collaborate with partners to ensure that new transit system improvements address social, economic, and environmental concerns and opportunities.

Strategy 6.2.B Implement recommendations of the Lane Livability Consortium to improve effective collaboration with partners.

Strategy 6.2.C Actively work with the State to enhance its role in developing and supporting transit statewide.

POLICY 6.3 Inform the region's residents and businesses about transportation options.

DEFINITION AND INTENT: As a result of the various outreach, education, and marketing services provided by Point2point, the public will not only gain a better understanding of the full range of travel options available to them, but also recognize the various benefits associated with these modes of travel, e.g. improved physical health, environmental preservation, and economic savings.

Strategy 6.3.A Develop and provide direct outreach strategies, including individualized marketing of printed materials, face-to-face interaction, and promotion of services through social media.

POLICY 6.2 REFERENCE:

Lane Transit District:
Title VI Compliance Plan, 2012

Central Lane Metropolitan Planning Organization:
Title VI Plan, 2009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Monitoring to Adapt

Performance measures help LTD track changing conditions, connecting day-to-day actions to long-range plans.

Over the coming years, several factors will have uncertain influence on the delivery of transit service in the Eugene–Springfield area. The goals, policies, and strategies presented in this plan are constrained by these uncertainties. The role of transit is likely to evolve with changing demand and community need; therefore, this plan must adapt as well.

Performance measures enable a connection between long-range planning and day-to-day actions. The performance measures laid out in this section provide the tools to assess the efforts of our strategic framework. Performance measures provide indication of LTD's ability to keep pace with changing conditions. This section sets out a process to monitor how the plan performs over time. The monitoring program ties plan goals and policies to the implementation of strategies presented in Section 3.

LTD is committed to fully engaging in this important work. To be successful, this monitoring must be open, constructive, and ongoing.

The strategies documented in this plan are only as effective as LTD's ability to measure and monitor their progress. As the future unfolds, tracking performance enables LTD to evaluate on-going decision making with an improved understanding of risks and uncertainties, enabling operations and services to adapt in pursuit of LTD's vision.

The development of performance measures is an iterative process. These are not an exhaustive or complete set of performance measures, but they are a starting point in which LTD will begin to monitor change in the context of the plan's goals and polices. New data and measurements can easily be incorporated, resulting in a long-range plan that remains current and relevant to the community.

LONG-RANGE TRANSIT PERFORMANCE MEASURES (PM)

Table 4, on pages 46-47, is structured to indicate how progress toward each of the plan's six goals will be measured. The table includes the goals, goal focuses summarizing the key concepts in each goal, and a list of potential ways in which those concepts might be measured. The final set of columns provides a set of 11 specific measures that will be used for on-going monitoring of the plan.

An 'X' in a given column indicates that measure is proposed as a measure for the specified goal. For example, Goal1 calls for the provision of "attractive travel options to improve ease of connectivity." "Frequency of Transit Service" is proposed to be a measure of that goal (frequency of service being something that makes a given travel option attractive). Each of the 11 measures included in Table 4 are briefly described below. Table 5, at the end of this section, provides a baseline value for each measure.

PM 1: ON-TIME DEPARTURES

On-time departures represent the percentage of service departures within four minutes of the scheduled time. On-time bus performance is a critical factor of service reliability, and is a necessity for people to get to their destinations in a timely manner. An objective of LTD's service operations is to maximize the reliability of travel to improve the attractiveness of transit. LTD uses electronic data collection methods through an automated vehicle locator system to determine on-time performance. These measurements are taken at significant time points and averaged over the entire system. There are approximately 90,000 time points reported in a typical month.

PM 2: FREQUENCY OF TRANSIT SERVICE

Frequency of transit service will be measured by monitoring the percent of the planned Frequent Transit Network (FTN) miles currently in operation. This is a measure of LTD's progress in implementing the FTN. Frequent transit service is defined as an average of 15 minutes or better. The community invests significant resources into the transit service provided by LTD. To best leverage that investment, LTD's service should be tied to the level of development along corridors. Increasing the percentage of planned FTN currently in operation indicates achieving integration of transit investment with level of development.

PM 3: PASSENGER MILES PER REVENUE HOUR

Passenger miles per revenue hour represent the average weekday passenger miles per actual vehicle revenue hour of regular fixed-route service. An actual vehicle revenue hour reflects the hours that vehicles travel while in revenue service, including layover. This measure will identify how far each rider travels on transit. In comparison to boardings per revenue hour, this measure better reflects the quantity of service provided.

PM 4: PASSENGER MILES PER CAPITA

Passenger miles per capita is a measure of the total passenger miles on transit in comparison to the service area population. The service area population is defined by the number of people that reside within LTD's service area boundary. Passenger miles per capita are often used as a general indicator of community transit usage. Over time, this measure can be useful in comparing to other communities of similar scale.

PM 5: PERCENT OF HOUSEHOLDS WITH ACCESS TO TRANSIT

Percent of households with access to transit is a measure of coverage and accessibility. Access to transit is defined by the percentage of MPO residential addresses within a 1/3 mile of EmX transit stops, and within a ¼ mile of all other fixed-route stops. Because people throughout the community depend on transit, it is important that service connections are within a reasonable walking distance to residences.

PM 6: PERCENT OF EMPLOYERS WITH ACCESS TO TRANSIT

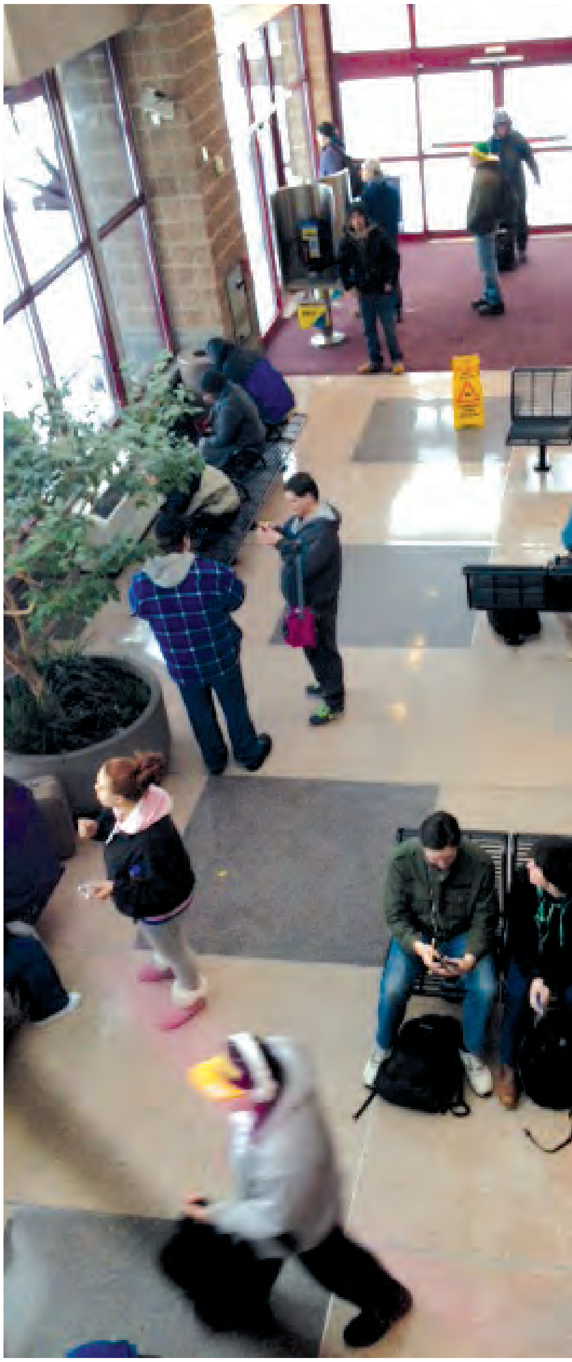
Percent of employers with access to transit is a measure of coverage and economic connectivity. Access to transit is defined by the percentage of MPO employers within a 1/3 mile of EmX transit stops, and within a 1/4 mile of all other fixed-route stops. Increases in this measure over time will reflect LTD's impact on strengthening the local economy.

PM 7: PREVENTABLE VEHICLE COLLISIONS

Transit vehicle collisions are reported in two general categories, preventable collisions (e.g. due to the fault of a bus driver) and unpreventable (e.g. due to an automobile driver). The ability of operators to prevent collisions will reflect a trend of improved safety. Driver training is a critical component to reducing preventable incidents. However, reporting of collisions may reflect an increased number of incidents in more recent years, as reporting has intensified. Over the long term, reporting will even out and reflect a more accurate trend of safety.

PM 8: SENSE OF SAFETY WHILE RIDING WITH OTHER PASSENGERS

The sense of safety while riding on LTD buses is a qualitative measure that captures the general public perception. The feeling of being safe is often the result of many influencing factors, such as profanity usage, disorderly conduct, and comfort due to vehicle capacity and availability of seats. LTD is committed to improving all aspects of service safety.



PM 9: OPERATING COST PER VEHICLE REVENUE MILE

Operating costs per actual vehicle revenue mile is an indicator of cost efficiency (how much it costs in total to deliver the service). Total operating costs reflect three main categories of costs: service and operations, maintenance, and general and administrative. These are then compared to vehicle revenue miles which represents vehicle miles traveled while in revenue service. A lower cost per mile can indicate efficient management of service and operations, if achieved while maintaining the integrity of service. Operating costs have potential to increase or decrease over time. These costs are influenced by external factors, such as regulation, technology, and labor force costs.

PM 10: OPERATING COSTS PER BOARDING

Operating costs per boarding indicates the general cost associated with an individual bus ride. The objective over the long-term is to reduce or, at a minimum, maintain costs associated with each boarding. Similar to PM 9, total operating costs reflect three main categories of costs: service and operations, maintenance, and general and administrative.

PM 11: GENERAL RIDER SATISFACTION

General rider satisfaction is a qualitative measure that captures the user's perception of overall performance. Performance satisfaction is influenced by a variety of factors including helpfulness of LTD drivers, customer service employees, and bus service frequency and reliability. This indicator will reflect LTD's ability to meet community needs.


Dads' Gates Station

TABLE 4: Summary of Key Performance Measures

GOAL	GOAL FOCUSES	POTENTIAL MEASURES	PM 1: ON-TIME DEPARTURES (PERCENT OF TOTAL DEPARTURES)	PM 2: PERCENT OF PLANNED FTN MILES CURRENTLY IN OPERATION
GOAL 1: Provide attractive travel options to improve ease of connectivity throughout LTD's service area	• Attractive travel options • Ease of connectivity	• Service reliability • Frequency • Ridership • Coverage • Intermodal connectivity*	X	X
GOAL 2: Sustain and enhance economic prosperity, environmental health, and quality of life in the community through investment in transit service and infrastructure	• Economic prosperity • Environmental health • Quality of life	• Service reliability • Frequency • Coverage • Efficiency	X	X
GOAL 3: Ensure equitable and accessible transit service throughout LTD's service area	• Equitable Service • Accessible Service • Coverage	• Service reliability • Frequency • Coverage • Physical design of the system*	X	X
GOAL 4: Maintain and enhance safety and security of LTD's services	• Safety • Security	• Frequency of incidents • Rider perception of safety and security*		
GOAL 5: Use LTD's resources sustainably in adapting to future conditions	• Resources • Sustainability • Adaptability • Future conditions and long-term trends	• Frequency • Ridership • Coverage • Efficiency • Resource trends*	X	X
GOAL 6: Engage the regional community in LTD's short- and long-term planning processes	• Engagement	• Quality of engagement* • Quantity of engagement* • Engagement tools and approaches*		

PM 3: PASSENGER MILES PER HOUR REVENUE	PM 4: PASSENGER MILES PER CAPITA	PM 5: PERCENT OF HOUSEHOLDS WITH ACCESS TO TRANSIT	PM 6: PERCENT OF EMPLOYERS WITH ACCESS TO TRANSIT	PM 7: PREVENTABLE VEHICLE COLLISIONS (PERCENT OF TOTAL VEHICLE COLLISIONS)	PM 8: SENSE OF SAFETY WHILE RIDING WITH OTHER PASSENGERS	PM 9: OPERATING COST PER VEHICLE REVENUE MILE	PM 10: OPERATING COST PER BOARDING	PM 11: GENERAL RIDER SATISFACTION
X	X	X	X		X			X
X	X	X	X			X	X	X
	X	X	X					X
				X	X			
X	X	X	X			X	X	X
					X			X

*These elements require data that LTD does not currently collect or is not readily available. They will require a broader conversation about monitoring and reporting prior to establishing performance measures.


PERSONS WITH DISABILITIES
TO USE THESE SEATS


Glossary

Accessibility
Physical proximity and ease of reaching destinations throughout the urban metropolitan area.

Alternative Modes
Means of travel such as rail, transit, bicycles, and walking that provide a transportation alternative to the use of an automobile.

American's with Disabilities Act (ADA)
Federal civil rights legislation signed into law in 1990 that includes requirements for accessible public transportation services for persons with disabilities. Services include complementary or supplemental paratransit services for persons who are unable to use regular bus service due to a disability in areas where fixed-route transit service is operated. All new construction and modifications must be accessible to individuals with disabilities. For existing facilities, barriers to services must be removed if readily achievable.

Bus Rapid Transit (BRT)
BRT is a permanent, integrated system that uses buses or specialized vehicles on roadways or dedicated lanes to efficiently transport passengers. BRT system elements (running ways, stations, vehicles, fare collection, intelligent transportation systems, and branding elements) can be customized to community needs, and result in more passengers and less congestion.

Desired Level of Transit Service
Ability to provide the desired level of services that meets community need. This concept is an effort to engage the community in a discussion about how to manage and expand the transit system.

Economic Prosperity
Is a term that implies that the economy, overall, is doing well and people have sufficient income for essentials. In a prosperous economy there is business development and rising employment; however, this does not mean that everyone has a job or is well off.

Environmental Health
Refers to the physical, chemical, and biological factors external to a person that can potentially affect health. Physical, psychological, social, and cultural environments, such as housing, urban development, land use, and transportation have effects, often indirect, on environmental health.

Frequent Transit Network (FTN)
The community invests significant resources into the transit service provided by LTD. The purpose of the Frequent Transit Network is to leverage that investment by tying it to the density and other elements of adjacent development.

Intermodal

Connecting individual modes of transportation and accommodating transfers between such modes. Intermodal transportation emphasizes the transfer of people in a single journey through connections, provides options to facilitate trip making, and promotes coordination among transportation providers.

Metropolitan Planning Organization (MPO)

The organizational entity designated by law to have the lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the Governor and units of general purpose local government that together represent 75 percent of the affected population of an urbanized area. Lane Council of Governments is the MPO for the Eugene-Springfield metropolitan area.

Mobility

The ease with which a person is able to travel from place to place. It can be measured in terms of travel time.

Mode

A means of moving people and/or goods. Modes may include motor vehicles, public transit, bicycles, railroads, airplanes, waterways, pipelines, and pedestrian walkways.

Multi Modal

Refers to the diversity of transportation options for the same trip. Also, an approach to transportation planning or programming that acknowledges the existence of, or need for, transportation options.

Non-Preventable Accidents

A common measurement among transit agencies to monitor operational safety. A non-preventable accident is beyond the driver's control and occurs when the driver acts in a reasonable manner to prevent the incident.

Paratransit

Transit alternative known as special or specialized transportation that often includes flexibly scheduled and routed transportation services that use low-capacity vehicles, such as vans, to operate within normal urban transit corridors or rural areas. Services usually cater to the needs of persons who cannot use standard mass transit services. Common patrons are the elderly and persons with disabilities.

Park & Ride

Public parking lots whose primary purpose is to provide access to public transportation services. These parking areas may function as shared use parking areas.

Preventable Accidents

A common measurement among transit agencies to monitor operational safety. A preventable accident is one which occurs because the driver fails to act in a reasonable expected manner to prevent it.

Quality of Life
A multidimensional concept that summarizes the general well-being of individuals and societies. Physical, material, social, and emotional factors influence the overall quality of life. Quality of life is not easily quantifiable, as any one individual may value a different aspect over another.

Service Area
Defined by the District boundary of transit service. The LTD service area encompasses the Eugene-Springfield metropolitan area, Coburg, Veneta, Junction City, McKenzie Bridge, Creswell, Cottage Grove, and Lowell.

Single-Occupant Vehicle (SOV)
A vehicle, usually referring to a private automobile, that is carrying only one person.

Strategic Framework
Composed of long-range guiding principles that seek to improve organizational efficiency and enhance the ability to respond to signals of change. The Strategic Framework is composed of goals, policies, strategies, and performance measures.

Sustainable Level of Service
This is a level of service that minimizes service fluctuations, despite national, state, and local economic cycles. LTD's capacity to offer a valuable service, improve the environment, and develop the community is directly influenced by organizational resource management and stability.

Total Operating Cost
Reflects three main categories of costs: service and operations, maintenance, and general and administrative. Reporting total operating cost over time is important since it can be used to estimate organizational cost savings.

Transit-Oriented Development (TOD)
A mix of residential, retail, and office uses and a supporting network of roads, bicycle, and pedestrian ways focused on a major transit stop designed to support a high level of transit use.

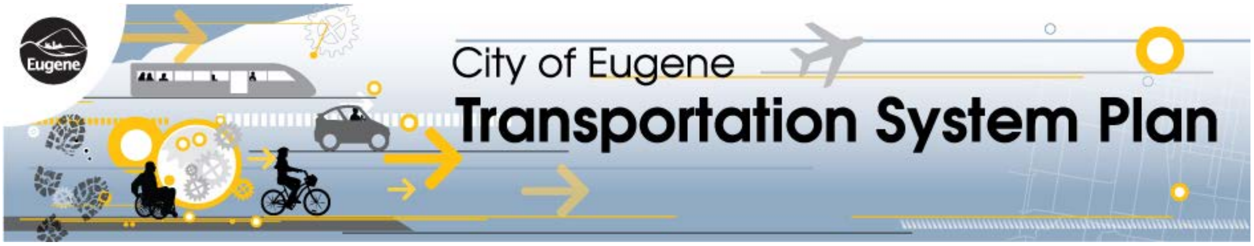
Triple Bottom Line (TBL)
A structure that informs decision-making based on principles of environmental, social, and economic sustainability.

Vehicle Revenue Hour (VRH)
The hours that vehicles travel while in revenue service. VRH includes layover and recovery time, but excludes deadhead, operator training, maintenance testing, as well as school bus and charter services.

Vehicle Revenue Mile (VRM)
The miles that vehicles travel while in revenue service. VRM includes layover and recovery time, but excludes deadhead, operator training, maintenance testing, and school bus and charter services.


OLIVE
W 10TH

The LTD Long Range Transit Plan can be found on the project website at the web address below. http://www.centrallanertsp.org/sites/default/files/AppendixK-LTDLong%20RangeTransportationPlan-re.pdf



Appendix K: Strategies for Transportation System Management and Operations (TSMO)

Menu of Strategies for Transportation System Management and Operations (TSMO)

#	Grouping	Strategy	Related Strategies	Description	Benefits	Estimated Cost	Application	Effect on Reliability	Key Benefit(s)	Prior Experience?	Estimated Cost Ra	Priority (Hi/Low)	Viability	DETAILED POLLS ON PRIORITY HI	MED	LOW	BLANK	Notes
A1	Arterial	Access Management		Access Management is the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed	- Reduction in accidents and accident rates by 40% on average - Increased LOS, capacity by about 40%, and speed by 50% to 90% - Other public benefits for pedestrians, bicyclists, public transit, taxpayers, and the environment	Cost spreads out across the board; cost is high when access rights are to be acquired	Political Factors = Access right acquisition, land use regulation and interest on different stakeholders should be taken into consideration Institutional Factors = Cooperation among and involvement of relevant government agencies, business owners, land developers and the public is necessary Technical Factors = Access management can be adopted easily in the pre-development stage, but extremely difficult in the post-development stage	Medium	Improved Mobility & Safety	60%	Low (unless access rights or property to be purchased)	MED	MED	4	2	1	3	- Cost should be medium
A2	Arterial	Advanced Signal Systems		Advanced signal systems include coordinated signal operations across neighboring jurisdictions, as well as centralized control of traffic signals which may include some necessary technologies for the later development of adaptive signal control.	- Reduced delay by 5% to 40%, travel time by 7% to 41% and stops up to 85% - Increased average vehicle speed - Reduced vehicle emissions by 2% to 13%, with fuel savings between 2% and 15%	$20 - $25 per foot for copper wire signal interconnect; $5000 per intersection for wireless interconnect (availability depends on agencies and signal locations); 1 - 2 million for signal system integration and firmware upgrade	Political Factors = New system needs to have significant advantage over the existing one to make the expenses reasonable Institutional Factors = Signal control across jurisdictions has to be coordinated, clear understanding of technology is necessary; system compatibility across jurisdictions may not be an issue in Oregon as they use the same signal system platform Technical Factors = Keep up with technology, consider risk/reward for "untested" technology	High	Reduced Congestion	60%	Medium-High	HI	MED	7	0	0	2	- Cost not that high - Project planned
A3	Arterial	Changeable Lane Assignments		The use of Changeable Lane Assignments Signs (CLAS) on frontage roads can mitigate the lane imbalances seen on a time-of-day recurring basis and during freeway incidents. As traffic signals have long been used as a time management technique for optimizing traffic operations, CLAS is used as a space management technique to add an additional dimension to optimization.	- Reduced delay by 1% to 26% and increased throughput by 50 to 1000vph during incidents		Political Factors = Institutional Factors = Requires interagency cooperation when part of a larger management strategy, such as incident management or integrated corridor management Technical Factors = Driver awareness and adjustment to their use. Require adequate approach and receiving lanes to facilitate their use.	Medium	Reduced Congestion		Low	LOW	MED	0	2	5	3	- Depends - Cost should be higher - Where appropriate
A4	Arterial	Signal Retiming / Optimization		Signal retiming / optimization includes updating signal timing plans for prevailing traffic conditions, interconnecting signals, and potentially upgrading signal technology to meet timing objectives.	- Reduced travel time by 10% to 20% - Decreased fuel consumption - High benefit-to-cost ratio which can range from 17:1 to 40:1	$20 - $25 per foot for copper wire signal interconnect; $5000 per intersection for wireless interconnect (availability depends on agencies and signal locations); $2,000 - $3,000 per intersection for signal retiming; $1,000 - $4,000 for controller + software replacement/upgrades; $10,000-$15,000 to replace signal control cabinets.	Political Factors = Prioritizing operational efficiency benefit over other projects Institutional Factors = Coordination and compatibility across agencies for new timing plans or signal system infrastructure Technical Factors = Understanding new technology, capabilities and limitations; Realize signal retiming and optimization should be revisited as needed, but every 3-5 years is recommended	High	Improved Mobility	70%	Low	HI	HI	7	1	0	2	
A5	Arterial	Red Light Cameras		Automated enforcement technologies can assist with the enforcement of traffic signal compliance. Still or video cameras, activated by detectors, can record vehicles traveling through a red signal.	- Decreased severity and number of turning/angle crashes (increased number of rear-end crashes) - 60-80% of drivers approve of their use based on survey data - 20-75% reduction in red light violations	$65,000 to $80,000 per intersection	Political Factors = Public perception of automated enforcement Institutional Factors = Who does the operations and maintenance? How are costs and profits distributed? Agencies should ensure clear laws or codes are in place to support automated enforcement (i.e. will citation go to registered vehicle owner or driver of vehicle at the time). Coordination with legal departments/lawyers maybe necessary upon start up due to law suits Technical Factors =		Improved Safety	10%	Medium	HI/LOW	MED	4	1	4	1	- No legislative approval for county use
A6	Arterial - On-Street	Parking Management		The management of on-street parking locations, durations, and vehicle types to allow more efficient use of existing roadway capacity and reduce potential conflicts which reduce traffic flow rates.	- Increased saturation/traffic flow - More efficient use of roadway capacity without adding new pavement	Minimal signing and striping costs	Political Factors = Prioritizing importance of moving vehicles vs. business access Institutional Factors = Easier to plan to manage parking on a new facility, than to remove or restrict on-street parking on an existing facility, Coordinate management strategy across jurisdictional boundaries when necessary Technical Factors =		Improved Mobility	20%	Low	HI/LOW	MED	3	0	4	3	- No issue yet
AF7	Arterial / Freeway	Active Traffic Management		Active traffic management consists of a combination of operational strategies that, when implemented in concert, fully optimize the existing infrastructure and provide measurable benefits to the transportation network and the motoring public. These strategies include but are not limited to speed harmonization, temporary shoulder use, junction control, dynamic signing and rerouting and managed lanes.	- Increase in average throughput in congested periods by 3% to 7% - Decrease in accident rate by 3 to 50%		Political Factors = Prioritizing operational efficiency benefit with existing system over expanded system capacity projects Institutional Factors = Key to have coordination and compatibility across agencies to maximize effectiveness Technical Factors = Understanding new technology, capabilities and limitations; Budget for training if new technology, and continued maintenance and support over life of technology; Consider risk/reward for “untested” technology		Improved Mobility	30%	Low-Medium	MED	MED	4	1	2	2	- "The high cost of free parking" is important to demand management - Project planned
AF8	Arterial / Freeway	Event Management		Event transportation management systems can help control the impact of congestion at stadiums or convention centers. In areas with frequent events, large changeable destination signs or other lane control equipment can be installed. In areas with occasional or one-time events, portable equipment can help smooth traffic flow.	- Reduced delay amidst heavy demand during special events - Reduced crash rates due to reduced conflicts - Increased attractiveness of event attendance, particularly repeat attendees	(System components are similar to Incident Management, which gives similar cost as that) $2,000 - $3,000 per intersection for specialized event timing plan; $20-$50 per hour per officer for manual traffic control; $2,000 - $3,000 per lane control display; $300K - $450K per lane control system including software, integration and other hardware costs	Political Factors = Frequent roadway detours and lane control measures may bring confusion and inconvenience to drivers and nearby residents Institutional Factors = Coordination with various event organizers and agencies is necessary Technical Factors = Events of various magnitude in different locations require different measures and scope of coordination	Medium	Reduced Congestion	30%	Low-Medium	MED	MED	4	2	1	3	
AF9	Arterial / Freeway	Integrated Corridor Management		With integrated corridor management, the various institutional partner agencies manage the transportation corridor as a system, rather than the more traditional approach of managing individual assets. Travelers could receive information that encompasses the entire transportation network. They could dynamically shift to alternative transportation options, even during a trip, in response to changing traffic conditions.	- Reduced travel time and delays - Increased reliability and predictability of travel	$2,000 - $3,000 per intersection for signal retiming; $50,000 - $100,000 per variable message signs depending on size; $1 - 3 million to design and implement; $100,000 - 2 million for annual O&M which varies among the scope of the system	Political Factors = Prioritizing management of the system over capacity expansion projects Institutional Factors = Interagency cooperation and implementation is key to project success Technical Factors = Understanding new technology, capabilities and limitations; Budget for training if new technology, and continued maintenance and support over life of technology.		Improved Mobility	30%	Medium	HI	MED-HI	5	1	2	2	- Project planned
AF10	Arterial / Freeway	Real-Time Traveler Information		Advanced communications have improved the dissemination of information to the traveling public. Motorists are now able to receive relevant information on location-specific traffic conditions in a number of ways, including dynamic message signs (DMS), highway advisory radio (HAR), and in-vehicle signing, or specialized information transmitted to individual vehicles. May include 511 systems.	- Reduced delay by 1% to 22% and number of stops by 5% to 6% - Reduced gas emissions by 3% to 5% - Decreased crash fatalities by 3%	$50,000 - $100,000 per variable message signs depending on size; $1 - 3 million to design and implement; $100,000 - 2 million for annual O&M which varies among the scope of the information system	Political Factors = Prioritizing information systems over regular infrastructure projects. Public perception can be high with this implementation. Institutional Factors = Agency partnership and data/resource sharing to create a robust system. Technical Factors = Rapidly changing field, user understanding is key	High	Improved Mobility	40%	Low (if little added infrastructure), High (if added infrastructure)	HI	HI	8	1	1	0	- Very important - Tripcheck survey indicates some people did choose different option or delayed trip because of information
AF11	Arterial/Freeway	Real-time Traffic Data Collection Using Probe Data		Automobiles are used to monitor the surrounding environment with an onboard computer. Data are sent to a Web server through pre-existing Wi-Fi networks, which help drivers track conditions specific to their cars and provides historical and real-time traffic conditions at different times of the day using combined data from all service subscriber participants.	- Reduce travel time and delay by alerting and informing drivers of congested areas - Reduce potential crashes due to congestion	$300 per GPS unit; $150 per year for operation (DASH)	Political Factors = Institutional Factors =Is the GPS vehicle data shared with the agency and at what cost? Technical Factors = Understanding new technology, capabilities and limitations; Integration with other ITS components	High	Improved Mobility		Low	MED	MED	3	2	3	2	- Data needs to be collected to make use of it - Implementation seems difficult
AF12	Arterial/Freeway	IntelliDrive (VII)		VII is a research program focused on enabling wireless communications among motor vehicles and between motor vehicles and roadside infrastructures. This involves various public and private sector entities. By enabling secure real-time communications with motor vehicles, new services will be enabled to enhance transportation safety, mobility, and commerce.	- Decrease traffic accidents and fatalities - Reduced delays - Increased effective roadway capacity	$10,000 to $15,000 per VII roadside equipment installation	Political Factors = Institutional Factors = Coordination between agencies is critical to provide uniform driver information Technical Factors = VII is under development and considerable amount of time is needed before large scale deployment is possible and communication infrastructure is mature		Improved Mobility & Safety		High	LOW	LOW	0	1	4	5	- Wait for vehicle technology - ?
AF13	Arterial/Freeway	Automated Speed Enforcement		Automated speed detection (typically in work zones) can enable automated ticketing of vehicles exceeding posted speed limits when combined with automatically triggered vehicle identification technologies such as photographs, still or video digital imaging, or license plate recognition. Some systems transmit images of offending vehicles to police officers downstream of the work zone where enforcement can be carried out more safely.	- Increased perception of safety - Reduced travel speeds	$650,000 EUROS per vehicle mounted camera (~$850,000 US) $15,000 EUROS per fixed location installation (~$20,000 US)	Political Factors = Public perception of automated enforcement Institutional Factors = Who does the operations and maintenance? How are costs and profits distributed? Technical Factors =		Improved Safety		Medium-High	MED	LOW-MED	3	3	2	2	- Not allowed by ???? county
AF14	Arterial/Freeway	Traffic Surveillance		Many of the services possible through arterial and freeway management systems are enabled by traffic surveillance and detection technologies, such as sensors or cameras, monitoring traffic flow.	- Improved incident response times and accuracy - Real-time and historic system operations information - Improved visual information for decision-makers and the public	$15,000 - $30,000 per CCTV detection unit, $1 - 2 million for central system integration and firmware upgrade if run through a TMC	Political Factors = Public perception of "big brother" surveillance and invasion of privacy Institutional Factors = Sharing communication infrastructure and broadcasts across agencies. Technical Factors = Integrating with other TSMO or ITS components		Improved Mobility	50%	Low	HI	HI	6	1	1	2	- CCTV's
AF15	Arterial/Freeway	Emergency Management		ITS applications in emergency management include hazardous materials management, the deployment of emergency medical services, and large and small-scale emergency response and evacuation operations.	- Reduced incident response time - Improved HAZMAT and counterterrorism technology - Improved travel time and less congestion under evacuation scenarios (reversible lanes)	Cost varies depending on the scale and scope of the emergency mangement system; cost of an emergency operation center may range from $150K to $5 million; Hazmat transportation operation technology may range from $250 to $3,500 per vehicle. GPS AVL on emergency vehicles costs $4,000 per intersection and $2,000 per vehicle.	Political Factors = Viewed as proactive protection of public safety Institutional Factors = Coordination between agencies is critical to success Technical Factors = Integration of multiple ITS components may aid in project effectiveness		Improved Safety	40%	Varies depending on system complexity	HI	VARIES	7	0	0	3	- Very important
F16	Freeway	Incident Management		Incident management systems can reduce the effects of incident-related congestion by decreasing the time to detect incidents, the time for responding vehicles to arrive, and the time required for traffic to return to normal conditions. Incident management systems make use of a variety of surveillance technologies as well as enhanced communications and other technologies that facilitate coordinated response to incidents.	- Reduced average incident duration by 28% to 70% - Decreased secondary crashes by up to 28% to 70% - Reduced delay due to quicker incident response	$15,000 - $30,000 per CCTV detection unit, $400 per loop detector; $55 per vehicle hour for patroling vehicle; $8,000 - $13,000 per unit of mobile incident investigation equipment	Political Factors = Prioritizing incident response/system management over system expansion Institutional Factors = Various agencies and first responders need to be coordinated, inter-agency communication is the key; systems may provide flexibility for future installation and coordination by neighboring jurisdictions Technical Factors = A sound communication system with wide coverage is crucial; interoperability issue among different agencies	Medium	Improved Mobility & Safety	30%	Low	HI	HI	8	0	0	2	- Work with ODOT on detours
F17	Freeway	Work Zone Management		ITS applications in work zones include the temporary implementation of traffic management or incident management capabilities. These temporary systems can be stand-alone implementations or they may supplement existing systems in the area during construction. Other applications for managing work zones include measures to control vehicle speeds and notify travelers of changes in lane configurations or travel times and delays through the work zones. ITS may also be used to manage traffic along detour routes during full road closures to facilitate rapid and safe reconstruction projects.	- Reduced traveling speed across work zone by 9mph in a Minneapolis/St. Paul study - Improved safety with reduced travel speed - Reduced delay by 46% to 55% and travel time	$150 - 800k for a work zone management system, which commonly includes variable message signs ($50k-120k capital, $2.5k-6k operations and maintenance), CCTV-surveillence ($7k-19k capital, $1.0k-2.5k operations and maintenance), Highway Advisory Radio ($16-32k capital, $500-1,000 operations and maintenance), traffic detectors ($3-13k capital, $100-1,000 operations and maintenance) and variable speed limit display ($3-5k capital), etc. Costs are dependant on agency leasing or purchasing, and portable versus permanent components.	Political Factors = Prioritizing safety over system capacity expansion projects Institutional Factors = Technical Factors = Coordination with other ITS components	High	Improved Mobility & Safety	20%	Low (if little added infrastructure), High (if added infrastructure)	HI/LOW	MED	4	1	3	2	- Large projects need to integrate TDM for travelers before breaking ground

F18	Freeway	High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) Managed Lanes		HOV lanes carry vehicles with a higher number of occupants, which serve to increase the total number of people moved through a congested corridor. In general, carpoolers, vanpoolers, and bus patrons are the primary beneficiaries of HOV lanes by allowing them to move through congestion. HOT lanes allow single occupancy vehicles use the HOV lanes for a toll.	- Improved people throughput by allowing a higher flow for HOV - Incentive for carpooling/vanpooling/transit - Can remove vehicles from roadway, reducing emissions	$100,000 to $3 million per mile capital costs, depending on need to reconstruct lanes or not. Low operations and maintenance costs, generally.	Political Factors = High public perception, involves public policy decision for prioritizing people movement over individual vehicle movement. Institutional Factors = If congestion spans agencies, they should work together to implement consistent TSMO strategies to realize full benefits. Technical Factors = May increase congestion for general purpose lane	Medium/High	Improved Mobility	20%	Low (if restriping/signing), High (if new construction)	MED	MED	3	2	4	1	- Need policy for when will be the tipping point for this
F19	Freeway	Reversible Lanes		Traffic sensors and lane control signs can be used to implement reversible flow lanes allowing travel in the peak direction during rush hours or for special events/emergencies.	- Reduced crash rates due to decreased congestion - Improve travel time and delay in peak directions - More efficient use of existing roadway pavement/capacity	$2,000 - $3,000 per lane control display; $300K - $450K per lane control system including software, integration and other hardware costs	Political Factors = May create confusion for infrequent drivers Institutional Factors = Education for the public on what they are expected to do during contra-flow situations is necessary Technical Factors = New technology in US		Reduced Congestion		Medium-High	LOW	LOW	1	1	5	3	
F20	Freeway	Lane Controls / Temporary Shoulder Use		Lane control signs, supported by surveillance and detection technologies, allow the temporary closure of lanes to avoid incidents on freeways, or use of shoulders as a travel lane to increase capacity.	- Reduced crash rates - Improve travel time and delay in peak directions - More efficient use of existing roadway pavement/capacity	$2,000 - $3,000 per lane control display; $300K - $450K per lane control system including software, integration and other hardware costs	Political Factors = May create confusion for infrequent drivers Institutional Factors = Education for the public on managed lane signage and operations Technical Factors = New technology in US		Reduced Congestion		Medium-High	LOW	LOW	1	1	4	4	- Needs more research
F21	Freeway	New Toll Roads / Congestion Pricing		Congestion pricing is a way of harnessing the power of the market to reduce the waste associated with traffic congestion. Congestion pricing works by shifting purely discretionary rush hour highway travel to other transportation modes or to off-peak periods, taking advantage of the fact that the majority of rush hour drivers on a typical urban highway are not commuters.	- Provided high level of service to users, with 20% decrease in traffic for the London case - Divert traffic to another mode or to travel at different times of the day	~$250,000 per mile for conversion of HOV to HOT lanes; $2 - 4 million per lane per mile for new construction of HOT lanes $2 million for conversion of HOV to HOT lanes; $85 to $177 million for new construction of HOT lanes	Political Factors = Can be publicly controversial, tough to establish toll facilities if the concept is new to a region or not widely practiced Institutional Factors = Technical Factors = Effects of different tolling methods vary, benefits versus costs need to be carefully considered	Medium	Improved Mobility	10%	High	MED	LOW	3	3	2	2	- Great TSMO/TDM strategy
F22	Freeway	Electronic Toll Collection		Electronic toll collection (ETC) supports the collection of payment at toll plazas using automated systems to increase the operational efficiency and convenience of toll collection. Systems typically consist of vehicle-mounted transponders identified by readers located in dedicated and/or mixed-use lanes at toll plazas	- Reduced traffic volume by up to 17% - Reduced delay by 50% to 85% - Reduced vehicle emissions by 16% to 63% - Cost saving for electronic toll lane over staffed lane (ETC only requires one maintenance person and account support)	~$1 million hardware cost for a 7-lane toll plaza; $16,000 per year to operate an electronic toll collection lane; $0.05-0.10 cost per ETC transaction; $15-$50 cost for each transponder	Political Factors = Privacy concern on vehicle and personal information with the use of tolling technologies Institutional Factors = Interoperability issues at the transponder level with neighboring toll facilities Technical Factors = Plan for changes in tolling technologies so that interoperability can be attained easily in the future	High	Reduced Congestion		High	MED	LOW	2	2	2	4	- Along with new project
F23	Freeway	Road Weather Information Systems		Surveillance, monitoring, and prediction of weather and roadway conditions enable the appropriate management actions to mitigate the impacts of any adverse conditions.	- Improved safety by reducing 3 to 17% of crashes - Reduced vehicle speed by 2 to 5mph during adverse weather - Improved information for agency decision-makers and travelers	Cost varies which can range from $20,000 for a sensor unit to over $3 million for a weather management system. Weather station ($20-50k capital, $1.5-4k operations and maintenance), CCTV-surveillance ($7k-19k capital, $1.0k-2.5k operations and maintenance), Highway Advisory Radio ($16-32k capital, $500-1,000 operations and maintenance), variable message signs ($50k-120k capital, $2.5k-6k operations and maintenance), and variable speed limit display ($3-5k capital).	Political Factors = Prioritizing safety over expanded system capacity Institutional Factors = Interagency cooperation provides greatest benefit to traveling public Technical Factors = Integration of various ITS components	High	Improved Safety	20%	Low-Medium	HI/LOW	MED	3	0	5	2	- Network & weather stations - good for maintenance too - Seems mainly abide urban area
F24	Freeway	Bottleneck Removal		Bottleneck removal in freeway can be achieved by various geometric or operational strategies after identifying the bottleneck locations and detecting the causes.	- Decreased injury crash rate by 35% on average - Reduced delay	Cost varies, can range from a few thousand dollars to tens of millions	Political Factors = Institutional Factors = Technical Factors = Sufficient and accurate data collection is important for bottleneck analysis and the subsequent mitigation	High	Reduced Congestion	10%	Medium-High	HI	MED	8	1	0	1	
F25	Freeway	Ramp Closures		Surveillance and control technologies can allow for the temporary closure of freeway ramps to accommodate peak traffic conditions or inclement weather conditions.	- Reduced crash rates - Increased mobility on mainline		Political Factors = Limits access to roadways, which can lead to public frustration. Institutional Factors = Can move congestion onto surface street system Technical Factors = Should be integrated with other ITS components (traffic management center, weather management system, etc)	Medium	Improved Mobility & Safety		Low	MED	MED	1	2	3	4	- Impact to arterial streets and tradeoff with freeway operations
F26	Freeway	Ramp Metering		Traffic signals on freeway ramp meters alternate between red and green signals to control the flow of vehicles entering the freeway. Metering rates can be altered based on freeway traffic conditions.	- Reduced mainline peak period delay - Increased freeway speed by 8% to 26% - Improved freeway capacity by 10% (Minneapolis study) - Reduced duration of congestion - Reduced vehicle conflicts by 24% to 50%	$25,000 - $66,000 per site; $6,500 for detection components per site; $1,000-$3,000 per site for annual operation and maintenance	Political Factors = Public perception and potential resistance Institutional Factors = Agency coordination on operations to ensure ramp queues don't impact surface street operations. Technical Factors = Ensure infrastructure and timing plans allow green time to meet demand. Avoid queue spillback to adjacent intersections.	High	Reduced Congestion	20%	Low-Medium	HI	HI	5	1	1	3	
F27	Freeway	HOV Ramp Bypass		Priority access to highway is given to HOVs. Access options include allowing HOVs to bypass ramp meters, providing a dedicated flyover ramp for HOVs, etc.	- Reduced passenger travel time by 2% to 15% - Incentive for carpooling/vanpooling/transit - Can remove vehicles from roadway, reducing emissions by 2% to 13%	$100,000 to $3 million per mile capital costs, depending on need to reconstruct lanes or not. Low operations and maintenance costs, generally.	Political Factors = High public perception, involves public policy decision for prioritizing people movement over individual vehicle movement. Institutional Factors = Agencies should work together to develop a ramp metering system and timing plan to avoid queue spillback to upstream intersections. Technical Factors =	Medium	Improved Mobility	10%	Low (if restriping/signing), High (if new construction)	LOW	LOW	1	1	4	4	- Not without highway system
F28	Freeway	Transportation Management Center		The purpose of a Transportation Management Center is to integrate various departments and offices of transportation and emergency agencies into a unified communications center. The integration provides the communications and computer infrastructure necessary for coordinated transportation management on roadways during normal commuting periods, as well as during special events and major incidents.	- More efficient coordination and operation of various transportation systems - Better data collection for decision-making and future planning purposes - Co-locate and collaborate with traffic, transit, fire, emergency, police, etc.	$1.8 million - 10 million for TMC capital cost; $400K - $2 million for annual O&M	Political Factors = Expenses may be huge depending on the scope of the TMC Institutional Factors = Communication and interoperability issues may exist among agencies. Changing agency culture to operate differently. Potential collaboration with transportation, emergency, police, fire, etc. Technical Factors = TMC's can be very simple or complex. Understanding technology is key to maximizing benefits.	High	Improved Mobility & Safety	20%	High	HI	MED	6	1	0	3	- Under construction
F29	Freeway	Variable Speed Limits		Variable speed limit systems use sensors to monitor prevailing traffic and/or weather conditions, posting appropriate enforceable speed limits on dynamic message signs. Also known as "speed harmonization."	- Decreased mean travel speeds by up to 3mph - Reduced crash rates - Reduction of congestion	$3000 - $5000 per variable speed display sign	Political Factors = Potential need to increase law enforcement of variable speeds Institutional Factors = Cooperative or identical systems should be used across jurisdictional boundaries Technical Factors = Integration into detection/surveillence and communication systems	High	Reduced Congestion & Safety		Low-Medium	HI	HI	5	2	1	2	- Need good enforcement & new laws - Project planned
FR30	Freight	Real-Time Freight Information		Real-time information on cargo status can be provided to ocean carriers, exporters, importers, foreign freight forwarders, customs brokers, terminal operators, and rail and trucking services. It enables port users to post and receive information on the location and status of freight shipments.	- Ability to track the freight location and estimate the traffic condition for real-time freight route planning - Increased freight movement efficiency	Ranges from $500 to $2,500 per in-vehicle tracking equipment depending on the functionality	Political Factors = Prioritizing freight movement over people Institutional Factors = Technical Factors = Integration with other ITS components (i.e signal system for truck priority)		Improved Mobility		Low	MED	MED	2	1	4	3	- Depends on area - Not sure which is provided ???? within the freight industry
FR 31	Freight	Roadside Electronic Screening / Clearance Programs		Electronic screening applications promote safety and efficiency for commercial vehicle operators. Carriers that equip their fleets with low-cost in-vehicle transponders can communicate with check stations and automatically transfer regulatory data to authorities as trucks approach check stations. These and other technologies such as weight-in-motion (WIM) scales improve efficiency and reduce congestion at check stations by allowing safe and legal carriers to bypass inspections and return to the mainline without stopping.	- Reduced inspection time by 14% to 66% - Reduced freight travel time and delay - Reduced vehicle emissions	$150k to $780k per electronic screening weigh station	Political Factors = Institutional Factors = Technical Factors = Integration with other ITS components (i.e freight AVL)		Improved Mobility & Safety		Medium-High	MED	MED	2	1	1	6	- Existing?
FR32	Freight	Truck Only Lanes		Truck-only lanes are lanes designated for the use of trucks. The purpose of truck-only lanes is to separate trucks from other mixed-flow traffic to enhance safety and/or stabilize traffic flow.	- Increased highway safety - More stable traffic flow	$100,000 to $3 million per mile capital costs, depending on need to recor	Political Factors = Prioritizing freight movement over people Institutional Factors = Technical Factors = Truck only lanes are not common in the US	Medium	Improved Mobility & Safety	10%	Low (if restriping/signing), High (if new construction)	MED	MED	2	0	3	5	
FR 33	Freight	Truck Signal Priority		Truck signal priority is used to improve the operation of heavy trucks passing through traffic signal controlled intersections on rural high-speed highways, by adding vehicle detectors that would respond only to trucks.	- Reduced number of truck stops, which is estimated to cost $3 per truck per stop	$30,000 per inductive loop truck detector; $5,000 per intersection for data collection and retiming effort	Political Factors = Institutional Factors = Technical Factors = Adjusts the traffic actuated signal systems which can decrease the presence of vehicles in the dilemma zone, potentially resulting in a safety issue		Improved Mobility	10%	Low	HI/LOW	MED-HI	4	1	3	2	- Good for safety - With demonstrated benefit
FR 34	Freight	Vehicle Tracking (AVL)		Automated vehicle location, together with computer aided dispatch systems, can assist carriers with scheduling and tracking of vehicle loads.	- Increased fleet productivity by 5% to 25% - Improved HAZMAT safety and security by reducing potential terrorist consequences by approximately 36%	Ranges from $500 to $2,500 per in-vehicle tracking equipment depending on the functionality	Political Factors = Institutional Factors = Technical Factors = Integration with other ITS components (i.e signal system for truck priority)		Improved Mobility	10%	Low	MED	MED	2	0	3	5	
T35	Transit	Park and Ride Lots		Park and ride facilities are public transport stations that allow commuters and other people wishing to travel into city centers to leave their personal vehicles in a car park and transfer to a bus, rail system or carpool for the rest of their trip.	- Eased congestion and parking demand in city center	Grade-Level Surface Parking - $5,000 per stall Freestanding Parking Garage Above-Grade - $18,000 per stall Below-Grade - $40,000 per stall	Political Factors = Institutional Factors = Technical Factors =		Reduced Congestion	50%	Medium-High	MED	LOW-MED	3	3	2	2	- So we may need bike facilities
T36	Transit	Real-Time Transit Information		Transit agencies can disseminate both schedule and system performance information to travelers through a variety of applications, in-vehicle, wayside, or in-terminal dynamic messages signs, as well as the internet or wireless devices. Coordination with regional or multimodal traveler information efforts can also increase the availability of this transit schedule and system performance information.	- Enhanced passenger convenience - Increased attractiveness of transit	$1 - 4 million for a real-time transit information system $7,000 per "next stop" annunciator	Political Factors = Objection from union on adopting ITS due to the increased probability of layoff Institutional Factors = Cooperation and integration between agencies and their ITS systems is beneficial Technical Factors = GPS location refreshing rate is critical for real-time transit information but limited by communication bandwidth; lack of IT expertise in transit agency to implement ITS due to the lack of understanding of IT in transit; system will get outdated quickly as new technologies come out fast (i.e. putting up message board at transit stop may not be worthwhile if everyone can use their cell phone to check the transit arrival time)		Improved Mobility	20%	Medium-High	HI	MED	5	0	2	3	- Need smaller transit systems to join info platform with TriMet
T37	Transit	Transit Signal Priority		Transit signal priority systems use sensors to detect approaching transit vehicles and alter signal timings to improve transit performance. For example, some systems extend the duration of green signals for public transportation vehicles when necessary.	- Improved Overall Travel Time by 2% to 42%/Reduced Delay up to 48% - Improved Travel Time Reliability/Less Variability - Fleet reduction - Reduced system operational costs (number of buses and fuel costs)	$5k to $35k per intersection; $2k to $14k per bus	Political Factors = Willingness to prioritize transit over other modes Institutional Factors = Signal system capabilities across agencies Technical Factors = Infrastructure to support TSP (i.e. controllers); lack of IT expertise in transit agency to implement ITS due to the lack of understanding of IT in transit; system will get outdated quickly as new technologies come out fast; Transit preferential treatments in place always, or by time of day, number of riders, and schedule adherence.		Improved Mobility	30%	Low	HI	MED	5	2	2	1	- ???? ITS use - Make surface transit more competitive with private vehicle travel time
T38	Transit	Transit Only Lanes/Queue Jumps		Transit-only lanes are lanes designated for the use of transit vehicles only. The purpose of transit-only lanes and transit queue jumps are to provide preferential treatments to give transit an advantage over other roadway modes.	- Reduced transit delay - Improved transit travel times - Increased transit ridership	$75,000 to $125,000 per approach for queue jump/bus bypass (not including right-of-way costs) $100,000 to $3 million per mile capital costs, depending on need to reconstruct lanes or not. Low operations and maintenance costs, generally.	Political Factors = Willingness to prioritize transit over other modes Institutional Factors = Signal system capabilities Technical Factors = Infrastructure to support transit preferential treatments (controllers, interconnect, etc); Transit preferential treatments in place always, or by time of day, number of riders, and schedule adherence.		Improved Mobility	20%	Low (if restriping/signing), High (if new construction)	MED	LOW-MED	2	1	3	3	- Make surface transit more competitive with private vehicle travel time
T39	Transit	Vehicle Tracking (AVL)		Automatic vehicle location (AVL), together with computer aided dispatch (CAD) systems, facilitates the management of transit operations, providing up-to-date information on vehicle locations to assist transit dispatchers as well as inform travelers of bus status.	- Enhanced passenger convenience - Better on-time performance, early and late arrivals were decreased by 12 and 21% respectively in a Denver study, performance increased from 80% to 90% in Kansas City - Lower operation and maintenance cost due to smaller fleet size needed, without degradation in customer service	$3,000 - $6,000 per GPS equipment installation; $60,000 - $70 million depending on the size of fleets	Political Factors = Objection from union on adopting ITS due to the increased probability of layoff Institutional Factors = Multiple AVL systems may have to be installed for various transit ITS strategies due to limitations from system vendors Technical Factors = System compatibility and future upgrade potential; lack of IT expertise in transit agency to implement ITS due to the lack of understanding of IT in transit; system will get outdated quickly as new technologies come out fast		Improved Mobility	10%	Low	MED	MED	2	2	2	4	- Provides more reliable schedules which benefits riders

Travel Options Strategies

TO40	Travel Options	Mass Communication		Mass Communication uses media, advertising and marketing campaigns to increase public awareness of the benefits and availability of transportation options, and to connect people with transportation services.	• Decrease in drive-alone trips in favor of transportation options • Increase in awareness of regional transportation options and the need to use efficient options • Increase in brand identity that connects the public with the transportation system and services • Ability to introduced new transportation infrastructure to a broad audience of potential users	• $500,000 per year builds awareness to approximately one-third of residents and is necessary to maintain and increase that awareness several percentage points per year	Political Factors • Different stakeholder interests should be considered Institutional Factors • Multi-agency partnerships are required to advance and reinforce campaign messages and strategies		Improved Mobility									
TO41	Travel Options	Individualized Marketing		Reaching individuals with personalized information and assistance by neighborhood or target audience.	• Projects in inner Portland yield an 8 percent to 12 percent reduction in drive-alone trips • Ability to introduced new transportation infrastructure to a targeted audience of potential users	• Costs are scalable at $15 to $20 per household; however, projects are typically $500,000 to reach 25,000 or more households	Political Factors • Positive results: the City of Portland and TravelSmart in Victoria Australia have noted public support for transportation in neighborhoods that receive individualized marketing Institutional Factors • Partnerships should be formed in order to deliver the best assistance to individuals Technical Factors • Staff resources must be allocated in a planned fashion so that orders are filled soon after individuals request assistance		Improved Mobility & Safety									
TO42	Travel Options	Traveler Information Marketing Campaigns		Not only marketing the information services available but also building familiarity for checking information sources before embarking on a trip.	• Improve travel times by giving drivers tools for timing their trips	• Cost will depend on how this information is delivered (one-on-one communication or advertisements)	Political Factors • Brand identity is often associated with specific agencies which may not see the value of consolidating into one brand, such as 511 Institutional Factors • Marketing of traveler information tools should link to other travel options marketing efforts Technical Factors • Tools currently available are likely programmed in different web programming languages		Reduced Congestion & Improved Mobility									
TO43	Travel Options	Route Planning Tools (software)		Develop a regional multi-modal trip-planning tool.	• Introduce more people to travel options for all trips • Compare time and cost between modes to encourage efficient travel choices	• TriMet's project will total around $130,000. This includes development of the tool but takes advantage of existing data and web server capacity to operate	Political Factors • Different stakeholder interests should be considered Institutional Factors • Marketing can help build familiarity with route planning tools Technical Factors • Regularly updating data • Maintaining server capable of meeting usage rates of the tools, especially during peak demand (for example, during a weather event)		Improved Mobility & Safety									
TO44	Travel Options	Employer Program		Support employers and commuters to increase the use of travel options for commute trips.	• Employers are assisted in implementing an auto-trip reduction plan tailored to their work site location and employees. Benefits are directly related to commute incentives implemented by employer (see below)	• TriMet Employer Outreach has resulted in cost-per-vehicle-mile-reduced annually of $0.01. • The RTO program uses a reference point of $0.05/VMR annually in order to make investments that will reach Strategic Plan goals	Political Factors • None, many employers appreciate receiving help from the Employer Program Institutional Factors • Large employers (more than 100 employees) are affected by the DEQ Employee Commute Options (ECO) Rules and are therefore compelled to seek support to reduce auto trips • Many partnerships are already in place Technical Factors • RTO staff is implementing a coordination plan which will improve efficiency of delivering employer outreach services. The coordination plan has prioritized a customer relationship management (CRM) online database application		Improved Mobility & Safety									
TO45	Travel Options	Commuter Incentives		Incentives to reduce single-person vehicle trips made by commuters by offering them time or cost savings; and, rewards.	• Transit subsidies are currently offered by 881 employment sites. Transit ridership goes up and drive-alone commutes go down at these sites • In addition to financial incentives, a 2006 Portland State University (PSU) study found that non-financial incentives (for example, flex-time, emergency ride home, etc.) resulted in significantly higher use of non-drive alone travel options	• Costs are generally paid for by private entities (employers and prize donations to commute challenges)	Institutional Factors • Large employers (more than 100 employees) offer incentives to demonstrate their effort to reduce auto trips in order to comply with the DEQ ECO Rules • TriMet has over 10 years of an established program with a variety of options for employers to subsidize transit Technical Factors • Administrative time is needed to process contracts and fulfill incentives		Improved Mobility									
TO46	Travel Options	Rideshare Services		Rideshare services involve online carpool matching, assistance to employers to match their employees and vanpools. Vanpools that meet program criteria, such as travelling at least 20 miles round-trip, are given a partial subsidy as an incentive.	• Carpools and vanpools reduce miles traveled for people who would otherwise choose to drive • Carpools and vanpools create a mobility option for people who do not drive and cannot take transit • Vanpools take cars off the region's freeway system during peak hours	• Costs for the maintenance of an online carpool matching system are approximately $30,000 per year • Metro VanPool's cost per van is approximately $500 monthly	Political Factors • Not all of Oregon is using the same online-ridematching tool • Questions are addressed in a coordinated way about who pays for vanpools originating in Washington State and Salem • Employers are not strictly exempted in Oregon from liability if a vanpool crashed Institutional Factors • There are only 3.4 miles of carpool lane in Oregon which means the incentive to save time is low • Metro currently leases vans; however, Washington State's model of owning a vanpool fleet shows lower operational costs once the capital investment has been made Technical Factors • The current online carpool matching software was quickly outdated. Metro will transition to using new software purchased by Washington State		Improved Mobility									
TO47	Travel Options	Telecommuting		An employee works from home or a satellite office space on a regular basis. Of course, this type of strategy does not work for all types of employment such as manufacturing.	• Likely to remove auto trips directly from peak commute times • Infrastructure is critical during catastrophic events to restore commerce	• Less than 1 FTE typically provides employer outreach specializing in telecommuting	Political Factors • Benefit to having infrastructure in place to rebound from catastrophic events. Can be linked to emergency management plans Institutional Factors • Some employers will not allow telecommuting for a variety of reasons Technical Factors • While high-speed internet is useful, telecommuting can be arranged simply by correspondence over the phone		Reduced Congestion									
TO48	Travel Options	Urban Centers, Corridor and Industrial Area Investments		Reduce barriers to non-auto travel by coordinating development of end-of-trip facilities, parking, carsharing locations and other strategies that complete urban centers, corridors and industrial areas. This strategy often involves public-private partnerships such as Transportation Management Associations. These organizations address needs relevant to their location.	• Local presence in centers, corridors and industrial areas • Leveraged local investment	• $15,000 to $50,500 per TMA annually, depending on meeting performance measures	Political Factors • City jurisdictions must be a partner of public-private partnerships like TMAs • TMA policy is set by Metro Council resolutions Institutional Factors • For-profit carsharing companies will not risk locating beyond their market without a revenue guarantee Technical Factors • Employer Program coordination is required to assure performance measures are met and to avoid overlapping efforts		Improved Mobility & Safety									
TO49	Travel Options	Bicycle Signal Heads		Bicycle signal heads are traffic signal displays devoted to improving flow of cyclists at intersections. They may offer movements for cyclists that wouldn't otherwise be possible at the intersection. Also referred to as scramble phases.	- Reduced travel time by 10% to 20% - Increased use of cycling for all trips - Further propel the Portland-metropolitan region as the most Bicycle Friendly Community	• Approximately $25,000 per bicycle signal head and mounting; $1,500 per loop detector to detect bicycles	Political Factors • Bicycle signal heads have not been approved by the Federal Highway Administration • Auto traffic congestion caused by exclusive phase, resulting in complaints Institutional Factors • Concern about implementation due to lack of FHWA approval Technical Factors • Potential for unfamiliar drivers to be confused by bicycle signal • Increased cycle length will increase average delay for all other modes		Improved Safety									
TO50	Travel Options	Bicycle Enhancements		A wide range of engineering techniques to improve bicycle conditions; this may include concepts like the green wave (signal timing for cyclist speeds), bicycle count locations where feedback to the users encouraged additional activity, and wayfinding systems.	- Reduced stops for cyclists - Provide positive reinforcement for cyclists - Innovative technique not used in the U.S.	• For implementation of green wave: o $20 to $25 per foot for copper wire signal interconnect; $5,000 per intersection for wireless interconnect (availability depends on agencies and signal locations) o $3,000 to $5,000 per intersection for signal retiming o $1,000 to $4,000 for controller plus software replacement/upgrades (if necessary)	Political Factors • Potential to increase complaints from drivers about traffic signal timing and maintenance • Reduced air quality due to increased idling at traffic signals (not in all cases) • Auto traffic congestion resulting in complaints Institutional Factors • Cycle lengths may need to be revised, which requires comprehensive evaluation of a corridor Technical Factors • Increased maintenance costs due to braking caused by heavy vehicles		Improved Bicycle Mobility & Safety									

Appendix L: Eugene Airport Master Plan (2010)

Eugene Airport Master Plan Update

Prepared for
City of Eugene, Oregon

Prepared by

MEAD & HUNT

in association with:

3DiWest
Ford and Associates
Evans Elder & Brown
Satre Associates

February 2010

Eugene Airport Master Plan Update

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The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airway Improvement Act as amended. The contents of this document do not necessarily reflect the official views of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

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The Federal Aviation Administration (FAA) developed the airport master planning process to assist the nation's airports in developing expansion plans to meet future aviation demand. The Master Plan Update for Eugene Airport (Eugene, Oregon) serves as a development guide for the Airport's short-term (1 to 5 years), intermediate-term (5 to 10 years) needs and also addresses the needs of the Airport through the long term (10 to 20 years). The Master Plan Update uses a base year of 2006 for data and analytical purposes, with a planning horizon extending through to the year 2026. The short-, intermediate-, and long-range time frames referred to in this Master Plan Update provide a framework to ensure that Eugene Airport's needs are identified and can be met in the future.

This Master Plan Update follows the processes set forth in Federal Aviation Administration (FAA) Advisory Circular 150-5070-6B, *Airport Master Plans*, which provides a flexible framework to accomplish goals to improve aviation.

Plan Goals and Objectives

The previous two master planning efforts (in 1990 and 2000) placed heavy emphasis on realignment of the overall airfield for long-term capacity improvements, including airfield and landside capacity. The 1990 Master Plan developed the initial concept for re-configuring the airfield into a parallel runway design, while the 2000 Master Plan Update focused heavily on the details of phasing and implementing that realignment. Also significant to the airfield realignment effort was the development of a new area to benefit general aviation.

Overall, the 2006 Master Plan Update heavily focuses on refinement of the landside components of the Airport. It invests in research and analysis of ways to make the airport more self-reliant in the long-term, through the enhancement of revenues and analysis of potential future financial scenarios (this makes the plan a more strategic one). These goals are accomplished by providing recommendations that are feasible to implement and by providing for ample public participation. The following are areas of emphasis in this Master Plan Update:

Airport functional areas:

- Planning for improvement of passenger baggage security screening
- Recommend improvements to east general aviation area (hangars, GA terminal/FBO facilities, Oregon Air & Space Museum)
- Aircraft rescue and firefighting facility (location and functional issues)
- Identify rotorcraft movement and parking areas
- Develop redevelopment idea for old airport traffic control tower and surrounding area
- Evaluation of enhanced access to FAA air traffic control tower

Business Plan:

- Develop capital improvement program
- Research opportunities for revenue enhancement, including compatible airport property development

- Guide local discussions on airport governance options
- Prepare financial feasibility under alternate financial scenarios

Land Use Planning:

- Research additional airport land needed to protect approach and lateral areas
- Recommend zoning or land use designation changes to protect airport from encroachment of incompatible development
- Develop new noise exposure contours
- Review of existing wetland data, and planning related to potential impacts

Project coordination/participation:

- Establish planning advisory committee
- Hold public participation workshops

Airport Layout Plan:

- Aggregate the City's existing utility information and develop future utility improvement plan
- Update ALP with recommended capital improvement plan
- Provide new aerial photography

Plan Scope and Documentation

While this Airport Master Plan Update is tailored to meet Eugene Airport's specific needs, it also adheres to guidelines established by the FAA. Important FAA master planning objectives incorporated within this Airport Master Plan Update include:

- Provide an effective graphic representation of the airport's existing and recommended ultimate development and anticipated functional areas.
- Assess the feasibility of the recommended development action through a prioritized and phased schedule of recommended improvements.
- Provide concise and descriptive documentation that can be clearly understood by the community and agencies charged with approving, promoting, funding, and implementing the Airport improvement program. To that end, draft master plan documentation will be developed for review by the Master Plan Update Advisory Committee. Input from the Advisory Committee will be incorporated into the final plan documents.

Relationship to Other Plans

In meeting the Plan goals, objectives and scope outlined above, this Eugene Airport Master Plan Update will ultimately replace the 2000 Eugene Airport Master Plan Update which replaced the 1990 Eugene Airport Master Plan, and any earlier aviation plans, such as the Mahlon Sweet Field Master Plan.

This Eugene Airport Master Plan Update will be reviewed as a refinement to the 2004 Eugene-Springfield Metropolitan Area General Plan (Metro Plan) that is functionally specific to the provision of commercial aviation, general aviation, and airport-related commercial and industrial services associated with the Eugene Airport. As a refinement plan, the Eugene Airport Master Plan Update should be consistent with the Metro Plan's policies and land use designations, and compatible with other functional refinements to the Metro Plan, such as the Eugene-Springfield Metropolitan Area Transportation Plan (TransPlan).

Existing Plans

A review of existing documents relating to the airport and surrounding area will be made including: existing airport layout plan and airspace plan, state aviation system plan, community plans and recent air service research.

Master Plan Update Advisory Committee

The Advisory Committee includes the following members/representations:

Steve Senderling – Chair, Airport Advisory Committee
Paul Redhead – Vice Chair, Airport Advisory Committee
Claire Syrett – Member, Airport Advisory Committee
Mike Coontz – Previous Airport Operations Manager
Jackie Robertson – Commercial Airline Pilot
Phillip Farrington – Peace Health
Ruthann Couch – Air Traffic Manager, FAA (retired)
Suzanne Lee-Pang – Community Planner, FAA
Dr. Harvey Birdseye – Director, Lane Community College, Aviation Academy
Andy Vobora – Lane Transit District
Will Mueller – Lane Transit District
Steve Hopkins – Planner, Lane County Land Management Department
Gabe Flock – City of Eugene Planning and Development Department
Randy Hledik – Eugene Planning Commission
Steve Dignam – Lane County Planning Commission
Linda Ackerman – Member, Airport Advisory Committee
Ellie Dumdi – Former Lane County Commissioner, Junction City Resident
Denny Guehler – Member, Active Bethel Citizens

This chapter provides background information on the Eugene Airport (EUG), and the context in which it functions. This information is presented in the following sections.

- Introduction
- Facilities Inventory
- Airspace and Air Traffic Control
- Socioeconomic Trends
- Aviation Activity

This information provides base data to be used in subsequent analyses. This chapter will be supplemented by additional data gathered during the course of the study.

1. Introduction

1.1 History

Aviation has a strong history in the Eugene area. The Eugene Air Park, the City's first municipal airport, was established in 1919. This airport was located on Chambers Street and was the first municipally-owned airport on the West Coast. As activity began to increase at the Eugene Air Park, the need for a new, more modern airport was championed by a local businessman, Mr. Mahlon Sweet. Mahlon Sweet Field was dedicated on May 1, 1943, after Mr. Sweet convinced city officials that improved airport facilities were necessary to support the community's aviation needs. In 1943, commercial service at Mahlon Sweet Field was first initiated by United Airlines using DC-3 aircraft. The Eugene Air Park was closed thirteen years later in 1956, and the area's general aviation activity was transferred to Mahlon Sweet Field. Both commercial service and general aviation activity have since been supported by Eugene Airport at Mahlon Sweet Field, and EUG has become an invaluable asset to the Eugene/Springfield area.

In 1964, a new terminal building was built at EUG, and the airfield was upgraded to accommodate jet aircraft. In response to rapidly increasing activity levels that occurred in the early 1980's, an airport improvement program was initiated, including construction of an expanded modern terminal (known as the Mahlon Sweet Terminal), a new airport traffic control tower, the construction of a new automobile parking facility, and extensive landscaping of Airport grounds. This improvement program enhanced the safety, capacity, efficiency, and appearance of the Airport, and made it one of the finest airport facilities in the State of Oregon.

Over the past decade, many more improvements were made at the Airport, also enhancing safety and operational efficiency. This includes a new 6,000 foot long parallel air carrier runway, Runway 16L/34R (with a Category I instrument landing system), upgrades of primary Runway 16R/34L to a

Category III instrument landing system, roadway realignment to protect the new runway protection zone, and several new maintenance facilities.

1.2 Location

Eugene Airport is located approximately 10 miles northwest of Eugene's central/traditional business district. Eugene is located in the Willamette River Valley, in central Lane County, in west central Oregon. Eugene and Lane County are centered on the Interstate 5 corridor, which extends north-south through Oregon, between the Cascade Mountains and Pacific Ocean. Most of Oregon's population resides within the Interstate 5 corridor. A location map is presented in **Exhibit 1-1.**

Eugene is located at the intersection of several major roadways, including Interstate 5, Interstate Spur 105, and State Highways 126, 99, and 58. State Highway 126 is the main east-west artery for this region. State Highway 99 extends northwest from Eugene. State Highway 58 enters Lane County southeast of Eugene and extends to the City before joining Interstate 5. Access to the Airport is via Airport Road, from State Highway 99, from Beltline Highway and I-105, from I-5. Another route to the Airport, from South Eugene/Florence/etc. is Route 126/West 11th to Greenhill Road, then to the Airport.

1.3 Climate

Weather conditions, including temperature, wind and cloud coverage, are important considerations in airport operations and development. Temperature is considered in determining runway length requirements. Wind speed and direction are taken into account in determining runway orientation. Visibility, limited by cloud coverage, is considered in determining the need for navigational aids.

EUG's climate is characteristic of the Pacific Northwest. The rainy season typically begins in September and extends through May, and annual precipitation (predominantly rain, sometimes snow) averages 51 inches. November is the wettest month (8.4 inches precipitation is average), and July the driest (0.6 inches precipitation on average). August has the highest average mean maximum temperature, 82 degrees Fahrenheit, and January has the lowest average mean minimum temperature, 33 degrees Fahrenheit. The coldest months exceed 80 percent average cloud cover; warmer months have less than 40 percent average cloud cover.

Exhibit 1-1. Location Map

1.4 Airport Role

The Federal Aviation Administration National Plan of Integrated Airport Systems (NPIAS) identifies over 3,300 airports significant to national air transportation, and eligible to receive grants. The 2007-2011 NPIAS shows EUG as a Non-Hub, Commercial Service, Primary Airport. The basic Airport service provider to the community is Commercial Service – Primary. A Non-Hub commercial service airport accounts for less than 0.05 percent of total U.S. Passenger enplanements, but more than 10,000 annual enplanements. EUG has historically been a Small Hub airport, accounting for between 0.05 and 0.25 percent of total U.S. passenger enplanements, but in 2006 it qualifies as a Non-Hub. Eugene is the second busiest airport in Oregon, behind Portland International Airport.

EUG's service area includes Lane, Benton, Douglas, and Linn Counties. The service area is a function of geography and access to EUG and other commercial service airports. It extends to an approximate 60 miles radius from the Airport, a drive time of about one hour. The four counties proximity to Interstate 5 provides relatively easy access to the Airport.

EUG is served by four airlines: US Airways Express, Delta Connection, Horizon Air and United Express. Daily scheduled service typically includes 27 departures and 28 arrivals. Commercial service aircraft include the Canadair Regional Jet -200 (50 seats), -700 (70-75 seats) and -900 (90 seats); Dash 8 Q200 (37-39 seats) and Q400 (70-78 seats) turboprops; and Embraer 120 (30 seats) turboprops. **Table 1-1** lists EUG's top ten destinations based on Origin & Destination (O&D) passenger traffic. Total O&D passenger numbers are equal to roughly double the passenger enplanement numbers.

Table 1-1:
EUG Top 10 Domestic O&D Markets

Rank	Destination	O&D Passengers
1	San Francisco	79,390
2	Los Angeles	45,220
3	Phoenix	34,960
4	Seattle	32,060
5	Denver	26,900
6	Las Vegas	24,940
7	Salt Lake City	24,940
8	San Diego	23,340
9	Orange County	17,080
10	Chicago	14,030

Source: Data Base Products CY2005

Following the events of September 11, 2001, airline passenger traffic dropped dramatically nationwide. As passenger traffic counts fell, commercial air carriers responded by reducing ticket prices and cutting capacity, the number of seats in the market. During this period EUG, and most of the smaller markets in the U.S., experienced significant reductions in airline service. Larger jet aircraft were replaced with smaller regional jets and or turboprops and in some markets flight schedules (frequencies) were cut (see **Table 1-2)**, EUG was hit especially hard by these service reductions. The Airport's capacity was reduced by one-third, airlines increased ticket prices and, not surprising, passenger traffic decreased. Beginning in 2004, the Airport's airlines began adding back capacity and passenger traffic climbed.

Table 1-2: EUG Scheduled Seats and O&D Enplanements 2000-2005		
Year	**Scheduled Airline Seats**	**Total O&D Enplanements**
2000	692,523	659,280
2001	644,297	633,880
2002	437,294	545,130
2003	434,681	531,490
2004	516,672	626,480
2005	497,111	642,470
Source: Data Base Products		

During this period, airlines not only reduced service to smaller communities like Eugene, but also transferred the bulk of their operations at these airports to regional airlines. Today all of EUG's commercial air service is provided by regional carriers that are marketed via code-share agreements with their larger airline partners, United Airlines, Delta Air Lines, US Airways, and Alaska Airlines. The bulk of EUG's airline passenger traffic is produced by regional carriers with non-scheduled charter carriers generating the balance.

Cargo is regularly transported on aircraft at EUG, and military aircraft frequent the Airport environment. EUG supports the general aviation (GA) community, which includes aircraft not used for commercial passenger and air cargo service. In 2006 there were 178 GA aircraft based at EUG, including many operated by local corporations that support business throughout Oregon and across the nation. Recreational and hobby aircraft are also an important part of the GA community at EUG.

Aircraft at EUG are served by one full-service fixed base operator – Flightcraft Services; two limited service fixed base operators – Friendly Air Service and Lawrence Air Service; and one helicopter fixed base operator, Heli-Trade. Fixed base operators (FBOs) provide fueling, ground handling, and maintenance services to commercial and general aviation aircraft. Flight training is offered by the FBO's, and by Lane Community College's *Lane Aviation Academy*.

EUG is home to public service facilities that enhance the safety of the community. Sheriff patrol, fire fighting, emergency medical, and search and rescue are public safety benefits provided to area residents by the Airport.

EUG is important to the area's infrastructure; is vital to attracting and sustaining local economic development; and is essential to providing air travel for the region.

1.5 Airport Management and Financial Information

The City of Eugene is owner and operator of the Eugene Airport. EUG is overseen by an airport manager and staff, directed by the Eugene City Council, and advised by the Airport Advisory Committee. Land use around the airport is controlled by the City of Eugene and Lane County.

The Airport Manager oversees the day to day operations of the Airport, as well as budgeting, planning, engineering, and construction. The Eugene Airport Advisory Committee develops recommendations by providing an ongoing citizen perspective and review of airport capital improvement projects, environmental issues, airport finances, air service development and airport policy.

There are different sources of airport revenue. The FAA provides the majority of capital improvement funding through the Airport Improvement Program (AIP), which provides grants to public municipalities – and, in some cases to private owners and entities – for the planning and development of public-use airports. AIP grants are generally 95 percent Federal, with a 5 percent local match, and provide funds for projects for infrastructure improvement (such as runways and taxiways), noise mitigation, land acquisition, navigational aids, safety and security. EUG receives AIP entitlement funds based on a formula set by law, and can also apply for discretionary funds through this program.

EUG uses general obligation bonds, revenue bonds, state lottery loans, passenger facility charges. Operating revenues include automobile parking fees, aircraft landing fees, concession agreements, and lease payments from airport tenants. Income is used to pay capital improvements, operating expenses, and for AIP local match. Major airport improvement expenses include large capital projects, such as runway construction and rehabilitation, and terminal expansion and remodeling. Major operating expenses include airfield and terminal maintenance, aircraft rescue and fire fighting, security, and administrative costs. These items will be documented and presented as part of the financial feasibility element of this Master Plan Update.

2. Facilities Inventory

2.1 Land

EUG is located on approximately 2,340 acres, owned in fee simple by the City of Eugene. The majority of the land is used for pavements, facilities, and structures, and for the FAA-specified separations, setbacks, and clearances established for the protection of these airfield items. Land is also used for roadways, farming, livestock, and drainage. Increased concerns about airport-compatible land use may require acquisition or control of additional property.

2.2 Airport Facilities

Airport facilities included in this inventory discussion include: runways, taxiways, aircraft parking ramps, storage hangars, Fixed Base Operators, snow removal/maintenance, aircraft rescue and firefighting, fueling, and navigational aids. **Exhibit 1-2** shows existing airport facilities.

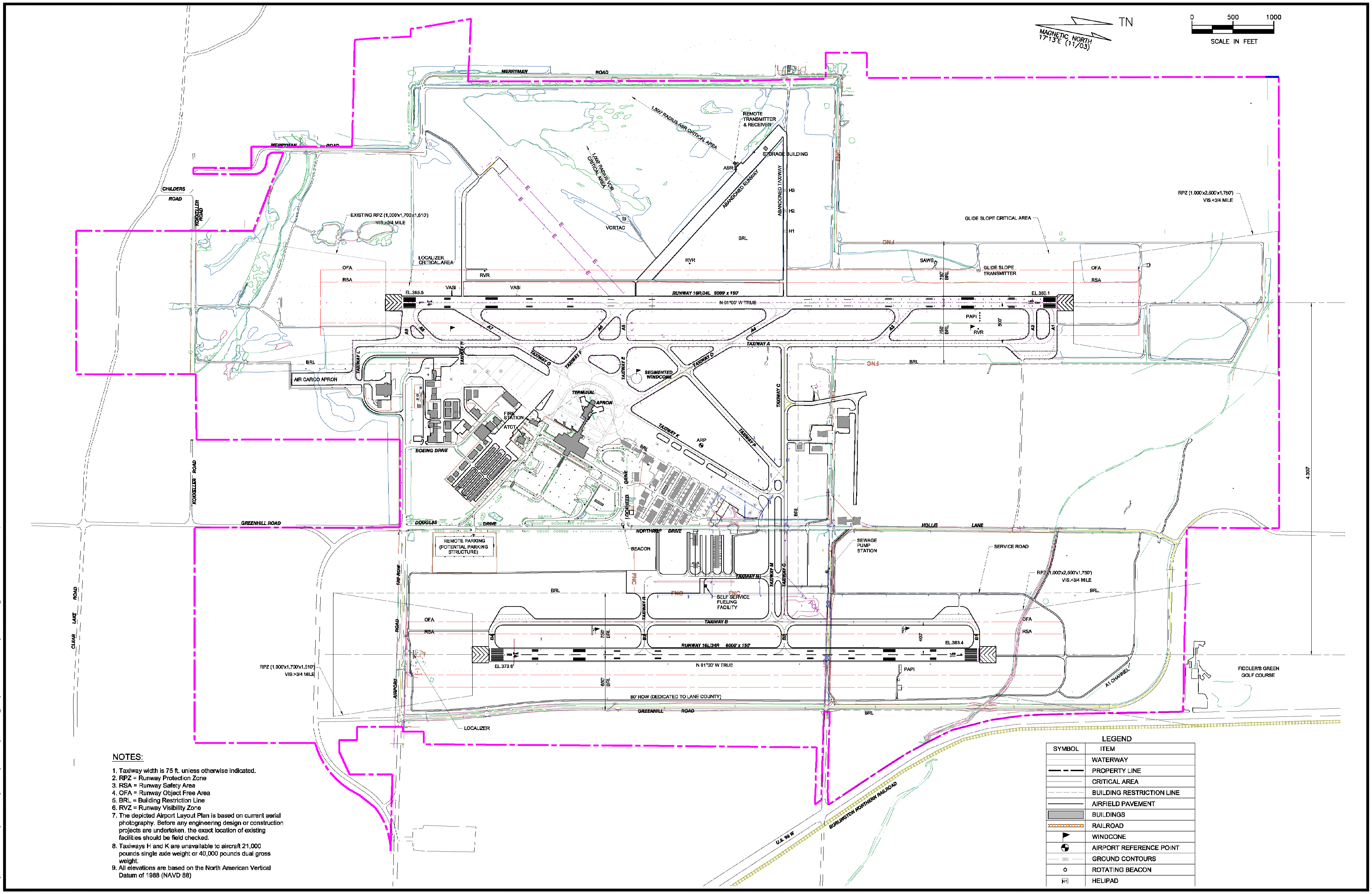


Exhibit 1-2
EXISTING AIRPORT FACILITIES 2006

Runways

Runway 16R-34L is the primary runway, and is 8,009 feet long and 150 feet wide. It is designed to accommodate aircraft with wingspan up to 170 feet and approach speed up to 165 knots, meeting FAA design criteria for Airport Reference Code (ARC) D-IV aircraft. This category includes aircraft as large as Boeing 767, Boeing 787, and Airbus A300. Runway 16R-34L has grooved asphalt surface, and weight bearing capacity of 75,000 lbs. single wheel, 200,000 lbs. dual wheel, and 400,000 lbs dual tandem.

Runway 16L-34R is the secondary runway, and is 6,000 feet long and 150 feet wide. It is parallel to primary Runway 16R-34L, separated by 4,300 feet between runway centerlines. Runway 16L-34R is designed to accommodate the same aircraft as Runway 16R-34L. Runway 16L-34R was a recommendation of the 2000 Master Plan Update, and the runway became operational in 2006, as former crosswind Runway 3-21 was decommissioned and converted to Taxiway P. Runway 16L-34R has a grooved asphalt surface, and weight bearing capacity of 105,000 lbs. single wheel, 175,000 lbs. dual wheel, and 240,000 lbs. dual tandem.

Runway 16L-34R is intended to serve general aviation aircraft, but will also serve commercial service aircraft when Runway 16R-34L is offline for improvement or maintenance, or when demand necessitates.

Two parallel runways allow for simultaneous operations on both runways, without intersecting flight patterns. During peak operation periods, aircraft are separated by approach speed, so that larger, faster aircraft use one runway and smaller, slower aircraft another. Wind coverage of the parallel runways is shown in **Table 1-3**.

Table 1-3: Wind Coverage – All Hours

Crosswind Component	**<10.5 Knots**		**<13 Knots**		**<16 Knots**	
Runway 16R-34L/16L-34R	All Weather	IFR	All Weather	IFR	All Weather	IFR
	98.11%	99.72%	99.17%	99.82%	99.89%	99.93%

Source: National Oceanic and Atmospheric Administration National Climatic Data Center 1993-2002

Taxiways

The airport has an extensive taxiway system, including full parallel taxiways serving each runway. Taxiway A has an offset separation of 500 feet from Runway 16R-34L, and has 9 connecting taxiways (A1-A9). Taxiway B has an offset separation of 400 feet from Runway 16L-34R, and has 4 connecting taxiways (B1-B4). Taxiways C through P provide aircraft access across the airfield. **Table 1-4** summarizes EUG's taxiways.

Table 1-4: Taxiways			
Taxiway Designation	Width (ft)	Orientation	Description
A	75	N-S	Parallel to Runway 16R-34L
B	75	N-S	Parallel to Runway 16L-34R
C	75	E-W	Connects parallel runways
D	75	NW-SE	Connects Taxiway A to terminal ramp
E	75	E-W	Connects Taxiway A to terminal ramp
F	75	NW-SE	Connects Taxiway A to terminal ramp
G	75	SW-NE	Connects Taxiway A to terminal ramp
H	75	E-W	Connects Taxiway A to south GA ramp
K	50	SW-NE	Connects north GA ramp to main ramp (weight
L	35	E-W	Connects Taxiway A to cargo area
M	75	E-W	Connects Taxiway B to north and east GA areas
N	50	N-S	Connects Taxiway M to east GA ramp
P	75	SW-NE	Connects Taxiways M and C to Taxiway A
R	75	E-W	Connects Taxiway B to east GA ramp
Note: There is no Taxiway I or O			
Source: Airport Layout Plan			

Aircraft Parking Ramps

There are five ramp areas: the terminal ramp, three general aviations ramps, and a cargo ramp. The terminal ramp area is on the airfield side of the passenger terminal, and is used by commercial service aircraft during loading, unloading, servicing, and overnight storage. The approximate 25,000 square yards (sy) capacity of this ramp is maximized by the pier design of the terminal building.

Three general aviation ramps (north, south, and east) are used by general aviation and charter aircraft for overnight, temporary, and long-term aircraft storage and service. The north ramp contains a stress pad to accommodate larger aircraft without damage to the ramp, as charter aircraft activity can bring larger aircraft, such as Boeing 737 and 757. The south ramp also has a stress pad to accommodate similar larger aircraft. The east ramp serves aircraft utilizing Runway 16L-34R, and will serve future east side development. The ramps contain tie-downs for aircraft storage.

The cargo apron provides the transfer of shipments between aircraft and truck. The cargo apron is located southeast of Runway End 34L, near the primary runway, and away from FBO, passenger, and general aviation activity. In 2007, a project began to improve the cargo apron from 13,067sy, accommodating 7 (smaller) aircraft, to 26,133sy, accommodating 7 (larger) aircraft. This improvement will add a new facility, consolidating cargo processing from locations across the airfield to a centralized site. This facility and ramp will also accommodate charter aircraft and passengers.

Pavement Management

Pavement management is an ongoing process to maintain conditions and utility of airfield pavements. **Exhibit 1-3** shows the 2005 pavement condition.

Aircraft Storage Hangars

Most aircraft based at EUG are stored in hangars, located between the runways, north, south, and east of the terminal building. These hangars are generally not owned by the airport, but rather by individuals or entities. EUG has T-hangars and conventional (box) hangars. T-hangars are multiple "T" shaped hangars, arranged in one rectangular building, housing small single-engine aircraft. EUG has 15 T-hangar buildings, with 130 T-hangar units. EUG also has 37 conventional hangars, housing (sometimes multiple) jets, multi-engine, single-engine, and helicopters.

Fixed Base Operators (FBOs)

EUG has one full service fixed base operators: Flightcraft; two limited service FBO's, Friendly Air Service and Lawrence Air Service; and one helicopter FBO, Heli-Trade. Flightcraft operates in a 17,110 square-foot facility south of the terminal, with access and parking adjacent to Boeing Drive. Flightcraft offers fueling, oxygen, aircraft parking (ramp or tie-down), hangars, ground power, passenger terminal and lounge, charter, aircraft maintenance, avionics sales and service, catering, rental cars, and courtesy transportation. Flightcraft's aircraft range from light twin engine aircraft to stand-up cabin business jets.

Friendly Air Service, a limited service FBO, operates in a 9,381 square-foot facility north of the terminal, with access and parking from Lockheed Drive. Friendly Air Service offers charter services, scenic and photo flights, aircraft maintenance, aircraft sales and rentals, and flight instruction. Their aircraft are single-engine.

Lawrence Air Service is a limited service FBO, providing ground handling services, on-call aircraft maintenance, deicing, and charter flight ground handling.

Heli-Trade Corporation operates a Bell Helicopter Textron Customer Service Facility and FAA repair station. Heli-Trade provides component, airframe, and engine maintenance for the Bell helicopters. Heli-Trade also leases helicopter.

Snow Removal Equipment (SRE) and Airport Maintenance

The 8,431 square-foot SRE building, located north of Taxiway C, houses equipment for responding to winter weather. The adjacent 9,200 square-foot airport maintenance building, located north of Taxiway C, houses both airfield maintenance equipment and airport landscaping equipment.

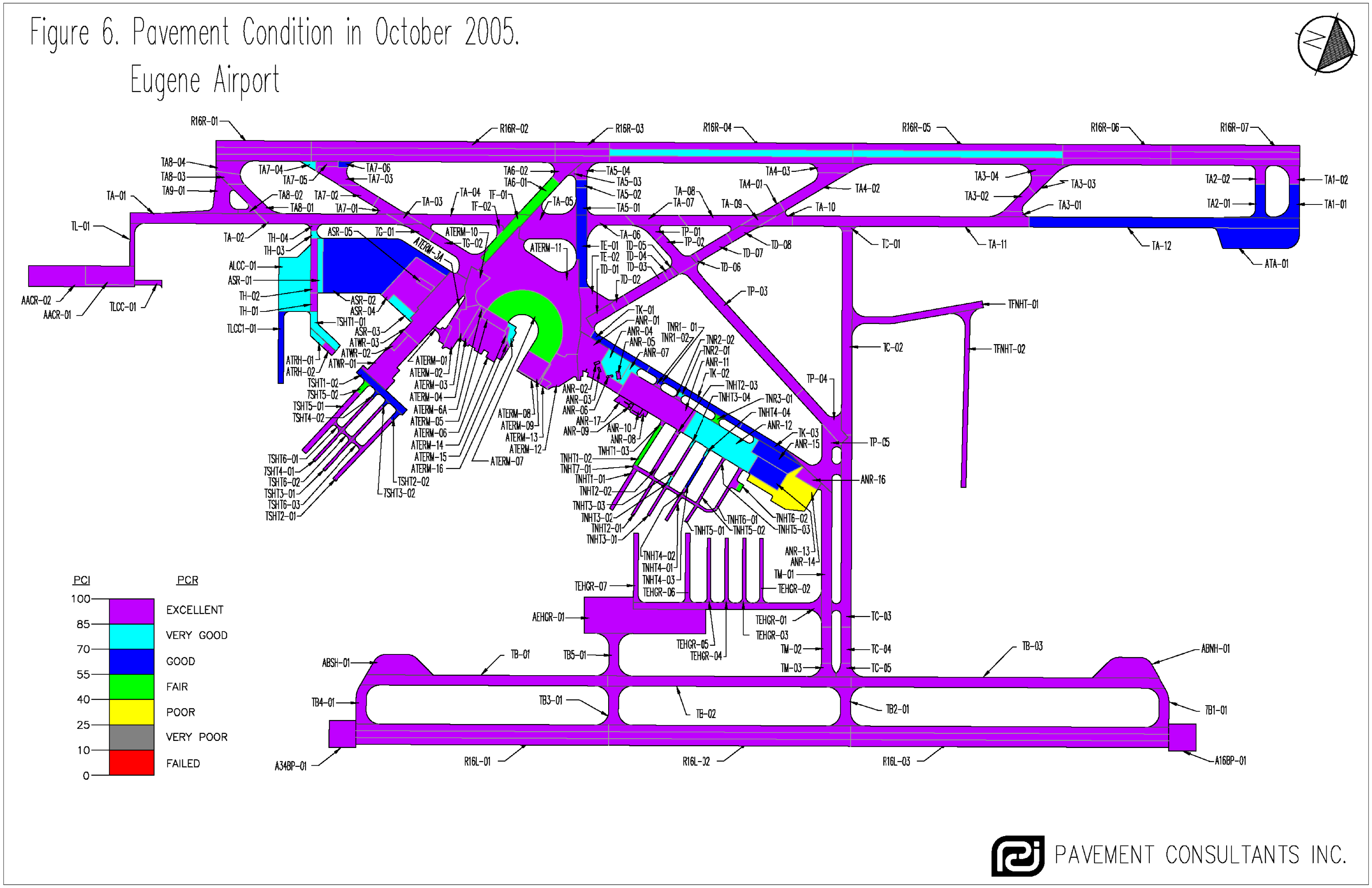


Figure 6. Pavement Condition in October 2005.
Eugene Airport
PCI
PCR
100
85
70
55
40
25
10
0
EXCELLENT
VERY GOOD
GOOD
FAIR
POOR
VERY POOR
FAILED
PAVEMENT CONSULTANTS INC.

Aircraft Rescue and Fire Fighting (ARFF) Building – Fire Station 12

The ARFF station is located between the Airport Traffic Control Tower (ATCT) and the terminal. This station is available from 6:00 AM to 11:30 PM daily by the City Fire Department personnel, and also with prior permission 24 hours a day/7 days a week. The station has three vehicle bays, kitchen, lounge, and sleeping areas. Fire fighting equipment includes an Oshkosh 1,500 gallon pumper, a 1,500 gallon Oshkosh Striker, and a disaster trailer equipped with emergency and rescue equipment. EUG's facility rating, based on the design aircraft, is Index B, and response time from the initial alarm to the first vehicle reaching the midpoint of the airfield is less than three minutes.

Aircraft Fueling

EUG has 100LL AvGas self-service, 100LL AvGas full-service, and Jet A full-service. The self service facility is on the east general aviation ramp, from a 6,000 gallon above-ground tank. Full-service fueling is carried by mobile fuel vehicles from a fuel facility on Lockheed Drive. The facility has above-ground tank storage for 60,000 gallons of Jet A and 21,000 gallons of AvGas, and also has an open bay for expanded fuel storage. There are four mobile fuel vehicles, with a total capacity of 12,500 gallons.

Navigational Aids

Navigational aids (navaids) include visual or electronic devices, either airborne or on the ground, which provide point-to-point guidance information or position data to an aircraft. Navaids range from signal transmissions, to lighting systems, to signage and pavement marking. Navaids support visual and instrument flight operations and aircraft ground movements; and also provide pilots with information such as weather data.

Landside Facilities

Landside facilities are located on the airfield, directly support aircraft operations, and are generally accessible by the public, and adjacent to public parking lots and roads.

General aviation and scheduled commercial passenger terminal could be considered both airside and landside facilities.

Passenger Terminal

EUG's Mahlon Sweet Terminal was completed in 1990. This 89,240sf facility is located southeast of the intersection of Runway 16R-34L and Taxiway P. The terminal has Concourse A on the second floor and Concourse B on the ground floor. The terminal has two restaurants, rental car service, a gift shop, and an art gallery.

Federal Aviation Administration/Airport Traffic Control Tower

The Federal Aviation Administration's (FAA's) Airport Traffic Control Tower (ATCT) is located south of the main terminal, behind the ARFF facility. This FAA facility is also home to the Cascade Terminal Radar Approach Control Facility (TRACON) which controls the airspace around EUG.

Airport Administration

The Airport Administration Building is located on the north side of Lockheed Drive. This 4,178sf administrative building houses the offices of the Airport Manager, the Airport Facilities and Operations Manager, and support staff. Two conference rooms, a waiting area, and restrooms are also located in this building. In addition to supporting daily administration functions, this building also hosts airport-related public meetings.

Transportation Security Administration

The Transportation Security Administration (TSA) operates in the terminal, with offices in a building west of the Airport Administration building.

Parking and Traffic Circulation

The main parking lot, located adjacent to the terminal, has 241 short-term and 714 long-term spaces. The overflow parking lot, located southeast of the terminal, has 585 spaces, and is served by a shuttle to/from the terminal. The employee parking lot, located north of the terminal, has approximately 200 spaces. The automobile rental ready/return lot is located in front of the terminal, and the rental lot and service building are located north of short-term parking area.

Airport vicinity roads include Airport Road, Douglas Drive, Boeing Drive, Northrop Drive, Hollis Lane, Kokkeller Road, Merryman Road, and Lockheed Drive. Douglas Drive accesses the terminal area from Green Hill Road. Douglas Drive changes to Northrop Drive near Lockheed Drive, and again changes to Hollis Lane north of Taxiway C. Northrop Drive accesses the east hangar area. Hollis Lane accesses the corporate hangars and the SRE building. Lockheed Drive accesses the north hangar and FBO area, and airport administration. Kokkeller Road accesses the cargo area along the south side of the airport. Merryman Road accesses the west side of the airfield. Airport Road accesses the south hangar and FBO area via Boeing Drive. Airport Road provides access to the south hangar and FBO area via Boeing Drive. Airport Road also extends east around the south end of Runway 34R, past Green Hill Road, to State Highway 99. In 2006, a portion of Airport Road was relocated to provide increased separation from Runway End 34R, and to provide improved traffic flow to the terminal area.

Vehicle access by regional traffic is by Interstate 5, which runs north and south several miles east of the Airport, and connects to Interstate Spur 105, Delta Highway and Beltline Highway, and to State

Highway 99. Access from downtown Eugene is by State Highway 99, to Airport Road, to Northrop Drive, and the terminal. Taxis, limos, and shuttles provide access from the Airport's service area.

Lane Aviation Academy

Lane Community College's *Lane Aviation Academy* has three hangar buildings, a classroom (original terminal building), and an administrative building, located on the south side of the airport. The department offers programs in aviation flight and aviation maintenance.

Oregon Air and Space Museum

The Oregon Air and Space Museum is an educational, non-profit, aviation museum dedicated to the acquisition of historically significant aircraft and artifacts. This facility is located off of Boeing Drive. Displays include McDonnell Douglas F-4 Phantom, A4 Skyhawk, Grumman A-6 Intruder, North American F-86 Sabre Jet, Fokker Dr 1 Triplane, Taylor 2100 Bullet, Mikoyan/ Gurevich MiG-17, and Yakovlev Yak-50.

Oregon Wing Civil Air Patrol

The headquarters of the Oregon Wing of the Civil Air Patrol (CAP), the official auxiliary of the US Air Force, is located on the south side of the Airport. The CAP headquarters is housed in an administrative office and hangar complex. Civil Air Patrol (headquartered at Maxwell Air Force Base, Alabama) is a non-profit, federally-chartered volunteer organization dedicated to serving the people of the United States through emergency services, education, and a cadet program. The Oregon Wing is home to 17 units with approximately 700 members.

Air Freight Office

Alaska/Horizon Cargo, operated by Horizon Air, processes air freight for commercial carrier operations. The 6,112sf air freight office is located in the old air traffic control tower building, north of the terminal, next to the maintenance hangar. This operation will be relocating to the new air cargo facility.

Utilities

Several area utilities companies, as well as the City, provide utilities to the airport. Water service is by the Eugene Water and Electric Board (EWEB). Wastewater is carried by an on-airport sanitary sewer system to the City's nearby treatment plant. Electricity is provided by EWEB, Emerald People's Utility District, and the Blachly Lane Cooperative. Telephone is provided by Quest. Natural gas is provided by Northwest Natural Gas.

As part of this Master Plan Update, utility information from surveys and record drawings will be inventoried, consolidated, and included in electronic mapping.

Drainage

Stormwater runoff is carried by underground and surface drainage systems to drainage ditches on the airport's northern and western borders, to Clear Lake Channel, a portion of Amazon Creek, which runs west of the Airport.

Tables 1-5 and **1-6** give summaries of airport environs and features.

Table 1-5: Airport Environs

Property • Land owned in fee simple: 2,340 acres **Access** • Interstate 5 or Interstate Spur 105/Delta Highway, to Beltline, to State Highway 99, to Airport Road • State Highway 126 to Greenhill Road to Airport Road	**Principal Surrounding Land Uses** • Wetlands (in immediate vicinity) • Agriculture • Fern Ridge Reservoir (to west) • Urban development – Santa Clara (to east) • Urban development – Eugene (to south) • Urban development – Junction City (to north) **Topography** • Airport elevation 374 MSL • Located in Willamette Valley, between Cascade Mountains and Coastal Range

Source: Mead & Hunt, Inc.

Table 1-6: Major Features and Facilities Summary

Runways
- Runway 16R-34L: 8,009ft x 150ft, grooved asphalt surface; full parallel 75 ft taxiway, 500ft separation
- Runway 16L-34R: 6,000ft x 150 ft, grooved asphalt surface; full parallel 75ft taxiway, 400ft separation

Runway Navigational Aids
- Runway 16R
  - Instrument Landing System (ILS), w/Category I, II, and III Configurations
  - Localizer with Distance Measuring Equipment (LOC/DME) (on opposite runway end)
  - High Intensity Approach Light System w/Sequenced Flashing Lights, Category II Configuration (ALSF2)
  - Glideslope, 3° glide path
  - 4-light Precision Approach Path Indicator (PAPI), 3° glide path
  - Touchdown zone lights (TDZL)
  - Precision marking
- Runway 34L
  - Omni-Directional Approach Lighting System (ODALS)
  - 4-box Visual Approach Slope Indicator (VASI), 3° glide path
  - Precision markings
- Runway 16L
  - ILS, w/Category I Configuration
  - Localizer with Distance Measuring Equipment (LOC/DME) (on opposite runway end)
  - Medium Intensity Approach Light System w/Runway Alignment Indicator Lights (MALSR)
  - Glideslope, 3° glide path
  - 4-light PAPI, 3° glide path
  - Precision marking
- Runway 34R
  - Runway End Identifier Lights (REIL)
  - 4-light PAPI (3 degrees)
  - Precision markings
- Runway 16R-34L
  - Centerline lights (CL)
  - High Intensity Runway Lighting (HIRL)
  - Medium Intensity Taxiway Lights (MITL)
  - Runway Visible Range (RVR)
- Runway 16L-34R: HIRL, MITL, Centerline reflectors

Airport Navigational Aids
- Air Traffic Control Tower (ATCT) / Terminal Radar Approach Control Facility (TRACON)
- VHF Omni Directional Range/Tactical Air Navigation (VORTAC)
- Automated Surface Observation System (ASOS)
- Automated Terminal Information System (ATIS)
- Rotating beacon
- Lighted wind indicators
- Segmented circle
- Stand-alone weather system (SAWS)

Instrument Approach Procedures
- Runway 16R
  - ILS or LOC/DME Z
  - ILS (CAT II)
  - ILS (CAT III)
  - VOR/DME or TACAN
  - GPS
  - ILS or LOC Y
- Runway 34L
  - RNAV (GPS)
  - VOR/DME or TACAN
- Runway 16L
  - ILS or LOC/DME
  - RNAV (GPS)
- Runway 34R
  - RNAV (GPS)
- Airport (Circling)
  - VOR or GPS-A

Instrument Departure Procedures
- Eugene Seven

Building Area
Located between runways
- Passenger terminal building
- FAA ATC /TRACON
- Transportation Security Administration
- Fixed base operators
- ARFF building
- Private hangars
- Airport administration
- Airport maintenance
- Air cargo office
- Lane Community College
- Oregon Air and Space Museum
- City storage

Fixed Base Operators (FBOs)
- Flightcraft
- Friendly Air Service
- Lawrence Air Service
- Heli-Trade
- Fuel
  - 100LL AvGas (full- and self-service)
  - Jet A (full-service)

Emergency and Security
- ARFF Index B
- Transportation Security Administration (TSA) provides passenger/baggage screening
- Eugene Police

Source: Mead & Hunt, Inc.

3. Airspace and Air Traffic Control

The Federal Aviation Administration Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace. Navigable airspace determines the capacity and the operational interaction of EUG with surrounding airports and airways. Flights are conducted using both Visual Flight Rules (VFR), during fair weather, and Instrument Flight Rules (IFR), during adverse weather. Published instrument procedures outline aircraft flight path and altitude.

Three components of the airspace system encompass EUG: enroute, transitional, and terminal airspace facilities. Each component has a specific function and is supported in its role by a network of air traffic control and NAVAIDs. EUG's airspace is depicted in **Exhibit 1-4**.

3.1 Enroute Airspace

Eugene Approach Control is charged with controlling any aircraft requesting air traffic services operating under VFR and IFR in the Eugene area which are destined for Eugene Airport, Rogue Valley International-Medford, or Corvallis Municipal Airport. Aircraft flying through the region or to an airport in the area typically follow designated routes known as Victor Airways or jet routes. These airways are defined by VORs located throughout the country. Aircraft in the Eugene area following these routes are controlled by the Eugene Tower Approach Control.

3.2 Transitional Airspace

Transitional areas are FAA-defined Class E airspace areas, beginning at either 700 or 1,200 feet, used by aircraft to transition between the terminal and en route airspace. As EUG has an ATCT, the airport is within FAA-defined Class D airspace, which extends from the surface to 2,500 feet above the airport elevation, and includes the airspace for instrument procedures. Within Class D airspace, aircraft are subject to certain pilot qualifications, operating rules, and equipment requirements, and aircraft must maintain communications with the ATCT.

3.3 Terminal Airspace Facilities

EUG's terminal airspace facilities include the visual and electronic equipment, navaids, and personnel used to aid pilots in navigating to, and landing at, an airport. The Airport ATCT is located south of the main terminal, behind the ARFF facility. The tower operates from 6 am to 11:30 pm.

3.4 Instrument Procedures

EUG has 12 instrument approach procedures: 6 for Runway End 16R, 2 for 34L, 2 for 16L, 1 for 34R, and 1 serving the airport. EUG has one instrument departure procedure, and has take-off minimums and (obstacle) departure procedures.

Exhibit 1-4
AERONAUTICAL SECTIONAL CHART

4. Socioeconomic Trends

Socioeconomic aspects, including population, employment, and income, are evaluated for EUG's market service area, and compared to national data, to reveal local trends. EUG's market service area includes Lane, Benton, Douglas, and Linn Counties. Socioeconomic data comes from Woods & Poole, a census information company.

4.1 Population

Table 1-7 shows EUG's market service area population, both historic and projected. This population has increased from 597,721 in 1997 to 634,421 in 2006, a 0.66% compound annual growth rate (CAGR). The nation's population over this time increased at a 1.18% CAGR. The population is projected to increase to 664,400 in 2011, to 695,914 in 2016, and to 763,553 in 2026, representing a 0.93% CAGR.

Table 1-7: Historic and Projected Population

Year	Population
Historic	
1997	597,721
1998	601,954
1999	603,858
2000	605,090
2001	606,426
2002	612,143
2003	617,663
2004	620,258
2005	626,936
2006	634,421
Projection	
2011	664,400
2016	695,914
2026	763,553
CAGR 1997-2006	0.66%
CAGR 2006-2026	0.93%

Source: Woods & Poole

4.2 Employment

Table 1-8 shows EUG's market service area employment, both historic and projected. This employment has increased from 335,832 in 1997 to 357,002 in 2006, a 0.68% CAGR. The employment is projected to increase to 380,893 in 2011, to 404,663 in 2016, and to 451,897 in 2026, representing a 1.19% CAGR. Since 1997, the unemployment rate in the State of Oregon has been one point to two points higher than the national rate.

Table 1-8: Historic and Projected Employment

Year	Employment
Historic	
1997	335,832
1998	340,039
1999	342,455
2000	346,349
2001	342,555
2002	343,518
2003	342,543
2004	347,377
2005	352,195
2006	357,002
Projection	
2011	380,893
2016	404,663
2026	451,897
CAGR 1997-2006	0.68%
CAGR 2006-2026	1.19%

Source: Woods & Poole

Table 1-9 shows employment distribution. Employment in EUG's market service area is distributed among several categories, the greatest being service.

Table 1-9: Employment by Sector	
Sector	**Percentage**
Services	30.31
Retail Trade	17.13
Manufacturing	13.80
State and Local Government	13.72
Finance, Insurance & Real Estate	6.36
Construction	5.00
Transportation, Communications & Public Utilities	3.15
Wholesale Trade	3.09
Farm Employment	3.04
Agricultural Services, other	2.35
Federal Civilian Government	1.28
Federal Military Government	0.64
Mining	0.11
Source: Woods & Poole	

4.3 Income

Table 1-10 shows EUG's market service area average income per capita, both historic and projected. This income per capita has increased from $22,023 in 1997 to $23,938 in 2006, a 0.93% CAGR. The income per capita is projected to increase to $25,126 in 2011, to $26,361 in 2016, and to $29,035 in 2026, representing a 0.97% CAGR.

Evaluation of the socioeconomic variables of population, employment, and income indicate a healthy economy expected to experience modest growth. The economy of EUG's market service area is diverse, and economic stability is expected to continue.

Table 1-10: Historic and Projected Income Per Capita	
Year	**Income Per Capita (1996 Dollars)**
Historic	
1997	$22,023
1998	$22,649
1999	$22,922
2000	$23,308
2001	$23,607
2002	$23,489
2003	$23,259
2004	$23,560
2005	$23,776
2006	$23,938
Projection	
2011	$25,126
2016	$26,361
2026	$29,035
CAGR 1997-2006	0.93%
CAGR 2006-2026	0.97%
Source: Woods & Poole	

4.4 Land Use and Urban Growth

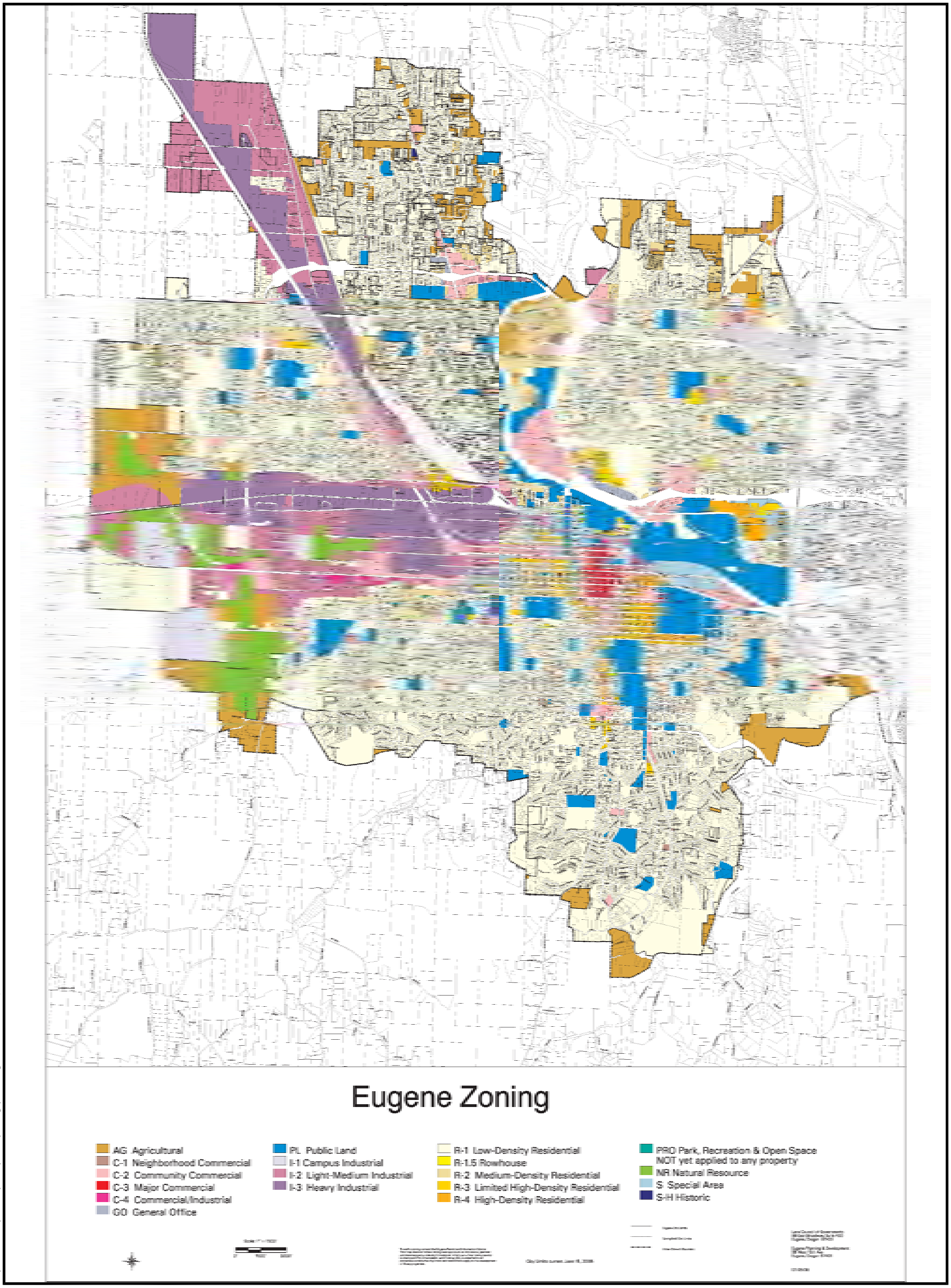
Land use planning in the environs of the Airport protects the Airport and airport-related uses. Incompatible land uses can limit the Airport's development potential, and can represent a potential safety threat. Local planning and zoning authority provides essential land use tools to preserve airport and airport-related functions, and protect against incompatibility. Both the City of Eugene and Lane County have zoning which affects the airport. **Exhibits 1-5, 1-6, 1-7,** and **1-8** show City and County zoning.

Incompatible land uses have the potential to develop near the Airport. Agricultural and rural/industrial land is east of the Airport, and large to mid-sized residential lots and hobby farms are to the west. Development near Fir Butte Road and Clear Lake Road, zoned by Lane County for residential use, may be a concern, as it is ¾ mile south of Runway End 34L. Development along Green Hill Road, near Barger Drive may also be a concern, as it is 2 miles south of Runway End 34R.

The Eugene-Springfield Metropolitan Area General Plan (Metro Plan) contains policies relating to the Airport, and depicts generalized land use designations for the Airport and environs. Parcels within the airport boundaries are subject to Metro Plan land use designations, and to specific uses allowed in Lane County zoning districts, as outlined in Chapter 16 of the Lane Code.

The Land County Code and Eugene Land Use Code include provisions for a Commercial Airport Safety Combining Zone (CAS-RCP) and Commercial Airport Safety Overlay Zone (/CAS), respectively. These zoning overlay districts allow Lane County and the City of Eugene to regulate the scope of development near EUG that may pose a hazard to air navigation. This zoning classification is place on top of existing zoning, so that in the event of diverging standards, the more stringent regulations apply. The City of Eugene's jurisdiction covers development not only within the city limits proper, but within all areas inside the city's Urban Growth Boundary (UGB)." The Airport is entirely outside the UGB of Eugene and is subject to County zoning. The Airport is zone AO (Airport Operations) and the regulations for that zone are contained in Land Code Chapter 16. The purpose of this zone is to recognize those areas devoted to or most suitable for the immediate operational facilities necessary for commercial and noncommercial aviation. In addition, the AO zone is intended to provide areas of certain open space uses for airfield ground maintenance and as a buffer to minimize potential dangers from and conflicts with, the use of aircraft.

Within the CAS-RCP and CAS zones are FAA-defined imaginary surfaces for protecting air navigation. These surfaces regulate the height of structures surrounding the airfield. Generally, the nearer a structure is to the runway, the more limited its height.



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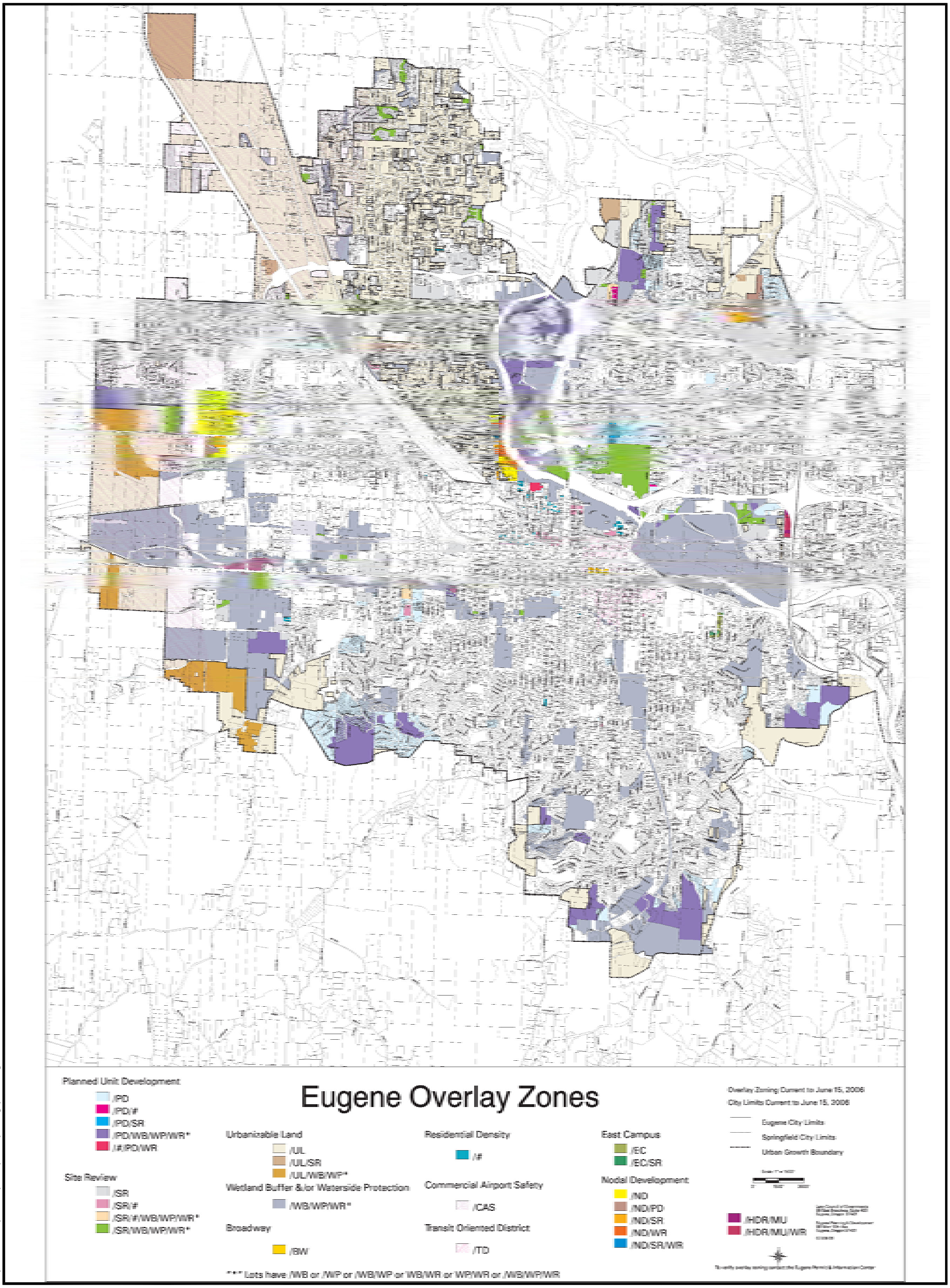

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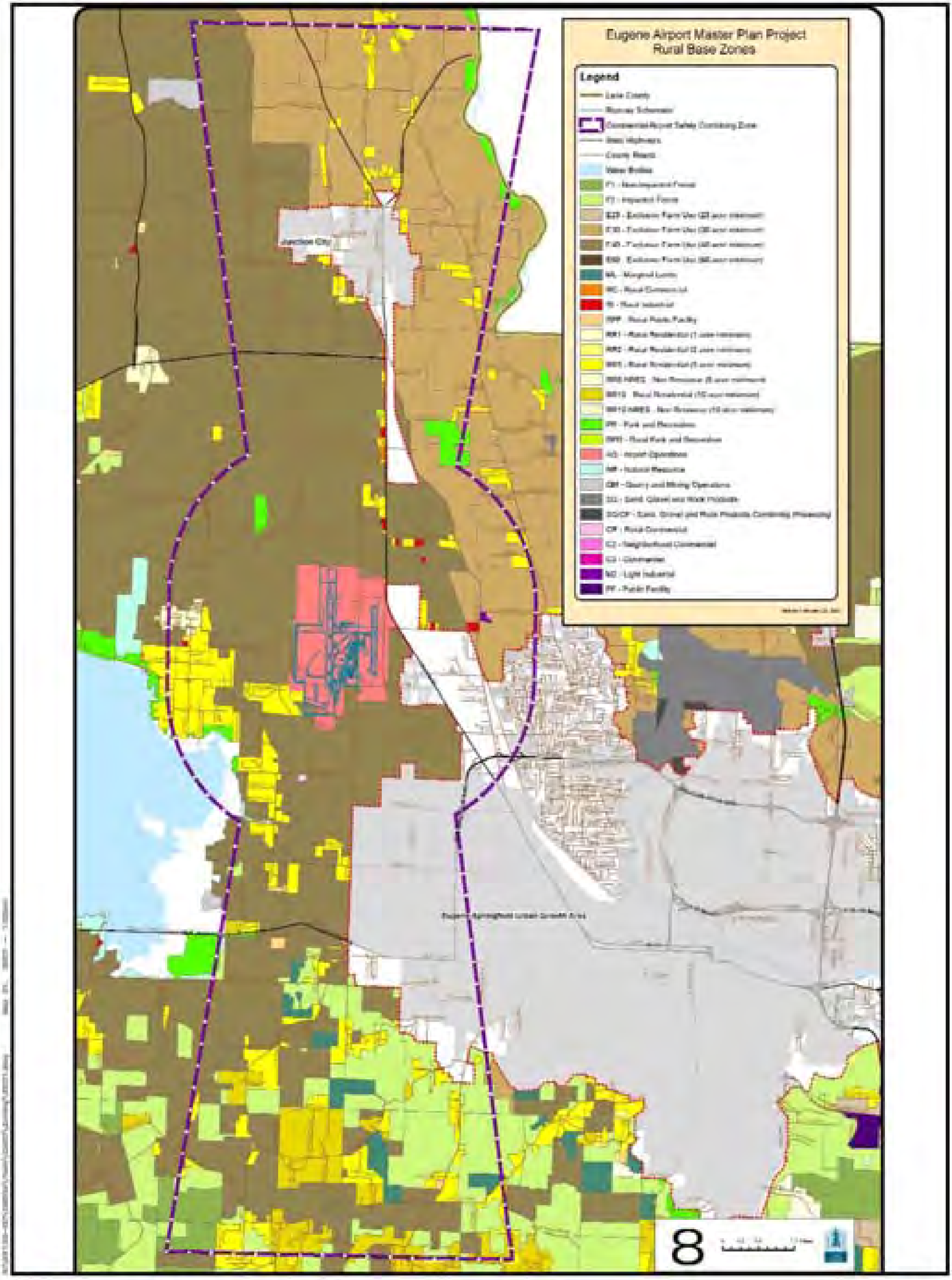
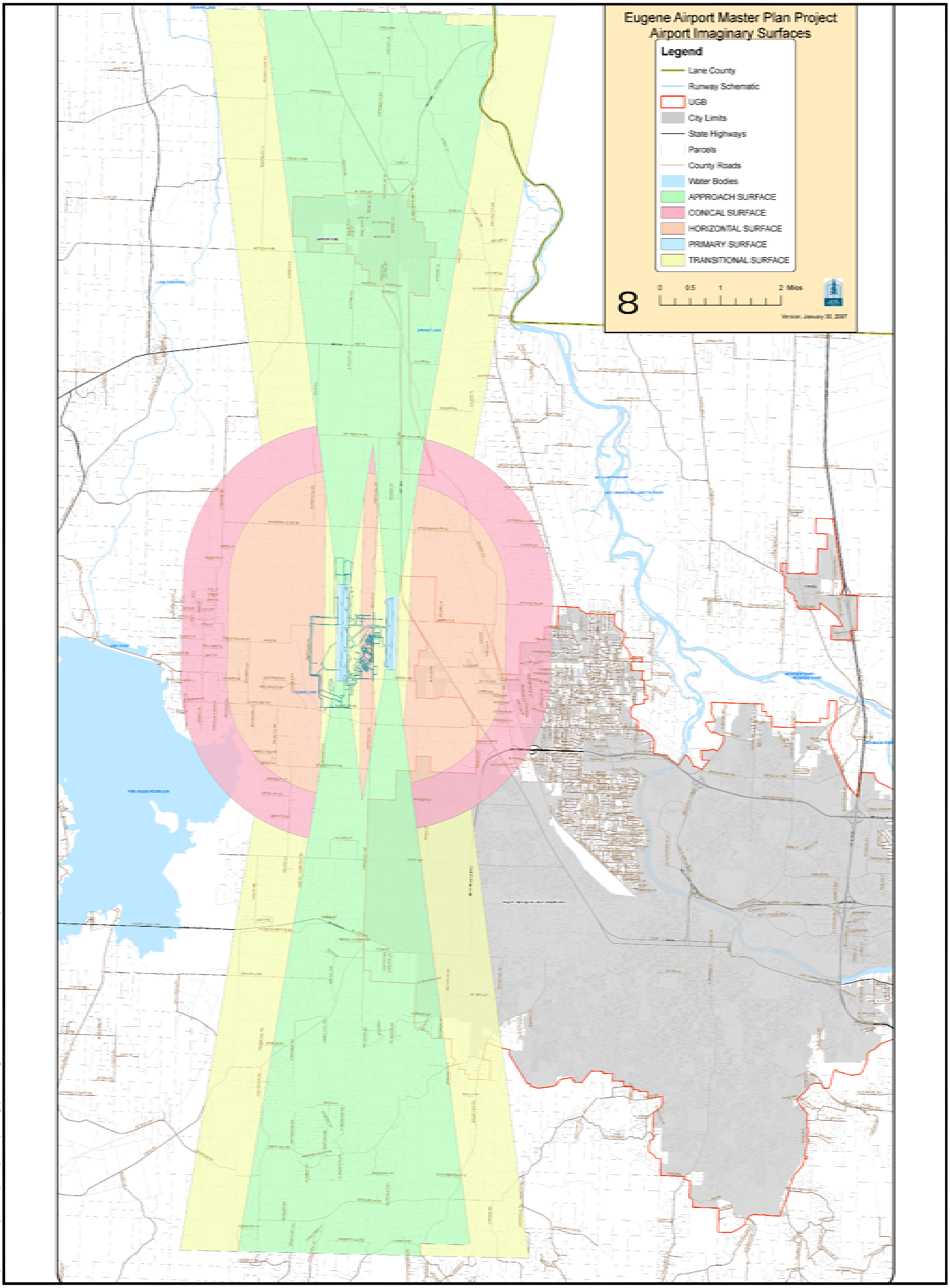


Eugene Airport
Master Plan Update

Exhibit 1-7
ZONING - COUNTY - BASE



Eugene Airport
Master Plan Update

Exhibit 1-8
ZONING - COUNTY - SURFACES

The City of Eugene regulates the zoning within its UGB, while Lane County regulates the area outside the UGB. The statute is being further examined in the state court system, in regard to legality and implementation. The regulations for this combining zone are contained in Lane Code Chapter 16. The purpose of the /CAS Combining Zone is to prevent the creation or establishment of obstructions or other hazards to air navigation and flight such as distracting light and glare producing surfaces, radio interference, smoke, steam, dust, and areas which attract birds and hazards of a similar nature. A portion of the imaginary surfaces are within the UGB of Eugene and another portion is within the city limits of Junction City. Land uses inside those areas are regulated by Eugene and Junction City, respectively.

4.5 Urban Growth

Lane County is experiencing growth in new residential units, although growth between 2000 and 2005 has been lower than between 1994 and 1999. Between 1994 and 1999, 11,306 new residential permits were issued. Between 2000 and 2005, 6,607permits were issued. However, in 2005, the number of permits issued reached a level commensurate with the late 1990s. Between 1990 and 2005, the percentage of new multi-family housing units as a percentage of all residential units was at its highest in the late 1990s, and its lowest in years 2000, 2002, and 2003. However, there has been an increase in 2004 and 2005.

Cities in Lane County annexed 2,143 acres from unincorporated areas with the most areas going to Springfield. Between 2000 and 2005, the City of Eugene annexed 397.45 acres. Annexations in the last 20 years have occurred in the northwest metro area along River Road, Prairie Road, Highway 99, and in far west Eugene. Annexations are connected to municipal sewer and water services, allowing for high density development. Growth is expected to continue as developments take advantage of available infrastructure extensions. The UGB helps prevent encroachment of the Airport by incompatible land uses as the Airport is outside the UGB, but within the Metro Plan boundary.

In addition to Commercial Airport Safety Combining Zone and 2004 Metro Plan policies, Eugene has created an urban growth boundary, to encourage greater utilization of land in urban areas, to prevent unorganized, sprawling development, and to conserve open space. The urban growth boundary helps prevent encroachment of the Airport by incompatible land uses, even though the Airport is outside the urban growth boundary.

Subsequent elements of this Master Plan Update will consider issues related to the future compatibility of land use with respect to aircraft operations. In addition to local and state land use regulations, federal laws also influence where development at the Airport, and around the Airport, can take place.

5. Aviation Activity

This sections reviews historic aviation activity trends at EUG (passenger enplanments, aircraft operations and based aircraft) and recent changes in domestic scheduled commercial and general aviation activity at the national level.

5.1 Enplanements

Passenger enplanements (see **Graph 1-1**) are broken down into two categories: major/national and regional/commuter. For decades, major/national enplanements at EUG fluctuated between 150,000 and 280,000. A downward trend began in 1999, until there were no major/national enplanements at EUG in 2003. In contrast, regional/commuter enplanements have increased, even dramatically in the last few years. In 2001, regional/commuter enplanements first exceeded major/national enplanements at EUG, and today regional/commuter enplanements dominate EUG's activity.

EUG, like many similar airports across the US, has experienced a decrease in major/national airlines. In 1988, United Airlines, US Air, and Continental Airlines served EUG. In 1998 only United remained, and today no major/national carrier serves EUG, resulting in no major/national enplanements.

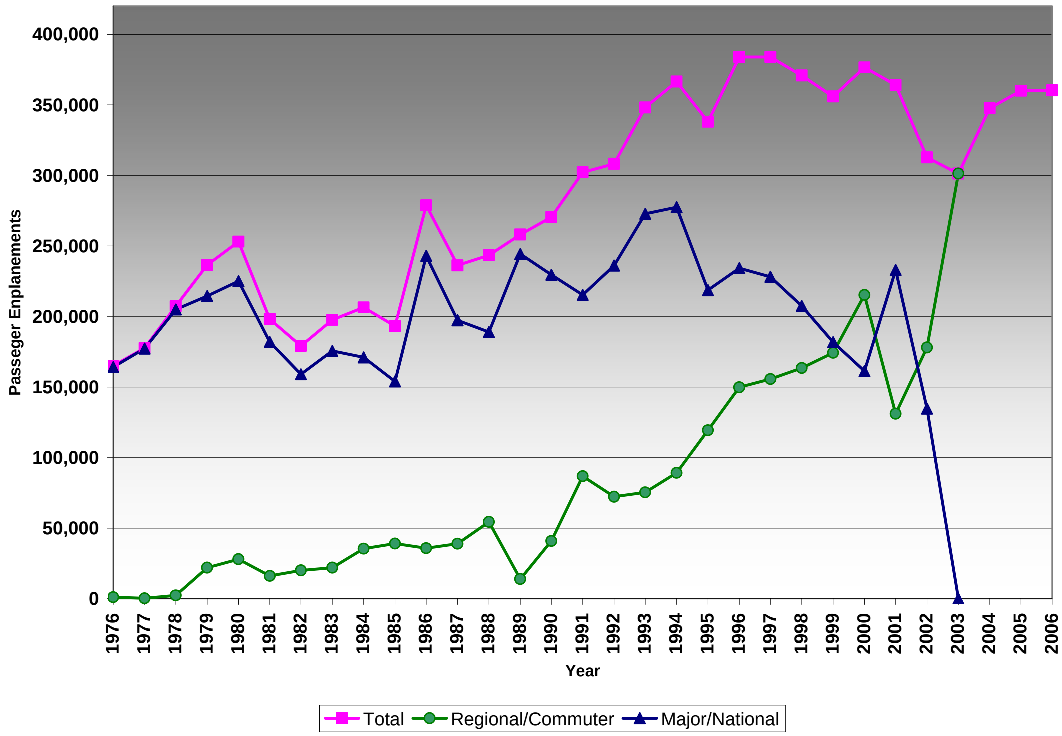
The number of regional/commuter airlines at EUG has fluctuated since 1988, although Horizon Air and United Express have maintained service for nearly two decades. Similar to national trends, regional/commuter airlines continue to play an increasingly important role at EUG, and are now the sole provider of scheduled commercial passenger service. In 2006, regional passenger enplanements reached a high of 360,258.

5.2 Operations

An aircraft operation is a take off or landing of an aircraft. An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations. There are two basic types of operations—local and itinerant.

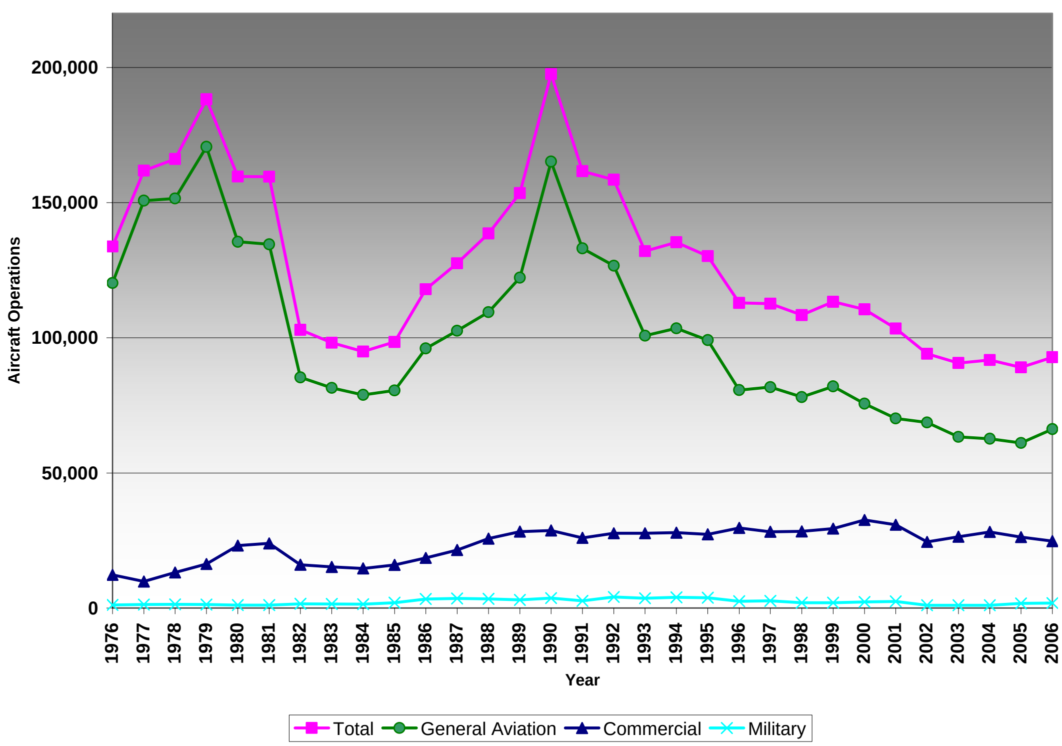
Aircraft operations (see **Graph 1-2**) at EUG from 1976 to 1994 have shown relative volatility and from 1995 to 2005 relative stability. There have been two major spikes in aircraft operations at EUG—one in late 1979 and another in 1990. The first peak was due to a combination of strong operations levels across the board. The second peak was due to exceptionally high levels of local general aviation operations. From 1990 to 2002, operations steadily declined and have since leveled out. Instrument operations, generally aircraft that are on an instrument flights rules flight path, have steadily increased.

Graph 1-1: Historical Passenger Enplanements 1976-2006



Source: Airport management records

Graph 1-2: Historical Aircraft Operations 1976-2006



Source: Airport management records

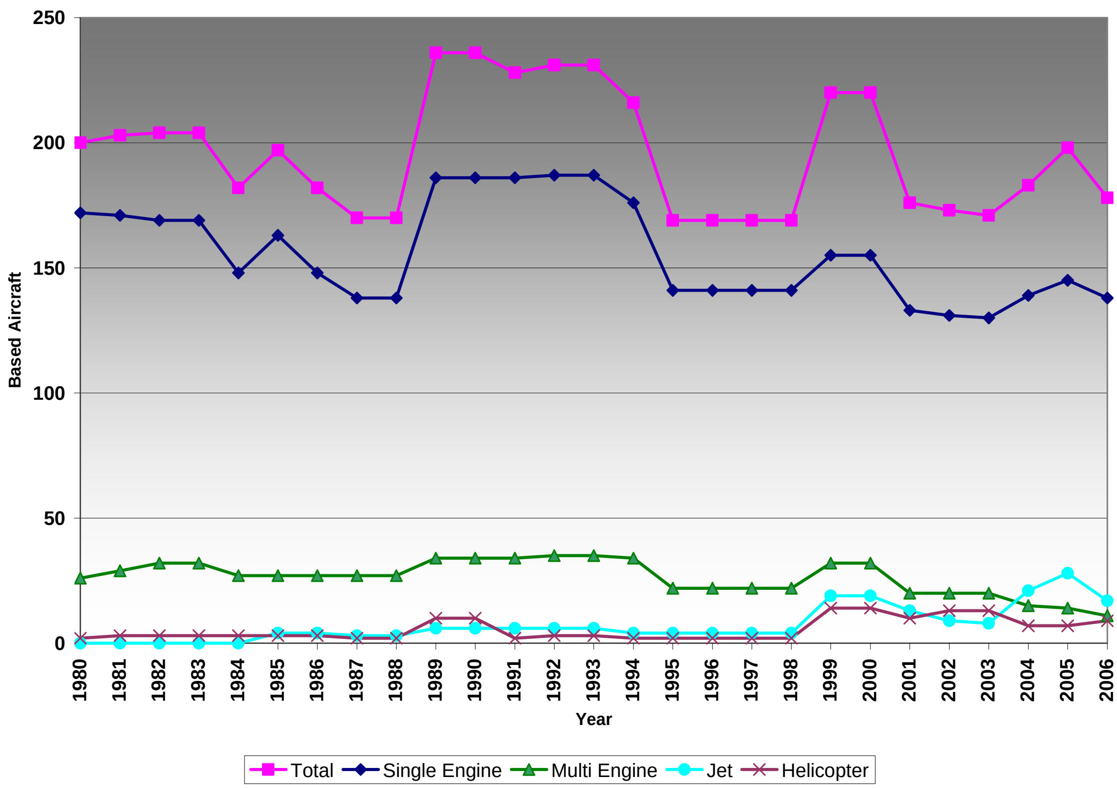
Since 2002, total aircraft operations at EUG have been the lowest recorded by the FAA in their Terminal Area Forecast (TAF). Much of the decline can be attributed to fewer general aviation operations.

Operations at EUG generally reflect national trends. From 2000 to 2004, operations at towered airports declined around 12%, but in 2005, general aviation operations at towered airports increased around 2%, a trend which EUG is not reflecting.

5.3 Based Aircraft

Based aircraft are aircraft stationed at an airport on a long-term basis. Based aircraft at EUG had peaks in the early 1990's and late 1990's, increased from 2003–2005, and decreased in 2006 (see **Graph 1-3**). The fleet mix has also changed, such that in 2004, based jet aircraft began to outnumber multi-engine aircraft. Single engine aircraft continue to be the dominant based aircraft type at EUG.

Graph 1-3: Historical Based Aircraft 1980-2006

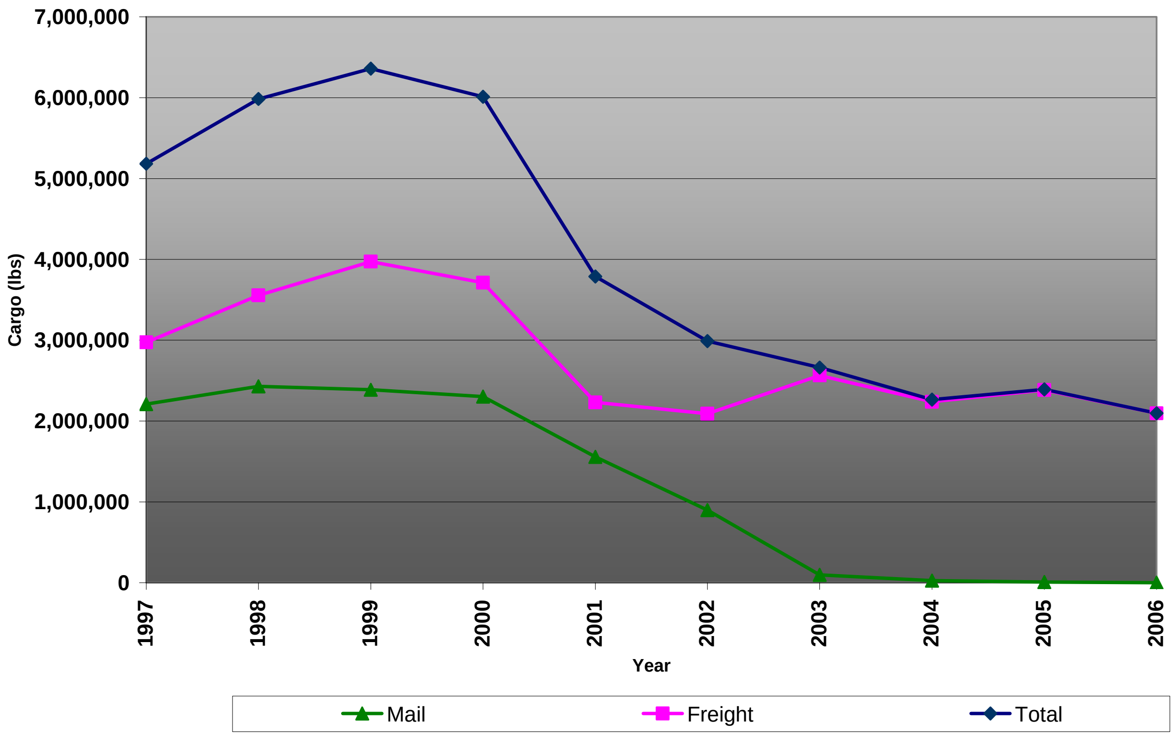


Source: Airport management records

5.4 Air Cargo

Total enplaned cargo at EUG has generally declined since 1999, especially since air mail has dropped significantly to zero (see **Graph 1-4**). Enplaned cargo at EUG now consists of freight, which has been steady since 2001.

Graph 1-4: Historical Air Cargo 1997-2006



Source: Airport management records

1. Introduction

Eugene Airport (EUG) is an active, thriving facility, with people boarding and exiting aircraft, freight loading and unloading to and from aircraft, aircraft departing and arriving, and aircraft being stored and serviced. Each activity is accommodated by facilities and services which are sized based on activity levels. Forecasting is used to estimate potential future activity levels, by evaluating historical activity, and applying projection methods. This is done so the appropriate facilities and services can be planned and implemented. Forecasted activity levels affect airport capital improvement programming, funding, and budgeting, as well as facilities, services, and staff.

The activities evaluated and forecasted in this Master Plan Update include passenger enplanements, aircraft operations, based aircraft, and air cargo. Many methods of forecasting are available, and multiple methods are applied to each activity. Results for each activity are compared among themselves, and with Federal Aviation Administration (FAA) forecasts. Consideration is given to forecasting methods that best represent reasonable expectations. The preferred forecasts are submitted to the FAA for review and acceptance. Significant variation from FAA's own forecast requires justification to be accepted by the FAA.

The historic data range to be used in the forecasting effort is from 1997 through 2006. Activity levels are forecast to 5, 10, and 20 years from the base year (2006), thus giving results for years 2011, 2016, and 2026.

2. Passenger Enplanements

Passenger enplanements are the activity of passengers boarding commercial service aircraft departing from EUG. Enplanements include passengers on scheduled commercial service aircraft, and on non-scheduled charter aircraft. Enplanements do not include airline crew.

Passenger enplanement data is provided to Airport management by commercial passenger service carriers, who maintain data as they transport people to and from EUG. Having actual historic data instead of estimates gives confidence in using the base data for forecasting.

Evaluation and forecasting do not address deplanements, which are passengers exiting commercial service aircraft arriving at EUG. It is expected that each departing passenger returns to EUG, so that the number of enplanements equals the approximate number of deplanements.

Past master plans have separated commercial passenger enplanements into scheduled and charter; scheduled enplanements into major, national, and regional carriers; and commercial passenger aircraft into large, commuter, and air taxi. EUG commercial passenger service is primarily scheduled, with approximately 1.5% charter service. Major and national carriers and aircraft which have served EUG in the past have been replaced by regional carriers and aircraft. In 2007, there was no scheduled major or national carrier serving EUG, and none is expected immediately. Accordingly, for this Master Plan Update, enplanement evaluation and forecasting are not categorized.

2.1 Enplanement History and Industry Trends

This section presents information on historical passenger activity and trends at EUG, and also includes a discussion of general trends in travel and in the commercial airline industry.

Table 2-1:
Enplanement History

Year	Enplanements
1997	383,890
1998	370,850
1999	355,992
2000	376,522
2001	364,049
2002	312,735
2003	301,339
2004	347,672
2005	360,049
2006	360,258
CAGR* 1997-2006	-0.70%

** Compound Annual Growth Rate*

Source: Airport management records

Table 2-1 shows historical EUG passenger enplanements. As shown, there were 383,890 enplanements in 1997, which fell to 301,339 in 2003 (as a result of the events of September 11, 2001), and rose to 360,258 in 2006. The state of Oregon also experienced an economic recession following the events of September 11, 2001. Due to challenges facing the entire commercial aviation industry over the past five or six years, EUG has been typical in terms of seeing a loss in traffic and then seeing a slow rebound. The year 2006 continued the trend of passenger growth, which can be attributed to a stronger, leaner airline industry and a stable market base in the Eugene area.

Since 2000, the aviation industry has been battered with 9/11, SARS, and record fuel prices. Over the last five years, major restructuring and downsizing among the mainline legacy carriers has occurred along with rapid growth among low-cost carriers, and exceptional growth among regional carriers. Two legacy carriers have filed for bankruptcy protection and two have recently emerged from bankruptcy. The cost of jet fuel, which is typically an airline's second largest expense, has doubled in price in the past six years, hampering the ability of the carriers to return to profitability or emerge from bankruptcy. Even with these difficult times for carriers, U.S. airports (especially large ones) continue to have the financial capability to provide safe and efficient air transportation and to raise the money needed to accommodate future growth in passenger and cargo demand. The year 2006 was considered an adjustment year for many airlines, with those in bankruptcy working diligently to reduce costs, realign routes, and craft their strategy to exit from bankruptcy. The FAA projects strong growth in aviation for the US, with total enplanements projected to increase from 738.6 million in 2005 to 1.07 billion in 2017, reflecting a 3.1% average growth rate.

2.2 Enplanement Forecast – FAA Terminal Area Forecast

The FAA monitors and projects activity levels at the nation's airports, and makes this data available through its' Terminal Area Forecast (TAF). The FAA TAF, as shown in **Table 2-2**, projects EUG enplanements to increase from 360,258 in 2006, to 384,483 in 2011, to 423,873 in 2016, and to 515,379 in 2026, representing a 1.81% CAGR.

Table 2-2: Enplanement Forecast – FAA TAF

Year	Enplanements
Historic	
1997	383,890
1998	370,850
1999	355,992
2000	376,522
2001	364,049
2002	312,735
2003	301,339
2004	347,672
2005	360,049
2006	360,258
Projection	
2011	384,483
2016	423,873
2026	515,379
CAGR 1997-2006	-0.70%
CAGR 2006-2026	1.81%
Source: FAA	

2.3 Enplanement Forecast – Market Share Methodology

Market share forecasting considers EUG's historic enplanements in relation to the nation's enplanements, and projects EUG enplanements as a percentage of national enplanements. National enplanement projections come from the FAA.

Table 2-3 presents an enplanement forecast using the market share methodology. As shown, EUG enplanements are forecast to increase from 360,258 in 2006, to 412,873 in 2011, to 445,593 in 2016, and to 557,736 in 2026, representing a 2.21% CAGR. Our assumptions for EUG's market share in future years reflect a declining share of the U.S. market, as compared to the most recent year (2006). This position is based on an outlook of the commercial airline business, and the fact that Eugene will continue to have challenges in this area. This outlook factors in potential commercial carrier consolidation, concentration of carrier operations to larger hub airports, and competition among airports. Accordingly, the market share percentage is decreased for each forecast year.[1] Because of the hard work and innovative techniques the City has employed in keeping good air service, this forecast is still positive on the whole due to overall

[1] *The market share assumption for 2011 is held constant at the 2006 level, reflecting stabilization of the industry. For years, 2016 and 2026 were reduced slightly (0.0650% and 0.060%) reflecting small incremental reductions in projected market share based on the consultant's experience and judgment.*

anticipated U.S. employment growth. Some of these techniques include development of the Airline Travel Bank™, which has helped launch new airline routes. The City is also aggressively working to reduce airline costs to help keep them at the Airport (paying down the terminal bond debt is one way they are doing this).

Table 2-3: Enplanement Forecast – Market Share Methodology			
Year	**US Enplanements**	**EUG Enplanements**	**Market Share**
Historic			
1997	577,845,747	383,890	0.0664%
1998	590,417,191	370,850	0.0628%
1999	610,924,928	355,992	0.0583%
2000	561,493,888	376,522	0.0671%
2001	546,310,418	364,049	0.0666%
2002	485,921,321	312,735	0.0644%
2003	482,838,537	301,339	0.0624%
2004	502,567,046	347,672	0.0692%
2005	523,143,810	360,049	0.0688%
2006	517,912,372	360,258	0.0696%
Projection			
2011	593,552,406	412,873	0.0696%
2016	685,527,557	445,593	0.0650%
2026	929,560,000	557,736	0.0600%
CAGR 1997-2006	-1.21%	-0.70%	
CAGR 2006-2026	2.97%	2.21%	
Sources: FAA, Mead & Hunt.			

2.4 Enplanement Forecast – Socioeconomic Methodology

Socioeconomic enplanement forecasting considers aspects of EUG's service market, such as population, employment and income, and projects EUG activity as a ratio of one of these socioeconomic variables. For this Master Plan Update, the ratio is developed by comparing historic activity to historic population. Socioeconomic projections data was developed independent of this planning process by Woods & Poole, for Lane, Benton, Douglas and Linn Counties.

Table 2-4 presents an enplanement forecast using the socioeconomic methodology, assuming trips per capita will hold steady at the 10-year historical average of 0.5772. Under this methodology, EUG enplanements are projected to increase from 360,258 in 2006, to 383,483 in 2011, to 401,673 in 2016, and to 440,713 in 2026, representing a 1.01% CAGR.

Table 2-4: Enplanement Forecast – Socioeconomic			
Year	**Enplanements**	**Population**	**Per Capita**
Historic			
1997	383,890	597,721	0.6423
1998	370,850	601,954	0.6161
1999	355,992	603,858	0.5895
2000	376,522	605,090	0.6223
2001	364,049	606,426	0.6003
2002	312,735	612,143	0.5109
2003	301,339	617,663	0.4879
2004	347,672	620,258	0.5605
2005	360,049	626,936	0.5743
2006	360,258	634,421	0.5679
Projection			
2011	383,483	664,400	0.5772
2016	401,673	695,914	0.5772
2026	440,713	763,553	0.5772
CAGR 1997-2006	-0.70%		
CAGR 2006-2026	1.01%		
Sources: Woods & Poole, Mead & Hunt			

2.5 Enplanement Forecast – Method Comparison and Preference

Table 2-5 and **Graph 2-1** present a comparison of the passenger enplanement forecasts using the various methods. The market share method projects an increase of 2.21% CAGR. The socioeconomic method projects the least increase of 1.01% CAGR. The TAF increase of 1.81% CAGR is between the two. Table 2-5 also shows the difference in the two new forecasts compared with the TAF. As shown, the Market Share forecast exceeds the TAF by 7% in the first five years, by 5% in the first 10 years, and by 8% in the 20-year horizon. The Socioeconomic forecast is nearly the same as the TAF in the first five years, 5% below the TAF in the first 10 years, and 14% below the TAF over the 20-year period.

A linear trend method, which projects future enplanements based on historic enplanements, was considered but did not produce a reliable trend to project and therefore was not used. The reason for the unreliability of forecasts using this method is that the recent history has been volatile in the airline/airport businesses, largely due to the terrorist attacks on September 11, 2001. Following those attacks, all airports were closed for a brief period and it took many years to restore public confidence in the aviation system. Many airports, including Eugene, were affected by these events in terms of reduced traffic.

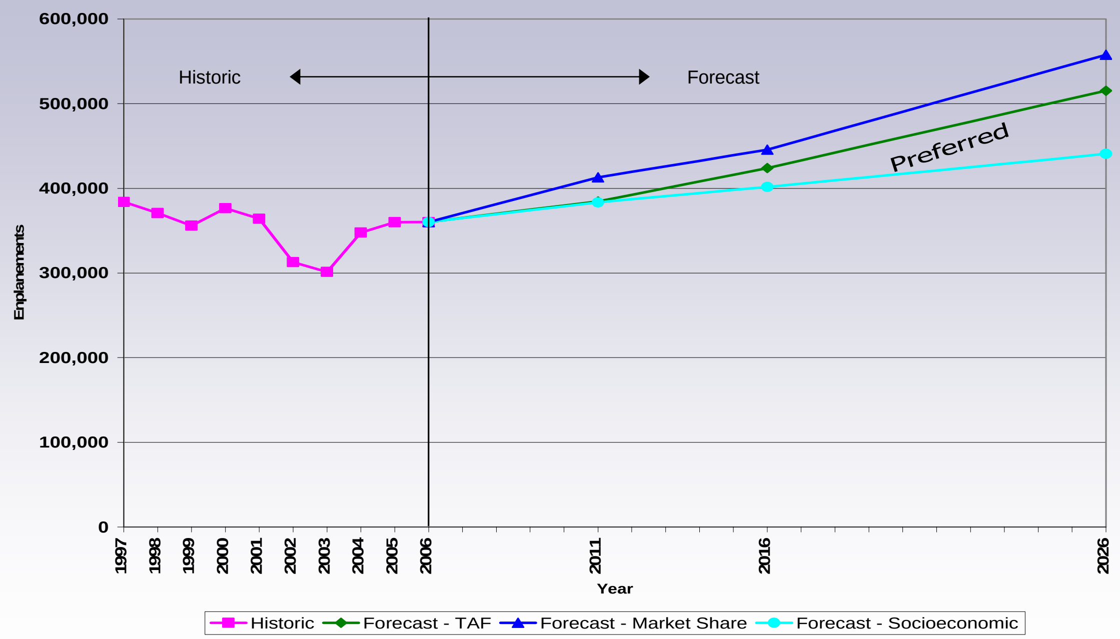
These methods can be refined, and other methods exist. However, the methods which were used produce forecasts which are sound and attainable, and are reliable and sufficient from which to select a preferred method.

The market share method gives the preferred forecast. Even though it is the most aggressive of the three forecasts, it reflects more closely a combination of positive national trends in the commercial aviation business, and the fact that the City will continue to work aggressively to provide the community with good local air service.

Table 2-5: Enplanement Forecast – Comparison

Year	Historic	FAA TAF	Market Share	Market Share/ TAF (% of Difference)	Socio-economic	Socio-economic/ TAF (% of Difference)
Historic						
1997	383,890					
1998	370,850					
1999	355,992					
2000	376,522					
2001	364,049					
2002	312,735					
2003	301,339					
2004	347,672					
2005	360,049					
2006	360,258					
Projection						
2011 (base year + 5)		384,483	412,873	7%	383,483	0%
2016 (base year + 10)		423,873	445,593	5%	401,673	-5%
2026 (base year + 20)		515,379	557,736	8%	440,713	-14%
CAGR 1997-2006	-0.70%					
CAGR 2006-2026		1.81%	2.21%		1.01%	
Sources: FAA, Mead & Hunt						

Graph 2-1: Enplanement Forecast – Comparison



Sources: FAA, Mead & Hunt

2.6 Contingency Planning Scenario

For long-range strategic planning purposes, a contingency demand scenario was defined. This scenario, which is not part of the official forecast to be used for traditional 20-year planning, serves to estimate additional future demand, factoring in additional capture of passenger diversion (to airports in other markets) and the air service initiatives the City continues to pursue. The demand/capacity and facility requirements analysis components of this master planning process will incorporate both the preferred 2026 projection of 557,736 annual enplanements, as well as a contingency demand scenario of 700,000 annual enplanements. There is no timeframe established for this demand level; rather, it is intended to allow the airport operator to do some contingency planning in case demand grows faster than projected. In terms of assumptions, the difference of approximately 142,000 enplanements represents seven daily flights by typical regional aircraft flying at an 80% load factor.

Planning of certain airport facilities (such as the terminal area) based on the latter number should be characterized as strategic in nature, recognizing that uncertainty exists in the future.

3. Aircraft Operations

Aircraft operations are the activity of moving aircraft in the EUG vicinity, including departing and arriving aircraft. Observed operations data is provided to Airport management by EUG's airport traffic control tower (ATCT), which maintains data as it communicates and controls aircraft in EUG's vicinity. Operations are categorized into commercial service, general aviation (GA), and military. Commercial service includes commercial passenger and cargo. Operations are also categorized into local and itinerant. Local operations are performed in local traffic patterns within site of the Airport, or in local practice areas within 20 miles of the Airport. Itinerant operations are non-local. Commercial carrier operations are itinerant. Military operations are 59 percent itinerant, and 41 percent local (although none are based at the airport). GA operations are 54 percent itinerant, and 46 percent local. There is no expected change in itinerant vs. local operations at EUG, and therefore these averages will be maintained for forecasting.

3.1 Aircraft Operations History

Table 2-6 shows historical aircraft operations. There were 112,643 operations at EUG in 1997, which fell to 92,779 in 2006. Commercial operations, averaging 28 percent of total EUG operations, fell from 28,256 in 1997 to 24,777 in 2006. GA operations, averaging 70 percent of total EUG operations, fell from 81,722 in 1997 to 66,185 in 2006. Military operations, averaging 2 percent of total EUG operations have varied over the past 10 years from a low of 989 to a high of 2,665.

Table 2-6: Historical Aircraft Operations

Year	Commercial	GA	Military	Total
1997	28,256	81,722	2,665	112,643
1998	28,361	78,052	1,995	108,408
1999	29,379	82,017	1,944	113,340
2000	32,602	75,632	2,263	110,497
2001	30,836	70,138	2,445	103,419
2002	24,500	68,620	993	94,113
2003	26,373	63,340	989	90,702
2004	28,166	62,626	1,001	91,793
2005	26,225	61,096	1,704	89,025
2006	24,777	66,185	1,817	92,779
CAGR 1997-2006	-1.45%	-2.32%	-4.17%	-2.13%

Source: Airport management records

3.2 Aircraft Operations Forecast – FAA TAF

The FAA monitors and projects activity levels at the nation's airports, generates estimates of future demand levels, and makes this data available in the TAF.

Table 2-7 shows FAA TAF operations. The TAF projects EUG operations to increase, from 92,779 in 2006, to 97,284 in 2011, 102,571 in 2016, and 112,632 in 2026, a 0.97 percent CAGR. Commercial operations are projected to increase from 24,777 in 2006, to 25,731 in 2011, to 26,961 in 2016, to 29,653 in 2026, a 0.90 percent CAGR. General Aviation operations are projected to increase from 66,185 in 2006, to 69,790 in 2011, to 73,847 in 2016, to 81,216 in 2026, a 1.03 percent CAGR. Military operations are projected to remain at 1,763 through 2026.

One of the reasons for a positive forecast is the introduction of a new aircraft type, very light jets, into the GA mix. Hundreds of these airplanes are on order, with deliveries starting in 2007.

Table 2-7: Aircraft Operations Forecast – FAA TAF

Year	Commercial	GA	Military	Total
Historic				
1997	28,256	81,722	2,665	112,643
1998	28,361	78,052	1,995	108,408
1999	29,379	82,017	1,944	113,340
2000	32,602	75,632	2,263	110,497
2001	30,836	70,138	2,445	103,419
2002	24,500	68,620	993	94,113
2003	26,373	63,340	989	90,702
2004	28,166	62,626	1,001	91,793
2005	26,225	61,096	1,704	89,025
2006	24,777	66,185	1,817	92,779
Projection				
2011	25,731	69,790	1,763	97,284
2016	26,961	73,847	1,763	102,571
2026	29,653	81,216	1,763	112,632
CAGR 1997-2006	-1.45%	-2.32%	-4.17%	-2.13%
CAGR 2006-2026	0.90%	1.03%	N/A	0.97%
Source: FAA				

3.3 Aircraft Operations Forecast – Alternative Methodology: Aircraft Fleet

This section presents an alternative methodology for projecting commercial aircraft operations at EUG, and blends that number with the TAF numbers for GA and military components. Under this methodology, the projected number of commercial aircraft operations is estimated by taking the projected enplanement numbers, and dividing by a factor that incorporates the average number of seats per airplane and the load factor. This calculation gives us the number of commercial departures, which we then double to account for an equal number of arrivals.

The major assumptions related to the fleet (average seats) include data showing that the airlines operating at EUG (namely SkyWest and Horizon Air) are retiring the older, smaller turboprop aircraft, in favor of newer, larger regional prop and jet aircraft.

Aircraft such as the Embraer 120 (30 seats) and the Dash 8-200 series (37 seats) will be replaced by regional jets in the 50-, 70-, and 90-seat ranges, as well as the Dash 8-Q400 (a 70-seat turboprop). Fleet changes by regional/commuter carriers are anticipated to increase the average number of seats per departure at the Airport. The assumptions made in determining the average number of seats per departure are shown in **Table 2-8**, incorporating various percentages of 50-, 70-, and 90-seat aircraft based on airline orders for such aircraft, and the anticipated utilization of them in the EUG market. These ranges represent the various general sizes of regional aircraft, although some specific models vary from the actual numbers used in our assumptions.

Table 2-8:
Operations Forecast – Fleet Size Assumptions

Year Projection	Seats Per Aircraft				
	50	70	90	Total	Average
2011	40%	40%	20%	100%	66
2016	35%	45%	20%	100%	67
2026	25%	50%	25%	100%	70

Source: Mead & Hunt

Historic load factors at the Airport for the past two years are shown in **Table 2-9**. Load factors have climbed to this level of just under 80%, and it is estimated that the airlines may squeeze a bit more capacity out of their seats (thus slightly higher load factors are assumed for the projection years).

Historical and projected data for commercial aircraft operations at EUG are presented in Table 2-9. As shown in Table 2-9, based on the projected enplanements, average seats per departure, and load factor, scheduled passenger departures are expected to decrease from 12,389 in 2006 to 9,960 in 2026. Total operations (double the departures number) are projected to decrease from 24,777 in 2006 to 19,920 in 2026.

Table 2-9: Operations Forecast – Alternative Methodology: Aircraft Fleet					
Year	**Enplanements**	**Average Seats Per Aircraft**	**Load Factor**	**Departures**	**Operations**
Historic					
1997	383,890			14,128	28,256
1998	370,850			14,181	28,361
1999	355,992			14,690	29,379
2000	376,522			16,301	32,602
2001	364,049			15,418	30,836
2002	312,735			12,250	24,500
2003	301,339			13,187	26,373
2004	347,672			14,083	28,166
2005	360,049	36	77%	13,113	26,225
2006	360,258	37	79%	12,389	24,777
Projection					
2011	412,873	66	70%	8,937	17,874
2016	445,593	67	75%	8,868	17,736
2026	557,736	70	80%	9,960	19,920
CAGR 1997 – 2006	-0.70%				-1.45%
CAGR 2006 – 2006	2.21%				-1.09%
Sources: Mead & Hunt, USDOT T-100 data					

3.4 Operations Forecast – Method Comparison and Preference

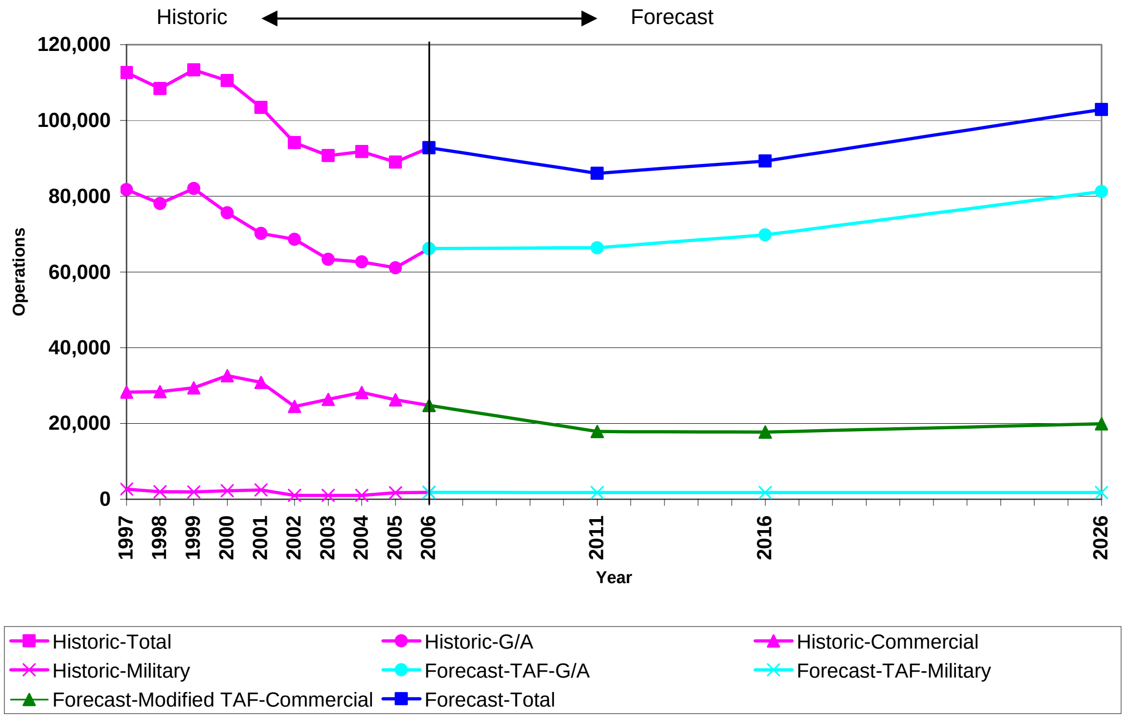
Table 2-10 presents a comparison of operations forecasts for the two methodologies. As shown, the TAF is more aggressive, with operations projected to increase from 92,779 in 2006 to 112,632 in 2026. Operations under the Alternative Methodology are projected to increase from 92,779 in 2006 to 102,179 in 2026. The alternative methodology is recommended since it incorporates some additional data into the analysis that relates to aircraft size changes that are highly probable. The preferred forecast assumes that, with this assumption more people will be moved on fewer flights.

Table 2-10: Comparison of Operations Forecasts				
	Actual 2006	2011	Projected 2016	2026
TAF				
Commercial	24,777	24,798	25,731	29,653
GA	66,185	66,393	69,790	81,216
Military	1,817	1,763	1,763	1,763
Total	92,779	92,954	97,284	112,632
Alternative Methodology				
Commercial	24,777	15,640	16,422	19,200
GA	66,185	66,393	69,790	81,216
Military	1,817	1,763	1,763	1,763
Total	92,779	83,796	87,975	102,179
Alt. Method/TAF (% Difference)	NA	**-10%**	**-10%**	**-9%**
Sources: FAA, Mead & Hunt				

Table 2-11 and **Graph 2-2** show total operations using the preferred methods.

Table 2-11: Operations Forecast – Preferred				
Year	**Commercial**	**GA**	**Military**	**Total**
Historic				
1997	28,256	81,722	2,665	112,643
1998	28,361	78,052	1,995	108,408
1999	29,379	82,017	1,944	113,340
2000	32,602	75,632	2,263	110,497
2001	30,836	70,138	2,445	103,419
2002	24,500	68,620	993	94,113
2003	26,373	63,340	989	90,702
2004	28,166	62,626	1,001	91,793
2005	26,225	61,096	1,704	89,025
2006	24,777	66,185	1,817	92,779
Projection				
2011	17,874	66,393	1,763	86,030
2016	17,736	69,790	1,763	89,289
2026	19,920	81,216	1,763	102,899
CAGR 1997-2006	-1.45%	-2.32%	-4.17%	-2.13%
CAGR 2006-2026	-1.09%	1.03%	N/A	0.52%
Source: Mead & Hunt				

Graph 2-2: Operations Forecast – Preferred



Source: Mead & Hunt

4. Based Aircraft

Based aircraft are aircraft originating and terminating round-trip travel at EUG and stored at EUG on a semi-permanent basis. Most based aircraft are registered locally, and most are stored in hangars, with some on ramps. Based aircraft include GA aircraft and charter commercial passenger service aircraft. Scheduled commercial service passenger aircraft and cargo aircraft are not based at EUG, even though they may be serviced and stored overnight at the Airport. There are no military aircraft based at EUG. Aircraft at EUG for long-term service and maintenance are not considered based, nor are aircraft located at EUG but not current for operation.

Observed based aircraft data is provided by Airport management, and reflected on the FAA's 5010 form, which the FAA maintains as it provides annual inspection of the airport, documenting airfield facilities and features in the 5010. Having actual historical data instead of estimates instills confidence in using the base data for forecasting.

Based aircraft presented in this Master Plan Update are categorized as single-engine piston (single), multi-engine piston (multi), turbine engine (jet), and helicopter (rotor), as these types of aircraft compose the primary mix of aircraft based at EUG. Other based aircraft, not in these categories, account for 2 percent of based aircraft, and that rate will be maintained for forecasting.

4.1 Based Aircraft History

There were 169 based aircraft in 1997, and documents show the total has risen to 220 (Year 2000), and has fallen to 178 (Year 2006). **Table 2-12** shows based aircraft history.

Table 2-12: Based Aircraft History	
Year	**Based Aircraft**
1997	169
1998	169
1999	220
2000	220
2001	176
2002	173
2003	171
2004	183
2005	198
2006	178
CAGR 1997-2006	0.58%
Source: Airport management records	

4.2 Based Aircraft Forecast – FAA TAF

The FAA monitors and projects activity levels at the nation's airports, and makes this data available in the TAF. The FAA TAF projects EUG based aircraft to increase from 178 in 2006, to 205 in 2011, to 209 in 2016, and to 220 in 2026, representing a 1.06 percent CAGR. **Table 2-13** shows FAA TAF based aircraft.

Table 2-13: Based Aircraft Forecast – FAA TAF						
Year	**Single**	**Jet**	**Multi**	**Rotor**	**Other**	**Total**
Historic						
1997	141	4	22	2	0	169
1998	141	4	22	2	0	169
1999	155	19	32	14	0	220
2000	155	19	32	14	0	220
2001	133	13	20	10	0	176
2002	131	9	20	13	0	173
2003	130	8	20	13	0	171
2004	139	21	15	7	1	183
2005	145	28	14	7	4	198
2006	138	17	11	9	3	178
Projection						
2011	150	29	14	8	4	205
2016	153	29	14	9	4	209
2026	159	30	14	13	4	220
CAGR 1997-2006	-0.24%	17.44%	-7.41%	18.19%	N/A	0.58%
CAGR 2006-2026	0.71%	2.88%	1.21%	1.86%	1.45%	1.06%
Source: FAA						

4.3 Based Aircraft Forecast – Socioeconomic Methodology

Socioeconomic forecasting considers aspects of EUG's service market, such as population, employment and income, and projects EUG activity as a ratio of one of these socioeconomic variables. For this Master Plan Update, the ratio is developed by comparing historic activity to historic population. Socioeconomic projections data was developed independent of this planning process by Woods & Poole, a census information company.

Socioeconomic forecasting projects EUG based aircraft to increase from 178 in 2006, to 201 in 2011, to 211 in 2016, and to 232 to 2026, representing a 1.32 percent CAGR. EUG historical based aircraft rose and fell. However, EUG's service market historic population increases steadily. This difference between the data sets may not provide the strongest correlation, but the method does provide an appropriate forecast. **Table 2-14** shows projected based aircraft using the socioeconomic methodology.

Table 2-14: Based Aircraft Forecast – Socioeconomic Methodology

Year	Based Aircraft	Population	Based Aircraft Per Capita
Historic			
1997	169	597,721	0.000283
1998	169	601,954	0.000281
1999	220	603,858	0.000364
2000	220	605,090	0.000364
2001	176	606,426	0.000290
2002	173	612,143	0.000283
2003	171	617,663	0.000277
2004	183	620,258	0.000295
2005	198	626,936	0.000316
2006	178	634,421	0.000281
Projection			
2011	201	664,400	0.000303
2016	211	695,914	0.000303
2026	232	763,553	0.000303
CAGR 1997-2006	0.58%		
CAGR 2006-2026	1.32%		

Source: Mead & Hunt

4.4 Based Aircraft Forecast – Method Comparison and Preference

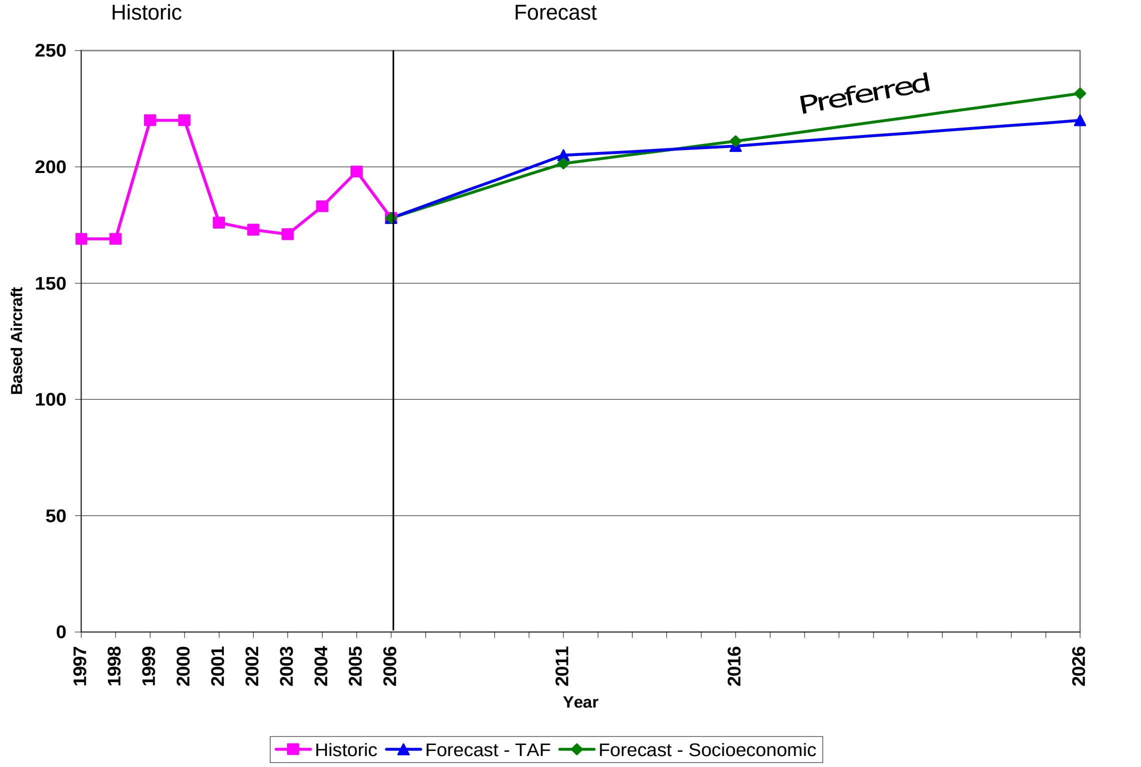
Table 2-15 and **Graph 2-3** show a comparison of based aircraft methodologies. As shown, the TAF indicates growth in based aircraft from 178 in 2006 to 220 in 2026, while the socioeconomic method produces a forecast indicating growth in based aircraft from 178 in 2006 to 232 in 2026. The preferred methodology is the FAA Terminal Area Forecast. We believe the TAF for based aircraft is a good reflection of national trends for general aviation growth. The socioeconomic methodology produces a slightly higher based aircraft projection, but we are less confident in population growth being a strong indication of buying airplanes.

Table 2-15:
Based Aircraft Forecast – Comparison

Year	Historic	FAA TAF (Preferred)	Socioeconomic	
			Forecast	Socio/TAF (% Difference)
Historic				
1997	169			
1998	169			
1999	220			
2000	220			
2001	176			
2002	173			
2003	171			
2004	183			
2005	198			
2006	178			
Projection				
2011		205	201	-2%
2016		209	211	1%
2026		220	232	5%

Source: Mead & Hunt

Graph 2-3: Based Aircraft Forecast – Comparison



Sources: Airport management records, Mead & Hunt, FAA

4.5 Critical Aircraft

The critical, or design aircraft, is defined as the most demanding aircraft that operates at an airport on a regular basis. Typically, an aircraft must conduct 500 or more annual operations to be considered the critical aircraft. The design aircraft for EUG through the 20-year planning period is the Boeing 737-500. This is the same aircraft stated in the current Master Plan Update (and on the approved ALP) as the design aircraft. Since the airfield has been built to this design standard, it is considered logical to not change it at this time.

The FAA organizes airport design standards by Airport Reference Code (ARC) and the ARC is defined based on the airport's design aircraft. The ARC incorporates characteristics of the most demanding aircraft that operates at an airport on a regular basis and includes the following two components: Aircraft Approach Category and Airplane Design Group. The aircraft approach category, denoted by letter, represents the operational approach speed characteristics of the critical/design aircraft. The airplane design group, denoted by Roman numeral, is based on the wingspan and relates to the physical characteristics of the critical/design aircraft. The ARC for the Boeing 737-500, EUG's critical aircraft, is C-III, based on an approach speed of 140 knots and a wingspan of 94.8 feet.

5. Air Cargo

Air cargo includes goods and products being transported by aircraft through EUG. Air cargo is carried both by commercial passenger service carriers (in non-passenger cabin areas of aircraft) and by commercial air cargo service carriers (which serve no passengers).

Air cargo can be categorized into mail and freight. Mail cargo is transported by arrangement with the commercial carrier and the United States Postal Service. Freight cargo is non-mail cargo. Mail cargo passing though EUG has declined from 43 percent of total cargo in 1998, to no mail cargo in 2006. With the additional security screening criteria established by the Department of Homeland Security over the past several years, many air carriers have slowed or ceased moving air mail. As such, mail cargo will not be evaluated.

Historical data is provided to airport management by commercial carriers, who maintain data as they transport cargo at EUG. The following section presents historical data on air cargo, and forecasts using socioeconomic data and industry outlook information from The Boeing Company.

5.1 Air Cargo History

Table 2-16 presents historical air cargo data. As shown, there were 2,974,533 lbs. of cargo in 1997, rising to a high of 3,974,273 lbs. in 2000, and falling to a low of 2,091,057 lbs. in 2002, and totaling 2,096,778 lbs. in 2006. Overall, air cargo has declined over the past 10 years.

EUG's decrease in enplaned freight can be attributed in part to the replacement of the large aircraft used by major and national commercial carriers, which previously served EUG, with the commuter aircraft used by regional commercial carriers, which currently serve EUG. Commuter aircraft have less room for cargo than large aircraft, leading to decreasing enplaned cargo at EUG.

Table 2-16: Air Cargo History

Year	Enplaned Cargo (lbs.)
1997	2,974,533
1998	3,556,740
1999	3,974,273
2000	3,710,254
2001	2,231,811
2002	2,091,057
2003	2,563,256
2004	2,239,204
2005	2,385,207
2006	2,096,778
CAGR 1997-2006	-3.81%

Source: Airport management records

5.2 Air Cargo Forecast – Boeing Trends

The Boeing Company's *World Air Cargo Forecast* publication is a source of air cargo evaluation and projection, giving trends that can be applied to EUG to provide a forecast of local cargo activity.

Boeing shows that nationwide, air cargo experienced a downturn in 2001, recovered from 2002 to 2004, and declined in 2005 to below Year 2000 levels. Express cargo accounted for 60 percent of activity, scheduled freight 20 percent, scheduled mail 15 percent, and charter 5 percent. Air cargo is forecasted by Boeing to increase 3.9% from 2006 through 2015, and 3.8 percent from 2006 through 2025.

Table 2-17 shows projections of cargo using the growth rates estimated by The Boeing Company. Applying these growth rates to EUG, this projects an increase from 2,096,778 lbs. in 2006 to 2,538,810 lbs. in 2011, to 3,068,410 lbs. in 2016, and to 4,416,957 lbs. in 2026, representing a 3.80 percent CAGR.

Table 2-17: Air Cargo Forecast – Boeing Trends

Year	Enplaned Cargo (lbs.)	Annual Change
Historic		
1997	2,974,533	
1998	3,556,740	19.6%
1999	3,974,273	11.7%
2000	3,710,254	-6.6%
2001	2,231,811	-39.8%
2002	2,091,057	-6.3%
2003	2,563,256	22.6%
2004	2,239,204	-12.6%
2005	2,385,207	6.5%
2006	2,096,778	-12.1%
Projection		
2011	2,538,810	3.9%
2016	3,068,410	3.7%
2026	4,416,957	3.7%
CAGR 1997-2006	-3.81%	
CAGR 2006-2026	3.80%	

Sources: The Boeing Company, Mead & Hunt

5.3 Air Cargo Forecast – Socioeconomic Methodology

Projections of air cargo demand, using a socioeconomic methodology, considers aspects of the Eugene service market, such as population, employment and income, and projects air cargo activity as a ratio of one of these socioeconomic variables. For this Master Plan Update, the ratio is developed by comparing historic activity to historic population. Socioeconomic projections data was developed independent of this planning process by Woods & Poole, a census information company.

Table 2-18 presents projections of air cargo activity using the socioeconomic methodology. Under this methodology, air cargo is projected to increase, from 2,096,778 lbs. in 2006 to 3,027,282 lbs. in 2011, to 3,170,874 lbs. in 2016, and to 3,479,066 lbs. in 2026, representing a 2.56 percent CAGR.

Table 2-18: Air Cargo Forecast – Socioeconomic			
Year	**Enplaned Cargo (lbs.)**	**Population**	**Per Capita**
Historic			
1997	2,974,533	597,721	4.98
1998	3,556,740	601,954	5.91
1999	3,974,273	603,858	6.58
2000	3,710,254	605,090	6.13
2001	2,231,811	606,426	3.68
2002	2,091,057	612,143	3.42
2003	2,563,256	617,663	4.15
2004	2,239,204	620,258	3.61
2005	2,385,207	626,936	3.80
2006	2,096,778	634,421	3.31
Projection			
2011	3,027,282	664,400	4.56
2016	3,170,874	695,914	4.56
2026	3,479,066	763,553	4.56
CAGR 1997-2006	-3.81%		
CAGR 2006-2026	2.56%		
Source: Mead & Hunt			

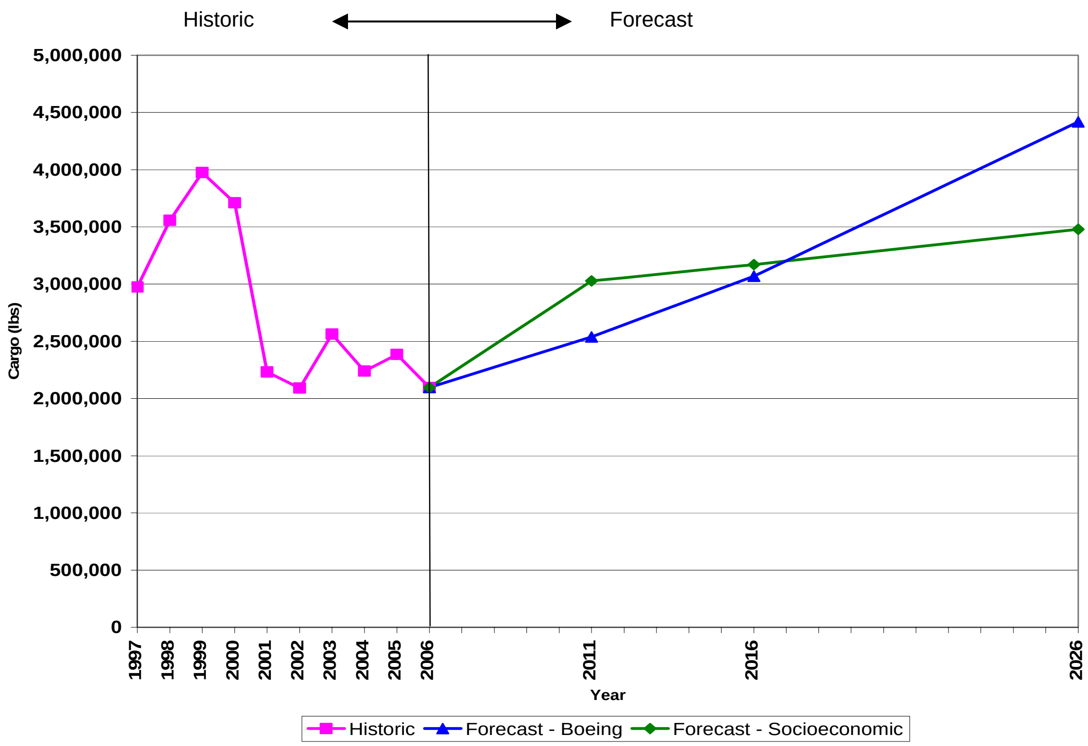
5.4 Air Cargo Forecast – Method Comparison and Preference

Table 2-19 and **Graph 2-4** present a comparison of projected air cargo activity based on the two different methodologies.

The Boeing method gives the preferred forecast. Boeing's information is considered extensive and well-based, and is generally accepted by the aviation industry. Although higher than the socioeconomic forecast, the Boeing air cargo projections are in line with what is expected at EUG.This is further justified by improvements being made at the Airport to support additional air cargo activities more efficiently.

Table 2-19: Air Cargo Forecast – Comparison			
Year	**Historic**	**Boeing**	**Socio-economic**
Historic			
1997	2,974,533		
1998	3,556,740		
1999	3,974,273		
2000	3,710,254		
2001	2,231,811		
2002	2,091,057		
2003	2,563,256		
2004	2,239,204		
2005	2,385,207		
2006	2,096,778		
Projection			
2011		2,538,810	3,027,282
2016		3,068,410	3,170,874
2026		4,416,957	3,479,066
CAGR 1997-2006	-3.81%		
CAGR 2006-2026		3.80%	2.56%
Sources: The Boeing Company, Mead & Hunt			

Graph 2-4: Air Cargo Forecast – Comparison



Sources: Airport management records, The Boeing Company, Mead & Hunt

Improvements to EUG's air cargo facility are underway, including a new structure, expanded ramp, and eased ground access to aircraft. This will consolidate air cargo from three different sites around the airfield into one centralized location. This will also accommodate an increased number of aircraft, and increased size of aircraft. Future limitations on EUG's cargo activity will likely be based on factors other than the cargo facility. It is expected that this enhancement of air cargo handling and processing will attract air cargo operations previously served by other nearby airports. It is also expected that this facility's modernization and efficiency will encourage those using other methods of transportation, such as road and rail, to move local cargo by air at EUG. These factors support a more aggressive forecast.

6. Peak Aviation Demand Characteristics

When projecting future activity levels at an airport, it is also important to identify and project peak period activity levels. These projections are important for various facility planning purposes. Since EUG, similar to many commercial service airports, must be designed to accommodate peak demand in some categories, these projections are important to subsequent facility planning tasks. Peaking characteristics are developed for passenger enplanements and aircraft operations using the following methodologies:

- Monthly enplanement and operations data, supplied by the Airport's Air Traffic Control Tower, are analyzed to determine peak month percentages relative to the year's total activity.

- The analysis indicated that the peak month for passenger enplanements, historically August, consists of 31 days. The various components of Airport operations have historically peaked in different months during the year, generally ranging from April to November. For planning purposes, it is assumed that the peak month for Airport operations also consists of 31 days. To derive peak month average day (PMAD) estimates for the various demand components at the Airport, peak month estimates are, therefore, divided by 31.
- Peak hour percentages are then applied to projected PMAD estimates to derive peak hour operational levels. The following section documents peak hour demand factors as they relate to passenger enplanements and aircraft operations at EUG.

Peak aviation demand numbers are presented in **Table 2-20**.

Table 2-20. Peak Aviation Demand Characteristics

Peak Factor		Passenger Enplanements	Aircraft Operations			
			Commercial	GA	Military	Total
2006 Actual	Annual	360,258	24,777	66,185	1,817	92,779
	Peak Month	37,922	2,478	6,619	182	9,278
	Peak Month Avg. Day	1,223	80	214	6	299
	Peak Hour	306	20	53	1	75
2011	Annual	412,873	17,874	66,393	1,763	83,796
	Peak Month	43,460	1,787	6,639	176	1,862
	Peak Month Avg. Day	1,402	58	214	6	62
	Peak Hour	350	14	54	1	16
2016	Annual	445,593	17,736	69,790	1,763	87,975
	Peak Month	46,905	1,774	6,979	176	1,955
	Peak Month Avg. Day	1,513	57	225	6	65
	Peak Hour	378	14	56	1	16
2026	Annual	557,736	19,920	81,216	1,763	102,179
	Peak Month	58,709	1,992	8,122	176	2,271
	Peak Month Avg. Day	1,894	64	262	6	76
	Peak Hour	473	16	65	1	19

Source: Mead & Hunt, Inc. - 2007

7. Projection Summary

Table 2-21 presents a summary of aviation demand projections for EUG. Included in this projection summary are passenger enplanements, aircraft operations, based aircraft, and air cargo.

Table 2-21:
Summary of Aviation Demand Forecasts

Year	Passenger Enplanements	Aircraft Operations	Based Aircraft	Air Cargo (lbs)
2006 (actual)	360,258	92,779	178	2,096,778
2011	412,873	83,796	205	2,538,810
2016	445,593	87,975	209	3,068,410
2026	557,736	102,179	220	4,416,957
CAGR 2006-2026	2.21%	0.52%	1.1%	3.8%

Note: CAGR = Compounded annual growth rate
Source: Mead & Hunt, Inc.

Chapter 3

Demand/Capacity Analysis and Determination of Facility Requirements

This chapter of the Eugene Airport Master Plan Update identifies airside and landside facility requirements. These requirements are identified by comparing the Airport's capacity or its ability to accommodate demand, to the Airport's demand levels and are analyzed in the following sections.

- Airfield Demand/Capacity Analysis
- Airfield Facility Requirements
- Passenger Terminal Facility Requirements
- Air Cargo Facility Requirements
- General Aviation Facility Requirements
- Fixed Base Operator (FBO) and Tenant Facility Requirements
- Support Facility Requirements
- Surface Transportation and Auto Parking Requirements
- Utilities

In certain functional/analytical areas, where the results from the 2000 Master Plan Update (2000 MPU) are still relevant, reference is made to that planning document reflecting such.

1. Airfield Demand/Capacity Analysis

Airfield capacity is defined as the maximum number of aircraft operations that an airfield configuration can accommodate during a specified interval of time, when there is a continuous demand for service (i.e., an aircraft is always waiting to depart or land). This definition is referred to as the ultimate capacity or the maximum throughput rate. The methodology used in this Master Plan Update focuses on annual service volume (ASV), which is used by the FAA as a quantifiable measure of operating capacity. The calculation and analysis of ASV is an important tool in the short- and long- range planning process at the Airport.

The recent reconfiguration of the airfield, from one with two runways that crossed each other, to a parallel configuration, results in a significant increase in annual capacity. According to FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, a parallel runway system with spacing of 4,300 feet between runways has a capacity of approximately 320,000 annual aircraft operations.[1] Based on projected aircraft operations of approximately 103,000 in 2026, approximately one-third of the airfields capacity is expected

[1] This number assumes a mix of Class C & D aircraft of between 21 and 50 percent of operations.

to be used in the long-term. Average aircraft delay for long-range planning is negligible – well under one minute. Based on this analysis, the airfield has adequate capacity to handle operations on a long-term basis.

Additional airfield planning, however, will explore the value of possibly adding acute-angle exit taxiways to the runway/taxiway system as more of a safety measure (to more rapidly get airplanes off the active runway).

2. Airfield Facility Requirements

Airfield facility requirements were developed for each of the Airport's following functional areas:

- Airfield Layout
- Design Standards
- Runway Length
- Runway Width
- Pavement Strength
- Taxiway System
- Airfield Safety Areas
- FAR Part 77 Surfaces
- Navigational Aids

2.1 Airfield Layout

Since the 2000 MPU, the airfield has been reconfigured to a parallel runway system, giving EUG the airfield capacity to accommodate projected aircraft operational demand through 2026.

2.2 Design Standards

Important factors in the design and planning of an airport include the role of the airport, as well as the operating requirements of the critical aircraft that use that facility. The FAA provides guidance for planning and design through FAA Advisory Circulars, which promote safety, economy, efficiency, and longevity of airport facilities.

For planning and design purposes, it is necessary to establish design standards applicable to operations and development at EUG. FAA Advisory Circular 150/5300-13, *Airport Design,* gives direction on determining the Airport Reference Code (ARC). The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of aircraft intended to operate at the airport.

The ARC has two components. The first component, depicted by a letter, represents the aircraft approach category, as defined by the aircraft approach speed. The second component, depicted by a Roman numeral, represents the airplane design group, as defined by the aircraft wingspan and tail height. Generally, aircraft approach speed relates primarily to runways and related facilities, while aircraft wingspan and tail height relate primarily to separation criteria involving runway, taxiways, and structures.

The Design Aircraft for Eugene is the Boeing 737-300, which has an ARC of C-III. Although currently not as common at EUG as in the past, the Boeing 737 has long been used as the critical design aircraft for EUG. The current air carriers at EUG use smaller regional jet aircraft. However, as the 737 remains a popular and abundant commercial aircraft in the United States, and as it has been the standard for so many of the airfield improvements, the 737 will continue to be used as the critical design aircraft at EUG. Lowering the design standards to satisfy only the current smaller aircraft would significantly limit EUG's ability to accommodate a nationally common commercial service aircraft.

As the ARC for EUG is C-III, other aircraft with an ARC of C-III operate at the airfield. The commercial passenger aircraft operating at EUG include the Q200 (C-III), Q400 (C-III), CRJ-200 (C-II), CRJ-700 (C-II), and EMB120 (B-II). Although EUG's ARC is C-III, the larger Boeing 757, having an ARC of C-IV, can (and does) operate at EUG on an infrequent basis.

2.3 Runway Length

Runway length requirements are determined by analyzing the needs of the airport's most demanding (current or projected) aircraft in the operational fleet. The recommended length for the primary runway is determined by considering a specific airplane that is forecast to use the runway on a regular basis or by considering a family of aircraft having similar performance characteristics. FAA standards consider the threshold to be at least 500 operations per year. Departures are considered in the runway length analysis since they typically require more runway length than landings.

Runway length requirements vary among aircraft. Generally, larger aircraft with faster speeds, longer wingspans, and greater weights require greater field lengths. Each aircraft operator and company has additional considerations to determine required runway length, including length of haul, percent of maximum loading, aircraft performance, pilot procedure, airport elevation, and ambient temperature. As these factors vary among aircraft operators, general runway lengths for common passenger and cargo aircraft are presented in **Table 3-1**.

As variations on these and other aircraft exist, which require other lengths, specific aircraft operators with specific aircraft types and requirements proposing to operate EUG should be considered individually to determine the adequacy of EUG's runway length.

Specific calculations for EUG's design aircraft, Boeing 737-300, show that 8,000 feet is required for a B737-300 operating at maximum take-off weight (see 2000 MPU for full analysis which remains relevant). However, similar calculations show that 9,000 feet is required for a B737-400 and B737-500 aircraft at maximum take-off weight. The length of primary Runway 16R/34L is 8,009 feet, and the length of parallel Runway 16L/34R is 6,000 feet. The number of (current and projected) aircraft needing longer than 8,009 feet is well under the required 500 operations per year. However, this should be regularly re-evaluated to monitor aircraft changes and potential need.

Table 3-1: Runway Length Data

Aircraft	Take-off Field Length	Landing Field Length	Airport Reference Code (ARC)
Airbus A300-600	7,600	4,700	C-IV
Airbus A310-300	7,400	4,950	D-IV
Airbus A319	4,800	4,700	C-III
Airbus A320	5,900	4,800	C-III
Airbus A321	7,100	5,200	C-III
Airbus A330-300	8,700	5,873	D-IV
Boeing 727	10,000	5,300	C-III
Boeing 737-300	6,500	4,580	C-III
Boeing 737-400	7,350	4,880	C-III
Boeing 737-500	5,880	4,450	C-III
Boeing 737-600	5,900	4,400	C-III
Boeing 737-700	5,500	4,700	C-III
Boeing 737-800	7,350	5,450	C-III
Boeing 737-900	7,900	5,450	C-III
Boeing 747-400	9,950	7,150	D-V
Boeing 757-200	7,700	5,100	C-IV
Boeing 757-300	8,650	5,750	C-IV
Boeing 767-300	7,550	5,200	C-IV
Boeing 767-400	10,850	6,250	C-IV
Boeing 777-200	8,450	5,100	D-V
Boeing DC-9-40	7,410	4,070	C-III
Boeing DC-9-50	8,300	4,230	C-III
Boeing DC-10-15	7,270	5,940	D-IV
Boeing DC-10-30	10,340	5,970	D-IV
Boeing MD-81	6,150	5,080	C-III
Boeing MD-82	7,550	5,300	C-III
Boeing MD-83	8,100	5,800	C-III
Boeing MD-87	6,100	5,080	C-III
Boeing MD-88	6,650	5,400	C-III
Boeing MD-90-30	6,500	4,565	C-III
Bombardier CRJ200	6,290	4,850	C-II
Bombardier CRJ700	6,072	5,119	C-II
Bombardier CRJ705	6,379	5,321	C-II
Bombardier CRJ900	6,379	5,321	C-II
Bombardier Q200	3,280	2,560	C-III
Bombardier Q300	3,870	3,415	C-III
Bombardier Q400	4,265	4,221	C-III
Embraer EMB120	5,118	4,528	B-II
Embraer ERJ135	5,770	4,460	C-II
Embraer ERJ140	6,070	4,530	C-II
Embraer ERJ145	7,450	4,590	C-II
Embraer ERJ170	5,220	4,180	C-III
Embraer ERJ175	5,690	4,300	C-III
Embraer ERJ190	6,913	4,567	C-III
Embraer ERJ195	7,386	4,708	C-III
Raytheon Beech 1900	3,813	2,790	B-II
Saab 340	3,830	2,413	B-II

Source: Aviation Week & Space Technology – 2006 Source Book

Runway 16R/34L's 8,009 feet is adequate to accommodate the aircraft types and categories of operations projected through 2026. However, the ability to lengthen Runway 16R/34L to meet the needs of aircraft in the projected fleet, operating at greater stage lengths, should be preserved. Accordingly, the Airport Layout Plan represents an ultimate Runway 16R/34L length of 9,200 feet. The need to improve runway length beyond 8,009 feet will be determined by the evolving operating fleet and passenger markets served by the air carriers.

2.4 Runway Width

The standard runway width for Design Group III aircraft with a maximum takeoff weight greater than 150,000 lbs. is 150 ft. The 150 ft width of both Runway 16R/34L and Runway 16L/34R is adequate to accommodate the aircraft types and categories of operations projected through 2026.

2.5 Runway Pavement Strength

Runway pavement strength at Eugene Airport is defined for single wheel, dual-wheel, and dual tandem aircraft wheel gear configurations. An aircraft's wheel gear configuration dictates how the aircraft's weight is distributed to the pavement, and determines pavement response to loading. The factors of gear configuration, tire contact areas, and tire pressure relate pavement strength to aircraft maximum takeoff weight. The March 15, 2007 FAA Airport/Facility Directory recurring publication lists EUG's runway weight bearing capacity as:

Weight bearing capacity		
Gear Configuration	**Runway 16R/34L**	**Runway 16L/34R**
Single Wheel (S)	75,000	105,000
Dual Wheel (D)	200,000	175,000
Dual Tandem (DT)	400,000	240,000

The weight bearing capacity of both Runway 16R/34L and Runway 16L/34R is adequate to accommodate the aircraft types and categories of operations projected through 2026.

2.6 Taxiway System

The standard taxiway width for Design Group III aircraft is 50 ft. Most taxiways at EUG are 75 ft, which allows them to handle B757 charter operations and other larger aircraft that occasionally use the Airport. Access taxiways with widths less than 50 ft exist, but they serve areas for smaller aircraft. As taxiways are improved and constructed, they should have the width of the taxiways to which they connect, and should also consider the size of aircraft intended to use the taxiway.

2.7 Design Surfaces

The FAA defines design surfaces, each having specific applicability, dimensions standards and use restrictions, which evolve as the FAA identifies nationwide issues with each surface. The FAA defines these design surfaces in Advisory Circulars, primarily in AC 5300-13, *Airport Design*. Design surfaces include Runway (& Taxiway) Safety Area, Runway (& Taxiway) Object Free Area, Object Free Zone, Runway Protection Zone, and Runway End Siting Requirement Surfaces. These surfaces are identified and evaluated on the Airport Layout Plan.

EUG continually works to meet the standards and maintain the requirements of these surfaces, reviewing criteria and compliance as part of annual FAA inspections. Airport improvement projects are designed and implemented to the most current standards.

2.8 FAR Part 77 Surfaces

Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, establishes airspace around an airport, and the standards for determining objects as hazards to air navigation, termed "obstructions". Potential obstructions include terrain and natural growth features, towers, structures, and construction equipment (permanent or temporary).

Under FAR Part 77, an aeronautical study can be undertaken by the FAA to determine if an object is a hazard to air navigation. However, there is no authorization permitting the FAA to limit object heights, or determine which objects should be lighted or marked. In an aeronautical study determination, the FAA acknowledges that state or local officials have control over the appropriate use of property beneath an airport's airspace.

Airspace around an airport is defined by several imaginary surfaces, as defined in FAR Part 77. As these imaginary surfaces are intersecting and inter-related, the most restrictive surface controls the permissible height of an object underneath multiple surfaces. These FAR Part 77 surfaces are identified and evaluated on the Airport Layout Plan. There are no FAR Part 77 obstructions.

EUG continually works to meet the standards and maintain the requirements of these surfaces. Airport improvement projects are designed and implemented to the most current standards.

2.9 Navigational Aids (NAVAIDs)

NAVAIDs provide guidance to pilots and aircraft during flight planning and operation. The type, mission, and volume of aeronautical activity, in association with airspace, meteorological conditions, and capacity data, determine the need and eligibility for NAVAIDs. NAVAID requirements are based on recommendations contained in FAA Handbook 7031.2, *Airway Planning Standard Number One*, and FAA Advisory Circular 150/5300-13, *Airport Design*. Three categories of NAVAIDs are discussed in the following sections.

Terminal Area NAVAIDs

Terminal area NAVAIDs provide control to aircraft to maintain an orderly flow of air traffic, prevent aircraft incursion, and support maneuvering. EUG's terminal area NAVAIDs include the Airport Traffic Control Tower (ATCT), Cascade Terminal Radar Approach Control (TRACON), Cascade Air Route Traffic Control Center (ARTCC), and Airport Surveillance Radar (ASR). These facilities are owned and operated by the FAA, and operate in the FAA office, located near the passenger terminal. The ASR is located west of Runway 16R/34L.

The ATCT controls aircraft on and in the vicinity of the airfield, the TRACON controls arrivals and departures, and the ARTCC provides enroute control. Pilot communication and control is transferred among these facilities during the different phases of flight. The ASR scans 360 degrees to identify air traffic within 60 nautical miles of the Airport, to provide more precise handling of aircraft in the immediate vicinity of EUG.

EUG also has a VHF Omni-Directional Range/Tactical Air Navigation (VORTAC) system. Located west of Runway 16R/34L, the VORTAC is used by pilots accessing EUG, and by those flying over at higher altitudes.

Other terminal area electronic NAVAIDs exist to provide instruction and weather information to pilots. The Automated Terminal Information Service (ATIS) broadcasts verbal instruction, notice, and weather information to pilots as they operate on the ground, taxiing between runways and terminal areas. The weather information is provided by the Automated Surface Observation System (ASOS) and Stand Alone Weather Sensor (SAWS) system, both located along Runway 16R/34L.

Electronic Approach NAVAIDs

Electronic approach NAVAIDs assist aircraft executing an instrument approach procedure. An instrument approach is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from enroute or local flight to a point from which landing may be made visually.

The availability of instrument approach procedures permits aircraft landings during periods of limited visibility. The extent to which approach minimums, in terms of ceiling and visibility, can be lowered is dependent on instrumentation available upon which the approach procedure may be developed, and on obstructions in the approach and/or missed approach areas. Instrument approaches can be restricted to certain aircraft and flight crews which have been certified to conduct the procedure with appropriate equipment.

The distinction between a precision and a non-precision approach procedure is that a precision approach provides the pilot with electronic glide slope (descent) and distance information, while a non-precision approach does not offer glide slope and may or may not offer distance information. Safety considerations and an airport's operational role determine whether the degree of approach capability.

All runway ends at EUG have at least a non-precision approach procedure. Runway 16L has a Category I instrument landing system (ILS), providing a precision approach procedure, with the ability to land with a decision height as low as 200 ft, and visibility not less than ½ mile. Runway 16R has a Category III-B ILS, providing a precision approach procedure, with the ability to land with no decision height and a runway visual range not less than 600 ft. This instrument approach capability minimizes the times that the airport must close due to poor visibility and adverse weather conditions.

These approach procedures and instrumentation are expected to be sufficient for operations at EUG through 2026. However, consideration should be given to implementing new technologies and procedures as they are developed and introduced to the aviation system.

Visual NAVAIDs

Visual NAVAIDs provide pilot guidance once the aircraft is within sight of the airport, and they aid aircraft maneuvering on the ground. EUG's visual NAVAIDs include:

- Runway 16R
  - High Intensity Approach Light System w/Sequenced Flashing Lights, Category II Configuration (ALSF2)
  - 4-light Precision Approach Path Indicator (PAPI), 3° glide path
  - Touchdown zone lights (TDZL)
  - Precision marking
- Runway 34L
  - Omni-Directional Approach Lighting System (ODALS)
  - 4-box Visual Approach Slope Indicator (VASI), 3° glide path
  - Precision marking
- Runway 16L
  - Medium Intensity Approach Light System w/Runway Alignment Indicator Lights (MALSR)
  - Glideslope, 3° glide path
  - 4-light PAPI, 3° glide path
  - Precision marking
- Runway 34R
  - Runway End Identifier Lights (REIL)
  - 4-light PAPI, 3° glide path
  - Precision marking
- Runway 16R-34L
  - Centerline lights (CL)
  - High Intensity Runway Lighting (HIRL)
  - Medium Intensity Taxiway Lights (MITL)
  - Runway Visible Range (RVR) - 3
- Runway 16L-34R
  - HIRL
  - MITL
- Airport
  - Rotating Beacon
  - Taxiway Centerline Reflectors
  - Lighted wind indicators
  - Segmented circle

Once the VASI on Runway End 34L has reached its economical and functional life, it should be replaced with a PAPI, as is a nationwide FAA trend.

Automatic Dependent Surveillance–Broadcast (ADS-B) is a new technology involving tranceiving of navigational data signals among aircraft, satellite, and ground-based systems. This technology is being implemented in the Eugene area, and is expected to significantly enhance aircraft navigation.

These navigational aids are expected to be sufficient for all-weather operations at EUG through 2026. As future flight technologies and equipment are developed and implemented, and traditional navigational aids are phased out of service, EUG should make the appropriate airfield and airspace upgrades to accommodate the latest flight procedures, and provide increased and more efficient access and service to airport users.

3. Passenger Terminal Facility Requirements

The 2000 MPU included a detailed space program effort for the passenger terminal building and it was decided to not redo that in this plan. Within the context of this Master Plan Update, passenger terminal facility requirements are addressed to include the following:

- Long-term terminal building expansion
- Near-term terminal building improvements
- Baggage security screening improvements

3.1 Long-Term Terminal Building Expansion

Long-term expansion of the passenger terminal building (on both the north and south ends of the terminal, as well as the arms of the concourse) is anticipated to follow patterns established in the 2000 MPU.

3.2 Near-Term Terminal Building Improvements

There are several enhancements to the passenger terminal building that would enhance the operational efficiency of the Airport and add needed facilities. Airport Administration desires to be located within the terminal building for customer service and other reasons related to efficiency. It would also make sense for TSA to relocate from its temporary facilities into the terminal building. And finally, an additional bag claim device should be added since there is currently only one and the airport has no backup. Each of these items could be easily accommodated by adding a southern extension to the terminal building, south of the current bag claim area. It may make sense for a multi-story addition to be placed in this area to accommodate all of these functions, and possibly include some space for public meeting rooms and for leasing to FAA or other tenants. Finally, space should be set aside for someday creating an emergency response center. Sizing and options for providing these facilities will be documented in Chapter Four, *Alternative Plan Concepts*.

3.3 Baggage Security Screening Improvements

This Master Plan Update project includes a task to develop alternative plan concepts for relocating the TSA baggage screening equipment and operations to accommodate a new in-line system using CT-80 scanning machines. Alternatives for providing this will be presented in Chapter Four, *Alternative Plan Concepts*.

4. Air Cargo Facility Requirements

Improvements to EUG's air cargo facility are underway, including a new structure, expanded ramp, and eased ground access to aircraft. This will consolidate air cargo from three different sites around the airfield into one location, accommodate an increased number and size of aircraft, and provide a location for charter aircraft boarding.

The new facility is located southeast of Runway End 34L, near the primary runway, and away from other airport operations - currently the location of an existing cargo apron. The cargo apron is being expanded from 13,067 sq yd, accommodating seven smaller aircraft, to 26,133 sq yd, accommodating seven larger aircraft. The apron will accommodate aircraft up to a Boeing 757.

The cargo operations are being centralized from around the airfield into a new building. The building will be home to cargo air carriers (UPS, FedEx, and DHL), passenger carriers with cargo (Alaska/Horizon), Lawrence Air Service FBO, and the Transportation Security Administration (TSA) cargo screening, which processes cargo before it is loaded onto aircraft. The 11,600 sq ft building has landside access for trucks and airside access for aircraft, bridged by secure bays for handling, sorting, and loading. The building is expected to accommodate the anticipated increase in TSA's security process and requirements, and likely an additional cargo carrier business.

The facility will also accommodate charter passenger loading/unloading from ground transportation, through processing, and aircraft – a service provided by Lawrence Air Service.

Ground transportation allows for circulation from Airport Road to the northern passenger area, and to the cargo handling area. There are loading docks for eight trucks on the east, and employee parking for approximately 20 automobiles on the north.

Future limitations on EUG's cargo activity will likely be by factors other than the cargo facility. It is expected that this enhancement of air cargo handling and processing will attract air cargo operations previously served by other nearby airports. It is also expected that this facility's modernization and efficiency will encourage those using other methods of transportation, such as road and rail, to move local cargo by air at EUG.

The site and apron can accommodate an expansion to this building, automobile parking, and truck loading, and also additional buildings. Consideration should be given to development of this area for future cargo and charter operations. This site is expected to accommodate cargo operations thru 2026.

5. General Aviation Facility Requirements

General aviation facility requirements have been developed for the following functional areas:

- Based Aircraft Storage
- Transient Aircraft
- General Aviation Automobile Parking

5.1 Based Aircraft Storage

Storage needs for general aviation aircraft typically depend on local weather conditions and the size and sophistication of the based aircraft fleet. Higher valued aircraft are more likely to be stored in larger, more secure conventional (box) hangars, and lower valued aircraft likely stored in smaller T-hangars, or tie-down on unsheltered ramps.

Through discussion with the Airport, FBO's, and tenants, an inventory of aircraft storage availability and occupation was assembled, and is presented in **Table 3-2**. Inventory assumptions include: each box holds one aircraft; box hangars are occupied.

Table 3-2. Existing Aircraft Storage (2006)

Location	Based	Tie-Down Positions		Box Hangars		T-Hangar Units	
	Aircraft	Available	Occupied	Available	Occupied	Available	Occupied
North Ramp		61	6	10		57	
South Ramp		68	3	23		59	
Lane Aviation		15	13				
East Ramp		0	0	3		14	
Hollis Lane Area		0	0	1		0	
Total	178	144	22	37	37	130	119
Distribution			12%		21%		67%

Of the 178 based aircraft in 2006, 156 (88%) are stored in hangars, and 22 (12%) on the ramps. Of the aircraft stored in hangars, 119 (76%) are stored in T-hangars, and 37 (24%) are stored in box hangars. Total percentage of aircraft storage distribution is 12% on ramp, 21% in box hangars, and 67% in T-hangars. Variations on this distribution applied to the forecasted number of based aircraft at EUG results in the storage requirements presented in **Table 3-3**.

Table 3-3. Aircraft Storage Requirements

Year	Total	Aircraft Storage Distribution		
	Based Aircraft	Tie-Downs	Box Hangars	T-Hangars
2006	178	22	37	119
2011	205	23	45	137
2016	209	23	48	138
2026	220	24	57	139

The existing tie-downs for 144 aircraft are sufficient to meet the expected 24 ramp-based aircraft in 2026. As the south ramp FBO and old ATCT area is reconfigured, consideration should be given to the abundance of existing tie-downs, and whether that is the best use of that apron. The East General Aviation Ramp (EGAR) has no tie-downs, but does have an aircraft parking area. Although it would likely not be required for capacity, but instead for convenience, consideration should be give to installing tie-down parking on the EGAR. The Hollis Lane Aviation area has no tie-downs, nor parking apron, as this area is to be developed with larger corporate aviation facilities.

The existing 37 box hangars are expected to need to be increased to 57 to accommodate based aircraft in 2026, as anticipated aircraft trends, such as Very Light Jets (which do not fit in standard T-hangars), are expected to drive demand. Both EGAR and Hollis Lane areas can accommodate additional box hangars. EGAR has two box hangar sites reserved or under development by a tenant, and Hollis Lane has one. Other sites should be considered.

The existing 130 T-hangar units are expected to need to be increased to 139 to accommodate based aircraft in 2026. The EGAR area has sites available for T-hangars. Consideration should be given to the appropriate size of aircraft to be housed, which will affect the size, spacing, and location of the T-hangars.

Each new development should consider the structure and ancillary facilities, including as airside/landside access, aircraft/automobile circulation and parking, aircraft/building separation standards, airport traffic control tower (ATCT) visibility, gates and fencing, and utility connection.

5.2 Transient Aircraft Storage

Transient aircraft are attracted to an airport by public events, tourist activities, business, and the availability of aircraft maintenance and FBO services. Transient ramp areas are used for loading and unloading passengers, for short-term parking utilizing the airport facilities, or for long-term parking for visitors or aircraft maintenance.

For general aviation aircraft, transient storage is provided by aircraft tie-downs. With a 1997-2006 average of 54% itinerant general aircraft operations, averaged to give daily transient aircraft at EUG, **Table 3-4** gives anticipated future general aviation aircraft storage demand.

Table 3-4: Future Transient General Aviation Aircraft Storage Requirements

Year	General Aviation Operations		Tie-Down Positions	
	Total	Itinerant	Required	Available
2006	66,185	35,740	49	122
2011	66,393	35,852	49	121
2016	69,790	37,687	52	121
2026	81,216	43,857	60	120

Source: Mead & Hunt

The available tie-downs are based on the 2006 tie-down inventory of 144, less those based aircraft using tie-downs. Even with the assumption that 100% of transient aircraft overnight at EUG (which is not the case), the existing tie-downs are expected to be sufficient through 2026. This does not consider particular events resulting in peak transient aircraft parking. Although it would likely not be required for capacity, but instead for convenience, consideration should be give to installing tie-down parking on the EGAR.

Transient aircraft parking for passenger aircraft is provided at the terminal passenger gates. Transient aircraft parking for cargo and charter aircraft is provided in front of the cargo facility. A change in operations resulting in significant increase number or frequency of transient aircraft storage should prompt consideration of additional storage sites and facilities.

5.3 General Aviation Automobile Parking

There are approximately 223 automobile parking spaces near general aviation and FBO hangars, to accommodate general aviation patrons.

It is common for some general aviation patrons to park their automobiles in their aircraft hangar while flying their aircraft, which effectively limits the demand for landside automobile parking. However, this is not considered in the determination of general aviation parking requirements, nor is it recommended, as it can lead to fire code issues.

The FAA recommends that one automobile parking space be provided for 400 general aviation operations. With 66,000 GA operations in 2006, and 81,000 projected in 2026, the 223 automobile parking spaces available for general aviation are expected to be adequate.

However, as new structures and facilities are developed, consideration should be given to the convenience of existing parking, and whether additional parking should be provided based on issues related to proximity.

Heavy Aircraft Parking

Much of the general aviation aircraft at EUG can be accommodated by the weight bearing capability of the airport's pavements. As heavier corporate and general aviation aircraft have become more common at EUG, pavement areas have been improved. There are three areas designated to serve heavier corporate and general aviation: one on the south ramp, near Flightcraft, and two on the north ramp, near Friendly Air Service. These areas have been strengthened for heavy aircraft parking, but the connecting pavements, for aircraft taxi and ground movement, are not necessarily able to support the increased loading. As pavements are rehabilitated, consideration should be given to the adequacy of their weight bearing capability. And, as heavier corporate and general aviation aircraft become more common at EUG, consideration should be given to strengthening the taxiway, taxilane, and parking areas intended to accommodate these aircraft.

Corporate and General Aviation Areas

Because of the difference in aircraft size, maneuvers, and movement frequency, it is common practice to separate commercial, cargo and corporate/general aviation aircraft. EUG has several airfield locations to serve corporate and general aviation.

North and South Ramps

The north and south ramps have long been home to corporate and general aviation. These areas are substantially developed, serving FBO's, tenants, and transient aircraft. Both ramps have box hangars, T-hangars, heavy aircraft parking areas, aircraft parking with tie-downs, and mobile fueling service. The south ramp is expected to become fully developed with the anticipated developments of Flightcraft and LAA. The north ramp is expected to become fully developed with the anticipated re-development of the old ATCT and Friendly Air Service facilities. Consideration should be given to the efficient layout of areas of increased pavement strength for heavy aircraft, and for the continual modernization of airport facilities in these areas.

East General Aviation Ramp

The East General Aviation Ramp (EGAR) is located on the east side of the airport, west of Taxiway B, at the north end of Northrop Drive. EGAR is east of the Airport terminal area, with ground access by entry from the south. Since the airfield reconfiguration with Runway 16L/34R, EGAR has become more prominent, as it is located adjacent to the parallel runway. EGAR is home to box hangars and T-hangars, and a self-fueling facility. EGAR has the ability to accommodate additional FBO, corporate and general aviation development. Consideration should be given to the efficient layout for future development, including concerns about ATCT visibility requirements.

Hollis Lane Aviation Area

The Hollis Lane Aviation Area is located on the north side of the Airport, north of Taxiway C, at the south end of Hollis Lane. The Hollis area is not contiguous to the Airport terminal area, and landside access is by entry from the north. Since the airfield reconfiguration with Runway 16L/34R, the Hollis area has become more prominent, as it is located in the central airfield, and provides proximity to both runways. The Hollis area is home to Airport maintenance and snow removal equipment storage, corporate hangars, and an on-airport business. The Hollis area has the ability to accommodate development of airport maintenance, corporate and general aviation, fueling and FBO service, and on-airport business facilities. Consideration should be given to the efficient layout for future development, so that facilities requiring airside access are appropriately sited among those with other needs.

Together, these areas have the ability to meet the corporate and general aviation demand expected at EUG through 2026.

6. FBO and Tenant Facility Requirements

EUG depends on the FBO and tenants, and intends to accommodate them as they operate and develop. The following were contacted regarding their expected facility requirements.

6.1 Flightcraft Services

Flightcraft Services operates on the south ramp in a 20,700 sq ft facility. Flightcraft expects to break ground in 2007 on a 3,600 sq ft Business Aviation Terminal, connecting to the west side of their existing hangar. In 2008, they expect to follow up with a 24,000 sq ft hangar, for larger aircraft, connecting to south side of the Business Aviation Terminal. The aircraft parking ramp and tie-downs near the hangar are owned by EUG, with fees collected by Flightcraft. Flightcraft makes extensive use of the ramp near its hangar, to accommodate service to customers.

Flightcraft Services has installed a self-service fuelling facility on the EGAR, and indicated they would consider developing an additional FBO facility to serve that area, as need arises.

6.2 Friendly Air Service

Friendly Air Service (FAS) operates on the north ramp in a 3,600 sq ft hangar and 2,000 sq ft office. Aircraft parking ramp and tie-downs near the hangar are owned by EUG, with fees collected by FAS. FAS has four aircraft, based on the tie-down parking area. As their current facility has reached the end of its useful life, FAS plans within the next 3-4 years to abandon their current facility and relocate to a new 6,000 sq ft hangar and 2,000 sq ft office. A new larger facility will accommodate increased and larger aircraft. FAS plans to operate out of their current facility until the new facility is operational, as to have no disruption in operations.

As most of the facilities in the north ramp frontal area, including the old airport traffic control tower, Friendly Air Service and Airport maintenance building, have reached the end of their useful economic life, the Airport plans to re-develop the north ramp area to better accommodate more modern facilities.

6.3 Heli-Trade

Heli-Trade operates on the south ramp in a 6,400 sq ft hangar, with adjacent 1,200 sq ft of outdoor storage north of their building. Heli-Trade uses ramp space in front of their building, and helipads located in the northwest part of the airfield. Heli-Trade expects to soon add 3,600 sq ft of adjacent outdoor storage on the north side of their building. Heli-Trade’s current location is sufficient for their operations, but relocation to another part of the airfield would be considered if expansion could not be accommodated at their current location, or if their current location was desired by another entity, or for another purpose. Also, as run-ups are performed on the helipads and south ramp, another site would be needed if the helipads went away.

6.4 Lawrence Air Service

Lawrence Air Service expects that their recent relocation from the old ATCT building, northeast of the terminal, to the newly constructed Air Cargo facility, near Runway End 34L, will accommodate their facility operation and service requirements for the foreseeable future.

6.5 Lane Aviation Academy

The Lane Aviation Academy (LAA) operates out of a 3-building office/classroom cluster in the north area, and a 2-building maintenance/return-to-service cluster in the south area, both located at the west end of Airport Road. LAA also has aviation program facilities on the main Lane Community College (LCC) campus. However, LAA is vacating its facilities on the main LCC campus, moving the aviation program entirely to the Airport complex, and expanding the education program. All improvements are expected to occur without modification to the Airport’s existing security/fencing configuration.

The south area consists of a 21,600 sq ft hangar, and a 3,780 sq ft hangar. The smaller hangar was recently acquired as ATCT visibility forced relocation of this building from the northern ramp area. LAA expects to increase the smaller hangar to 11,000 sq ft within two years. To accommodate aircraft maintenance, LAA also expects to add aircraft parking ramp and tie-downs for 12 aircraft to the south and west of the larger hangar.

The north area consists of a western office/classroom building (owned by the City), a middle office/classroom building, and an eastern flight technology/maintenance building, all connected by breezeways. LAA expects to add a 1,600 sq ft single story building, north of the middle building, within six years. The existing aircraft parking ramp and tie-downs have capacity for 15 aircraft located north of the buildings. This is sufficient as LAA has 13 based aircraft, all stored on the ramp, and their aircraft fleet is not expected to exceed 15.

6.6 Oregon Air and Space Museum

The Oregon Air & Space Museum (OASM) operates in the southwest airfield area, in 2 buildings totaling 25,000 sq ft of indoor storage. The facility also includes ramp space used to display aircraft, or to accommodate aircraft temporarily displaced for indoor event. OASM's collection has outgrown their hangars, and more indoor storage is required so additional aircraft can continue to be acquired and displayed.

OASM is considering a new larger 30,000 sq ft facility, housing aircraft and an educational facility, with meeting/class rooms. It is expected that this new facility will be located in the new development areas near Runway 16L/34R. Upon operation of the new facility, the current facility will be abandoned, making the site/facility available for other users/uses.

7. Support Facility Requirements

Requirements of ancillary facilities needed to support Airport operations have been developed for the following.

7.1 Aircraft Rescue and Firefighting

Requirements for aircraft rescue and firefighting (ARFF) facilities at airports with scheduled commercial air service are established in Federal Aviation Regulation (FAR) Part 139. Airports are indexed according to the size of aircraft. The rating at EUG is Index B, serving aircraft up to 126 feet long. This rating is expected to meet EUG's needs through 2026.

ARFF equipment includes an Oshkosh 1,500 gallon pumper, an Oshkosh 3,000 gallon pumper, a 500 gallon Rapid Response Vehicle (RRV), and a disaster trailer equipped with emergency rescue equipment. This equipment meets Index B requirements.

The ARFF facility is located south of the terminal building, adjacent to the ATCT. The facility has three bays to accommodate the ARFF equipment, with sleeping, kitchen, and lounge for facility staff. However, the facility is not configured for gender co-habitation, and as it was operational in the early 1980's, the facility is at the end of its economical and functional life. ARFF vehicles must also meet specified response times to runways. The current location just barely accommodates the specified response to the newly constructed Runway 16L/34R. A new modern facility, located more central to both runways, is needed to address the issues for both ARFF staff, and ARFF incident response time. The Airport Capital Improvement Program (ACIP) includes a new ARFF facility for 2008, per funding availability.

Although the primary use of the facility is to serve the Airport, the facility should be constructed to allow for possible conversion to joint use, for both Airport and community response, as the need arises. The new location should accommodate the initial facility construction, and also allow for the facility to be expanded.

Relocation of the ARFF facility makes available the existing facility and site for other use, to serve airport/aircraft operations, the adjacent FAA facility, the terminal building/environment (airside or landside), or FBO development.

7.2 Fuel Storage

EUG's fuel storage facility (fuel farm) is located on Lockheed Drive, adjacent to the Airport Administration building. The fuel farm has above ground tank storage for 60,000 gallons of Jet A, and 21,000 gallons of AvGas, and also has an open bay for expanded fuel storage. The fuel is brought onto the airport by tanker trucks traveling on surface roads, and transferred into the fuel farm. Mobile aircraft fueling vehicles draw fuel from the fuel farm, and ferry it to the aircraft on the airfield ramps. There are four mobile fuel vehicles, with a combined capacity of 12,500 gallons. EUG has a 100LL AvGas self-service facility is on the EGAR, from a 6,000 gallon above-ground tank.

The Airport is considering the relocation of the fuel farm, away from the current high traffic entrance to Airport Administration, TSA, FBO, Airport business and hangar area, to a location that can better accommodate ground access/service by delivery trucks, and to a location that can better accommodate expansion. This relocation would make the current site available for other users. The current location has room for an additional 10,000 gallon tank, which would likely be needed sometime during the planning period. If the Airport were to relocate the entire fuel farm, adequate room should be reserved to replicate the current facility, with additional capacity beyond the one – 10,000 gallon space it currently has.

7.3 Airport Maintenance and Snow Removal Equipment Buildings

The Airport maintenance facilities are located in the northern airfield area, north of Taxiway C, known as the Hollis Lane area. The Airport maintenance building is 9,200 sq ft, and houses vehicles and equipment for Airport service and landscaping. The snow removal equipment (SRE) building is 8,400 sq ft, and stores equipment to respond to winter weather. The 3,000 sq ft airfield electrical vault is also located in the maintenance area.

The Hollis Lane maintenance area has the space to accommodate the long-term facility development of Airport maintenance facilities. Consideration should be given to preserving this area for long-term Airport maintenance, and not making the area available for terminal, hangar, or Airport businesses.

As the ARFF operation relocates from their station south of the passenger terminal to a new mid-airfield location, the original ARFF facility will be available for other purposes. Consideration should be given to use of the original ARFF building for airfield maintenance. The three equipment bays would allow for storage and maintenance of Airport vehicles and equipment, and the facility's living quarters could serve airport maintenance personnel during winter weather, when snow removal efforts extend to long hours. Significant airfield maintenance facility development should occur in the Hollis Lane area, but the ARFF station is an available resource that can be easily converted to maintenance service.

Airfield maintenance is also supported by smaller facilities located around the Airport, which will eventually be shifted to the Hollis Lane area. The Hollis Lane airfield maintenance area and facilities are expected to be adequate through 2027.

7.4 Federal Aviation Administration (FAA) Facilities

The FAA facility, located near the passenger terminal, supports air traffic control operations equipment and personnel. Ground access to FAA is via the same route as the traveling public uses to access the passenger terminal. FAA personnel vehicles travel along the terminal entrance road, rental car, parking lots, terminal building, and service entrances to access the FAA facility. This introduces FAA vehicle traffic to the curbside terminal interface area, where passenger/vehicle loading and unloading occurs, which can become congested during peak times of activity. The FAA facility could be more conveniently accessed if served by a more direct route. A direct route would also remove FAA facility traffic from the curbside terminal interface area. While this is not a major issue, consideration should be given to alternative access to the FAA facility, if it can be done economically.

The implementation of a separate roadway would likely require a reconfiguration of the FAA entrance and parking lot, and include a barrier to separate the terminal circuit roadway from this new service road. A direct route connecting the southwestern area of the terminal building to western Airport Road/Boeing Drive could also serve other Airport needs. Deliveries to the terminal area requiring airside access would follow a new direct route, avoiding the curbside terminal interface area.

FAA often receives deliverables via truck/trailer, which might be better served with a new direct access roadway. However, consideration should be given to delivery to FAA from the airside ramp. This would likely require modification to the fence surrounding the FAA facility, to include an additional gate. Although this routine would likely require coordination with Airport security and operations, FAA delivery access by airside would prevent delivery traffic from having to pass thru curbside terminal interface area to reach the FAA facility.

The FAA's on-airport facility is nearing capacity, and additional operational space is needed. The FAA also operates an off-airport facility (in Eugene), which services navigational equipment and facilities located near Eugene. The FAA may consider relocation of this facility to on-airport, to consolidate efforts. Consideration should be given to better accommodation of FAA operations, offices, and equipment maintenance.

7.5 Aircraft De-icing

Aircraft de-icing is a common procedure for maintaining safe cold-weather operations. Proper collection, containment, processing, transfer, disposal, and recycling of the de-icing agent (liquid) are environmental concerns, both locally and nationally. De-icing involves the application of a liquid to the aircraft's exterior by pressurized equipment. At EUG, de-icing is generally not performed at the gate, as de-icing methods are such that liquid overspray is not desired on other vehicles and equipment found near the terminal, nor on the ground (making conditions slippery and resulting in less safe worker conditions). Accordingly, a dedicated containment system should be installed at a designated de-icing area. The proper location of the de-icing area should consider aircraft size, ground movement, taxi routes, adjacent facilities, containment travel route to processing, and siting requirements and location of processing and transfer system.

8. Surface Transportation and Auto Parking Requirements

An analysis of existing surface transportation and auto parking capacity at EUG has been conducted to determine future requirements. The analysis is comprised of the following components:

- Airport Circulation
- Terminal Curbfront
- Auto Parking
- Airport Access

8.1 Airport Circulation

The entrance to EUG, and to the Airport's roadway system, is located at the west intersection of Airport Road and Green Hill Road, eight miles northwest of downtown Eugene, where Airport Road from the east connects to Green Hill Road from the south. Continuing on Airport Road becomes Douglas Drive, the main route into the Airport. Douglas Drive becomes a one-way loop road, serving the passenger terminal, public (and overflow) parking, rental car parking and service, ARFF facility, and FAA facility, and connects back to itself.

Douglas Drive also connects to Lockheed Drive and Northrop Drive. Lockheed Drive diverts west from Douglas Road to serve the fuel farm, Airport Administration, TSA, FBOs, employee parking, north corporate and general aviation area, and on-airport businesses. Northrop Drive continues north, as an extension of Douglas Drive, to serve the East General Aviation Ramp (EGAR), and ends at a controlled Airport gate.

From the east intersection of Airport Road and Green Hill Road, where Green Hill Road diverts north from Airport Road, Green Hill Road continues to the north, and connects to Hollis Lane. Hollis Lane diverts south from Green Hill Road, to serve the Hollis Lane Aviation Area. Hollis Lane intersects with Awbrey Lane, which spurs east and west to serve airport maintenance, corporate and general aviation, and on-Airport businesses. Hollis Lane and the Awbrey Road spurs end at controlled Airport gates.

Airport Road diverts west from its intersection with Douglas Drive, to connect to Boeing Drive, the Air Cargo Facility, LAA, and Grumman Drive, and ends at a controlled Airport gate. Boeing Drive diverts north to serve FBOs, OASM, the south corporate and general aviation area, and on-airport businesses. Grumman Drive diverts north from Airport Drive to serve LAA, the south corporate and general aviation area, and on-airport businesses, and connects to Boeing Drive.

8.2 Terminal Curbfront

The curbfront provides the interface between the terminal and the circulation system. At EUG the curbfront is a linear, single-level system with two through lanes and one curb lane where both arrival and departure activities take place. In advance of the terminal curbfront, there is a single-lane pull-out roadway with parking bays located between the curbfront roadway and the parking areas that is used by taxis, hotel shuttles, and buses.

Demand for terminal curbfront is typically related to annual enplanement levels. Planning standards indicate a ratio of approximately 1,000 annual enplanements per linear foot of curb frontage. With current annual enplanements at approximately 360,000, this ratio indicates that the existing 525 feet of curbfront is adequate at present. However, the annual enplanements are projected to increase to above 525,000 sometime between the 2016 and 2026, indicating a need for some type of improvement. Chapter Four, *Alternative Plan Concepts*, will explore ways of assuring adequate terminal curbfront. This may include a physical expansion of the curbfront, enforcement of dwell times, or other methods for achieving the desired result.

8.3 Auto Parking

EUG automobile parking consists of public, rental car, and employee parking areas. Public parking consists of short- and long-term parking, and remote overflow parking, all accessed by Douglas Drive. Rental car parking consists of separate ready/return and storage/service lots, both accessed by Douglas Drive. Employee parking consists of a dedicated lot for Airport employees, and a lot shared with other Airport services, both accessed by Lockheed Drive.

Public Auto Parking

EUG has a high percentage of originating passengers, most of which use private automobiles instead of public transportation to travel to the Airport, resulting in a demand on Airport public parking.

Public parking areas, accommodating air travel passengers, are located at grade level in front of the terminal building, within the Douglas Drive loop roadway. There are 241 spaces in the short-term lot, located nearest the terminal building, behind the rental car ready/return lot. There are 714 spaces in the long-term lot, located adjacent to the short-term lot. Both lots are filled on a first-come, first-served basis. A remote lot with 585 spaces, located east of Douglas Drive, is provided for overflow from the short- and long-term lots. Use of the remote lot has been increasing steadily, with peaks occurring during holiday seasons. Combined, these lots accommodate 1,540 automobiles.

The number of auto parking spaces needed to accommodate current and projected demand is estimated using a planning ratio relating parking spaces to enplanements. Based on FAA Advisory Circular 150/5360-13, *Planning and Design of Airport Terminal Facilities*, up to 3,300 parking spaces are required per million enplanements. **Table 3-5** presents the expected demand using this rate.

Table 3-5: Public Automobile Parking Requirements

Year	Passenger Enplanements	Public Automobile Parking	
		Required	Available
2006	360,258	1,189	1,540
2011	412,873	1,362	
2016	445,593	1,470	
2026	557,736	1,841	
Contingency	700,000	2,310	

Based on full utilization of the overflow public parking lot, the 1,540 available parking spaces are expected to be sufficient through 2016, but 300 additional spaces are expected to be required by 2026, and 770 additional spaces (beyond the existing number) are required under the Contingency Demand scenario.

As mentioned above, 585 parking spaces (38 percent of the total parking spaces) are located in a remote lot across Douglas Drive. This lot requires the use of a shuttle for passengers to access the terminal. The use of this remote lot during peak periods, winter and spring holidays, has become more common, which indicates that the 955 parking spaces in the main lots close to the terminal are at capacity during those periods. A study of parking records indicates that parking during the peak period is approximately 22 to 25 percent higher than average when the remote lot is being used. Because of the cost of operating the remote lot and its inconvenience to passengers, it is recommended that the parking areas closer to the terminal be expanded so that the use of the remote lot can be limited to periods of peak usage.

Options for providing short- and long-term public auto parking (including possible continued use of an overflow lot), will be explored and considered in Chapter Four, *Alternate Plan Concepts*.

Rental Car Parking

The four rental car agencies operating in the passenger terminal share in the use of the Airport's rental car facilities. Rental car parking is distributed between two functional areas: a ready/return lot and a storage/service lot. The ready/return lot is located across Douglas Drive from the passenger terminal. The storage/service lot is located on the north end of passenger parking, within Douglas Drive loop roadway. There are 144 spaces in the ready/return lot, and 115 spaces in the storage/service lot, which also has service and cleaning facilities. These lots and facilities are well utilized and near capacity, and additional service facilities are desired.

The need for rental cars can be correlated to passenger enplanements, to forecast demand, as shown in **Table 3-6**.

Table 3-6: Rental Car Parking Requirements					
Year	Passenger Enplanements	Rental Car Parking			
		Return/Ready		Storage/Service	
		Required	Available	Required	Available
2006	360,258	108	144	144	115
2011	412,873	124		165	
2016	445,593	134		178	
2026	557,736	167		223	
Contingency	700,000	210		280	

Source: Mead & Hunt

The 144 available return/ready spaces are expected to be sufficient through 2016, but 23 additional spaces are expected to be required by 2026, and 66 additional spaces will likely be needed under the Contingency Demand scenario.

The 115 available storage/service spaces are currently insufficient. 29 additional spaces are required today, 108 are expected to be required by 2026, and 165 additional spaces will likely be needed under the Contingency Demand scenario.

Improvements to the ready/return lot should be in the existing location, as it is convenient to pedestrians and vehicles accessing the passenger terminal. As rental car storage/service lots and facilities are added/expanded, consideration should be given to abandoning the current site and relocating them to another part of the airfield that can accommodate their operation and long-term expansion. The south airfield area, along the east-west section of Airport Road, is likely an appropriate site. Relocation of the storage/service lot out of the terminal area will make the site available for public, rental car ready/return, or employee automobile parking.

Options for providing rental car parking will be explored and considered in Chapter Four, *Alternate Plan Concepts*.

Employee Parking

The employee parking area consists of two adjacent lots north of the terminal area, accessed by Lockheed Drive. One lot with 117 spaces is assigned to Airport employees. The second lot has 48 spaces that are used also by Airport Administration, TSA, FBO, north corporate and general aviation area, and on-airport businesses.

It is estimated that a 20 percent increase in employees will be sufficient to meet the needs of the Airport over the study period. An increase in employee parking spaces of 20 percent (for a total of 140 spaces) has been included in the parking requirements for the baseline growth conditions. Since the Airport employee parking area is commonly full, increased parking should be planned for in the near-term.

As the north ramp FBO and old ATCT area is reconfigured for modern facilities and utilization, consideration should be given to the adequacy of the automobile parking in this area.

8.4 Airport Access

Ground access to the Airport is primarily by Airport Road from State Highway 99. Reconfigured as part of Runway 16L/34R improvements, Airport Road becomes Douglas Drive, and connects to Lockheed Drive, Northrop Road, and Airport Road. This network leads into the core of the airfield, providing passengers, pilots, tenants, and employees a direct route to their airport facility. Before this reconfiguration, many stops, starts, and slowed turns were required to reach the airfield. This improvement now provides access to the Airport with no stops for most users. Access to the Hollis Lane area requires travel on Green Hill Road, which was also reconfigured with Airport Road. Traveling north from its intersection with Airport Road, Green Hill Road follows Runway 16L/34R to intersect with Hollis Lane, which accesses the Hollis Lane area, in the northern portion of the airfield. The Airport's new access road system is expected to accommodate vehicle traffic and airport access through the planning period. Alternatives for expanding auto parking, however, may have an impact on the Airport access roadway. Issues related to potential expansion of auto parking and possible impacts on the roadway will be treated in an integral manner in Chapter Four, *Alternate Plan Concepts*.

9. Utilities

One of the tasks in this Master Plan Update is to provide the City of Eugene with consolidated utility maps of the Airport. This is being accomplished as part of an extended inventory effort using a combination of "as-construct" drawings and field verification. The new maps being developed as part of the aerial photogrammetry work also being completed under this Master Plan Update contract will be used as base maps.

The following utilities are addressed in this effort:

- Domestic water
- Sanitary sewer
- Storm drainage
- Natural gas
- Electric
- Telecommunications

This chapter of the Eugene Airport Master Plan Update presents information related to the development and evaluation of alternatives for the improvement of Eugene Airport. It is based on the facility needs documented in Chapter 3, *Demand/Capacity Analysis and Determination of Facility Requirements*.

Presentation and discussion of alternative plan concepts are presented for the following sections:

- Evaluation Criteria
- Airfield Facilities
- Terminal Facilities
- Special Airport Facilities
- Automobile Parking and Circulation
- Airport Property

For some facility requirements identified as being needed for the Airport, there are several alternatives that have been developed for consideration. For other facility needs, there is a single, logical development path outlined. Following are descriptions of the alternative improvement scenarios developed, and advantages of those alternatives.

1. Evaluation Criteria

The airport development scenarios and alternatives are evaluated based on the following criteria:

- The movement of aircraft, both in the air as they arrive and depart runways, and on the ground as they taxi between runways and terminal areas, is a key factor in considering development. Safety to the airport and aircraft is a priority for development. Even some improvements which may not affect aircraft operations may affect visibility requirements.
- The ability of an improvement to be compatible with ongoing airport operations and to be implemented without significant disruption to current airport facilities is also a priority. Long-term compatibility is also a factor, as airport improvements generally take time and several funding cycles to implement, and are often expected to perform their role and provide their service for an extended period. The ability of a facility to be expanded is also considered.

- The accessibility and convenience of airport users, including pilots, passengers, and businesses were evaluated, as these features are important to the perception of the airport. The effects an improvement may have on the environment, and the relative cost of improvement alternatives, are also critical aspects.

Those improvements requiring the selection of a preferred alternative are presented in terms of the advantages and disadvantages of each alternative relative to each other, so their comparison can direct the selection of a proposed action.

2. Airfield Facilities

This section of the document presents discussion and evaluation of various facility needs related to the Airport's airfield facilities, including runway, taxiway, and other movement areas.

The airfield capacity of EUG exceeds the forecasted demand, largely because of the parallel runway configuration, and the extensive taxiway system (see **Exhibit 4-1**). These features have been developed from the implementations of planning, construction, and operational efforts occurring over the life and history of the Airport. Improvements to airfield pavements should be coordinated with Eugene's Airport Control Tower.

2.1 Runways

Runway 16R/34L is currently 8,009 feet, which accommodates aircraft currently operating at EUG and those projected through 2026. However, the ability to extend the runway to 9,200 feet has been developed as part of previous Master Plans, and should continue to be preserved, so that the need can be accommodated once it is justified. This additional length has been shown to be attained by extending the runway south. The southern extension of Runway End 34L is able to be accommodated primarily on land owned by the Airport. Extending south would also prevent the need to relocate the elaborate Category III Instrument Landing System currently serving Runway End 16R.

Runway 16L/34R is currently 6,000 feet, which is the originally constructed length. This 6,000-foot length accommodates the aircraft fleet for which it was intended. However, situations may arise resulting in the primary Runway 16R/34L being offline, and parallel Runway 16L/34R being the only available runway. These situations may be temporary and emergency in nature, or more likely, are to be extended periods necessary to accommodate scheduled maintenance of the primary runway.

Scheduled passenger service aircraft generally operate on primary Runway 16R/34L, due to the runway length, aircraft instrumentation, navigational aids, and proximity to the terminal. Regularly scheduled maintenance to this runway requires adequate time and maneuverability of ground crews and equipment, which is best offered with the runway being closed. The closing of the primary runway forces aircraft traffic to the parallel runway. Because of the shorter length of the parallel runway, not all aircraft are able to operate on the parallel runway under the same conditions as they operate on the primary runway.

Exhibit 4-1
Runways & Taxiways

The runway length required by aircraft depends on factors such as weather, distance of haul, and weight, which consists of passenger, cargo, and fuel load. Reduction in distance of haul and weight can result in reduction of required runway length. However, airlines have minimum operational policies, and in some cases, do not operate aircraft in certain situations and below certain runway lengths. It is expected that extending Runway 16L/34R from 6,000 feet to 6,500 feet will allow a greater range of air carrier aircraft to operate on this runway, and prevent scheduled commercial service from having to cease service at EUG, and divert to other airports.

There are two options to extending Runway 16L/34R: one is to the north, the other to the south. Both options require relocation of existing facilities, and construction of new ones, including 500 feet of runway and extending the connecting taxiway. However, it is expected that the length of 6,500 feet can likely be attained without excessive mitigation or effect on the airport and adjacent facilities.

Runway 16L/34R Extension Alternative 1 (see **Exhibit 4-2**)

Runway End 16L has a Precision Instrument Approach Procedure, which guides aircraft to the runway end during inclement weather. The navigation and instrumentation is provided to aircraft by an Instrument Landing System (ILS). The ILS consists of an approach light system and two signal transmitting devices (a glide slope and a localizer). These three elements are specifically located relative to the runway end, such that if the runway end is moved, the ILS components must also move. These ILS components have associated critical areas, required to be free of objects that may interfere with the signal transmission and view of lights. Extending Runway End 16L would require the relocation of the approach light system (Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR)) and the glide slope antenna.

The Precision Instrument Approach Procedure is established by the FAA, and disseminated to pilots through recurring FAA publications. If Runway End 16L were to be relocated, the procedure would require adjustment in the FAA's system and the FAA's publications would need to be edited and re-published, so that aircraft would be directed to the new runway end.

As Runway End 16L is extended north, the associated FAA-defined design surfaces also shift north. Several of these surfaces would be contained on airport property, and would likely not be an issue. However, the aircraft approach surface would shift to the north, closer to utility poles and towers along State Route 99, and to those on Fiddler's Green Golf Course. The structures would likely require removal, relocation, or adjustment to provide an unobstructed approach path for aircraft. It is expected that the relocated approach surface would provide adequate clearance over Green Hill Road.

The Precision Instrument Approach Procedure serving Runway End 16L has with it a large Runway Protection Zone (RPZ), another FAA-defined design surface. The RPZ would shift north such that a significant portion of it would encompass Fiddler's Green Golf Course. Although a golf course may under certain situations be considered compatible land use within an RPZ, it is generally desired and advantageous for the airport to control land within the RPZ. This may lead to the acquisition of this property in an effort to maintain safety in the air and on the ground.

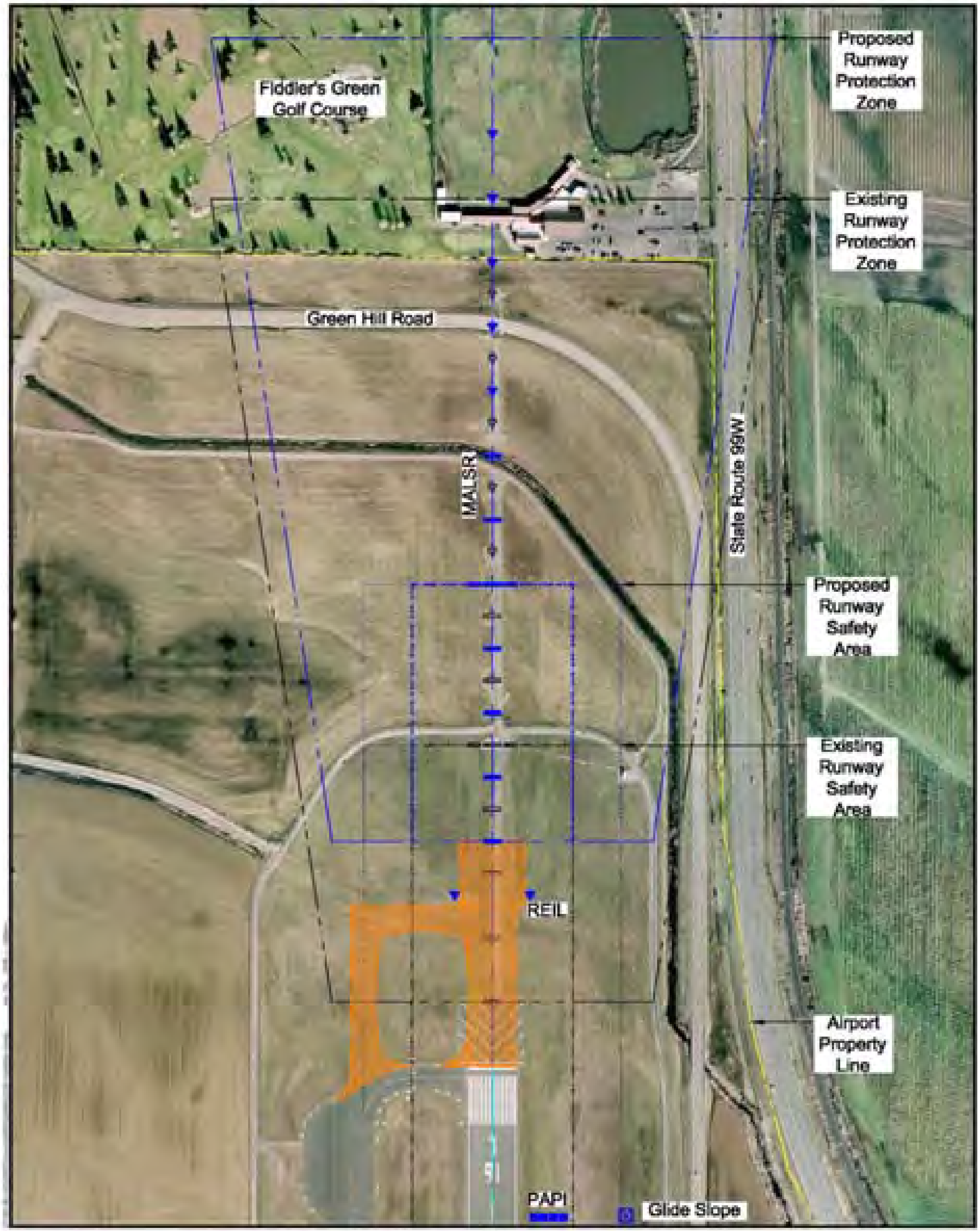


Exhibit 4-2
Runway 16L/34R Extension Alternative 1

Runway 16L/34R Extension Alternative 2 (see **Exhibit 4-3**)

Runway End 34R has a Non-Precision Instrument Approach Procedure, which guides aircraft to the runway end during bad weather, but not to minimums as low as those provided by the ILS on Runway End 16L. The procedure serving Runway End 34R is not associated with on-field navigational aids, signal transmitters, or lighting systems. However, one component of the ILS serving Runway End 16L is located adjacent to Runway End 34R, and would require relocation if Runway End 34R were to be relocated.

The Non-Precision Instrument Approach Procedure serving Runway End 34R is also managed by the FAA in the same manor as the procedure serving Runway End 16L. If Runway End 34R were to be relocated, the procedure would require adjustment and edit, so that aircraft would be directed to the new runway end.

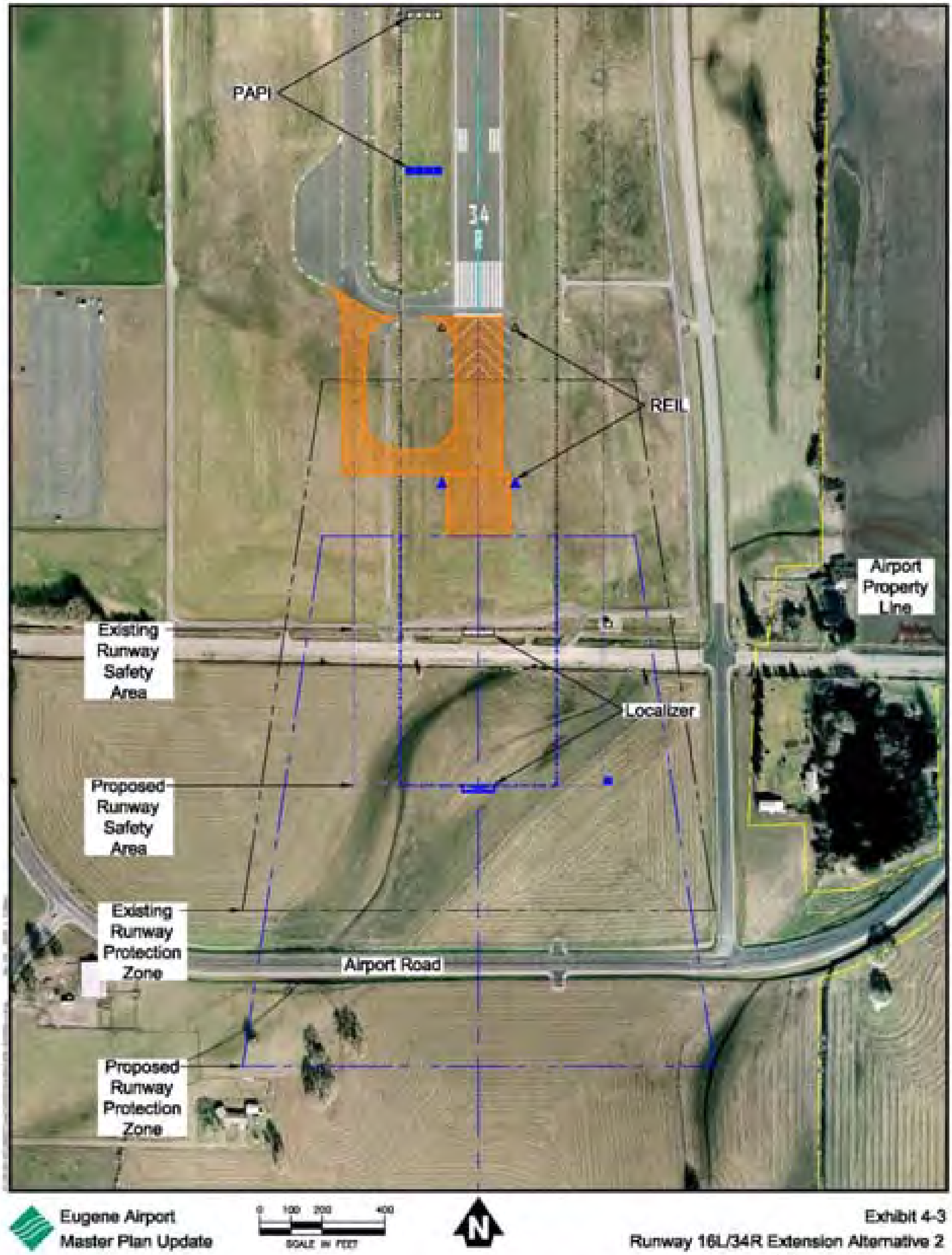
As Runway End 34R is extended south, the associated FAA-defined design surfaces also shift south. These surfaces would be contained on airport property, and would likely not be an issue. It is expected that the relocated approach surface would provide adequate clearance over Airport Road.

The Non-Precision Instrument Approach Procedure serving Runway End 34R has with it a Runway Protection Zone (RPZ). This RPZ is not as large as the RPZ associated with Runway End 34R. Even though the Runway End 34R RPZ would shift south, it would still encompass mostly airport property, such that additional land and land use restrictions would likely not be required.

Comparison

Neither of the extension options is expected to require the relocation of public roads. Both options require the same amount of pavement for runway, taxiway, and blast pad. Both require similar adjustment to existing airfield lighting, signage, and marking. Both require relocation of visual navigational aids (Runway End Identified Lights (REIL) and Precision Approach Path Indicator (PAPI). The significant difference, from a construction aspect, is the relocation of the glide slope antenna and approach light system required by the extension to Runway End 16L, compared to the relocation of the localizer antenna array required by the extension to Runway End 34R. Each of the ILS components are co-located with an equipment shelter, and accessed by secured (gated) service roads. These elements must also be considered in the relocation of the ILS components.

Of the three ILS devices (MALSR, localizer, and glide slope), the MALSR has the most components, and covers the greatest area on the ground. Approximately 15 light standards (poles), spread over a distance exceeding 2,000 feet, would require relocation. A localizer and a glide slope are each single features with the significant components of each device being in primarily one location. Only the northern runway extension of Runway End 16L requires relocation of the MALSR. With this option, the MALSR would shift onto the Fiddler's Green Golf Course, and conflict with existing structures, which would have to be removed. This supports Alternative 2 as the preferred alternative.



Eugene Airport Master Plan Update

Exhibit 4-3
Runway 16L/34R Extension Alternative 2

The ability to control the land within the Runway Protection Zone (RPZ) is also a significant factor in a runway extension. A northern extension of Runway End 16L places the RPZ on private property, which may require acquisition to control. A southern extension of Runway End 34R keeps the RPZ on airport property. This supports Alternative 2 as the preferred alternative.

The amount of obstruction removal is also a factor. A northern extension of Runway End 16L shifts the approach surface into conflict with existing poles and towers. A southern extension of Runway End 34R is not expected to introduce obstructions. This supports Alternative 2 as the preferred alternative.

As a runway end is extended, the range of visibility required by the Airport Traffic Control Tower (ATCT) increases. Visibility requirements limit the airfield areas which can be developed with structures and parked aircraft, and affect the movement areas of aircraft. Both extension options would require setting aside additional land for ATCT visibility. However, a northern extension of Runway End 16L would require a greater area for ATCT visibility than a southern extension of Runway End 34R. In particular, the area between Hollis Lane and Taxiway B, north of Taxiway C, being reserved for aviation manufacturing, would be affected by the ATCT visibility requirements resulting from a northern extension of Runway End 16L. This supports Alternative 2 as the preferred alternative.

Third Alternative

A third option is to add runway length to both runway ends to attain the 500-foot increase, although such an option would likely not prevent the required relocation of the ILS components, nor the revision to FAA approach procedures and publications. Also, such an option is not expected to lessen construction nor ease facility implementation, both of which would be desired of any airfield improvement.

Environmental Factors

Other factors influencing the direction of runway extension may be presented as part of an environmental assessment, or similar documentation process. Environmental documentation considers specific details of an improvement, and provides opportunity for review and input from regulatory agencies and the public. It is expected that such an environmental process will be required prior to implementation of this runway extension.

Wetland Impact

Exhibits 4-2 and 4-3 show extended runways, Runway Safety Areas, and Runway Protection Zones for Alternatives 1 and 2, respectively. Areas within the extended runway for Alternative 1 were filled and/or mitigated for fill as part of the original runway construction. There would be some wetland impacts due to the expansion of the Runway Safety Area for Alternative 2. Alternative 1 would be preferable to reduce wetland impacts.

Implementation

Regardless of extending the runway north or south, the process of lengthening the parallel runway will likely require one of two actions. One option is to temporarily shorten the parallel runway's effective, usable length by relocating the runway threshold to safely accommodate the construction on one runway end, while aircraft continue to operate on the runway. Another option is to temporarily close the shorter parallel runway during construction, shifting 100% of the aircraft operations to the longer primary runway. The best course of action should be determined during the planning, environmental, design, and construction phasing of the project. The implementation of the extension should include consideration of additional details, and quantification of effects and impacts.

2.2 Taxiways

EUG benefits from an elaborate taxiway system, including full parallels to both runways, a midfield connector (a portion of which accommodates two simultaneous aircraft), and several routes to terminal areas, which provide direct travel among touchdown, terminal, and take-off.

One feature expected to increase the efficiency of aircraft ground movement is the addition of acute angle (or “high speed”) taxiway connectors. Taxiway connectors are the shorter sections of pavement bridging the gap between the runway and the parallel taxiway. These connectors have traditionally been configured to be at right angles (90 degrees) to the direction of the runway and taxiway, allowing an aircraft exiting the runway to turn either direction onto the parallel taxiway. However, a right angle connector intersection requires the aircraft to slow considerably, by wheel-braking and reversing the engines, loosing its momentum from touchdown. The aircraft then must increase engine power to accelerate across the connector, and then repeat the process to negotiate the second right-angle turn onto the parallel taxiway.

This abrupt and repetitious action between brake and acceleration negatively affects the efficient movement of the aircraft around the airfield. It results in a shift in the steady flow of the aircraft movement experienced by the onboard passengers, and also in wear on the aircraft. It also expends more fuel in reversing the engines to slow, thrusting the engines to connect, and thrusting again once on the parallel taxiway, resulting in increased exhaust emissions, and in increased noise from the revving engines.

The acute angle taxiway connector capitalizes on the motion and energy of the moving aircraft, as the pilot directs the aircraft gently from the runway onto the connector, and gently onto the taxiway, without significant change in direction or speed. It allows aircraft to more quickly exit the runway, making it available for other aircraft. It also encourages aircraft to take direct paths between runway and terminal.

Operators using EUG benefit from several existing acute angle connectors. Taxiways A4 and A6 allow for efficient transition off a runway by an arriving aircraft using the aircraft’s momentum. Taxiways A3, A7, and A8 are also acute angle connectors, but because of their location near the runway ends, are more conducive to direct routing than to steady aircraft movement, as there is not sufficient distance for an arriving aircraft to touchdown and exit the runway at A3, A7, and A8.

Improvement Alternatives

It may be beneficial to locate acute angle connectors either as a replacement of an existing right angle connector or as introduction of a new taxi route.

Primary Runway/Taxiway

Introduction of acute angle connectors north of A4 and north of A5 may help aircraft arriving on Runway End 34L to quickly exit to Taxiway A. A connection north of A5 would bridge the runway with Taxiway P. These improvements would ease travel between the primary runway and the midfield/Hollis Lane aviation area, an area which is planned and expected to develop with corporate aviation and aviation businesses.

Parallel Runway/Taxiway

Modification of the right angle connector B2, which bridges Runway 16L/34R with Taxiways C and B, to two acute angle taxiways (one from Runway End 16L, one from Runway End 34R) connecting to Taxiway C may provide better flow. This configuration is similar to the existing intersection of Taxiways C, M, and P. Or, a new connector south of connector B2, to connect Runway 16L/34R to Taxiways B and M may provide a similar pattern.

It may also be beneficial to have acute angle connectors among taxiways, taxilanes, and aprons, and not just runways, especially if aircraft circulation movements are commonly in one direction. Aircraft ground movements can be observed among aircraft, or can be established by the airport, to continue or result in efficient and direct paths. Not every opportunity for such a connector is considered as part of this Master Plan Update, but areas should be evaluated as traffic patterns are established and modified.

As parallel Runway 16R/34L is extended, parallel Taxiway B will also be extended to connect to the new runway end. The existing section of Taxiway B which connects to the existing runway end will remain in place to continue to serve as a connector and opportunity for aircraft to exit the runway. This existing taxiway connector, along with the new taxiway connector to the new runway end, will provide a taxiway coupler, allowing aircraft which have exited the runway to wait on the existing connector, while aircraft taxiing to the new runway end can travel to the new connector as they wait to enter the runway. This will prevent the aircraft from simultaneously entering the taxiway in conflicting directions. Pilots using primary Runway 16R/34L benefits from existing taxiway couplers on both runway ends. As this improved situation develops on the end of parallel Runway 16L/34R which is extended, it may be of benefit to introduce a taxiway coupler on the end of parallel Runway 16L/34R that is not extended. There is expected to be ample space for such an improvement, which will likely improve the ground circulation movement of aircraft on the eastern side of the airfield.

Additional Areas

Other taxiway connections, besides acute angle, may also benefit ground movements. For example, the introduction of a taxilane connecting the North Ramp to East General Aviation Ramp would prevent aircraft from having to enter ATCT-controlled movement areas, thereby easing ground movements, and freeing ATCT for other tasks.

The northern extension of the taxiway connecting Taxiway C to the Hollis Lane Aviation Area taxilane would give aircraft more direct connection to the primary runway, and to the terminal area. Extending north to Taxiway A gives direct access between the Hollis Area and Runway End 16R. Extending south, to Taxiway P and on to the terminal apron, gives direct access between FBO services and corporate aviation facilities. Direct taxiways increase efficient aircraft ground movements by minimizing taxiway time and distance.

As midfield development increases, the activity may be such that the extension of Taxiway M to Taxiway A would ease traffic currently carried by Taxiway C. This is especially the case if there is extensive simultaneous movement in both eastbound and westbound directions. Having only one midfield taxiway connecting both east and west sides of the airfield forces aircraft wanting to travel in one direction to wait until the one taxiway is vacant, or to find another more indirect route.

The extension of Taxiway C beyond its terminus at Taxiway A, on to connect with Runway 16R/34L, may provide direct access from midfield to the primary runway. Or it may be that such a connection conflicts with Taxiway A4, or is undesirable, in which case, it may be best to provide such connection only for surface vehicles, especially ARFF.

As new airport businesses and facilities develop, many may require direct taxiway access to support their function. As taxiway connectors are introduced, consideration should be given to the appropriate name/number designation, which may prompt renaming of adjacent taxi routes. Taxiway development and flow patterns should be coordinated with FAA advisory documents and Airport Traffic Control Tower personnel, and properly represented on the Airport Layout Plan before being implemented, so that standards and practices of safety and procedure are considered.

3. Terminal Areas

EUG has terminal areas serving cargo and charter aircraft, general aviation and corporate aircraft, and passenger aircraft. They each provide interface between landside and airside operations and services, and they each provide transfer of people and goods between transportation modes. This section addresses the improvements to each terminal area.

3.1 Main Passenger Terminal Area (see **Exhibits 4-4** and **4-5**)

The main passenger terminal area is the face of EUG to the local community. This is the destination to which the traveling public of the Eugene area comes to park their car, pick-up a friend, and embark on a flight. It is from where they depart, and to where they return. This section addresses improvements to the main passenger terminal building. Automobile parking for the main passenger terminal is addressed in Section 5 – Automobile Parking and Circulation.

Exhibit 4-4
Passenger Terminal Building Alternative 1

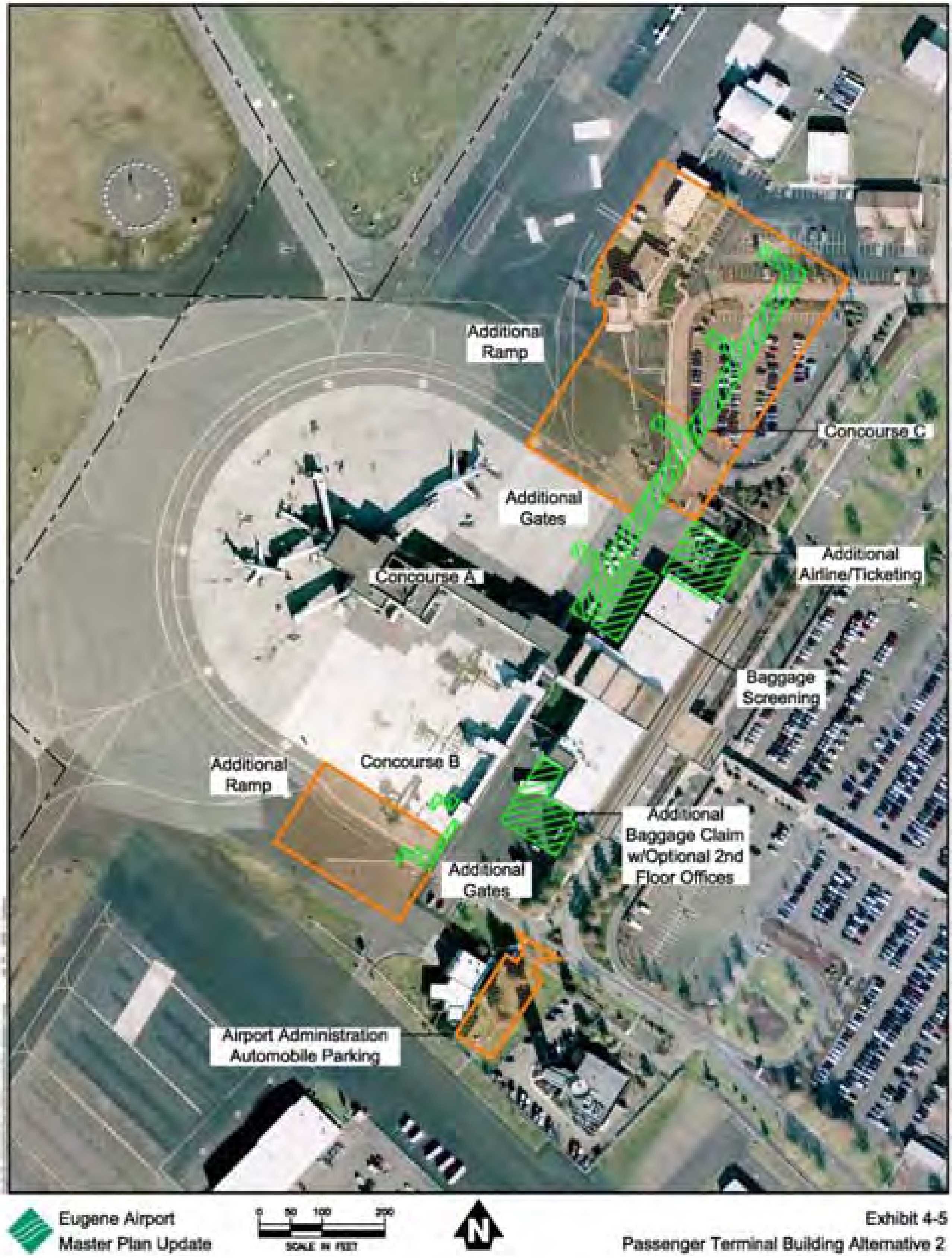


Exhibit 4-5
Passenger Terminal Building Alternative 2

Main Passenger Terminal Building

The existing terminal building is approximately 89,000 square feet and has 10 aircraft boarding gates, and in 2006 accommodated approximately 360,000 enplanements. Based on the long-term forecasted passenger enplanements of 700,000 annually, 14 gates (4 additional) and 100,000 square feet (11,000 additional) are expected to be required.

For discussion, development is separated into landside-passenger interface (airline ticketing, passenger and baggage screening, baggage claim, and airport administration), and airside-passenger interface (aircraft boarding gates). Additional services and businesses, such as rental car counters and offices, convenient shops, and restaurants, may also be desired, based upon the business opportunity. These facilities are not specifically being planned as part of this Master Plan Update; however it is assumed that increased space in the overall terminal, plus increased traffic, will offer opportunities for the development of more concessions. Other improvements (requiring additional square footage), such as additional security, public meeting space, and restrooms, should also be included in architectural design for overall terminal building expansion. Consideration of these items follows.

Landside-Passenger Interface

From the perspective of essential landside-passenger functions, the main passenger terminal building is home to airline ticketing and offices, passenger and baggage security screening, and baggage claim (carousel). A single, logical development option is presented for improvement of these facilities.

Airline ticketing and offices will expand to the north, as a continuation of the existing airline counter area. Original building design included the north wall as a “knock-down” to allow this incremental expansion to occur efficiently. This will likely require additional square footage, to the north of the existing building, where space currently serving as landscaping is expected to be available.

Baggage screening currently occurs in front of the airline ticketing and offices. The airport has evaluated relocating the baggage screening equipment, personnel, and process to an area out of the main public space and to a more discreet and protected area of the terminal building. This would return the current baggage screening to public space, and conceal the baggage screening process. Adding new square footage behind the airline ticketing and offices, along the back of the existing terminal building, is expected to be suitable for current baggage screening operations and related office space. This site would also likely allow for expansion of these operations as passenger and aircraft activity increase at EUG.

Passenger security screening will expand in its current location, which bridges the landside-passenger area with the airside-passenger area. Although expansion of security is not expected to extend beyond the existing limits of the terminal building, accommodation of expanded security may require some businesses being relocated within the existing terminal or into an expanded area. It is also prudent for the Airport to plan for the implementation of automated terminal exit lane security monitoring.

The existing baggage claim (carousel) is located in the southwest corner of the terminal building. This facility is to expand south, as a continuation of the existing baggage claim area. This will likely require additional square footage, to the south of the existing building. This area currently serves as the baggage loading area, and will require adjustment to baggage vehicle routes and loading locations, but the space is expected to be available. Again, the building was designed with this expansion in mind, and it remains a logical choice.

Airport administration is currently located in a temporary facility in the northern airfield area. At airports the size of EUG, airport administration is often located in the main passenger terminal building. This provides for more direct contact with airport tenants and the traveling public, and for increased customer service. As the terminal building is expanded for the improved baggage claim facility, it should include space for airport administration. These offices may be best located in a multi-story structure, above the baggage claim area, so that the main floor of the terminal is available to pedestrian movements. Consideration should also be given to providing public meeting space in this expansion, for public events such as airport open houses.

Along with the new airport administration offices, automobile parking for airport staff would need to be introduced near the new offices. This may best be located near the area of the current ARFF facility, south of the proposed airport staff offices. Once the new ARFF facility is operational, transition of a portion of the existing ARFF area to parking lot may be suitable. The existing structure, once vacated, may be temporarily used for airport-owned equipment storage, or for FAA equipment storage and offices. However, long term improvements should consider the removal of the former ARFF structure, and redevelopment for compatible use with terminal area activities.

Airside-Passenger Interface

From the perspective of essential airside-passenger functions, the main passenger terminal building is home to aircraft boarding gates. Two alternatives are presented for improvement of these facilities to increase aircraft boarding gates. Consideration should also be given to improvement of common areas, holding areas, queuing areas, and restrooms.

Passenger Terminal Building Alternative 1

One option to provide additional gates is to expand the main Concourse A to the northwest. This would extend the concourse structure onto area currently used for ramp, which would in turn require expansion of the terminal ramp to accommodate separation of aircraft taxiing around other aircraft parked at the expanded gates. Accordingly, the terminal area taxi-routes would also require adjustment.

Passenger Terminal Building Alternative 2

A second option to provide additional gates is to expand existing Concourse B to the southwest, and to add a new Concourse C to the northeast. This would extend the concourse structure onto area currently used for ramp and terminal employee automobile parking, and into the old ATCT and office building area. This option would also require the addition of new pavement to expand the terminal ramp to serve the new gates.

Comparison

Alternative 2 requires considerable adjustment to the current employee parking area, and significant paving to provide new ramp space for aircraft movement and parking. Based on this factor alone, this supports Alternative 1 as the preferred alternative.

Alternative 1 may introduce structures that present line-of-site issues to the ATCT, as it is expected to introduce new structures into areas currently used for aircraft taxi and require the realignment of established aircraft taxi-routes. This may require additional taxi pavement, and may complicate an already complex set of intersections of taxiways and taxilanes with the terminal ramp. Such complication could lead to aircraft congestion and pilot confusion in traveling between the runways and terminal area. This supports Alternative 2 as the preferred alternative.

Alternative 2 would make use of existing Concourse B which is generally underutilized. Improvements would likely include renovation of this concourse to better accommodate passenger holding and boarding. Expansion of Concourse B would extend into the areas currently used for ground vehicle circulation. However, as ARFF operations are relocated out of this area and the passenger terminal building expands to the southwest, current ground vehicle routes are expected to be modified, so that an expanded Concourse B would not interfere with ground vehicle circulation.

Alternative 2 introduces a new concourse, providing an opportunity to distribute passengers over additional area, instead of consolidating passengers in one concourse. This also provides more opportunity for additional businesses to develop and serve passengers. This supports Alternative 2 as the preferred alternative.

Alternative 2 requires significant relocation of existing facilities in the North Ramp terminal area. This would likely include the old ATCT and office building, airport landscaping building, and parking for airport administration and terminal employees. The old ATCT and office building and airport landscaping building have been identified as having fulfilled their useful and economic lives and this area has been targeted for redevelopment with higher and better uses. Other improvements include the relocation of airport administration to the terminal building, making this area also available for redevelopment. Relocation of airport administration to the terminal would also likely include a new automobile parking lot for airport staff. With these North Ramp facilities and services each located to a new home, expansion of the terminal building to this area is a compatible and high-value use of this site. This supports Alternative 2 as the preferred alternative.

Third Alternative

A third option is to add space to the northwest, southwest, and northeast sides of the terminal to increase gates, although this option is still expected to impact existing aircraft parking, taxi-routes, and ground vehicle circulation routes. Such an option is not expected to lessen construction nor ease facility implementation, both of which would be desired of any terminal improvement.

Wetland Impact

No wetlands are expected to be affected by either alternative, although a wetland jurisdictional study would be required to confirm.

Implementation

The process of expanding the main passenger terminal building and ramp will require temporary adjustments to the standard practices and movements of aircraft on the ramp and passengers in the terminal. The expansion would likely not have to occur at one time, but could instead be phased, as gates and ramp are needed. The best course of action should be determined during the planning, design, and construction phasing of the project.

3.2 Other Terminal Areas

The airport has four terminal areas (besides the main passenger terminal area): North Ramp, South Ramp, East General Aviation Ramp, and Hollis Lane Aviation Area. These areas are home to airport and aircraft services, aviation-related businesses, and aircraft storage. Together they provide 37 box hangars, 130 T-hangar units, and 144 tie-downs (22 of which are permanently occupied). Facility analysis and requirements determined a need for an additional 20 box hangars, 20 T-hangar units, and 2 tie-downs. As each of the four terminal areas has opportunity and available space, the development should be distributed over the areas, as best suited for the particular facility. New developments are expected to be evaluated for the most suitable site, based on their requirements, as they are introduced to the Airport. It is also expected that as hangars reach the end of their useful and economic lives, they will be replaced with similar structures in their current locations. The following discusses a logical development plan for each area, instead of alternatives, although the North Ramp does have an improvement alternative to consider.

3.2.1 North Ramp (see Exhibits 4-6 and 4-7)

The North Ramp is the area north of the main passenger terminal building area and automobile parking lot, west of Northrop Drive, and south of Taxiway M. It is home to airport administration, airport maintenance, Transportation Security Administration (TSA), Fixed Base Operator (FBO), and aviation-related businesses. The North Ramp provides aircraft storage in box hangars, T-hangars, and apron with tie-downs.

Aircraft Storage

The North Ramp has 10 box hangars, 57 T-hangar units, and 61 tie-downs (6 of which are permanently occupied). There is space for two box hangars in between existing hangars. As the proposed ARFF facility is expected to be developed in this area, there is not room for T-hangars. The apron and tie-downs are generally underutilized, especially on a permanent basis. A taxilane connecting the North Ramp and East General Aviation Ramp (EGAR) is being considered. This taxilane would likely remove aircraft tie-downs, which could be relocated to the EGAR.

Exhibit 4-6
North Ramp Development Alternative 1

Exhibit 4-7
North Ramp Development Alternative 2

Services and Businesses

Airport administration, airport maintenance, TSA, Friendly Air Service, the fuel farm, and other aviation-related businesses are on the North Ramp. However, the structures for each of these have either reached the end of their useful and economical life, or should be relocated to new or better suited facilities.

Airport administration is currently located in a temporary facility. As the terminal is expanded, it should include space for airport administration.

The TSA also operates from a temporary facility, from which it serves airports besides EUG. As TSA continues their service, relocation or expansion into the larger building vacated by airport administration (as it moves to the main terminal building) should be considered. Or, depending on the space available within the main terminal building, it may be suitable for TSA to locate in the expanded terminal. This is expected to occur within 5–10 years.

Along the North Ramp area apron are three buildings: the old ATCT and office building, airport maintenance, and Friendly Air Service FBO. These buildings house services and businesses which should be relocated to new or better suited facilities.

The old ATCT and office building is home to aviation related businesses. This facility fulfilled its primary function once FAA operations shifted to the current ATCT and offices south of the main passenger terminal. The businesses have been able to extend the building's life, but this will not sustain. These businesses are compatible with and bring benefit to the Airport, but do not necessarily require the airside access they currently have. Such airside access is better suited for services and businesses which utilize the airfield, and should be so reserved.

The airport maintenance building on the North Ramp is used for landscaping services. This facility is the one airfield maintenance operation not located in the Hollis Lane Aviation Area. As this structure has fulfilled its useful and economical life, it is recommended that this operation be shifted to the Hollis Lane Aviation Area. If the landscaping operation cannot be consolidated into an existing building, a new building should be constructed.

Once the need arises and suitable locations have being found for the existing services and businesses, it is expected that the old ATCT and office building and the airport maintenance building will be razed and made available for other development. A development option for the main passenger terminal building is to add gates and ramp north of the main passenger terminal. The absence of the old ATCT and office building and the airport maintenance building will accommodate this alternative. If development of the main passenger terminal building does not require this space within the timeframe addressed in this Master Plan Update, the Airport should consider keeping it available for some other time in the future when it may be needed. The reason for this is that the terminal building location is set and since it is one of the highest functional components of the Airport, flexibility regarding its future expansion should be preserved.

Friendly Air Service FBO provides services to local and transient aircraft. The FBO building has fulfilled its useful and economical life, and will require replacement. It is expected that the current site will be used for the replacement facility. However, in order for the FBO's operation to continue during construction, they will likely either have to shift the new facility to a site adjacent to the current facility, or temporarily relocate as the new facility is built. As a temporary relocation, the existing old ATCT office building or nearby hangars may be suitable.

Once the services operating in the two temporary buildings have been relocated, and the buildings vacated and removed, there is expected to be space available to accommodate additional box hangars. These hangars would be aligned with the new FBO facility, such that access by aircraft would be by one direct taxilane.

Fuel farm

The existing aircraft fuel storage facility ("fuel farm") is located along the entrance road to the North Ramp area (Lockheed Drive). It consists of five fuel storage tanks, all located above- ground. Although there is space in the fuel farm for one additional fuel tank, there is not likely room for more. The fuel farm requires access by tanker trucks delivering fuel, and access by on-airport vehicles ferrying fuel to airfield ramps to aircraft. The location requires tanker trucks to travel the same roads as airline passenger automobiles to reach the airfield's center. Fuel delivery and transfer between storage tanks can interfere with other tenant and public accessing the North Ramp. Because of this, it is beneficial to relocate the fuel farm to the edge of the airfield, so that tanker trucks and fueling operations do not occur near the concentration of the traveling public in the main passenger terminal building and automobile parking lot.

The fuel farm would likely be better located in the south airfield area, which would allow fuel delivery vehicles to exit Douglas Drive before entering the airport circulation road, and to operate in an area less concentrated with the traveling public. This new fuel farm would likely provide space for the storage capacity offered by the existing fuel tanks, and for additional storage capacity to support increased aviation activity. This location is also closer to the facility that operates the fueling (Flightcraft), and to where the aircraft fueling vehicles are parked.

Reconfiguration of the North Ramp area for new hangars and aviation-related businesses is expected to increase the opportunity for the airport to serve tenants, travel, and the community. There is expected to be room for one FBO building, seven box hangars, taxilane and ramp, and automobile parking. For non-airside, with the relocation of the fuel farm, there is expected to be room for several aviation-related business facilities.

Taxiways

EUG has an elaborate taxiway system, providing direct access between many airfield areas. However, for larger, heavier aircraft there is not a direct route between the main passenger terminal area and parallel Runway 16L/34R. Smaller aircraft can pass on Taxiway K, as its 50-foot width is sufficient. Larger aircraft, which require a 75-foot wide taxiway, currently travel from the main passenger terminal ramp along Taxiway D, to Taxiway P, and onto Taxiway M to the eastern airfield. As Runway 16L/34R sees greater use by larger aircraft needing main passenger terminal access, efficient aircraft ground movement will be of increased importance, and a direct taxiway will be of benefit.

North Ramp Development Alternative 1

One option to provide direct access for larger aircraft is to construct a new taxiway between the Taxiway D and Taxiways M and P. This new taxiway would accommodate larger, heavier aircraft, as well as smaller general aviation aircraft. As taxiway movements are shifted from Taxiway K onto the new taxiway, the north ramp apron can be expanded, connecting to the pavement which is currently Taxiway K, and allowing that pavement to be converted to aircraft storage.

North Ramp Development Alternative 2

A second option to provide direct access for larger aircraft is to improve Taxiway K from 50 feet in width to 75 feet, and to improve the taxiway's strength to that of connecting pavements. This would make the best use of the existing pavement and taxiway route structure, and would open the north ramp up to increased use by larger aircraft.

Comparison

Introducing a new taxiway would allow for the expansion of the north ramp apron. However, the north ramp currently has available ramp space that is underutilized, as only 6 of 61 tie-downs are permanently occupied. This may change as the north ramp services and businesses are redeveloped, but there is not an anticipated need for additional north ramp aircraft space. A new taxiway may also complicate pilot understanding of aircraft ground movements (and associated airfield signage and marking), at the intersection of the new taxiway with Taxiways C, M, and P on the northeast, and at the intersection with Taxiways D and E on the southwest. These reasons, along with the expected ease of implementation of Taxiway K improvements, support the widening and strengthening of Taxiway K as the preferred alternative.

Wetland Impact

Alternative 1, shown on Exhibit 4-6, would impact more open space and has a higher probability of impacting more wetland acreage. The affect of Alternative 1 versus Alternative 2 on wetlands cannot be accurately discerned due to a lack of historical wetland delineations within this area. This is also true regarding the *Future Aviation Related Businesses* depicted in both drawings. This area should be subject to a wetland jurisdictional delineation.

3.2.2 South Ramp (see **Exhibit 4-8**)

The South Ramp is the area south of the main passenger terminal area and automobile parking lot, southwest of Douglas Drive, west of Airport Road, and south of Taxiway G. It is home to FAA Airport Traffic Control Tower (ATCT), Aircraft Rescue and Fire Fighting (ARFF), air cargo and charter, Lane Aviation Academy, Flightcraft Services, and aviation-related businesses. The South Ramp provides aircraft storage in box hangars, T-hangars, and apron with tie-downs.


Possible FAA
Future Flightcraft Hangar/Terminal
Future LAA Classroom
FUTURE COMMERCIAL DEVELOPMENT
FUTURE COMMERCIAL DEVELOPMENT
Future Fuel Farm
Future LAA Ramp
Future Rental Car Service & Storage
FUTURE COMMERCIAL DEVELOPMENT (RE-ZONING REQUIRED)
FUTURE COMMERCIAL DEVELOPMENT (RE-ZONING REQUIRED)
Airport Property Line
Future Air Cargo/Charter
Eugene Airport Master Plan Update
0 100 200 400
SCALE IN FEET
N
Exhibit 4-8
South Ramp Improvements

Aircraft Storage

The South Ramp has 23 box hangars, 59 T-hangar units, and 68 tie-downs (3 of which are permanently occupied). There is space for one box hangar/terminal in between existing hangars, and there is not room for T-hangars. Additional hangars could be placed to the south of the current T-hangars, but would consume space being reserved and intended for commercial development.

The apron and tie-downs are generally underutilized, especially on a permanent basis. For this and other reasons, aircraft deicing activities are considered being located on the South Ramp apron. Moving deicing to this location would require introduction of new taxilane pavement, pavement strengthening, and removal of ramp and tie-downs. The ramp and tie-downs can likely be replaced in the EGAR.

Services and Businesses

The FAA ATCT, ARFF, air cargo and charter, Lane Aviation Academy, Flightcraft Services FBO, Helitrade FBO, Lawrence FBO, Oregon Air & Space Museum, and other aviation-related businesses are on the South Ramp. Some of the structures housing these facilities are new, modern, and expected to be sufficient for the forecast period, while others need to be expanded, and some even replaced.

The FAA operates EUG's ATCT, and other regional aircraft and airspace services from their on-field facility. The FAA has expressed a need for increased facility size, and space has been (and should continue to be) reserved for them.

The ARFF facility houses the airport's emergency response vehicles and personnel. This facility has fulfilled its useful and economical life, and is expected to be relocated to the North Ramp.

The air cargo and charter facility has recently been completed to consolidate operations formerly performed at various locations around the airfield. This improvement project also expanded the cargo/charter apron to accommodate the larger aircraft often used in charter operations, and those larger aircraft that could be associated with additional air cargo business. The new air cargo/charter site is expected to accommodate three additional buildings along the new ramp.

Lane Aviation Academy expects to add a new classroom structure in their building cluster, and to add ramp space to their maintenance facility. Space adjacent to their facilities is available for this expansion.

Flightcraft Services FBO, providing EUG's aircraft fueling and other services, expects to expand their facility with in the near term with additional terminal and hangar space, and automobile parking. Space adjacent to their facility is available for this expansion. Helitrade FBO, serving rotorcraft, is expected to continue to operate from its hangar, although its expected growth includes ground storage space instead of hangar space. Lawrence FBO has recently relocated from the old ATCT and office building on the North Ramp to the new air cargo and charter facility on the South Ramp, a location which is expected to accommodate their operations for the forecast period.

The rental car service/storage facilities are to be relocated from the main passenger terminal automobile parking lot to the south airfield. This relocation will make space available for additional passenger automobile parking in the main lot, allow for an improved rental car service facility, and accommodate the current (144) and projected (280) rental car service/storage parking stalls. The new site also provides for growth of rental car services and business. Depending on airport policy and agreements, consideration should be given to siting the rental car facility on existing airport property, acquiring additional property, or on private property.

The fuel farm is also expected to be relocated to the southern airfield from the North Ramp, to distance fuel storage from areas of concentrated traveling public, and to ease fuel transfer and delivery.

The Oregon Air & Space Museum (OASM) is considering a new larger facility, which likely could not be accommodated at its current site. One location being considered for the OASM is the in the eastern airfield. Relocation out of the current facility will make the former OASM space available, and once the relocation is scheduled, reuse and redevelopment of the current OASM facility should be considered.

Space for commercial development is being reserved along the airport entrance road at the intersection of Airport Road and Douglas Drive. This is high visibility property that may be best suited for landside, non-aeronautical business and services. Three corners of the intersection (all except the southwest) are owned by the Airport, and there may be benefit to the Airport controlling the southwest corner. A proposed roadway is shown as a possible way to open up the northwestern corner for development. Existing zoning shows agricultural use for the two southern corners of this intersection, and development of these southern corners for commercial purposes will likely require local rezoning.

Wetland Impact

Improvements to the South Ramp area, as depicted on Exhibit 4-8, include numerous structures and potential future development. Several of these structures would have minimal wetland impact. These include the "*Future LAA Ramp*" and the "*Future Air Cargo/Charter*" building included in the wetland delineation (Environmental Solutions, 2006). The "Future *Rental Car Service & Storage"* would most likely have little or no impact on wetlands, although it is not completely within the aforementioned delineation. The "*Future Flightcraft Hangar/Terminal*", "*Future LAA Classroom*" and "*Possible FAA*" structures would most likely have no impact, although a wetland determination would need to be made. The greatest impact, if any, is most likely to occur in the areas labeled "*Future Commercial Development*", "*Future Fuel Farm"*, and a connector road west of the intersection of Airport Road and Douglas Drive. The area labeled "*Future Commercial Development*" to the southwest of Airport Road and Douglas Drive contain soils with the highest probability for wetland characteristics, although a wetland delineation would need to be performed to determine this conclusively.

There are two wetland areas that could be avoided near the areas labeled "*Future Commercial Development*" southeast of the intersection of Airport Road and Douglas Drive, and "*Future Commercial Development*" northeast of the intersection of Airport Road and Douglas Drive. Both of these areas have known wetlands on-site which could potentially be completely avoided.

3.3.3 East General Aviation Ramp (see **Exhibit 4-9**)

The East General Aviation Ramp (EGAR) is the area east of Northrop Drive, and south of Taxiway M. It is home to aircraft storage, in 3 box hangars, 14 T-hangar units, and apron. The EGAR began as one of the early phases of the parallel Runway 16L/34R project, and continued growth is expected. There is availability for and benefit from developing EGAR with additional aircraft storage, and with aviation-related businesses.

Aircraft Storage

EGAR has room for 16 box hangars and 20 T-hangar units. Many of the sites have been prepared with access taxilanes and utilities. Hangar sites have height restrictions to accommodate ATCT visibility, but it is expected that suitable structures can be built to house aircraft, and still allow for clear observation from the tower. The existing apron provides aircraft parking, but is not equipped with tie-downs. Even though the North and South Ramps have been identified as having tie-downs that are underutilized, introduction of tie-downs in the EGAR area would likely be of benefit to based and transient aircraft using the parallel runway and accessing the eastern airfield. There is also room for additional apron, south of the existing apron.

Services and Businesses

The EGAR is home to the only self-fueling facility for aircraft at EUG. This is a convenient and well-utilized facility, and space for additional fueling activities and storage should be preserved. EGAR currently has no FBO; however, space is available and should continue to be reserved for FBO hangars and offices. A general aviation terminal facility should also be considered, especially as smaller aircraft use of parallel Runway 16L/34R and EGAR continues to increase.

Because of the different aircraft storage sites and services located around the airfield, aircraft regularly travel between EGAR and the north ramp. Currently, ground movements between EGAR and the north ramp follow Taxiways M and N and pass into an FAA-controlled movement area, requiring pilot instruction and procedure from the ATCT. The introduction of a non-movement area taxilane connecting Taxiway N and the North Ramp would ease pilot ground operations and prevent aircraft from requiring ATCT contact, making ATCT available for other duties. This taxilane would likely remove aircraft tie-downs on the North Ramp, which could be relocated to the EGAR apron.

The introduction of acute angle (“high speed”) exit taxiway from the parallel runway would allow for the efficient movement of aircraft arriving on Runway End 34R to Taxiways B, C, and M.

Relocating the Oregon Air & Space Museum to the EGAR area may fit well with a future realigned Douglas Drive, especially as passenger automobile traffic enters the airfield and passes this high visibility site.

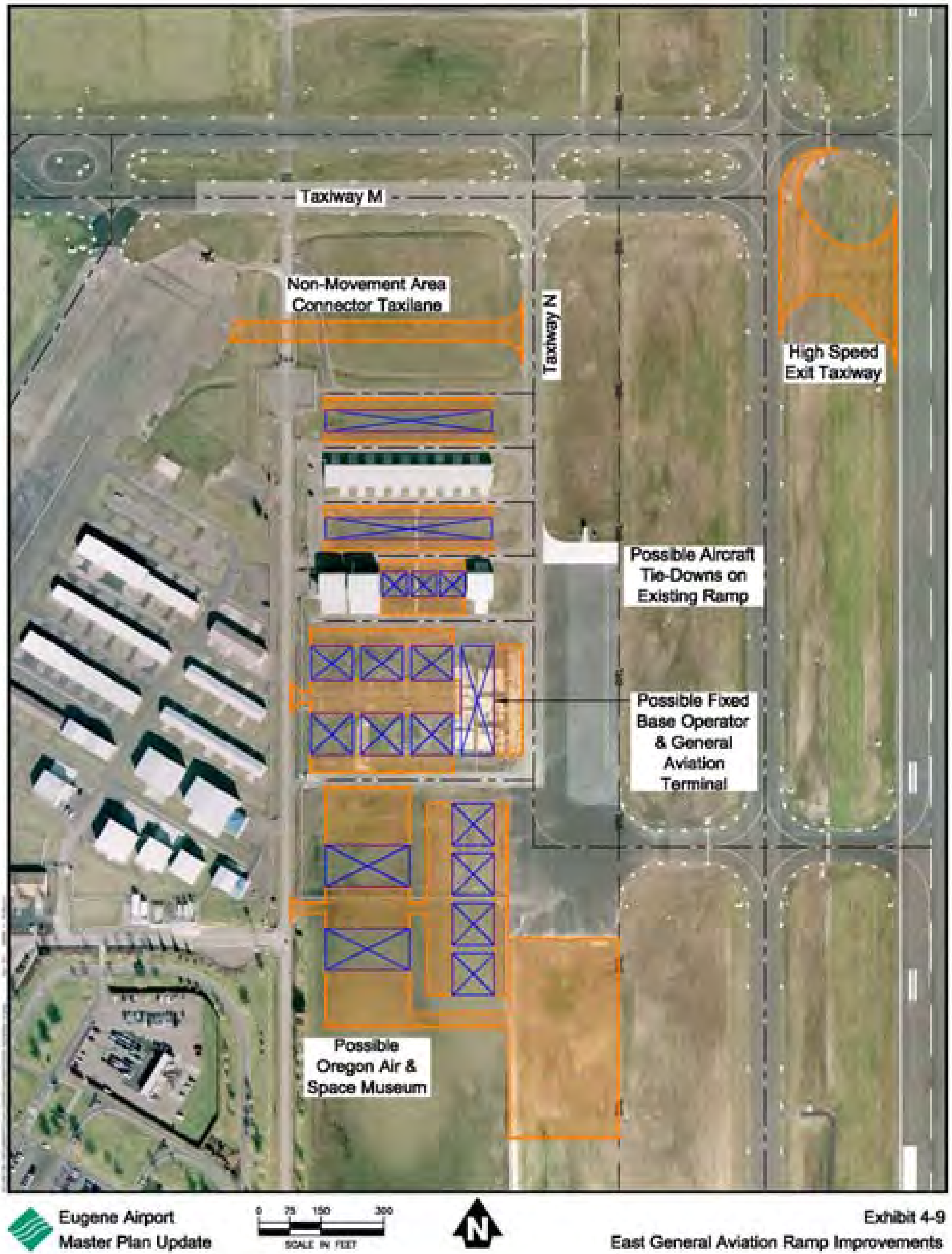


Exhibit 4-9
East General Aviation Ramp Improvements

On the east side of Green Hill Road, which runs east of and parallel to Runway 16L/34R, is airport owned property which is likely available for commercial and industrial development. Some has frontage along Green Hill Road, some along Awbrey Lane, and other along State Route 99W. These properties provide good opportunities for the airport to provide a home for facilities which serve the community, and to make best use of its non-aviation property by facilitating airport-compatible development. Although specific developments for these areas are not shown, many configurations of improvements can be accommodated, depending on the requirements and desires of the proposed improvement.

Wetland Impact

Improvements to the EGAR area, as depicted on Exhibit 4-9, include a proposed Oregon Air & Space Museum and several other proposed structures and paved surfaces. Primary wetland impacts would occur due to the proposed museum (estimated 0.8 acres), and potential impacts could result from areas that haven't been recently delineated. A 2006 delineation performed by Coyote Creek indicates that wetlands may have expanded in the general vicinity since 2000. Exploring the property to the southwest of Airport Road and Douglas Drive may be an option for the museum that provides less wetland impact.

3.3.4 Hollis Lane Aviation Area (see **Exhibit 4-10**)

The Hollis Lane Aviation Area is the area between the two runways, and north of Taxiway C. It is home to airport operations and maintenance, aviation-related business, and aircraft storage in box hangars. This area was opened up with the introduction of parallel Runway 16L/34R and Taxiway C.

Aircraft Storage

The Hollis Lane Aviation Area has room for 14 box hangers. It is expected that most would house fixed-wing aircraft, although some may store rotorcraft, as there is helicopter storage in an existing Hollis hangar. Although there is space for T-hangars and aprons, the Hollis area is expected to be developed with corporate hangars, each with a small apron which adjoins the existing taxilane. T-hangar development and aircraft to be tied down are expected to be directed toward EGAR, North and South areas.

Services and Businesses

The airports operations and maintenance facilities are located in the Hollis Lane Aviation Area. This provides a central mid-field location to concentrate employees, equipment, and services. The airfield landscaping facility remains outside of Hollis, in the North Ramp area, and is expected to be relocated to Hollis as the North Ramp is redeveloped. Space is available for expansion, as airfield operations and maintenance require.

The Hollis area is expected to be a good location for aviation-related businesses, to complement the one currently in operation. Space exists adjacent to Taxiway C which would likely be a good fit for aircraft maintenance and business support facilities. Although most sites have the ability to connect to airfield pavements, others could be configured for businesses and services requiring only landside use.

Exhibit 4-10
Hollis Lane Aviation Area Improvements

The existing Hollis taxilane accessing the hangar sites should be extended to connect to Taxiway A. Long-term, the existing taxilane traveling north from Taxiway C that ends after connecting to the Hollis taxilane should be extended to connect to Taxiway A. These connections provide aircraft in the Hollis area efficient access to primary Runway 16R/34L. A taxiway extension connecting Taxiway C and Taxiway A, or an ARFF vehicle access lane in the same location should also be considered.

The undeveloped area, bordered by Hollis Lane on the west, Taxiway B on the east, and Taxiway C on the south, has been and should continue to be reserved for larger aviation-related business, such as aircraft manufacturing or a large maintenance base. This site offers roadway frontage and access to airfield pavements. Depending on the facility desires and needs, consideration needs to be given to ATCT visibility requirements for Taxiway B and Runway 16L/34R, which could affect the facility's development.

The Hollis area benefits from an abundance of airport property (located north of the existing Hollis taxiway) that can likely be developed as opportunities present themselves. Although specific developments for these areas are not shown, many configurations of improvements can be accommodated, depending on the requirements and desires of the proposed improvement.

Wetland Impact

Improvements to the Hollis Area, as depicted in Exhibit 4-10, include several functional structures and paved surfaces, as well as a potential future aviation business. There would be wetland impacts in this area that could potentially be minimized or avoided. Most of the wetlands adjacent the current structures have been compensated for through historic fill permits, although wetland characteristics may have reestablished in some areas. Previous delineations indicate that there would be approximately 0.5 acres minimum predictable impact. The lane connecting Taxiway C and Taxiway A could potentially be shortened southerly to reduce impacts

4. Special Airport Facilities

4.1 Aircraft Rescue and Fire Fighting (ARFF) Facility (see **Exhibit 4-11**)

A new ARFF facility is needed to replace the current facility (which has reached the end of its useful functional and economical life), and to meet incident response time requirements to each runway, which cannot be attained from the current facility. To provide similar response time to each runway, midfield alternatives were considered, instead of the current site located south of the main passenger terminal building. The two sites considered are north of Taxiway C ("north site"), and south of Taxiway C ("south site"). Both alternatives are presented on Exhibit 4-11.

Comparison

Both alternatives are expected to provide adequate and similar response times. As most ARFF calls are to the passenger terminal and parking lots, the north site limits the ability of ARFF vehicles to access the southern airfield, which would be reached either by crossing an FAA ATCT-controlled movement area, or by traveling the lengthy route along public surface roads from the Hollis Lane Aviation Area to the passenger terminal. The south site has height restrictions to accommodate ATCT visibility requirements, but it is expected that a suitable ARFF facility can be located at this site. This supports the south site as the preferred alternative.

The height restriction on the south site, based on an expected ARFF facility location, is approximately 26 feet. This allowable height decreases as the building extends away from the ATCT. Details of the ARFF facility design are expected to be confirmed once that project begins.

4.2 Aircraft Deicing Facility (see **Exhibits 4-12** and **4-13**)

The aircraft deicing (and anti-icing) process involves the application of a liquid via pressurized spray. The majority of deicing agent not adhering to the aircraft requires containment, collection, storage, and disposal or treatment. The introduction of one central deicing ramp eases the application and handling of the deicing agent. As deicing generally occurs after passenger loading and before take-off, locating the deicing facility near the main passenger terminal building and along the way to primary Runway 16R/34L will likely prevent aircraft from having to deviate significantly from the main taxiway route.

Two alternatives are presented, both of which are expected to accommodate Boeing 757 aircraft. Adjustment of the facility to accommodate a larger or smaller aircraft may affect the deicing facility layout. Even though both options may disrupt aircraft ground movement, conditions requiring deicing at EUG are generally not regular, and are generally brief. Aircraft deicing increases aircraft safety, and the seeming inconvenience imposed by aircraft deicing on other airport activities should be second to the benefit and convenience provided.

Implementation of either alternative may require adjustment to aircraft taxiing procedures and to the FAA ATCT-controlled movement area. Both options are expected to have a vehicle staging area, an above-ground equipment shed, and an underground storage system. Either location is likely compatible with co-locating an aircraft wash facility (“wash rack”), as the collection and containment system can serve both deicing and aircraft washing operations, benefitting the environment.

Wetland Impact

Neither alternative would have a significant affect on wetlands, although a wetland determination would need to be made for either site.

Exhibit 4-11
Aircraft Rescue & Fire Fighting (ARFF) Facility Alternatives

Exhibit 4-12
Deicing Facility Alternative 1

Exhibit 4-13
Deicing Facility Alternative 2

Deicing Facility Alternative 1

One option is to locate the deicing facility northwest of the main passenger terminal building. This site is along the taxiing routes from the terminal gates to Taxiway A. This location would require new pavement (connecting Taxiways E and F) to accommodate the aircraft and the deicing vehicles, and may require the removal or marking of some adjacent pavements as unusable to encourage aircraft separation. This northwest site is expected to allow aircraft to pass on Taxiways A, E and F as an aircraft is being deiced. However, the taxilane to the south of the deicing ramp (between the main apron and the deicing apron) would likely not be able to be used when an aircraft is being deiced. It may be that taxiing practices require additional pavement (at the northeast corner of the Taxiway A and E intersection) to accommodate aircraft turning and travel between the taxilane and the main taxiways.

Deicing Facility Alternative 2

A second option is to locate the deicing facility southwest of the main passenger terminal building, on the south ramp. This site is along the taxilane connecting the main apron to the south ramp aircraft parking area. This location would likely require the reconstruction of existing taxilane and ramp pavement to support heavier aircraft, and may require the relocation of the taxilane centerline (to the southeast) to provide adequate separation from Taxiway G. This option would also likely require additional pavement to connect the deicing pavements to Taxiway A. This southwest site would affect the availability of aircraft parking on the south ramp, including aircraft in line for access to Flightcraft hangar and services.

Comparison

Alternative 1 would restrict ground movement around the main apron and passenger terminal building while an aircraft was being deiced. Alternative 2 would do so in the event of aircraft had to queue for deicing, and therefore is expected to have less impact on terminal area ground movements. This supports Alternative 2 as the preferred alternative.

Alternative 1 may require additional pavement to accommodate taxiway turning from the deicing ramp, onto Taxiway E, and onto Taxiway A. This would likely increase the complication of the existing intersections of Taxiways A, E, and F with the main apron taxilanes. Alternative 2 may require additional pavements to be improved for larger and heavier aircraft to negotiate turns onto Taxiway A, but the improved pavements would likely be contained within the south ramp area. This supports Alternative 2 as the preferred alternative.
Alternative 1 would introduce pavement that is likely used only for deicing. The use of the south ramp for deicing, and the pavement improvements required to accommodate heavier aircraft, will likely result in the increased use of this generally underutilized ramp for activities besides deicing, such as larger aircraft parking and access to Flightcraft facilities. This supports Alternative 2 as the preferred alternative.

As one improvement alternative for the main passenger terminal building would shift aircraft ground movement and parking closer to the northwest site, the southwest site may be better suited to accommodate expansion of the main passenger terminal building. This supports Alternative 2 as the preferred alternative.

The activity and ground movement associated with aircraft washing (as the wash rack is introduced) is expected to be more frequent and more common than that associated with deicing, and the new facility is expected to be used more for washing than for deicing. For non-commercial and non-passenger aircraft to access the northwest site wash rack requires use of the terminal area taxiways, taxilanes, and ramp to travel through the main passenger terminal area. This is an opportunity to disrupt the flow of passenger aircraft and ground support. Accessing the wash rack on the south ramp would likely require less interference with the main passenger terminal activities. This supports Alternative 2 as the preferred alternative.

Wetland Impact

Neither alternative would have a significant affect on wetlands, although a wetland determination would need to be made for either site.

5. Automobile Parking and Circulation

5.1 Automobile Parking and Circulation (see **Exhibit 4-14**)

As passenger enplanements and aircraft operations at EUG are expected to increase, so is the automobile parking. A single, logical development scenario for expansion of the main passenger terminal automobile parking is presented. This is a refinement of previous plans to expand public and rental car auto parking.

Needs

Chapter 3 identified the following needs: increase public automobile parking stalls from 1,276 to 2,310 (additional 1,034 stalls); increase rental car ready/return parking stalls from 144 to 245 (additional 101 stalls), and; increase rental car service/storage stalls from 116 to 280 (additional 164 stalls). An increase is also expected to be needed for the overflow lot, from 585 to 872 (additional 287 stalls).

Main Lot

The main lot currently houses 237 short-term stalls, 1,039 long-term stalls, and 144 rental car ready/return stalls, totaling 1,420 stalls. This needs to be increased to 2,310 public stalls and 245 rental car stalls, totaling 2,555 stalls. The existing 1,420 stalls cover approximately 513,000 square feet. This is a rate of approximately 360 square feet per stall (and approximately 120 stalls per acre). At this rate, an increase of 1,135 stalls would require an additional 410,000 square feet. This area should be added contiguous to the existing lot, and not as part of a new separate lot.

Regarding distribution of public stalls between short-term and long term, approximately 18% of the existing public stalls are short-term. As additional stalls are added, this percent should be adjusted downward based on lot occupancy, and on observations by and preferences of airport management to benefit customer service and passenger convenience.

Exhibit 4-14
Automobile Parking Improvements

Overflow Lot

The overflow parking lot, located east of Douglas Drive, provides 585 stalls for peak passenger travel times, such as sporting events and holiday travel. By expanding east, there is space to increase the lot by approximately 50% to 872 stalls. Longer term expansion may also be accommodated by expanding north and south, as space is available and need arises. As the overflow lot is not regularly used for passenger parking, it is likely acceptable to have this lot separate from the main lot, and to continue to offer shuttling service for passengers between this lot and the terminal building for those peak periods of demand.

Rental Car Service Facility and Storage Lot

As the rental car service facility has fulfilled its useful and economical life, a new, modern, and larger facility is needed to provide more service space, and to accommodate the parking of vehicles queued for service, and those which have been serviced and await rental. The current 116 service/storage stalls at the existing facility are expected to need to be increased to 280. This increase of 164 cannot be accommodated at the existing site without sacrificing passenger automobile parking and the ability to expand the same.

As giving priority to passenger automobile parking enhances customer service and passenger convenience, the rental car service facility and storage lot (which are not required, by function, to be in such close proximity to the terminal building) will require relocation. Rental car service/storage operations are proposed to be relocated to the south airfield. This rental car service facility will likely see increased activity as passenger enplanements increase at EUG. The proposed south airfield site accommodates the future expansion of this facility, which could not be accommodated in the existing location.

As the rental car service/storage lot is relocated, this site can be converted for temporary uses until long-term improvements are implemented. Cell phone waiting lot, taxicab queue lot, rental car ready/return parking, and passenger automobile parking are all suitable uses for this site, until improvements for each of these additional facilities are developed, and the existing configuration is redeveloped for expansion of rental car ready/return and public parking.

Public Transportation and Taxicab Area

The Eugene metro area benefits from an expansive public transportation network, and as passenger movements at EUG increase, it is expected that the use of public transportation will also increase. As the primary EUG destination would likely be the main passenger terminal building, direct terminal access should be provided for public transportation.

As the main parking lot is expanded to the existing rental car service/storage area, there is expected to be space for additional taxicab parking/waiting, as an extension to the existing taxicab parking/waiting area, located between the terminal building and the main parking lot. The current taxicab area, and the expanded taxicab area, can also be used for public transportation transfer, between the buses and the terminal building. However, as the proposed taxicab queue lot is introduced as part of the realigned Douglas Drive, it may be better and desirable to convert the existing taxicab parking/waiting to serve primarily public transportation loading and pedestrian movement, and shift taxicab queuing to the new lot.

Considerations

As the main automobile parking lot is expanded, it will approach Douglas Drive. In order to prevent passenger foot traffic from having to cross active roadways to access the passenger terminal, it is necessary to keep parking areas contiguous to each other and to the passenger terminal, and within the boundary roadway. Passenger foot traffic does cross the active roadway at the terminal building entrance/exit area, but the automobile traffic at this location is slowed to accommodate pedestrian loading and crossing.

Introducing a pedestrian overpass or underpass is one way to move passenger foot traffic across an active roadway. Such structures, often having extensive stairways, are generally perceived by the traveling public as lengthy and difficult, especially to travelers who are hurried and carrying luggage. Such a structure may also require an elevator on each side of the road, a feature that would increase cost and maintenance. The perception of the traveling public is more user-friendly if parking stalls provide access to the passenger terminal by way of a direct walk. As it is beneficial for EUG to be welcoming and user-friendly, pedestrian travel routes beside those provided at-grade are not otherwise considered at this time.

To keep the automobile parking within the loop access road (Douglas Drive), and to also add the required parking stalls, requires a relocation of Douglas Drive. The space exists to relocate Douglas Drive to accommodate the expanded parking, and the existing intersections can be adjusted to provide a safe and continuous traffic circulation pattern.

This realignment of Douglas Drive will shift access to the main lot from the existing eastern entrance to the northern side of the lot. This improvement will remove the need for passenger automobile traffic to make a left turn across oncoming traffic to enter the lot, which is required by the current road configuration. The realignment of Douglas Drive will introduce one way traffic (west of Northrop Drive), so the only traffic movement requiring left turns will be by automobiles from southbound Northrop Drive turning onto southbound Douglas Drive. As passenger automobile traffic is not expected to use Northrop Drive, left turn movements across oncoming traffic should be reduced.

Introducing an elevated, underground, or multi-story parking facility is one way to provide increased parking. Such structures are generally best suited for airports with constrained space, and with multi-story terminal access, and such a structure would likely increase cost and maintenance. As EUG is not in this situation, has available land, and does not desire such complication and extra cost, parking facilities besides those located on the surface are not otherwise considered at this time.

Land between existing Douglas Drive and Taxiway B which would otherwise be available for airside development is instead restricted in use by the visibility requirements of the Airport Traffic Control Tower (ATCT). As surface automobile parking does not affect ATCT visibility to the extent of hangars and terminal structures, automobile parking is expected to be a good use for this land. This compatibility was considered in the siting of the existing overflow lot, and gives support to the proposed locations of automobile parking and circulation improvements.

Additional parking in the main lot should be phased as needed. Initial additions will likely be able to occur without the relocation of Douglas Drive. Relocating the rental car service facility and storage lot to the south airfield area will make space available for additional parking without having to relocate Douglas Drive.

As Douglas Drive is relocated, there is expected to be space for a cell phone waiting lot and a taxicab queue lot. A cell phone waiting lot prevents automobiles from having to continually travel the airport loop road to await their arriving passengers by providing a lot for the automobile to park until the arriving party calls to notify they are ready to be met at the terminal. As opposed to short-term and long-term lots, cell phone waiting lots generally charge no fee to the automobile, and unattended parking is not permitted. A taxicab queue lot prevents an excessive number of cars for hire from congregating near the high-traffic terminal building exit as passengers emerge to request transportation; by providing a lot for the automobile to park until there is sufficient space in the terminal area for the cab to make itself available for hire. Taxicab procedures for entering the airport and soliciting fares would have to be established between airport management and taxicab operators. The cell phone waiting lot and taxicab queue lot should be implemented as the opportunity and need is presented.

Convenient automobile access and parking encourages use of the Airport by the local community. For EUG, that means ease of access to the Airport, ease of access from Airport roads to the parking lot, and ease of foot access from the parked automobile to the terminal building. In addition to providing an increase in automobile parking stalls, these improvements are also expected to provide an increase in customer service, which is a major goal of the Airport.

Other Areas

The new developments associated with the non-main passenger terminal areas (North Ramp, South Ramp, EGAR, and Hollis Area), as well as new services and businesses around the airfield, are expected to have their own parking developments adjacent to their facility, and do not create a demand on the main passenger terminal automobile parking lot. Parking for these facilities is not otherwise considered at this time.

Wetland Impact

Proposed automobile parking improvements, shown Exhibit 4-14, may have the single largest impact on wetlands. A wetland delineation (2007 Concurrence) by Coyote Creek identifies approximately 3.5 acres that would be impacted from this design. Overflow stalls are shown with very little impact incurred. The expansion of the parking facilities and waiting lot could initiate regulatory mitigation requirements beyond the actual footprint of the paved areas to include the area in between the waiting lot and the expanded parking (Increasing impact beyond 3.5 acres). Of all the wetland impacts reviewed, both potential and realized, proposed automobile parking improvements demand the most attention for potential wetland avoidance.

6. Airport Property

EUG has approximately 2,340 acres of land. Most of the Airport's property is required for the accommodation of the facilities, and for the associated buffer and safety areas. This land has been acquired over the years to meet the functional and operational requirements of the Airport, for safe navigation of aircraft, and for protection of people on the ground. Preserving land for this core function is one of the highest priorities of the Airport. Some parcels not required to support the core aviation function in the long-term may be available for airport compatible development, for the purpose of generating revenues which will enhance the long-term viability of the Airport. There are several land areas on the Airport that can accommodate different types and levels of development. Following is a discussion on some of those areas that, on a preliminary basis, appear to hold potential for such development. Following review of the alternative plan concepts presented in this element of the Master Plan Update, and subsequent recommendations on the preferred alternatives, this section will be revised accordingly.

As development opportunities are presented to the Airport and community, available land should be reviewed to determine the most suitable site. Depending on the nature of the development and the desired site, the property will likely require environmental review, and possibly mitigation, to allow for the new improvements. The area on and around the Airport is home to drainage, wetlands, and similar features. The Airport should continue coordination with governing agencies for the protection and monitoring of environmentally sensitive areas.

NOTE: Due to material changes in the economy in 2008 and 2009, as well as changed in the aviation industry, a Supplemental Financial Analysis was prepared. It is presented in Appendix B and supersedes portions of this chapter.

Chapter 5

Financial Feasibility Analysis

This chapter, which presents the results of the feasibility analysis conducted, is organized as follows:

1. Airport Financial Structure
2. Capital Improvement Plan
3. Funding for the Program
4. Historical and Projected Airport Revenues
5. Historical and Projected Airport Operating Expenses
6. Historical and Scheduled Debt Service
7. Cash Flow Analysis and Overall Feasibility
8. Sensitivity Analyses

This chapter analyzes the capacity of the City of Eugene to undertake the recommended capital improvement plan (CIP) developed as part of this Master Plan Update. As presented herein, an investment totaling approximately $119.38 million[1] is required between fiscal years 2008 and 2028 to complete the recommended aviation safety, preservation, security, and capacity enhancement projects included in this plan. As further described in this chapter, the following funding sources are anticipated to be available and utilized to complete the projects contained in this program:

Funding Source	Amount	Percent (%) of Total
FAA Entitlement	$ 58,061,908	48.6%
FAA Discretionary	$ 5,535,719	4.6%
Passenger Facility Charges	$ 32,271,873	27.0%
Local (Capital/Operating Reserve)	$ 15,901,500	13.3%
Customer Facility Charge Revenues	$ 3,000,000	2.5%
Other Funding	$ 4,610,000	3.9%
	$ 119,380,000	100%

Of equal importance to the Airport's ability to garner sufficient funding to complete this capital plan is the need to understand the capability of the Airport to generate sufficient revenues to fund all anticipated operating expenses, contributions to reserve funds, and payment of debt service. To this end, this chapter includes an analysis of forecasted Airport operating revenues and expenditures, including annual contributions to said reserve funds.

[1] Total cost of the capital projects includes a 4% annual inflation factor.

The techniques utilized in this analysis are consistent with industry practices for similar studies which are used to evaluate the feasibility of large-scale airport capital improvement plans. While it is believed that the approach and assumptions are reasonable, it should be recognized that some assumptions regarding future trends and events might not materialize. Achievements of the proposed capital improvement plan as well as the operating results described herein are dependent upon the occurrences of future events and variations may be material.

In the context of examining both the capital improvement plan and operating revenues/expenditures, this financial feasibility analysis is based upon the following:

- The Airport's existing financial structure, airline agreements, and agreements with other major tenants.
- The historical financial performance of the Airport including its existing debt obligations.
- A schedule for the implementation of proposed capital projects for the entire 20-year planning period.
- Projections of enplaned passengers as presented in Chapter Two to derive Federal Aviation Administration (FAA) Airport Improvement Program (AIP) entitlements and Passenger Facility Charge (PFC) revenues.
- A funding plan for the capital improvement plan utilizing AIP entitlement and discretionary funds, PFC revenues, the Airport's Operating and Capital Reserve, Customer Facility Charge revenues and other funding.
- Historic revenues, expenses, and debt service for the Airport for the period FY 2003 through FY 2007.
- Budgeted revenues, expenses, and debt service for the Airport for fiscal years 2008 and 2009.
- Projections of revenues, expenses, and net cash flows from the operation of the Airport over the planning period of FY 2010 through FY 2016 based on historical actual (FY 2003–2007) and budgeted (FY 2008-2009) financial activity at the Airport.
- A detailed cash flow analysis for the planning period FY 2010 through FY 2016 identifying the sources and uses of funds applied to the CIP.[2]

Detailed financial projections of revenues and expenses included in this analysis focus on the more immediate years of the plan rather than the entire 20-year planning period; however, a detailed analysis of the availability of AIP and PFC funds to finance this period of the program are presented in order to provide the reader with an understanding of the feasibility of all elements of the plan.

1. Airport Financial Structure

The Airport is operated as the Airport Division of the Department of Public Works of the City of Eugene and its financial results are reported within the composite financial statements of the City. The City maintains discrete accounting records to account for the itemized revenues, expenses, and segregated funds of the Airport. The City of Eugene, and therefore the Airport, operates on a modified accrual basis for financial reporting based on a July 1 to June 30 fiscal year (FY). Accordingly, all information

[2] This represents the maximum time period considered reasonable.

contained in this analysis is presented in terms of the Airport's fiscal year detail as opposed to a calendar year basis. Because the Airport operates under a modified accrual based accounting system, revenues are recorded when they are earned and expenses are recognized when they are incurred. For purposes of considering the historical revenues and expenditures presented in this analysis, all functional categories and financial results parallel Exhibit 7, "Statement of Revenues, Expenses, and Changes in Fund Net Assets" contained in the City of Eugene's *Comprehensive Annual Financial Accounting Reports (CAFR) for Fiscal Years 2003-2007*. Moreover, all ensuing fiscal years projecting anticipated operating results align with these functional categories.

The City has established six broad functional areas for tracking Airport revenues, including the Airfield, Terminal Area, Common Use Area, Parking Area, Administration, and Other Areas while it reports Airport expenses in the following 10 functional areas:

1. Salaries and Labor
2. Employee Benefits
3. Maintenance & Repairs
4. Materials and Supplies
5. Rent
6. Taxes
7. Utilities
8. Contractual Services
9. Insurance
10. Central Services Administration

For the purposes of this analysis, these categories are maintained for ease of comparison. It should be noted that both the City and Airport Division track each area in much greater detail through an established financial reporting system; however, such detail is not required for purposes of this analysis.

The Airport has in effect an airline lease and use agreement (Use Agreement) with the scheduled airlines serving the Airport. The agreement establishes landing fees, terminal building rentals, and terminal building joint use and common use fees and is currently in effect through June 30, 2010. Under the terms of the Use Agreement, the signatory airlines serving the Airport pay a landing fee calculated at a rate per thousand pounds of landed weight, terminal building rental rates for areas for exclusive and preferential use, joint use fees for baggage and security areas used by all airlines, and common use fees for the use of, and services provided to, public use areas in the terminal building. The Airport collects 10 percent of the total rental requirement for joint use areas on a pro-rata basis from each of the signatory airlines. The remaining 90 percent of the requirement for joint use areas is collected from the airlines based on their respective share of passenger enplanements. The total common use fee requirement for the terminal building is collected from the airlines based on their respective share of passenger enplanements. For FY 2009, the landing fee is $2.20 per thousand pounds of landed weight, the rental rate for exclusive and preferential space is $29.86 per square foot per year, while joint use and customer use space are assessed $0.58 and $1.45 per passenger, respectively. The non-signatory airline landing fee charge is currently established at $2.75 per thousand pounds of landed weight and non-signatory airline terminal rental fees are $37.33 per square foot per year. These fees are incorporated into an Airport Fee Schedule together with fees for non-signatory airlines and other Airport users. The City of Eugene City Council formally reviews, revises, and adopts this fee schedule annually.

This analysis assumes that the Airport will renew its Use Agreement with scheduled airlines for like rate periods and will assess airline rates and charges that will, at a minimum, cover the airlines' respective shares of airfield and terminal area expenses over the entire planning period.

2. Capital Improvement Plan

All airports receiving federal AIP funding are required to maintain a current CIP with the FAA which identifies projects to be undertaken at an airport over a specified period of time. This plan further estimates the order of implementation as well as calculates total project costs and funding sources.

The CIP presented herein incorporates all projects recommended as part of this Master Plan Update and is based on the near-term (FY 2008 through FY 2012), mid-term (FY 2013 through FY 2016), and long-term (FY 2016 through FY 2028) planning periods (and shown on **Exhibit 5-1**). The near-term period includes projects currently addressed in the Airport's existing CIP on file with the FAA, approved PFC applications 06-08-C-00-EUG and 08-09-C-00-EUG, the Airport's Customer Facility Charge (CFC) program, and the adopted City of Eugene Capital Improvement Plan. For the period FY 2013-2016, the most critical airport capacity and safety needs are programmed while the long-term period (FY 2016 through FY 2028) projects correspond to those facility requirements identified in previous chapters.

The CIP and its corresponding cost estimates are presented in **Table 5-1.** Cost estimates depicted in this table are based on a planning level of detail. While accurate for master planning purposes, actual project costs will likely vary from these planning estimates once project design and engineering estimates are developed. Costs as shown in Table 5-1 have been escalated for inflation (4% annually) to more accurately reflect anticipated construction-year dollar amounts. These costs also include contingencies and design and construction management costs. Each project was analyzed for AIP and PFC funding eligibility and a preliminary funding scenario was developed for each project from AIP, PFC, local, and private funding sources. As stated previously, the total cost of the CIP is estimated to be approximately $119.4million.

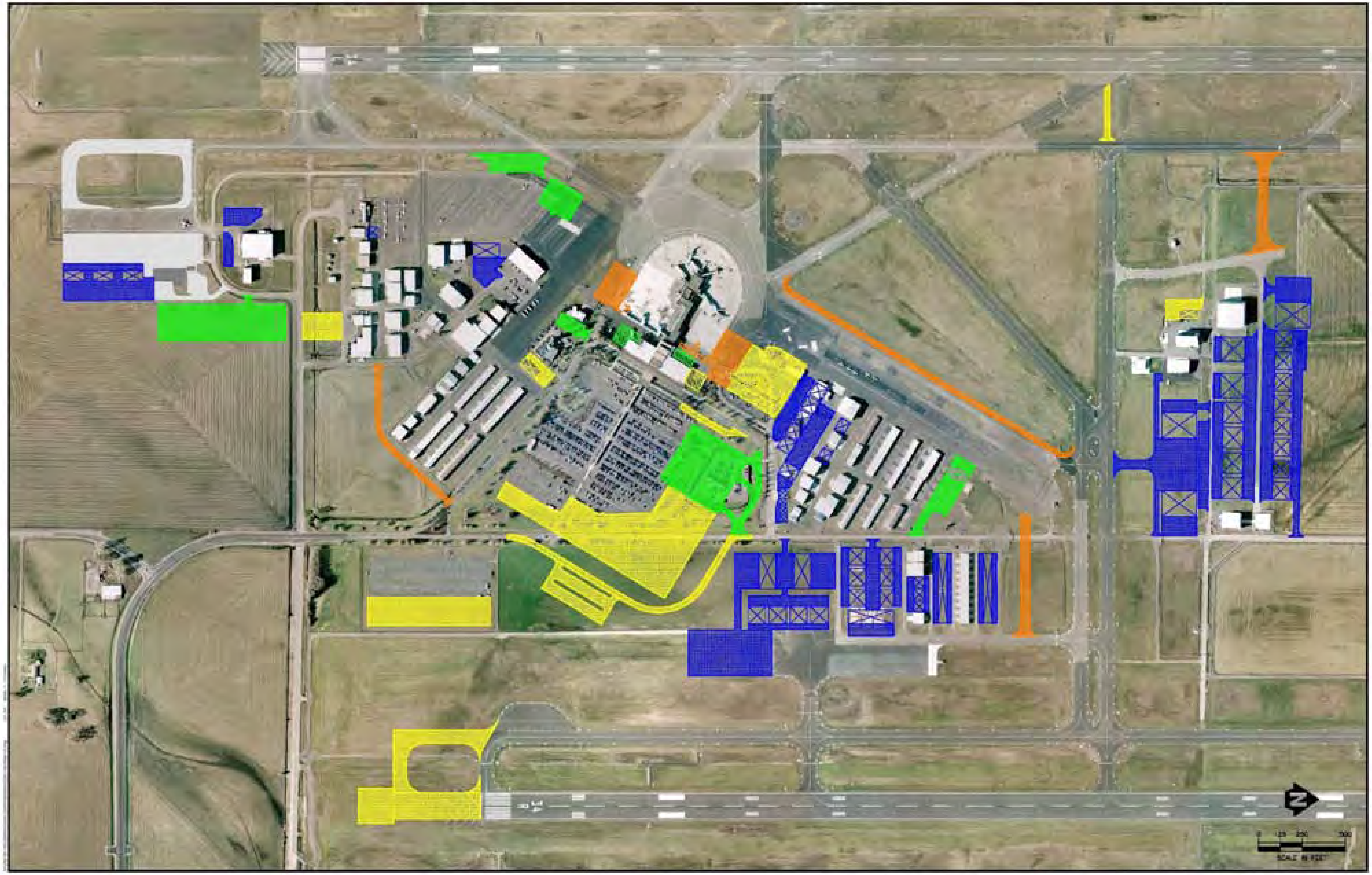


Exhibit 5-1

Capital Improvement Plan

Timeframe: Through 2011 (Green) 2012-2016 (Orange) 2017-2026 (Yellow) Private (Blue)

Eugene Airport
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Table 5-1

Eugene Airport
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CAPITAL IMPROVEMENT PLAN
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Year	Project	Total Cost	Project Funding Sources: FAA Entitlement	Ent. Carryover	Discretionary	PFC	Local	Other
2008	South Ramp Rehabilitation - Phase II - Mid-Section	$550,000	$522,500		$0	$0	$27,500	$0
	Terminal Ramp Rehabilitation - Phase I	$1,200,000	$0		$0	$1,200,000	$0	$0
	Air Cargo Expansion - Phase II	$2,200,000	$2,090,000		0	$0	$0	$110,000
	Year 2008 Total Project Costs	$3,950,000	$2,612,500		$0	$1,200,000	$27,500	$110,000
	PROJECTED AVAILABLE FUNDING		**$2,653,342**	$40,842		**$1,506,532**		
2009	Rental Car Service & Storage Facility	$3,000,000	$0		$0	$0	$0	$3,000,000
	Mitigation - Open Water - West of Runway End 34L	$600,000	$0		$0	$0	$600,000	$0
	ARFF Facility	$4,400,000	$0		$4,180,000	$0	$220,000	$0
	Taxiway Rehabilitation - A6 & F	$840,000	$798,000		$0	$0	$42,000	$0
	North Ramp Rehabilitation - Phase I - Far North	$340,000	$323,000		$0	$0	$17,000	$0
	Taxilane Rehabilitation - Hangar Access	$200,000	$190,000		$0	$0	$10,000	$0
	Terminal Ramp Rehabilitation - Phase II	$1,400,000	$1,330,000		$0	$0	$70,000	$0
	Year 2009 Total Project Costs	$10,780,000	$2,641,000		$4,180,000	$0	$959,000	$3,000,000
	PROJECTED AVAILABLE FUNDING		**$2,708,061**	$67,061		**$1,548,108**		
2010	Passenger Parking - Phase I	$2,200,000	$0		$0	$0	$2,200,000	$0
	Terminal - Phase I - Baggage Screening	$3,250,000	$0		$0	$3,250,000	$0	$0
	South Ramp Rehabilitation - South Section	$600,000	$570,000		$0	$30,000	$0	$0
	North Ramp Rehabilitation - Middle Section	$500,000	$475,000		$0	$25,000	$0	$0
	Runway 34L/16R Overlay - Lights & Connecting Taxiway	$3,000,000	$1,717,781	$0	$1,132,219	$150,000	$0	$0
	Year 2010 Total Project Costs	$9,550,000	$2,762,781		$1,132,219	$3,455,000	$2,200,000	$0
	PROJECTED AVAILABLE FUNDING		**$2,762,781**	**$0**		**$1,589,685**		

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Year	Project	Total Cost	Project Funding Sources FAA/AIP	Ent. Carryover	Discretionary	PFC	Local	Other
2011	Aircraft De-Icing Facility	$2,100,000	$1,772,500		$222,500	$105,000	$0	$0
	Taxiway A Rehabilitation - Phase I (A7-A4)	$1,100,000	$1,045,000		$0	$55,000	$0	$0
	Terminal - Phase II - Airport Administration & Baggage	$12,000,000	$0		$0	$9,600,000	$2,400,000	$0
	Year 2011 Total Project Costs	$15,200,000	$2,817,500		$222,500	$9,760,000	$2,400,000	$0
	PROJECTED AVAILABLE FUNDING		**$2,817,500**	**$0**		**$1,631,261**		
2012	Concourse B - One Gate & Ramp	$1,900,000	$0		$0	$1,900,000	$0	$0
	Airport Access Road Improvements	$2,700,000	$1,080,000		$0	$1,620,000	$0	$0
	Taxiway A Rehabilitation - Phase II	$1,600,000	$1,520,000		$0	$80,000	$0	$0
	Year 2012 Total Project Costs	$6,200,000	$2,600,000		$0	$3,600,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$2,872,220**	**$272,220**		**$1,657,117**		
2013	Taxiway K Widening	$1,300,000	$1,235,000		$0	$65,000	$0	$0
	Taxilane - Non-Movement Area - EGAR to North Ramp	$700,000	$665,000		$0	$35,000	$0	$0
	Year 2013 Total Project Costs	$2,000,000	$1,900,000		$0	$100,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$2,926,940**	**$1,026,940**		**$1,682,972**		
2014	Concourse C - Phase I - Two Gates & Ramp	$11,000,000	$2,960,968	$1,299,160	$0	$6,739,872	$0	$0
								$0
	Year 2014 Total Project Costs	$11,000,000	$2,960,968		$0	$6,739,872	$0	$0
	PROJECTED AVAILABLE FUNDING		**$2,960,968**	**$0**		**$1,708,827**		
2015	Hollis Taxilane - Short	$800,000	$760,000		$0	$40,000	$0	$0
	Master Plan Update	$700,000	$665,000		$0	$35,000	$0	$0
	Year 2015 Total Project Costs	$1,500,000	$1,425,000		$0	$75,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$2,994,997**	**$1,569,997**		**$1,734,683**		

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Year	Project	Total Cost	Project Funding Sources: FAA/AIP	Ent. Carryover	Discretionary	PFC	Local	Other
2016	South Landside Access Road	$500,000	$0		$0	$0	$500,000	$0
	Environmental Assessment - Runway 34R Extension	$300,000	$285,000		$0	$15,000	$0	$0
	Year 2016 Total Project Costs	$800,000	$285,000		$0	$15,000	$500,000	$0
	PROJECTED AVAILABLE FUNDING		**$3,029,026**	**$2,744,026**		**$1,760,538**		
2017	Mitigation/Drainage - Runway 34R Extension	$1,000,000	$950,000		$0	$50,000	$0	$0
	Year 2017 Total Project Costs	$1,000,000	$950,000		$0	$50,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,063,055**	**$2,113,055**		**$1,804,844**		
2018	Runway 34R Extension	$4,200,000	$3,097,084	$892,916	$0	$210,000	$0	$0
	Year 2018 Total Project Costs	$4,200,000	$3,097,084		$0	$210,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,097,084**	**$0**		**$1,849,151**		
2019	Fuel Farm	$5,200,000	$2,600,000		$0	$0	$2,600,000	$0
	Year 2019 Total Project Costs	$5,200,000	$2,600,000		$0	$0	$2,600,000	$0
	PROJECTED AVAILABLE FUNDING		**$3,155,396**	**$555,396**		**$1,893,457**		
2020	Terminal - Phase III - Airline Ticketing	$8,600,000	$3,213,709	$4,526,291	$0	$860,000	$0	$0
	Year 2020 Total Project Costs	$8,600,000	$3,213,709		$0	$860,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,213,709**	**$0**		**$1,937,764**		
2021	FAA Facility	$4,500,000	$0		$0	$0	$0	$4,500,000
	Year 2021 Total Project Costs	$4,500,000	$0		$0	$0	$0	$4,500,000
	PROJECTED AVAILABLE FUNDING		**$3,272,022**	**$2,292,235**		**$1,982,071**		
2022	Passenger Parking - Phase II - Expand Overflow Lot	$1,800,000	$0		$0	$0	$1,800,000	$0
	Year 2022 Total Project Costs	$1,800,000	$0		$0	$0	$1,800,000	$0
	PROJECTED AVAILABLE FUNDING		**$3,330,335**	**$3,330,335**		**$2,026,377**		

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Year	Project	Total Cost	Project Funding Sources: FAA/AIP	Ent. Carryover	Discretionary	PFC	Local	Other
2023	Concourse C - Phase II - Two Gates & Ramp	$16,000,000	$3,382,162	$6,710,837	$0	$5,907,001	$0	$0
	Year 2023 Total Project Costs	$16,000,000	$3,382,162		$0	$5,907,001	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,382,162**			**$2,070,684**		
2024	Environmental Assessment - Passenger Parking - Phase III	$300,000	$285,000		$0	$0	$15,000	$0
	Year 2024 Total Project Costs	$300,000	$285,000		$0	$0	$15,000	$0
	PROJECTED AVAILABLE FUNDING		**$3,396,740**	**$3,111,740**		**$2,114,990**		
2025	Passenger Parking - Phase III - Expand Main Lot/Relocate Douglas Driv	$10,800,000	$3,411,318	$1,988,682		$0	$5,400,000	$0
	Year 2025 Total Project Costs	$10,800,000	$3,411,318	$1,988,682		$0	$5,400,000	$0
	PROJECTED AVAILABLE FUNDING		**$3,411,318**	**$0**		**$2,159,297**		
2026	Master Plan Update	$800,000	$760,000		$0	$40,000	$0	$0
	Year 2026 Total Project Costs	$800,000	$760,000		$0	$40,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,425,897**	**$2,665,897**		**$2,203,615**		
2027	ARFF Access Road - Txy C to Txy A	$200,000	$190,000		$0	$10,000	`	$0
	Year 2027 Total Project Costs	$200,000	$190,000		$0	$10,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,440,475**	**$3,250,475**		**$2,247,921**		
2028	Airfield Maintenance Facility	$5,000,000	$3,455,057	$1,294,943	$0	$250,000	$0	$0
	Year 2028 Total Project Costs	$5,000,000	$3,455,057		$0	$250,000	$0	$0
	PROJECTED AVAILABLE FUNDING		**$3,455,057**			**$2,292,228**		
	TOTAL PROJECT COSTS FY 2008 - FY 2028	***$119,380,000***	***$41,349,079***	***$16,712,829***	***$5,534,719***	***$32,271,873***	***$15,901,500***	***$7,610,000***

Note: Project costs reflect a 4% inflation factor, using 2008 as the baseline year.

Sources: City of Eugene, Department of Public Works
Mead & Hunt, Inc.

As shown in Table 5-1, the CIP is projected to be funded by outlays from the following sources: $58,061,908 from AIP entitlement funds, $5,534,719 from AIP discretionary funds, $32,271,873 from PFC revenue (not inclusive of debt service on bonds issued for terminal and access road improvements), $15,901,500 from local sources (the Airport's Operating and Capital Reserve and Depreciation Reserve Funds), $3,000,000 from Customer Facility Charge revenues, and $4,610,000 from other funding sources including a $110,000 grant from "Connect Oregon" in FY 2008 for the Phase II Air Cargo Ramp Expansion Project, as well as a $4.5 million allocation from the FAA's Facilities and Equipment Program in FY 2021 for a new FAA air traffic control facility.

The CIP presented in Table 5-1 does not include certain projects, such as general aviation hangars and private business developments, which may be funded by other private sources. For purposes of this analysis, it was assumed that tenant-financed projects would not be constructed until demand warrants (i.e., demand and unit user revenues make it feasible to develop and finance additional hangar facilities).

3. Funding for the Program

Based on the descriptions of the capital improvement projects presented in Table 5-1, the phasing of these projects, their associated costs, and eligible funding amounts as identified in the previous sections, a proposed funding plan for the Airport's CIP was developed. Federal participation in Airport capital development is based on the Airport Improvement Program as re-authorized in 2003. This analysis assumes continuance of AIP and PFC funding through the planning period without major changes. However, in the past, these programs have experienced fluctuations in levels of funding and interruptions in funding availability; therefore, it is imperative for Airport management to consider maintaining reserve funds to support Airport activities should such fluctuations and interruptions occur in the future. It is further recommended that since a host of the projects described in this plan are contingent upon sufficient aviation demand to support their ongoing operations upon completion, Airport management should closely examine the true need for their implementation prior to committing to undertaking project design and/or construction. In developing the funding plan for capital improvements, the controlling objectives were to maximize the use of resources from AIP and PFC funds and to minimize Airport/local funding requirements.

It is assumed that costs for the CIP will be generated from a combination of the following potential funding sources:

- Federal AIP Grants
- Passenger Facility Charges
- Airport Operating and Capital Reserves
- Customer Facility Charges
- Private Funding

These funding sources are discussed in further detail below.

3.1 Federal AIP Grants

Federal grants for the FY 2008 – 2028 Eugene Airport capital improvement plan are anticipated to be made available through the FAA's AIP program. The current AIP legislation provides both entitlement funds (based on annual enplaned passenger levels) and discretionary funds for eligible projects undertaken by an Airport sponsor. Projects that are eligible for FAA AIP funding were determined based on guidelines contained in FAA Order 5100.38A, *Airport Improvement Handbook*. As a general rule, only those Airport projects that are related to non-revenue producing facilities, such as airfield construction, public areas of a terminal, and land acquisition, are eligible for federal funding. Under most circumstances, projects that qualify for AIP funding are eligible for up to 95 percent of total project costs. Terminal development is eligible in non-revenue producing space for airports categorized as small hubs and non-hubs at 95 percent of eligible costs.

Under the AIP program, each primary airport is apportioned no less than $650,000 per year; an airport's annual entitlement funds under the current program are determined according to the following formula:

$7.80 for each passenger boarding up to 50,000 passengers
$5.20 for each additional passenger boarding up to 100,000 passengers
$2.60 for each additional passenger boarding up to 500,000 passengers
$0.65 for each additional passenger boarding up to 1,000,000 passengers
$0.50 for each additional passenger boarding from 1,000,001 passengers and up

Based on recent historical and projected annual enplanement levels at the Airport, estimates of the Airport's federal entitlements for the period FY 2008 through FY 2028 are presented in **Table 5-2**. The projected entitlement funds presented in this table for each year are based on total enplanements at the Airport from the calendar year two years prior (i.e., entitlements for FY 2008 are based on enplanements from FY 2006).

As shown in Table 5-2, the Airport is projected to be eligible for a total of $65,369,084 in AIP entitlement funds over the planning period. As shown in **Table 5-3**, a total of $41 million of entitlement funding is to be used for the projects included in the CIP. Since the availability of AIP funding is expected to exceed the use of such aid, it is assumed that there will likely be adequate AIP entitlement funds to implement all anticipated projects presented in this CIP.

The AIP program also allows for discretionary funding to be made available from the FAA to provide financial support for major capacity or safety-related projects. The CIP, as presented in Table 5-1, anticipates FAA discretionary funds totaling approximately $5,534,719 being made available for the Aircraft Rescue and Firefighting (ARFF) Facility, Runway 34L/16R Overlay and airfield lighting upgrades, and the Aircraft Deicing Facility. The likelihood of receiving the required level of discretionary funding is considered extremely high given the importance of these projects, in terms of improved safety and preservation of existing airfield infrastructure. In fact, the FAA has already programmed funding into its overall system for this work.

Table 5-2

Eugene Airport
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PROJECTED AIRPORT ENTITLEMENT FUNDS
AND PASSENGER FACILITY CHARGE REVENUE

Fiscal Year	Projected Enplanements 1/	Projected Enplanements (2 yrs. Prior)	Entitlement Funds	Passenger Facility Charges 2/	Total Funds
2008	381,304	360,258	$2,653,342	$1,506,532	$4,159,874
2009	391,827	370,781	$2,708,061	$1,548,108	$4,256,170
2010	402,350	381,304	$2,762,781	$1,589,685	$4,352,466
2011	412,873	391,827	$2,817,500	$1,631,261	$4,448,762
2012	419,417	402,350	$2,872,220	$1,657,117	$4,529,337
2013	425,961	412,873	$2,926,940	$1,682,972	$4,609,912
2014	432,505	419,417	$2,960,968	$1,708,827	$4,669,796
2015	439,049	425,961	$2,994,997	$1,734,683	$4,729,680
2016	445,593	432,505	$3,029,026	$1,760,538	$4,789,564
2017	456,807	439,049	$3,063,055	$1,804,844	$4,867,899
2018	468,021	445,593	$3,097,084	$1,849,151	$4,946,235
2019	479,235	456,807	$3,155,396	$1,893,457	$5,048,854
2020	490,449	468,021	$3,213,709	$1,937,764	$5,151,473
2021	501,663	479,235	$3,272,022	$1,982,071	$5,254,093
2022	512,877	490,449	$3,330,335	$2,026,377	$5,356,712
2023	524,091	501,663	$3,382,162	$2,070,684	$5,452,845
2024	535,305	512,877	$3,396,740	$2,114,990	$5,511,730
2025	546,519	524,091	$3,411,318	$2,159,297	$5,570,615
2026	557,736	535,305	$3,425,897	$2,203,615	$5,629,511
2027	568,950	546,519	$3,440,475	$2,247,921	$5,688,396
2028	580,164	557,736	$3,455,057	$2,292,228	$5,747,285
TOTAL PROJECTED REVENUE			***$65,369,084***	***$39,402,122***	***$104,771,206***

Source: Mead & Hunt, Inc.
Note: 1/ Includes charters.
2/ Assumes a net collection of $4.39 per eligible enplaned passenger.
Assumes 90 percent of the Airport's enplanements are eligible for PFC collection.

Table 5-3

Eugene Airport
Master Plan Update

CAPITAL IMPROVEMENT PLAN FUNDING ANALYSIS

Year	Capital Improvement Costs	Required FAA Entitlements	Cumulative Entitlement Funding Surplus (Shortfall)	Anticipated FAA Discretionary 1/	Passenger Facility Charges 2/	Required PFC Funds	Cumulative PFC Funding Surplus (Shortfall)	Required Local Funds 2/	Anticipated Other Funds 1/
2008	$3,950,000	$2,612,500	$40,842	$0	$1,506,532	$1,200,000	$3,028,382	$27,500	$110,000
2009	$10,780,000	$2,641,000	$107,903	$4,180,000	$4,576,490	$0	$4,576,490	$959,000	$3,000,000
2010	$9,550,000	$2,762,781	$0	$1,132,219	$6,166,175	$3,455,000	$2,711,175	$0	$0
2011	$15,200,000	$2,817,500	$0	$222,500	$4,342,437	$1,177,420	$3,165,017	$0	$0
2012	$6,200,000	$2,600,000	$272,220	$0	$4,822,133	$1,097,420	$3,724,713	$0	$0
2013	$2,000,000	$1,900,000	$1,299,160	$0	$5,407,685	$1,117,420	$4,290,265	$0	$0
2014	$11,000,000	$2,960,968	$0	$0	$5,999,092	$1,540,092	$4,459,000	$0	$0
2015	$1,500,000	$1,425,000	$1,569,997	$0	$6,193,683	$1,615,092	$4,578,591	$0	$0
2016	$800,000	$285,000	$4,314,023	$0	$6,339,129	$1,555,092	$4,784,037	$500,000	$0
2017	$1,000,000	$950,000	$6,427,078	$0	$6,588,881	$1,590,092	$4,998,789	$0	$0
2018	$4,200,000	$3,097,084	$5,534,162	$0	$6,847,940	$1,750,092	$5,097,848	$0	$0
2019	$5,200,000	$2,600,000	$6,089,558	$0	$6,991,306	$1,540,092	$5,451,214	$2,600,000	$0
2020	$8,600,000	$3,213,709	$1,563,267	$0	$7,388,978	$2,400,092	$4,988,886	$0	$0
2021	$4,500,000	$0	$3,855,502	$0	$6,970,956	$1,540,092	$5,430,864	$0	$4,500,000
2022	$1,800,000	$0	$7,185,837	$0	$7,457,241	$1,540,092	$5,917,149	$1,800,000	$0
2023	$16,000,000	$3,382,162	$0	$0	$7,987,833	$2,137,093	$5,850,740	$0	$0
2024	$300,000	$285,000	$3,111,740	$0	$7,965,730	$2,137,092	$5,828,638	$15,000	$0
2025	$10,800,000	$3,411,318	$1,123,058	$0	$7,987,934	$2,137,092	$5,850,842	$5,400,000	$0
2026	$800,000	$760,000	$3,788,955	$0	$8,054,457	$2,177,092	$5,877,365	$0	$0
2027	$200,000	$190,000	$7,039,429	$0	$8,125,287	$2,147,092	$5,978,195	$0	$0
2028	$5,000,000	$3,455,057	$5,744,486	$0	$8,270,423	$2,387,092	$5,883,331	$0	$0
CIP TOTAL	***$119,380,000***	***$41,349,079***	***$16,712,829***	***$5,534,719***		***$36,240,641***		***$11,301,500***	***$7,610,000***

Sources: City of Eugene, Department of Public Works
Mead & Hunt, Inc.

Notes: 1/ It is anticipated that no surplus/shortfall will be experieced in these revenue sources over the planning period.
2/ A detailed cash-flow analysis that examines the Airport's ability to fund the required local share of project costs from the Operating and Capital and Depreciation Reserve Funds that the Airport maintains will be presented later in this analysis.

While such action is considered favorable, there is no guarantee that this aid will be made available until such time as the FAA releases grants for these respective projects. In addition, it should be noted that the FAA may require the Airport to fully obligate its entitlement funds prior to receipt of any AIP discretionary funding.

3.2 Passenger Facility Charges

In addition to AIP funding, the Airport has the ability to levy an Airport Passenger Facility Charge (PFC) to provide locally generated funds for implementation of its capital plan. PFC collection is authorized under the Aviation Safety and Capacity Expansion Act of 1990 and Part 158 of the Federal Aviation Regulations, the Passenger Facility Charge Program (14 CFR, Part 158). PFCs are collected for enplaning passengers at an airport and these funds are used to finance all or portions of capital improvements that are identified by the Airport Sponsor and approved by the FAA. To be eligible for PFC funding, a project must preserve or enhance safety, security, or capacity of the national air transportation system; reduce or mitigate airport noise from an airport; or provide opportunities for enhanced competition between or among air carriers.

The Airport began collecting PFCs in 1993. Since that time, the Airport has completed nine PFC applications with a total value of $21.2 million and is currently levying and collecting a $4.50 PFC. It is assumed that for purposes of this analysis the Airport will continue to collect a $4.50 PFC over the entire planning period and will use revenues to implement eligible Airport improvement projects through FY 2028.[3] The Airport's existing authority to impose a PFC expires in December 2011. Moreover, the Terminal Ramp Rehabilitation Project (Phase I) as well as the Relocate Baggage Screening Area project are currently included in an approved PFC application and are slated to be undertaken in Fiscal Years 2009 and 2010 respectively.

Table 5-2 indicates that PFC collections for the Airport are projected to total $39.4 million over the planning period while Table 5-3 reveals that $36.2 million in PFC revenue, including anticipated debt service payments, is anticipated to be used to fund portions of the projects identified in this CIP. Given the scope and magnitude of the Terminal – Phase II – Airport Administration & Baggage project ($9.6 million PFC revenues), the Concourse B Expansion ($1.9 million PFC revenues), the Concourse C – Phase I Expansion ($6.7 million PFC revenues), and improvements to the Airport Access Road ($1.6 million PFC revenues), it is proposed that the Airport consider issuing bonds backed by its future stream of PFC revenues to retire this debt and complete this work in a timely fashion. Table 5-8 in Section 6. Debt Service provides a debt service schedule for bonds issued in FY 2010 for the Terminal Phase II project, Concourse B expansion and Access Road improvements projects. In addition, this table assumes that in FY 2014 additional bonds will be issued for the Concourse C – Phase I expansion. These debt service assumptions are tracked in Table 5-3 in the annual "Required PFC Fund" calculations along with projects scheduled to be completed on a pay-as-you-go basis. Of the $36.2 million in PFC revenue slated for use, approximately $19.8 million is to be utilized to back the issuance of bonds for improvements to the air carrier access road as well as terminal building. As noted on Table 5-3, the Airport is expected to generate sufficient PFC revenues to retire all debt issued for this work and complete other pay-as-you-go projects as previously delineated in Table 5-1 provided airport

[3] A separate financing scenario will be completed assuming a $7.00 PFC, based on the likelihood Congress will ultimately allow this higher collection amount.

enplanements attain the growth projected in this plan. Finally, it will be necessary for the Airport to maintain its authority to impose a PFC for at least another five (5) years beyond the planning period since approximately $21.0 million in outstanding payments will remain on these debt instruments at the close of Fiscal Year 2028. At that time, the Airport is forecasted to have a balance of approximately $4.7 million in PFC revenues to utilize toward retiring these bonds.

3.3 Airport Operating and Capital Reserves

The Airport currently maintains an Operating and Capital Reserves Fund, which is utilized to underwrite the local share requirements of Airport projects, not funded with PFC or private capital. This fund is also used to address unexpected operating expenses. For purposes of this analysis, it is assumed that this fund is used to meet the local obligation for AIP and PFC eligible projects as well as for work deemed ineligible for AIP and PFC funding. Based upon information obtained from Airport management, it is assumed that a balance of $3.3 million exists in this fund as of July 1, 2008.

A cash flow analysis (see Table 5-10 presented in Section 7. Cash Flow Analysis and Overall Feasibility) was performed to identify the likely impact that local share funding requirements of the recommended CIP from the Airport's Operating and Capital Reserves would have on the cumulative balance of that fund. In this cash flow analysis, the annual beginning balance of the Airport's Operating and Capital Reserve Fund was reduced by the amount required to fund the local requirements of the Airport's CIP projects for that year. The Airport's projected net revenue was then added to the Airport's Operating and Capital Reserve Fund to estimate the year-end balance of that fund. The year-end balance of the fund was then carried over to the succeeding fiscal year and the same process was followed. The results of this analysis are presented and examined in Section 7.Cash Flow Analysis and Overall Feasibility.

3.4 Customer Facility Charge

In 2006, the City authorized establishing a Customer Facility Charge (CFC) for all rental car transactions occurring at the Airport. Rental car companies collect the fees on behalf of the City and remit them to the Airport for use on capital expenditures and/or to fund operating expenditures associated with facilities constructed for the sole benefit of rental car customers. The Airport's CFC is currently set at $2 per transaction day and the Airport collects approximately $300,000/year from this dedicated revenue source. Funds accruing to the Airport as the result of this assessment are earmarked for the construction of a consolidated Rental Car Service and Storage Facility in FY 2009. Upon completion of construction, the Airport intends to continue to impose this fee in order to provide sufficient revenues for the operation, maintenance, and reserve funds required for this facility. It is anticipated that upon occupancy of the facility, the Airport may reassess the level of CFC and adjust it accordingly to ensure that the revenue generated each year does not exceed authorized uses.

3.5 Other Funding

Besides the sources of revenue identified to support the Capital Improvement Plan, other non-traditional means may be available, and should be explored. The FAA's Facilities & Equipment division has contributed to navigational aids at Eugene, and is expected to continue to be a funding partner for such improvements. The State of Oregon's *ConnectOregon* program, which recently funded the airport cargo facility, is expected to be renewed on an approximate biannual basis, and many of Eugene's projects could be candidates for *ConnectOregon* funds. And although relatively new to the airport environment, the Transportation Security Administration may also become a financial source for airport improvements. Other public entities may be interested in partnering with the Eugene Airport for joint-use improvements. As developments are proposed, these and other local, state, and national funding sources should be evaluated.

3.6 Private Funding

In addition to projects listed in the Capital Improvement Plan, privately-funded improvements are also expected at the Airport. Aviation-related business, aircraft maintenance and manufacturing, flight training and education, museums, and hangars for FBO's, general aviation, and corporate aircraft are all welcome privately-funded developments. It is estimated that $200 million of these types of projects could occur at Eugene over the next 20 years. These improvements would allow the Eugene Airport to continue its support of aviation activity, expand its service to the community, and increase its contribution to economic development.

4. Historical and Projected Airport Revenues

Table 5-4 depicts the Airport's historical revenues from FY 2003 through FY 2009. As shown in Table 4, the major source of non-airline revenue for the Airport during this period has been the public parking facility while rental auto concession fees have also represented relatively significant portions of the Airport's revenue base in these years. Collectively, these sources of revenue are anticipated to account for approximately 72 percent of non-airline fees during fiscal year 2009.

It is noteworthy that between FY 2003 and FY 2009, the Airport reduced its reliance on airline rents and fees resulting in a more diverse mix of overall revenue. In FY 2003, total airline revenues, including landing fees, Terminal Building Common Use/Preferential/Exclusive rents totaled $3,141,524 representing 47.5 percent of all revenue collected by the Airport in that year. In 2009, airline revenue is expected to total $2,591,611, comprising only 35.5 percent of total airport revenues. This decrease in reliance on airline fees and rents created a decrease in a key efficiency benchmark for airlines; the airline cost per enplaned passenger. This indicator is utilized to convey the relative "cost of doing business" for an airline at an airport as reflected in its ability to spread its expense associated with renting and utilizing airport facilities among its passengers.

For Eugene, this indicator dropped from $7.21 per enplaned passenger in FY 2004 to $6.46 per enplaned passenger in FY 2009 (budgeted). Finally, it should also be noted that because of the growth in airport parking revenue and rental car concession fees, the Airport's overall revenue base expanded 10.3 percent or approximately 2 percent per year during this period.

Estimates of the Airport's future revenues were developed based on historical trends from FY 2003 through FY 2008, the terms of the Airport's Use Agreement with the signatory airlines; the Airport's FY 2009 adopted budget, as well as an analysis of future revenue potential of the Airport. **Table 5-5** presents budgeted revenues for FY 2009 and projected revenues for the period from FY 2010 through FY 2016, the end of the mid-term planning period for the Airport's CIP.

Table 5-4

Eugene Airport
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HISTORICAL AIRPORT REVENUES

	Historical					Budget	Proposed
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
AIRLINE REVENUES							
LANDING AREA							
Airline Landing Fees - Scheduled	967,084	1,133,779	1,119,703	1,138,042	970,393	976,516	1,086,733
COMMON USE AREAS							
Airline Common Use Fee	524,756	492,486	515,709	605,576	671,876	704,633	710,686
Airline Security Charges	523,962	110,837	215,492	133,134	114,774	123,254	162,084
TERMINAL AREA							
Airline Leased & Joint Use Areas	754,601	739,000	835,190	926,170	678,011	708,426	632,108
PREVIOUS YEAR AIRLINE ADJUSTMENTS	371,121	(144,963)	(91,535)	(67,982)	(258,977)	0	0
Total Airline Revenue	***$3,141,524***	***$2,331,139***	***$2,594,559***	***$2,734,940***	***$2,176,077***	***$2,512,829***	***$2,591,611***
NON-AIRLINE REVENUES							
AIRFIELD AREA							
Hangar Rentals	180,820	174,168	128,166	152,146	230,439	178,175	180,367
Fuel Flow Fees	53,487	49,871	54,242	51,653	49,534	53,169	63,000
Tie-Down Fees	10,942	10,784	10,649	10,281	10,220	10,635	10,335
Fixed Based Operators	57,268	60,237	60,215	63,594	61,444	63,408	56,135
Ground Fuel	1,511	1,686	13,094	8,393	2,206	2,015	2,310
Non-Airline Landing Fees	128,111	107,045	85,675	102,423	81,298	106,000	106,000
TERMINAL AREA							
Rental Auto Concessions	656,899	679,118	773,335	803,351	813,260	857,480	857,876
Food and Beverage Services	142,483	118,737	53,281	62,082	56,176	64,000	64,000
Miscellaneous Terminal Facilities	205,324	187,232	196,573	226,375	229,060	287,457	266,457
Security-LEO Reimbursement/Fingerprints	338,865	324,806	323,578	278,178	318,524	302,679	210,108
PARKING AREA							
Public Parking Facility	1,579,986	1,754,845	2,126,543	2,308,328	2,378,751	2,307,408	2,525,206
ADMINISTRATION							
Administative Revenue (Interest)					269,233	21,606	
OTHER AREAS							
Other Building Rentals	142,057	240,865	215,439	228,917	236,530	219,618	220,905
Other Land Rentals	94,774	100,836	93,897	83,807	78,128	78,891	90,559
Miscellaneous Revenue	(119,201)	13,431	119,143	(64,759)	155,474	68,640	51,392
Total Non-Airline Revenue	***$3,473,326***	***$3,823,661***	***$4,253,829***	***$4,314,769***	***$4,970,276***	***$4,621,181***	***$4,704,650***
TOTAL AIRPORT REVENUE	**$6,614,850**	**$6,154,800**	**$6,848,388**	**$7,049,709**	**$7,146,353**	**$7,134,010**	**$7,296,261**
	303,864	323,244	361,272	356,830	363,785	381,974	401,073
AIRLINE COST PER ENPLANEMENT	$10.34	$7.21	$7.18	$7.66	$5.98	$6.58	$6.46

Source: City of Eugene, Department of Public Works
CAGR = Compounded annual growth rate.

Table 5-5

Eugene Airport
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PROJECTED AIRPORT REVENUES

	FY 2007 Actual	Budget 2008	Proposed 2009	Projected 2010	2011	2012	2013	2014	2015	2016
AIRLINE REVENUES										
LANDING AREA										
Airline Landing Fees - Scheduled	$970,393	$976,516	$1,086,733	$1,108,468	$1,130,637	$1,153,250	$1,176,315	$1,199,841	$1,223,838	$1,248,315
COMMON USE AREAS										
Airline Common Use Fee	671,876	704,633	710,686	$746,220	$783,531	$822,708	$863,843	$907,035	$952,387	$1,000,007
Airline Security Charges	114,774	123,254	162,084	165,326	168,632	172,005	175,445	178,954	182,533	186,184
TERMINAL AREA										
Airline Leased Areas	678,011	708,426	632,108	644,750	657,645	772,798	788,254	804,019	820,099	836,501
PREVIOUS YEAR AIRLINE ADJUSTMENTS	(258,977)	-	-							
Total Airline Revenue	***$2,176,077***	***$2,512,829***	***$2,591,611***	***$2,664,764***	***$2,740,446***	***$2,920,761***	***$3,003,857***	***$3,089,849***	***$3,178,857***	***$3,271,006***
NON-AIRLINE REVENUES										
AIRFIELD AREA										
Hangar Rentals	$230,439	$178,175	$180,367	$ 183,974	$ 187,654	$ 191,407	$ 195,235	$ 199,140	$ 203,123	$ 207,185
Fuel Flow Fees	49,534	53,169	63,000	64,890	66,837	68,842	70,907	73,034	75,225	77,482
Tie-Down Fees	10,220	10,635	10,335	10,438	10,543	10,648	10,755	10,862	10,971	11,081
Fixed Based Operators	61,444	63,408	56,135	56,696	57,263	57,836	58,414	58,998	59,588	60,184
Ground Fuel	2,206	2,015	2,310	2,472	2,645	2,830	3,028	3,240	3,467	3,709
Non-Airline Landing Fees	81,298	106,000	106,000	109,180	112,455	115,829	119,304	122,883	126,570	130,367
TERMINAL AREA										
Rental Auto Concessions	$813,260	$857,480	$857,876	$ 900,770	$ 945,808	$ 993,099	$ 1,042,754	$ 1,094,891	$ 1,149,636	$ 1,207,118
Food and Beverage Services	56,176	64,000	64,000	67,200	70,560	74,088	77,792	81,682	85,766	90,054
Miscellaneous Terminal Facilities	229,060	287,457	266,457	277,115	288,200	299,728	311,717	324,186	337,153	350,639
Security-LEO Reimbursement/Fingerprints	318,524	302,679	210,108	210,108	210,108	210,108	210,108	6,000	6,180	6,365
PARKING AREA										
Public Parking Facility	$2,378,751	$2,307,408	$2,525,206	$2,676,718	$2,837,321	$3,007,561	$3,188,014	$3,379,295	$3,582,053	$3,796,976
ADMINISTRATION										
Administative Revenue (Interest)	$269,233	$21,606	$0							
OTHER AREAS										
Other Building Rentals	$236,530	$219,618	$220,905	$227,532	$234,358	$241,389	$248,631	$256,089	$263,772	$271,685
Other Land Rentals	$78,128	$78,891	$90,559	91,465	92,379	93,303	94,236	95,178	96,130	97,092
Miscellaneous Revenue	$155,474	$68,640	$51,392	51,906	52,425	52,949	53,479	54,014	54,554	55,099
Total Non-Airline Revenue	***$4,970,276***	***$4,621,181***	***$4,704,650***	***$4,930,465***	***$5,168,557***	***$5,419,616***	***$5,684,374***	***$5,759,493***	***$6,054,187***	***$6,365,037***
TOTAL AIRPORT REVENUE	**$7,146,353**	**$7,134,010**	**$7,296,261**	**$7,595,229**	**$7,909,002**	**$8,340,377**	**$8,688,231**	**$8,849,343**	**$9,233,045**	**$9,636,043**

Sources: Actual, budget and proposed - City of Eugene, Department of Public Works.
Projected - Mead & Hunt, Inc., and Airport Management.

Revenue at the Airport consists of both operating revenue generated through the operating cycle of the Airport and non-operating revenue generated through such sources as investment income and other non-aviation related rentals and fees. For purposes of this analysis, Airport revenues have been classified as airline revenue and non-airline revenue, with projections made by major source of revenue within each of the following classifications:

- Airline Landing Fees
- Airline Common Use Fees
- Airline Lease and Joint Use Fees
- Airfield Area Revenue
- Rental Auto Concession Fees
- Food and Beverage Revenue
- Miscellaneous Terminal Facility Revenue
- Public Parking Facility Revenue
- Other Revenue

4.1 Airline Landing Fees

Scheduled commercial airlines operating at the Airport are currently charged a landing fee of $2.20 per thousand pounds of landed weight. Pursuant to the provisions of the current Airport and airline use agreement, the airfield cost center ratemaking methodology is based upon a residual approach which is calculated by dividing estimated annual landed weight of signatory aircraft arrivals by the net airfield cost allocated to the airlines (both direct and indirect costs of the Airfield less other Airfield Revenues). Total airline landing fee revenue for FY 2009 is budgeted to be $1,086,733. Projections of future airline landing fee revenues are based on projected net costs allocated to the signatory airlines each fiscal year. As shown in Table 5-5, landing fee revenues for scheduled airline activity at the Airport are projected to increase from $1,086,733 in FY 2009 to $1,248,315 in FY 2016, representing a compounded annual increase of approximately 2.0 percent.

4.2 Airline Common Use Fees

Common use fees represent charges to airlines for a portion of the total expense required to maintain public areas in the terminal building. The total common use fee requirement for the terminal building is collected from the airlines based on their respective share of passenger enplanements. The collection of an airline common use fee was initiated in FY 1997 under the terms of the Use Agreement with the airlines. Airline common use fee revenue has increased from $524,756 in FY 2003 to $710,686 in FY 2009 and as shown in Table 5-5, this source of revenue is projected to increase from $710,686 in FY 2009 to $1,000,007 in FY 2016.

4.3 Airline Lease and Joint Use Fees

Rentals and fees from airline leased areas and joint use area fees represent Airport revenue from areas used exclusively, preferentially, or jointly by airlines operating at the Airport. Airport terminal building rental rates, which represent annual fees applied for areas rented by a tenant for exclusive and preferential use, are currently set at $29.86 per square foot. Airlines are also charged for their joint use of other areas and facilities in the terminal building. Airline joint use fees are paid to cover the cost of operating baggage and security areas used by all airlines. The Airport allocates 10 percent of the total rental requirement for these joint use areas equally among the airlines, and the remaining 90 percent of the requirement to the airlines based on their respective share of passenger enplanements at the Airport. Airline lease and joint use fees fluctuated between $756,601 in FY 2003 to $632,108 in FY 2009 and as shown in Table 5-5, this category of Airport revenue is projected to increase to $836,501 in FY 2016. For purposes of this analysis, it is assumed that the airlines are charged for the cost of two (2) additional Airport employees associated with the Phase II Terminal Building Expansion Project in FY 2012. Accordingly, a compounded annual increase of 2.0 percent was applied to revenue estimates for each year between 2009 and 2016, while an additional $100,000 in airline lease and joint use fees is expected to be collected starting in FY 2012 to recoup the Airport's costs for personnel associated with this project.

4.4 Airfield Area Revenue

For purposes of this analysis, airfield area revenue includes the following: revenues collected from non-airline (charter and air cargo carriers) landing fees, the rental of conventional and T-hangar lease sites and facilities from private and corporate lessees, revenues from fixed base operators (FBOs) leases, site and facility fees, revenues from per gallon fuel flowage fees on all aircraft fuel sold at the Airport, and revenues from the rental of aircraft tie-down facilities. Total airfield area revenues decreased from $432,139 in FY 2003 to $418,147 in FY 2009, primarily due to a decrease in non-airline landing fees. Total airfield area revenues are projected to increase from $418,147 in FY 2009 to $490,008 in FY 2016, representing a compounded annual growth rate of approximately 2.8 percent and spurred by increases in hangar rental revenue and collection of non-airline landing fees during this period.

4.5 Rental Auto Concession Revenue

Rental auto concession revenue includes all fees associated with rental auto agency operations at the Airport including terminal area counter space, percentage of sales fees, and ready/return and service/storage area parking spaces. Rental auto concession revenues have increased from $656,899 in FY 2003 to $857,876 in FY 2009. Projections of future rental auto concession revenues were developed based on projected passenger activity levels and assumptions regarding the service/storage area expansions identified in the CIP. As shown in Table 5-5, rental auto concession revenue is projected to increase from $857,876 in FY 2009 to $1,207,118 FY 2016, representing a compounded annual growth rate of approximately 5.0 percent.

4.6 Food and Beverage Service Revenue

Food and beverage service revenue represents minimum rental charges and percentage fees collected from restaurants located in the terminal building. This source of revenue decreased significantly between FY 2003 and FY 2009 due to the impacts of September 11, 2001 and decreased flow of customers available to concessionaires beyond the security checkpoint since this area was restricted to ticketed-only passengers. During the past six years, the Airport completed modifications to its food and beverage concession space to allow for increased retail offerings prior to passenger security screening. While food and beverage service revenue dropped sharply between FY 2003 and FY 2005, some modest increases have occurred since that time. It is expected that this source of revenue will increase from a proposed FY 2009 level of $64,000 to $90,054 in 2016; representing a compounded annual growth rate of approximately 5 percent.

4.7 Miscellaneous Terminal Facility Revenue

This revenue category includes rent receipts for the gift shop as well as advertising space in the Airport's terminal building and revenue from services made available to passengers in the terminal including automatic teller machines and baggage cart rentals. Revenues from these sources have increased from $205,324 in FY 2003 to $266,457 in FY 2009. As shown on Table 5-5, it is anticipated that these revenue streams will increase from a proposed level of $266,457 in FY 2009 to $350,639 in FY 2016 assuming continuation of a 4 percent annual growth rate in this category of revenue.

4.8 Public Parking Facility Revenue

Public parking facility revenues represent the Airport's share of fees collected for all public parking facilities. Under a contractual agreement with Standard Parking Company, the Airport pays a certain percentage of total parking revenue to this private concessionaire for management of its public parking operations. This concession agreement is scheduled to expire in June 2010 and the Airport currently pays 8.74 percent of total parking revenue to Standard Parking Company under this agreement. Airport parking revenues from this contractual arrangement increased from $1,579,986 in FY 2003 to an expected level of $2,525,206 in FY 2009; translating to a compound annual growth rate of 8 percent during this period. It should be noted that between FY 2003 and FY 2009, the Airport constructed an additional 300 stalls. Future projections of public parking revenue are based on projections of passenger activity. As shown in Table 5-5, public parking revenue is projected to increase from an expected level of $2,525,206 in FY 2009 to $3,796,976 in FY 2016.

4.9 Other Revenue

The other revenue category is comprised mostly of revenues collected from the rental of Airport owned lands to area farmers and building office space to businesses. This category of revenue increased from $236,831 in FY 2003 to $362,856 in FY 2009. Future levels of other revenue were projected individually based on various factors including Airport expansion plans, tenant lease agreements, and projected changes in passenger activity levels at the Airport. This source of revenue is projected to reach $423,876 in FY 2016.

4.10 Summary of Airport Revenue

As shown in Table 5-5, total revenues at Eugene Airport are projected to increase from $7,296,261 in FY 2009 to $9,636,043 in FY 2016; representing a compounded annual growth rate of approximately 4.0 percent. These projections were developed by examining several key business factors that have an impact on major elements of Airport revenue; therefore, actual levels of future revenue may differ from these projections. Examples of some factors that could impact future levels of Airport revenue include changes in the level of passenger activity at the Airport and the entry of another airline.

Additional revenue opportunities, generated through the lease of land not needed for aviation purposes, are presented in Section 8.3.

5. Historical and Projected Airport Operating Expenses

The Airport's historical operating expenses for FY 2003 through FY 2009 are presented in **Table 5-6**. As shown in this table, personnel expenses (including salaries, labor, and employee benefits) have consistently represented the largest category of Airport expenditures over these years. It is expected that during FY 2009 personnel costs will total $3,680,839 and represent approximately 56 percent of all operating expenses of the Airport. The next largest components of total Airport operating expenditures are materials and supplies ($817,951), contractual services ($519,040), utilities ($415,329), maintenance and repair ($308,233), and rent ($224,500).

Estimates of the Airport's future operating expenses were developed based on a review of historical trends, the Airport's FY 2009 expenses, and incremental adjustments that might occur due to facility expansions planned at the Airport over the projection period. **Table 5-7** presents actual FY 2007 expenses, budgeted expenses for fiscal years 2008-2009, and projected operating expenses for the period FY 2010 through FY 2016. For purposes of this analysis, expenses at the Airport are examined in the following classifications:

- Salaries and Labor
- Employee Benefits
- Maintenance and Repairs
- Utilities
- Contractual Services
- Insurance
- Summary of Projected Total Airport Expense

These operating expense categories represent all expenses associated with the day-to-day operations of the Airport. Each expense category, and the assumptions used to project expenses for each, is discussed in the following sections.

5.1 Salaries and Labor

Salaries and labor represent personnel expenditures for Airport management, administrative, fire department, and operations and maintenance employee salaries and wages. Between FY 2003 and FY 2009, these costs increased from $1,946,366 to $2,379,173. As shown in Table 5-7, future salaries and labor expenses are projected to increase from $2,379,173 in FY 2009 to $3,000,276 in FY 2016, representing a compounded annual increase of approximately 3.0 percent. These projections were developed based on an estimated rate of inflation as well as the need to hire two (2) additional Airport Maintenance Workers in FY 2012 to support the expanded terminal building.

5.2 Employee Benefits

Employee benefits expenses include fringe benefit costs, such as employee wage-related taxes, health care, and employee pension. Employee benefits increased from $899,385 in FY 2003 to $1,301,666 in FY 2009. This category of Airport operating expense is projected to increase approximately 6.0 percent per year from FY 2009 to FY 2016 from $1,301,666 in FY 2009 to $2,005,401 in FY 2016.

Table 5-6

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HISTORICAL AIRPORT OPERATING EXPENSES

	Historical					Budget	Proposed
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
OPERATING EXPENSES							
Salaries and Labor	$ 1,946,366	$ 1,813,682	$ 1,761,833	$ 1,872,203	$ 1,979,789	$ 2,336,643	$ 2,379,173
Employee Benefits	899,385	1,033,431	1,013,243	1,107,381	1,127,680	1,197,122	1,301,666
Maintenance and Repairs	179,876	238,953	253,252	306,889	269,160	279,860	308,233
Materials & Supplies	690,488	607,061	671,473	595,738	919,936	829,123	817,951
Rent	179,648	151,133	210,616	237,899	224,772	220,500	224,500
Taxes	106						
Utilities	329,045	369,676	390,028	372,140	377,433	415,018	415,329
Contractual Services	629,518	343,784	457,213	581,464	503,845	566,917	519,040
Insurance	122,609	127,916	122,529	201,301	151,233	138,564	131,047
Total Operating Expenses	***$ 4,976,935***	***$ 4,685,636***	***$ 4,880,187***	***$ 5,275,015***	***$ 5,553,848***	***$ 5,983,747***	***$ 6,096,939***
NON-OPERATING EXPENSES							
Central Services Allocation	360,000	326,000	364,000	265,000	297,000	364,000	503,000
Total Non-Operating Expenses	***$360,000***	***$326,000***	***$364,000***	***$265,000***	***$297,000***	***$364,000***	***$503,000***
TOTAL AIRPORT EXPENSES	**$5,336,935**	**$5,011,636**	**$5,244,187**	**$5,540,015**	**$5,850,848**	**$6,347,747**	**$6,599,939**

Source: City of Eugene, Department of Public Works

Table 5-7

Eugene Airport
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PROJECTED AIRPORT EXPENSES

	FY 2007 Actual	Budget 2008	Proposed 2009	Projected 2010	2011	2012	2013	2014	2015	2016
OPERATING EXPENSES										
Salaries and Labor	$1,979,789	$2,336,643	$2,379,173	$2,450,548	$2,524,065	$2,665,707	$2,745,678	$2,828,048	$2,912,890	$3,000,276
Employee Benefits	1,127,680	1,197,122	1,301,666	1,379,766	1,462,552	1,588,465	1,683,773	1,784,799	1,891,887	2,005,401
Maintenance and Repairs	269,160	279,860	408,233	440,892	476,163	514,256	605,396	653,828	706,134	762,625
Materials & Supplies	919,936	829,123	817,951	850,669	884,696	920,084	956,887	995,162	1,034,969	1,076,368
Rent	224,772	220,500	224,500	233,480	242,819	252,532	262,633	273,139	284,064	295,427
Taxes										
Utilities	$377,433	$415,018	$415,329	431,942	449,220	467,189	485,876	505,311	525,524	546,545
Contractual Services	$503,845	$566,917	$519,040	542,397	566,805	592,311	618,965	646,818	675,925	706,342
Insurance	$151,233	$138,564	$131,047	132,357	133,681	135,018	136,368	137,732	139,109	140,500
Total Operating Expenses	***$5,553,848***	***$5,983,747***	***$6,196,939***	***$6,462,051***	***$6,740,000***	***$7,135,561***	***$7,495,576***	***$7,824,838***	***$8,170,502***	***$8,533,483***
NON-OPERATING EXPENSES										
Central Services Allocation	$297,000	$364,000	$503,000	518,090	533,633	549,642	566,131	583,115	600,608	618,627
Total Non-Operating Expenses	***$297,000***	***$364,000***	***$503,000***	***$518,090***	***$533,633***	***$549,642***	***$566,131***	***$583,115***	***$600,608***	***$618,627***
TOTAL AIRPORT EXPENSES	**$5,850,848**	**$6,347,747**	**$6,699,939**	**$6,980,141**	**$7,273,633**	**$7,685,202**	**$8,061,707**	**$8,407,953**	**$8,771,110**	**$9,152,109**

Sources: Historic, budget, and proposed - City of Eugene, Department of Public Works.
Projected - Mead & Hunt, Inc., and Airport Management.

5.3 Maintenance and Repairs

Maintenance and repairs expenses represent the cost of materials and supplies needed for maintaining and repairing all of the Airport's grounds and facilities as well as charges for minor equipment outlays. Maintenance and repairs expenses grew at an annual rate of 9.0 percent between the years of FY 2003 and FY 2009 increasing from $179,876 to $308,233. As shown in Table 5-7, this category of expense is projected to increase from $308,233 in FY 2009 to $762,625 in FY 2016. This growth includes a $100,000 increase in FY 2009 to account for the steep rise in gas prices and further anticipates additional expenditures following the construction of the first portion of the terminal expansion ($50,000 in FY 2014).

5.4 Utilities

Expenditures captured in the "Utilities" category include charges for electricity for terminal and airfield facilities, natural gas for heating, and water and sewage services. These expenditures have ranged from a low of $329,045 in FY 2003 to a high of $415,329 in FY 2009, resulting in a compounded annual increase of approximately 4.0 percent. As shown in Table 5-7, utilities are projected to increase from $415,329 in FY 2009 to $546,545 in FY 2016, representing a compounded annual increase of approximately 4.0 percent. Future utilities expenses were projected based on historical actual costs and the anticipated costs associated with proposed expansion of airfield and terminal facilities.

5.5 Contractual Services

Contractual services expenses represent the annual costs of providing contract services to aid in the efficient operation of the Airport. This expense has fluctuated over the last seven fiscal years, ranging from a low of $343,784 in FY 2004 to high of $629,518 in FY 2003. For purposes of this analysis, future contractual service expense is projected based on the total expense for this category anticipated to occur in FY 2009. As shown in Table 5-7, contractual services expenses are projected to increase from $519,040 in FY 2009 to $706,342 in FY 2016, representing a compounded annual increase of approximately 5.0 percent.

5.6 Insurance

Insurance expenses are comprised of the costs of providing liability, property, and other insurance coverage to account for the risks associated with the operation of and damage to Airport facilities. Insurance expenses have increased from $122,609 in FY 2003 to $131,047 in FY 2009. Based on discussion with Airport management, FY 2009 insurance expenses were used as the base for future projections of this category of expense and as shown in Table 5-7, thus, this category of expense is projected to increase from $131,047 in FY 2009 to $140,500 in FY 2016.

5.7 Summary of Projected Total Airport Expense

In addition to the previously described operating expenses, the Airport incurs expenses that are considered non-operational in nature. These expenses are presented in Table 5-6 and Table 5-7 as "Central Services Allocation" and represents indirect costs allocated to the Airport by the City of Eugene for support services, such as Information Technology. The City, through the preparation of a cost allocation plan, estimates these annual costs for the Airport and as shown in Table 5-6, these expenditures increased from $360,000 in FY 2003 to $503,000 in FY 2009. Based upon discussions with Airport Management, Central Service Allocation costs are projected to increase more modestly between FY2009 and FY 2016, increasing from $503,000 to approximately $618,627 or by 3.0 percent per year during this period.

Aggregating operating expenses with non-operating expenses yields total annual expenditures incurred by the Airport. As shown in Table 5-6, total Airport Operating Expenses increased from $5,336,935 in FY 2003 to $6,599,939 in FY 2009. Projected increases in the Airport's total expenses are presented in Table 5-7, which forecasts expenditure levels increasing from $6,699,939 in FY 2009 to approximately $9,152,109 in FY 2016.

6. Debt Service

Given the magnitude and scope of the projects contained in the recommended CIP, the issuance of new debt will be necessary to underwrite the following elements of this work:

- Terminal, Phase II – Airport Administration and Baggage project ($9.6 million PFC eligible as well as $2.4 million for non AIP and PFC project components)
- Concourse B Expansion ($1.9 million PFC revenues)
- Concourse C – Phase I Expansion ($6.7 million PFC revenues)
- Airport Access Road Improvements ($1.6 million PFC revenues)
- Phase I – Passenger Parking Expansion Project ($2.2 million)

Since portions of the terminal construction projects are eligible for funding through the PFC program, it is proposed that the Airport weigh the feasibility of pursuing debt financing backed by its future stream of PFC revenues to retire this debt and complete this work in a timely fashion. Since the Airport successfully retired all outstanding debt as of June 30, 2008 the Airport will be in an opportune position to issue new debt to undertake these projects assuming passenger activity and operating financial results are achieved and are reasonably expected to continue for the duration of the debt payment period. Several options exist for the Airport to pursue debt financing for these projects including:

- General Obligation Bonds issued by the City on behalf of the Airport with PFC revenue and general airport revenue pledged to support payment of debt service
- General Airport Revenue Bonds secured by a pledge of general airport and PFC revenue to retire debt service
- Stand-Alone PFC Bonds backed solely by PFC revenues

Each of the above options have unique advantages and disadvantages which the Airport should more thoroughly and thoughtfully weigh prior to proceeding with issuing bonds for these projects. In terms of the Passenger Parking Expansion and Airport Administration Projects, it is recommended that the Airport issue either General Obligation Bonds or General Airport Revenue Bonds secured by a pledge of general airport revenues for retirement of this debt.

Table 5-8 provides a debt service schedule for bonds issued in FY 2010 for the Terminal Phase II project, Concourse B expansion, and Access Road improvements projects. In addition, this table assumes that in FY 2014 additional bonds will be issued for the Concourse C – Phase I expansion. These debt service assumptions are tracked in Table 5-3 in the annual “Required PFC Fund” calculations along with projects scheduled to be completed on a pay-as-you-go basis. For purposes of this analysis, it is assumed that an overall interest rate of 4.75 percent is obtained for these borrowings and a payback period of 20 years is utilized. Collectively, these bond packages will entail the issuance of approximately $19.8 million and will require the use of PFC revenues totaling approximately $1.02 million in Fiscal Years 2011-2013 and $1.54 million per year thereafter to achieve retirement. As noted on Table 5-3 and **Table 5-9**, the Airport is expected to generate sufficient PFC revenues to retire both this debt as well as fund other PFC pay-as-you-go projects anticipated for construction during this plan.

Table 5-8 also proposes that bonds for the Phase I Passenger Parking Expansion and construction of the Airport administration space be issued in FY 2010 resulting in debt of approximately $357,000 per year to be paid from general Airport revenues. With the issuance of these bonds, the aggregate annual debt service required for these Airport projects will range from
$357,000 to $1.9 million per year during the planning period. As depicted in Table 5-9, it is expected that sufficient revenue will be generated to support these borrowings and provide annual deposits to the Airport’s Operating and Capital Reserve Fund.

7. Cash Flow Analysis and Overall Feasibility

This section sets forth a discussion of the Airport’s projected cash flow from Operating Activities (Table 5-9) and its proposed Capital Improvement Plan (**Table 5-10)** for the period FY 2009 through FY 2016. The purpose of presenting these cash flow analyses is to demonstrate the Airport’s ability to generate revenue sufficient to cover operating expenses and produce net revenue from operating activities through FY 2016. It further demonstrates that sufficient AIP funds, PFC revenues, and local Operating and Capital Reserves will be available to implement the recommended CIP through FY 2016.

In Table 5-9, projected Airport expenses are subtracted from projected Airport revenues, including transfers of sufficient PFC revenue for eligible debt service, on an annual basis through 2016 to estimate the Airport’s net revenue in each of these years. From this net revenue, the Airport is required to make debt service payments and deposits to its Operating and Maintenance (O&M) Reserve Fund. This fund is required by the City and is to hold a balance equal to two months of the Airport’s projected operating expenses in each year. Since the Airport is expected to hold approximately $1.047 million in this fund as of FY 2009, additional deposits are not required to meet this two-month requirement until FY 2012, assuming the attainment of the projected Airport operating expenditure levels presented in Table 5-7. Total projected annual debt service payments on the proposed FY 2010 and FY 2014 borrowings are subtracted from the Airport’s net revenue to calculate the Airport’s Net Remaining Revenue Available for deposit. Once these obligations are accounted for, all remaining net income is available for deposit in the Airport’s Operating and Capital Reserve Fund.

Table 5-8

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SCHEDULE OF FUTURE DEBT SERVICE

		Projected							
	2008	2009	2010	2011	2012	2013	2014	2015	2016
DEBT SERVICE									
Parking & Admin. Space Bonds	$0	$0	$356,715	$356,715	$356,715	$356,715	$356,715	$356,715	$356,715
Terminal Phase II & Access Road Bonds	$0	$0	$0	$1,017,420	$1,017,420	$1,017,420	$1,017,420	$1,017,420	$1,017,420
Concourse C - Phase I Bonds	$0	$0	$0	$0	$0	$0	$522,672	$522,672	$522,672
Total Debt Service	***$0***	***$0***	***$356,715***	***$1,374,135***	***$1,374,135***	***$1,374,135***	***$1,896,807***	***$1,896,807***	***$1,896,807***

Note: Assumes the City issues bonds for the construction of the Phase I Passenger Parking Expansion & Non-PFC eligible costs associated with the Terminal Phase II project in 2010($4.6M), bonds in 2011 for PFC eligible portions of Phase II work & Access Road ($13.1M) and bonds in 2014 for Concourse C PFC eligible work ($6.7M).

Source: Mead & Hunt, Inc.

Table 5-9

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PROJECTED AIRPORT CASH FLOW FROM OPERATING ACTIVITIES

	Proposed	Projected							
	2008	2009	2010	2011	2012	2013	2014	2015	2016
CASH FLOW - OPERATING ACTIVITIES									
Airport Revenue	$7,134,010	$7,296,261	$7,595,229	$7,909,002	$8,340,377	$8,688,231	$8,849,343	$9,233,045	$9,636,043
PFC Revenue for Debt Service	$0	$0	$0	$1,017,420	$1,017,420	$1,017,420	$1,540,092	$1,540,092	$1,540,092
Operating Expense	$6,347,747	$6,699,939	$6,980,141	$7,273,633	$7,685,202	$8,061,707	$8,407,953	$8,771,110	$9,152,109
Net Revenue	$786,263	$596,322	$615,087	$1,652,790	$1,672,594	$1,643,943	$1,981,482	$2,002,026	$2,024,026
Debt Service Payment	$0	$0	($356,715)	($1,374,135)	($1,374,135)	($1,374,135)	($1,896,807)	($1,896,807)	($1,896,807)
Net Remaining Revenue Available for Deposit	$786,263	$596,322	$258,372	$278,655	$298,459	$269,808	$84,675	$105,219	$127,219
Deposit to O&M Reserve Fund	$0	$0	$0	$0	($63,604)	($60,003)	($54,877)	($57,611)	($60,497)
Deposit to Operating and Capital Reserve Fund	$786,263	$596,322	$258,372	$278,655	$234,855	$209,806	$29,798	$47,609	$66,722

Source: Mead & Hunt, Inc.

Table 5-10

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PROJECTED AIRPORT CASH FLOW - CAPITAL IMPROVEMENT PLAN

	Proposed	Projected							
	2008	2009	2010	2011	2012	2013	2014	2015	2016
CASH FLOW - CAPITAL IMPROVEMENT PROGRAM									
SOURCES OF FUNDS - CUMULATIVE BALANCE (Current contribution plus previous year-end balance)									
Federal AIP Entitlement Funds	$2,653,342	$2,708,061	$2,762,781	$2,817,500	$2,872,220	$2,926,940	$2,960,968	$2,994,997	$3,029,026
Federal AIP Discretionary Funds	$0	$4,180,000	$1,132,219	$222,500	$0	$0	$0	$0	$0
Passenger Facility Charges	$1,506,532	$1,548,108	$1,589,685	$1,631,261	$1,657,117	$1,682,972	$1,708,827	$1,734,683	$1,760,538
Customer Facility Charge Revenues	$0	$3,000,000	$0	$0	$0	$0	$0	$0	$0
Operating and Capital Reserves	$3,300,000	$3,868,822	$3,168,194	$3,446,849	$3,681,704	$3,891,510	$3,921,308	$3,968,917	$4,035,638
Other Funds	$110,000	$0	$0	$0	$0	$0	$0	$0	$0
Total Sources of Funds	$7,569,874	$15,304,991	$8,652,879	$8,118,111	$8,211,041	$8,501,421	$8,591,104	$8,698,596	$8,825,202
USES OF FUNDS									
Federal AIP Entitlement Funds	$2,612,500	$2,641,000	$2,762,781	$2,817,500	$2,600,000	$1,900,000	$2,960,968	$1,425,000	$285,000
Federal AIP Entitlement Carryover Funds	$0	$0	$0	$0	$0	$0	$1,299,160	$0	$0
Federal AIP Discretionary Funds	$0	$4,180,000	$1,132,219	$222,500	$0	$0	$0	$0	$0
Passenger Facility Charges	$0	$0	$3,455,000	$1,177,420	$1,097,420	$1,117,420	$1,540,092	$1,615,092	$1,555,092
Customer Facility Charge Revenues	$0	$3,000,000	$0	$0	$0	$0	$0	$0	$0
Operating and Capital Reserves	$27,500	$959,000	$0	$0	0	$0	$0	$0	$0
Other Funds	$110,000	$3,000,000	$0	$0	$0	$0	$0	$0	$0
Total Uses of Funds	$2,750,000	$13,780,000	$7,350,000	$4,217,420	$3,697,420	$3,017,420	$5,800,220	$3,040,092	$1,840,092
BALANCE OF GRANTS AND OTHER FUNDS AT YEAR END									
Federal AIP Entitlement Funds 1/	$40,842	$67,061	$0	$0	$272,220	$1,026,940	$0	$1,569,997	$2,744,026
Federal AIP Discretionary Funds	$0	$4,180,000	$1,132,219	$0	$0	$0	$0	$0	$0
Passenger Facility Charges	$3,028,382	$4,576,490	$2,711,175	$3,165,017	$3,724,713	$4,290,265	$4,459,000	$4,578,591	$4,784,037
Operating and Capital Reserves	$3,272,500	$2,909,822	$3,168,194	$3,446,849	$3,681,704	$3,891,510	$3,921,308	$3,968,917	$4,035,638
Other Funds	$0	$0	$0	$0	$0	$0	$0	$0	

Source: Mead & Hunt, Inc.
Note: 1/ Entitlements not used in year received can be carried over for three years.

As shown in Table 5-9, the Airport is projected to produce net revenues adequate to cover all projected debt service payments and required reserve fund deposits as well as provide for significant deposits to the Airport Operating and Capital Reserve Fund on an annual basis through FY 2016. Although a detailed analysis of the Airport operating performance from FY 2017 through FY 2028 was not conducted, it is anticipated that similar financial results will continue through the end of the planning period.

Table 5-10 presents an analysis of the anticipated sources, uses, and balances of funds for the recommended CIP through FY 2016. The first section of Table 5-10 presents *Sources of Funds* that the Airport anticipates will be available to fund the CIP. As shown in Table 5-10, it is funding for the recommended CIP will come from AIP entitlement, AIP discretionary, PFC revenue, and the Airport's Operating and Capital Reserves and Depreciation Reserve Funds. The Operating and Capital Reserve Fund is a fund maintained by the Airport which holds the cumulative balance of net revenues from the Airport's operating activities. It is forecasted that a balance of approximately $3.3 million will be on hand as of June 30, 2008. For purposes of this analysis, it is assumed that portions of future net revenues from operating activities will be transferred to this account, a portion of the fund will be used to fund the local share of recommended CIP projects, and a balance of $3.5 million will exist as of June 30, 2016 assuming the Airport achieves the operating financial results projected herein.

The anticipated CIP funding plan (USES OF FUNDS) is also presented in Table 5-10. The preliminary CIP funding plan was developed and discussed earlier in this analysis. The controlling objectives in developing the CIP funding plan were to maximize the use of resources from AIP and PFC funds and to minimize Airport/local funding requirements. The Total Uses of Funds depicted in Table 5-10 corresponds to the total estimated project cost for the recommended CIP projects in each of the planning years FY 2008 through FY 2016.

The final section of Table 5-10 presents the annual balance projected for each of the funding sources anticipated for use in the recommended CIP. AIP discretionary funds and private funds will maintain a zero balance through FY 2016, as it is assumed that these funds will be received when needed to fund specific components of the recommended CIP. A balance of $2.7 million in AIP entitlement funds is expected in FY 2016; however, these funds are programmed for use in Fiscal Year 2018 for the Runway 34R Extension Project. A balance of approximately $4.7million in PFC revenues is also forecast; yet, these resources are pledged to pay debt service as well as other pay-as-you-go eligible projects in future years. Finally, as noted previously, the Airport's Operating and Capital Reserve Fund is expected to continue a positive balance through FY 2016.

Conclusion

As shown in Tables 5-9 and 5-10, the Airport is projected to produce positive net operating revenues through FY 2016. Furthermore, the deposit of a portion of these net operating revenues into the Airport's Operating and Capital Reserve Fund will allow the Airport, based on the CIP funding plan developed in this analysis, to have adequate amounts of AIP, PFC, and Operating and Capital Reserve Funds necessary to fund the CIP through 2016.

Based on the foregoing analysis, including the underlying assumptions under which it was made, the CIP recommended for the Airport is expected to be both feasible and implementable.

8. Sensitivity Analyses

This section of the financial feasibility analysis considers the impact of alternative financial assumptions on the capital plan contemplated herein.

A scan of the aviation industry as of the date of publication of this study reveals that The United States Congress has yet to enact legislation to reauthorize "Vision 100 – Century of Aviation Reauthorization Act"; therefore, FAA's ability to issue AIP grants to airport sponsors is limited. Moreover, the price of crude oil has reached unprecedented levels creating economic uncertainty and further pressuring both the commercial airline industry as well as general aviation providers/aircraft owners to keep aviation a viable and solvent industry. As the result of the mounting pressure the cost of fuel is placing on the commercial aviation industry, additional consolidation is anticipated which could affect the ability of the Airport to complete the capital plan as presented. Despite these concerns, several potential indicators and policy changes could bolster the airport's ability to sustain momentum and accomplish the recommended projects contained in this plan. The first is a change in the PFC program; the second includes reductions in airport activity; and the third explores the Airport's ability to generate additional revenue using surplus properties.

8.1 Changes in PFC Program

Although Congress has yet to finalize action on FAA AIP Reauthorization legislation, it is generally believed that when it does the current PFC level of $4.50 per passenger will be increased to $7.00 per passenger. Such a measure would prove invaluable to the Airport, as this action would translate into the ability to undertake key terminal expansion and renovation projects based more on a pay-as-you-go basis rather than rely solely on PFC-backed debt financing. **Table 5-11** provides a summary of estimated PFC collections with a $7.00 per passenger fee along with anticipated PFC expenditures. With the higher PFC in place, the Airport could reduce the amount of debt it would need to issue for the Terminal Phase II – Airport Administration/Baggage project by $6.0 million and fund from cash both phases of the Concourse C expansion projects scheduled for 2014 and 2023 respectively. Finally, with a $7.00 PFC, the Airport could cease collections for all projects contained in this plan in FY 2020.

8.2 Changes in Airport Activity

In terms of the impact of a decline in aviation activity occurring as the result of current economic conditions, the Airport is poised to be rather resilient and capable of absorbing these impacts. A broad sensitivity analysis was applied to the passenger forecast contained in this plan whereby a 10 percent decrease in passenger enplanements occurs in FY 2009 followed by an additional 5 percent reduction in FY 2010. Thereafter, a compounded annual growth rate of 2 percent was applied for the remainder of the forecast. **Table 5-12** depicts the impact of such a reduction in passenger activity on forecasted FAA entitlement and PFC funds for the period FY 2009-2016.

Table 5-11

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PROJECTED PASSENGER FACILITY CHARGE
CASH FLOW ANALYSIS - $7.00 PFC

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Projected Enplanements		391,827	402,350	412,873	419,417	425,961	432,505	439,049	445,593
Net PFC Amount		$6.89	$6.89	$6.89	$6.89	$6.89	$6.89	$6.89	$6.89
Estimated PFC Revenue		$2,429,719	$2,494,972	$2,560,225	$2,600,805	$2,641,384	$2,681,964	$2,722,543	$2,763,122
PFC Expenditures									
Terminal Ramp Rehabilitation - Phase I	$1,200,000	$0	$0	$0	$0	$0	$0	$0	$0
Terminal - Phase I - Baggage Screening	$0	$0	$3,250,000	$0	$0	$0	$0	$0	$0
South Ramp Rehabilitation - South Section	$0	$0	$30,000	$0	$0	$0	$0	$0	$0
North Ramp Rehabilitation - Middle Section	$0	$0	$25,000	$0	$0	$0	$0	$0	$0
Runway 34L/16R Overlay - Lights & Connecting Taxiway	$0	$0	$150,000	$0	$0	$0	$0	$0	$0
Terminal Phase II – Airport Administration/Baggage				***$6,000,000***					
PFC Debt Service - Concourse B/C, Baggage, Access Roa	$0	$0	$0	$552,132	$552,132	$552,132	$552,132	$552,132	$552,132
Concourse C - Phase II - Two Gates & Ramp							***$6,740,000***		
Aircraft De-Icing Facility	$0	$0	$0	$105,000	$0	$0	$0	$0	$0
Taxiway A Rehabilitation - Phase I (A7-A4)	$0	$0	$0	$55,000	$0	$0	$0	$0	$0
Taxiway A Rehabilitation - Phase II	$0	$0	$0	$0	$80,000	$0	$0	$0	$0
Taxiway K Widening	$0	$0	$0	$0	$0	$65,000	$0	$0	$0
Taxilan Non-Movement Area - EGAR to North Ramp	$0	$0	$0	$0	$0	$35,000	$0	$0	$0
Hollis Taxilane - Short	$0	$0	$0	$0	$0	$0	$0	$40,000	$0
Master Plan Update	$0	$0	$0	$0	$0	$0	$0	$35,000	$0
Environmental Assessment - Runway 34R Extension	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Mitigation/Drainage - Runway 34R Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0
Runway 34R Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0
Terminal - Phase III - Airline Ticketing	$0	$0	$0	$0	$0	$0	$0	$0	$0
Concourse C - Phase II - Two Gates & Ramp									
Master Plan Update	$0	$0	$0	$0	$0	$0	$0	$0	$0
ARFF Access Road - Txy C to Txy A	$0	$0	$0	$0	$0	$0	$0	$0	$0
Airfield Maintenance Facility	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total PFC Expenditures	$1,200,000	$0	$3,455,000	$6,712,132	$632,132	$652,132	$7,292,132	$627,132	$567,132
Cumulative PFC Funding Balance	$3,028,382	$5,458,101	$4,498,074	$346,167	$2,314,840	$4,304,092	-$306,076	$1,789,334	$3,985,325

Source: Mead & Hunt, Inc.
Note: Assumes an increase to a $7.00 PFC with airline processing cost remaining at $0.11 per PFC.

Table 5-12

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PROJECTED AIRPORT CASH FLOW - CAPITAL IMPROVEMENT PROGRAM
SENSITIVITY ANALYSIS

		Projected							
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Projected Enplanements	381,304	343,204	326,204	332,748	339,292	345,836	352,380	358,924	365,468
Projected FAA Entitlement Funds	$2,653,342	$2,708,061	$2,762,781	$2,564,661	$2,476,261	$2,510,290	$2,544,318	$2,578,347	$2,612,376
Projected Passenger Facility Charge Funds	$1,506,532	$1,355,999	$1,288,832	$1,314,687	$1,340,543	$1,366,398	$1,392,253	$1,418,109	$1,443,964
BALANCE OF GRANTS AND OTHER FUNDS AT YEAR END									
Federal AIP Entitlement Funds 1/	$40,842	$67,061	$0	-$144,936	-$123,739	$610,290	-$416,650	$1,153,347	$2,327,376
Federal AIP Discretionary Funds	$0	$4,180,000	$1,132,219	$222,500	$0	$0	$0	$0	$0
Passenger Facility Charges	$3,028,382	$4,384,381	$2,218,213	$2,355,480	$2,598,603	$2,847,581	$2,699,742	$2,502,759	$2,391,631
Operating and Capital Reserves	$3,272,500	$2,909,822	$3,168,194	$3,446,849	$3,681,704	$3,949,843	$4,034,308	$4,140,957	$4,271,442

Source: Mead & Hunt, Inc.
Note: 1/ Entitlements not used in year received can be carried over for three years.

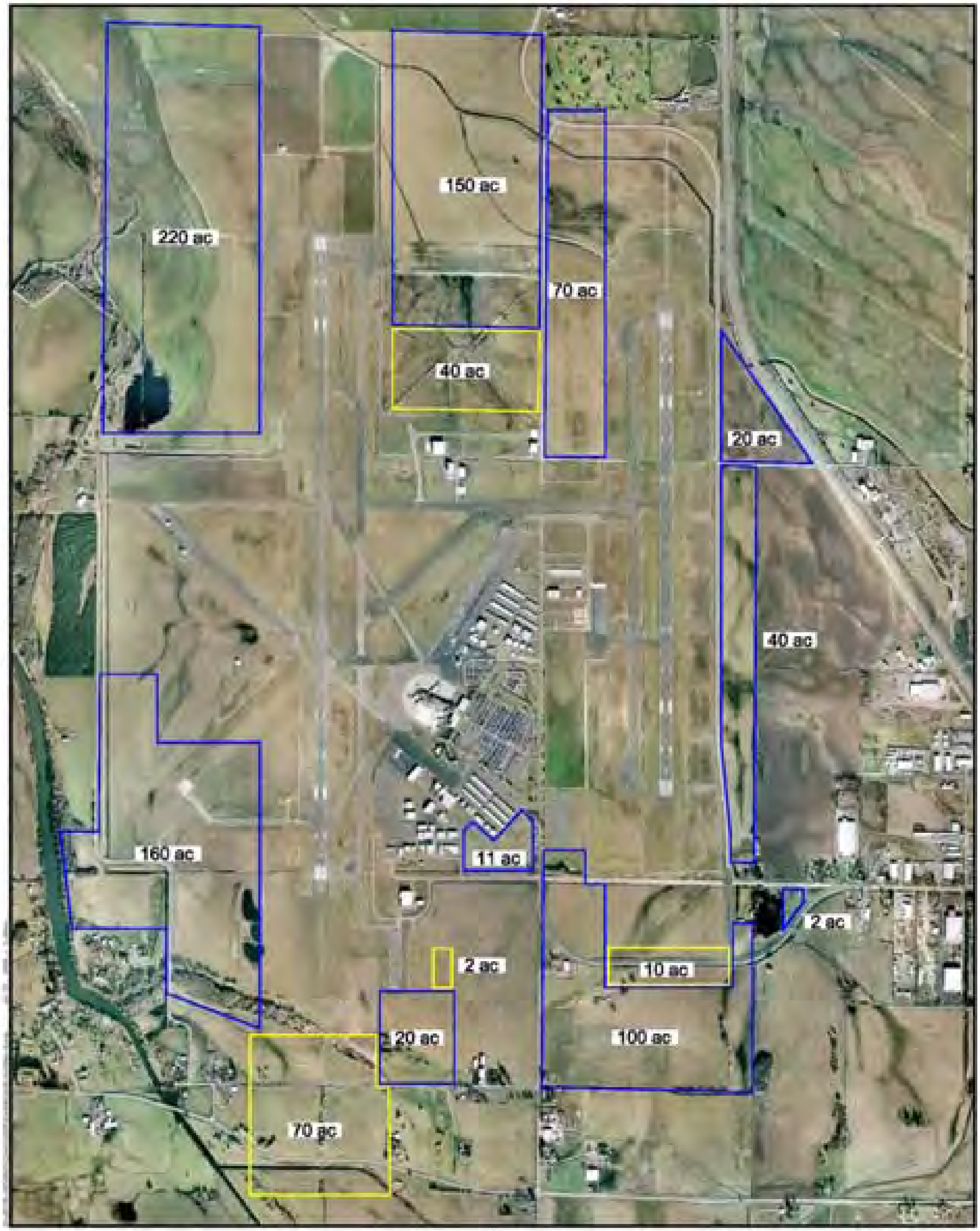
As noted, sufficient PFC revenues should exist to fund the proposed plan even with this reduced passenger level; however, it will be necessary for the Airport to “multi-year” its FAA grant program in Fiscal Years 2011, 2012 and 2014 in order to garner sufficient federal funding. Since the Airport intends to construct an Aircraft Deicing Facility in 2011, and this project already has FAA Discretionary funding tentatively earmarked for it, it is likely that the FAA would allocate the additional resources to complete this project. If additional discretionary funding is provided, the Airport would only be required to multi-year entitlement funds in FY 2012 and 2014.

While Table 5-12 focuses on the short and mid-term planning horizon, extrapolation of the adjustments to enplanements described above for the entire master plan period indicates that aggregate FAA entitlements would total $59.9 million while PFC collections would total $33.2 million creating a shortfall of approximately $4.3 million for the recommended capital program. To bridge the lack of PFC funds, the Airport should consider either allocating resources from its Operating and Capital Reserve Fund, earmark funds from the lease of land for construction, and/or increase airport fees and charges. Of course, such measures would need to be factored against an evaluation of the need to undertake capacity-driven projects such as passenger automobile parking expansions, terminal building projects, and fuel farm expansion work if such an economic/passenger downturn were to occur.

8.3 Additional Revenue Generation

It is recognized that the Airport currently maintains an inventory of property which it could lease to generate revenue to help pay for the CIP. The purpose of this review and subsequent analysis is to provide observations and recommendations on the physical, legal and economic aspects of those properties identified on the **Exhibit 5-2** as being available for consideration for revenue generation for the Eugene Airport. Following are items the City needs to consider in conjunction with determining if these properties are suitable for non-airport operations.

> All identified properties are located outside of the Urban Growth Boundary of the City; therefore, urban services are not available including water and sanitary sewer service. Many of the parcels can be developed; however, without these services, their utility is limited since fire sprinklers are required in buildings over certain sizes. These parcels will be difficult to market as they cannot support fire suppression systems due to the lack of public water service. In addition, the lack of sanitary sewer service will also limit the development of most parcels, as the soils in the area are not conducive for traditional septic systems. A prime example of this is the States Veneer Facility at Hwy 99 and Enid, where it was necessary to have a very expensive sand filter system installed to accommodate their operations. If public services can be made available to any of the parcels being considered for revenue generation, this should be fully explored prior to marketing the properties. Additional consideration should be given to the method of taxation, as it is assumed that the properties will go onto the City’s tax rolls if any property rights are conveyed to a private, for-profit entity. There is a provision that allows Airport property to remain tax exempt even when improved with private sector for-profit uses, so a determination of the applicability of this exemption should be explored in-depth by legal counsel prior to moving forward with implementation of any marketing activities.



Eugene Airport
Master Plan Update

0 400 800 1600
SCALE IN FEET

N

Reserved (Yellow)
Available (Blue)

Exhibit 5-2
Revenue Generation Property

- The decision as to whether to allow the properties to be marketed on a ground lease or for sale basis should be determined prior to offering the properties for alternative uses. There is reluctance in the marketplace to enter into ground leases as they are very difficult to finance. The Lessees typically request a subordination clause so financing can be obtained; however, this creates considerable risk for the Lessor as they become a second or third place lien holder if subordination is granted. In addition, what happens to the structural improvements at the end of the lease term also causes concern as most ground leases have a provision to allow the Lessee to purchase the site at the end of the lease term. A local example of how ground leases can adversely affect the marketing of properties is the example of the University of Oregon's Riverfront Research Park. This project only allows ground leases, (typically 99 years), yet, there has been very little activity and demand for these properties. There are other factors in the lack of market acceptance, but the ground lease situation is viewed by many in the real estate market as being one of the major impediments to market acceptance. If a sale is contemplated, then compatibility of uses becomes an issue as does the potential need for future Airport expansion. A sale can be consummated with a reservation for the City to have the first right of refusal on any future sale or if needed for tax purposes, the City could reserve an option to buy back the property for a specified price at a specified date.
- Wetland mitigation could be a factor for some properties. The current cost of mitigation, on a one-for-one basis, is approximately $60,000 per acre, which is above the price the property could achieve in the market; therefore it is highly unlikely that any prospective user would undertake wetland mitigation.
- With regard to the potential use of the larger acreage parcels, the recommendation is to market these for agricultural uses. A ground lease for this type of use will not be difficult to achieve as many uses of this type do not require the construction of improvements. A use such as the raising of nursery stock, Christmas trees or the continuation of the raising of grass seed crops are a few of the recommended uses for these larger parcels which are all zoned for agricultural uses. Rates of return for these types of uses currently range from 4-6 % of the underlying land value. Annual increases tied to the Consumer Price Index are many times asked for, but in agricultural ground leases Lessees typically do not accept such rate increases. This range of uses would not produce a significant increase in the income currently being generated, assuming the current arrangements are at market rates.
- The 20-acre parcel located to the Northeast of the new runway could conceivably be used for a commercial range of uses. However, if utility services are not available, then the range of uses is severely limited. One consideration is that if a large user is contemplated, such as a hospitality (Motel/Hotel) facility, then a lagoon system may be necessary. The Airport overlay zone precludes any use/development that may attract waterfowl/ birds, and open lagoons are difficult to locate near runways. A closed system could be constructed; however, the costs may be prohibitive. The same situation goes for water service as any overnight lodging facility would require fire sprinklers and without gravity flow water service, it is not feasible to construct a reservoir system to accommodate this need. Stormwater runoff is required to be treated prior to entering the watershed, so to accommodate a large paved area it will be very difficult to make this accommodation and not have an open settling pond system. If utility services become available, then the range of uses and eventual prices will be greater than if not. The recent (2008) sales in the vicinity indicate unit prices in the $2-$3.50 per square foot of land area, and these sales have

a full level of services available. These unit prices are for industrially related uses, so if a commercial use could be placed on this site, an increase of almost twice the demonstrated unit price could be achieved. The eventual construction of the State Mental Hospital and Prison will enhance the demand for this site; however it may be several years before construction is started. Access to the state Highway will be highly scrutinized by ODOT (Oregon Department of Transportation).

- The 40-acre parcel that parallels the new runway would receive a reasonable level of market interest; however, public utility services will need to be provided because wells and septic tanks are not practical. There is a good level of market demand for smaller buildable industrially zoned sites; however, the recent substantial increase in fuel costs has created a perception that the outlying areas are now less desirable when compared to other sites due to the increases in transporting materials and personnel. When this property is divided into smaller parcels (recommended 3-5 acre parcels) then a unit price of $2-$3 per square foot is anticipated; however, the costs of making the property buildable will need to be deducted such as partitioning, fill material, services and/or approvals, and the extension of utilities such as electric, phone and other related costs.
- The smaller 2-acre parcel on Airport Road will be readily accepted if marketed for sale as it enjoys considerable traffic exposure. Assuming the sites' proximity to the pond does not render it unbuildable; a sale of the property for a light industrial type of use is anticipated.
- The 11-acre parcel at the northwest corner of Airport Road and Douglas Drive is the most viable for generating revenue in the short-term. In addition, the smaller parcel located at the northeast corner of the same intersection is also perceived as having good potential of being accepted by the marketplace for traditional airport related uses. Assuming a range of uses consistent with those permitted in the C-1 or C-2 zones, a range of market prices in the $6-10 per sq ft range is anticipated for this property. The variance in price is dependent on the amount of fill that is needed to bring the site to a buildable condition as well as where access will be located. If there are restrictions on lighting and other elements of a traditional commercial use, then these could have a downward affect to the price, however it is not perceived as being substantial. This location is considered to have the greatest potential for generating revenue, both in amount per acre and timing.

Creation and implementation of an overall marketing plan is critical to achieving market participation beyond a few specific users. It is recommended that the city move forward with creating such a plan for any property it is contemplating leasing or selling. At a minimum, the plan should include a list of permitted uses and restrictions for the properties, a description of current utilities and how these services may be provided in the future, full disclosure of all wetlands the City's willingness to pay brokerage fees, and a complete description of the process to be utilized to obtain City approval for any lease or sale. Finally, it is recommended that pricing should be based on perceived unit prices considered comparable to the properties being conveyed, recognizing that many uses will be totally dependent on their proximity to the Airport. In undertaking its marketing plan, the City should remain cognizant of the fact that local market conditions are beginning to show signs of slowing. It is conceivable there will be a very limited demand for many of the properties being considered for revenue generation. The agricultural demand has remained relatively unchanged over the past decades and even if there is a recession, the income potential estimated for these properties is estimated to remain relatively unchanged. The demand for the remaining parcels will be somewhat limited, dependent on the availability of services. If the parcels at Airport Road and Douglas Drive are served, they will demonstrate a relatively strong demand and airport related users will still be willing to enter into either ground leases or sales, dependent on the offering by the City.

This chapter provides details and analysis of government regulations and guidelines pertaining to airport design and operation. The effects of federal, state, and local regulations on Eugene Airport are presented. Items explored in greater detail are Federal Aviation Administration (FAA) design standards, Oregon Revised Statutes (ORS) and Administrative Rules (OAR), the Lane County Code, and the Eugene-Springfield Metropolitan Area General Plan (Metro Plan). In addition to land use, the effects of airport noise are discussed.

Land use compatibility planning in the vicinity of an airport provides safety for aircraft, and for people and property on the ground. In recent years, incompatible land uses and their impacts on airport operations and development have escalated nationwide. As incompatible land uses near airports threaten the nation's aviation system, implementation of land use controls have become an industry priority.

It is essential to maintain an obstruction-free airport and associated airspace. Planning to guard against incompatible land uses should be conducted for airport property, runway protection zones, approach areas, and the general vicinity of the airport. While some of these areas are owned by airports, land beyond airport boundaries is privately owned and needs to be managed by the airport's local jurisdictions to ensure safe airport operations. The primary tools available to local governments to prevent incompatible development are comprehensive plans, airport land use plans, development regulations, and airport overlay zoning ordinances.

1. Local, State, and Federal Land Use Regulations and Guidance

Airspace protection is vital to the safety and success of any airport. Although airports are accepted as essential public facilities, their relationship with surrounding land uses can often lead to conflict. In the interest of safety for aviation and citizens living and working in the area, there are regulations that define the types of land uses permitted around airports. These restrictions include height limits and land use prohibitions within a defined vicinity of an airport.

The Airport is owned by the City of Eugene but several other governments and agencies influence decision making. The Metro Plan, administered by the Lane Council of Governments, is an overarching planning document. The State of Oregon's Revised Statues and Administrative Rules also impact the Airport, as does guidance from the FAA. The intention of these guidelines and regulations is to enable the Airport to continue safe and efficient operations without detrimentally impacting the surrounding community.

1.1 Federal Regulations and Guidance

There are three FAA criteria that lay the foundation for airport land use compatibility planning: grant assurances, design standards, and Federal Aviation Regulations (FAR) Part 77 surfaces. These criteria are discussed in the following sections.

1.1.1 Grant Assurances

Airport sponsors agree to federal grant assurances as part of their project funding applications. Upon acceptance of grant money, these assurances are incorporated into and become part of the grant agreement, and the airport sponsor is obligated to comply with them. Grant Assurance 21, included in the September 1999 amendment to 49 USC 47107, requires all airports that accept federal money to take appropriate actions against incompatible land uses in the immediate vicinity of the airport. Such actions include adopting zoning laws, changing existing zoning, and purchasing neighboring land to protect federal investments through the maintenance of a safe operating environment.

1.1.2 Design Standards

Design standards, as defined by FAA AC 150/5300-13, *Airport Design*, are implemented for the safe operation of an airport. These standards fulfill safety-related functions for airports and aircraft, and have a role in land use. Design standards for Eugene Airport are shown on the Airport Layout Plan (ALP).

One design standard is the Runway Protection Zone (RPZ). An RPZ is an area beyond each runway end that protects against incompatible objects and land uses. It is desirable to clear all objects from the RPZ, although some objects and land uses are permitted, provided they do not attract wildlife and do not interfere with navigational aids. Land uses specifically prohibited from the RPZ include fuel storage facilities, residences, and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, or other uses with similar concentrations of people). The RPZ is designed with the intent to protect people and property on the ground.

RPZs for Eugene's Runway Ends 16R and 16L extend beyond airport property. From an off-airport land use compatibility perspective, the RPZ is a critical FAA design standard. Control is preferably exercised by acquisition of sufficient property interest to achieve and maintain an area that is clear of all incompatible objects and land uses. Where acquisition is impractical, avigation easements are recommended to obtain the right to maintain the height of structures and vegetation within the RPZ.

1.1.3 FAR Part 77

Title 14 of the Code of Federal Regulations Part 77 (FAR Part 77), *Objects Affecting Navigable Airspace*, establishes standards for determining and defining objects as obstructions to air navigation. While design standards contained in FAA AC 150/5300-13 are intended to protect ground areas near airports, FAR Part 77 is intended to protect airspace near airports. Section 77.25, *Civil Airport Imaginary Surfaces*, establishes surfaces in relation to the airport and to each runway.

The FAA is authorized to undertake an aeronautical study to determine whether an object is a hazard to air navigation. However, the FAA is not authorized to regulate tall structures, limit structure heights, or determine which structures should be lighted or marked. As part of aeronautical study determinations, the FAA acknowledges that state or local authorities control the appropriate use of property beneath an airport's airspace. This reinforces the need for local land use controls to support the findings of the FAA. FAR Part 77.25 surfaces are explained below, and shown in **Exhibits 6-1** and **6-2**, and the ALP.

Horizontal Surface – The horizontal surface is a horizontal plane 150 feet above the established airport elevation. The perimeter is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway, and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is 5,000 feet for utility or visual runways ends, and 10,000 feet for precision and non-precision runway ends.

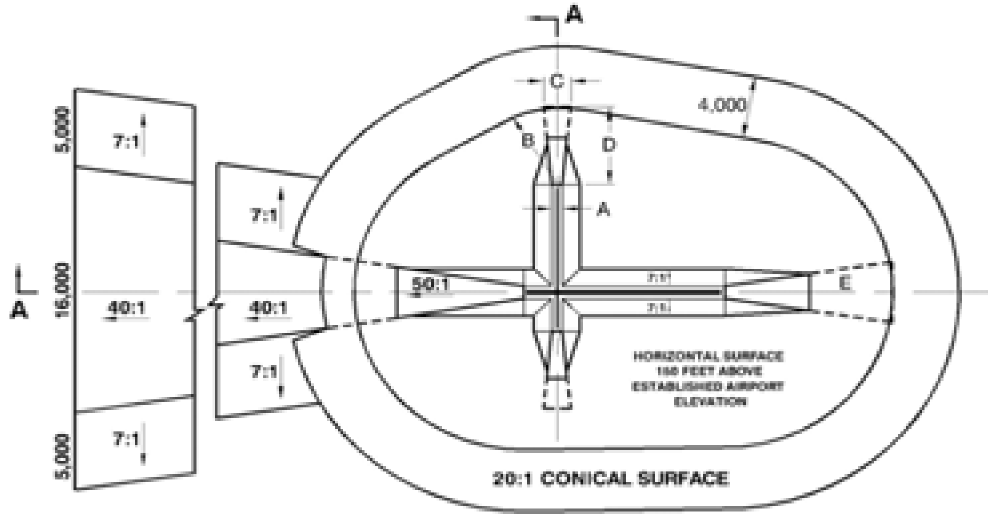
Conical Surface – The conical surface extends upward and outward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Primary Surface – The primary surface is longitudinally centered on a runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is dependent on the most precise approach procedure existing or planned for either runway end.

Approach Surface – The approach surface is longitudinally centered on the extended runway centerline and extends outward and upward from each end of the primary surface. The surface length, outer width, and slope are dependent on the most precise approach procedure existing or planned for the runway end.

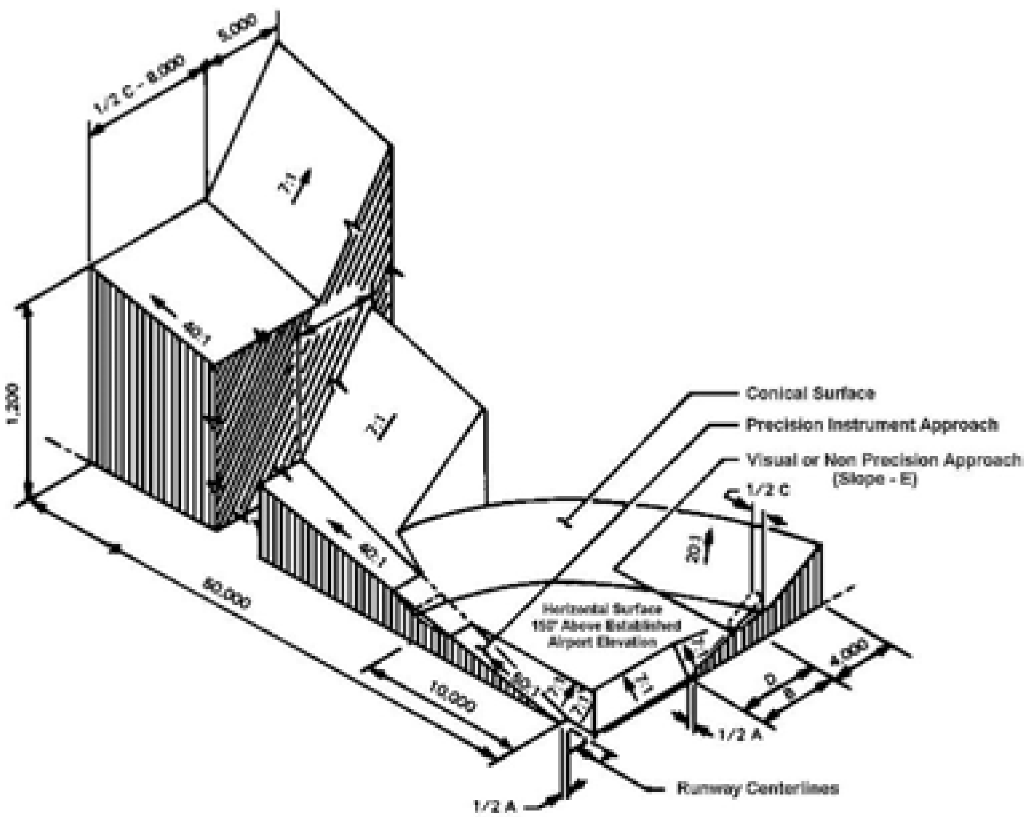
Transitional Surface – The transitional surfaces begin at the edges of the primary and approach surfaces, extend outward and upward at right angles to the runway centerline at 7 to 1 slope, and extend to the horizontal surface. For precision approach surfaces extending beyond the conical surface, the transitional surface extends 5,000 feet horizontally from the edge of the approach surface.

Exhibit 6-1: FAR Part 77.25 Surfaces – Plan View



Source: FAR Part 77 Objects Affecting Navigable Airspace. (Dimensions A-E are identified on the ALP.

Exhibit 6-2: FAR Part 77 Surfaces – 3D Isometric View of Section A of Exhibit 6-1



Source: FAR Part 77 Objects Affecting Navigable Airspace

1.1.4 Wildlife Attractants

Wildlife-aircraft strikes have resulted in the loss of life, and billions of dollars in aircraft and property damage. Airports are often surrounded by open, undeveloped land intended to enhance safety and reduce noise impacts. These open areas can present potential hazards to aviation, especially if they attract wildlife. Constructed and natural areas, such as wetlands, detention/retention ponds, waste water treatment plans, and landfills, can provide ideal habitat for wildlife. These uses on and near airports can cause a hazard to safe air navigation, driving the need for proper land use planning.

FAA AC 150/5200-33N, *Hazardous Wildlife Attractant on or near Airports,* recommends airports used by jet aircraft (as opposed to piston) have a 10,000 foot separation between current and new development of wildlife attractants such as water impoundments. Recently, the City of Eugene has unveiled a plan to restore wetlands on the west side of town. Although wetlands are known attractants to wildlife, the project is over 10,000 feet away from the nearest airport development and therefore complies with FAA recommendations. Similar projects should be considered regarding their proximity to the Airport, and their potential to attract wildlife.

The Airport is taking steps at the local level to manage wildlife, by working with stakeholders to manage the hunting of waterfowl in the Airport vicinity. The goal is to not encourage waterfowl to travel toward the Airport as a result of hunting activities (for example, waterfowl seeking shelter from gunshot by flying to the Airport and in aircraft airspace).

1.2 State of Oregon Regulations and Guidance

The State of Oregon has identified the continued safe operation of aircraft as a state concern and has created statutes to guide local government planning around airports. ORS Chapter 836 addresses airport operations, and Sections 608, 610, 616, 619 and 623 of Chapter 836 pertain to land use around airports. While these statutes do not establish criteria or land use guidelines for land near airports, they do grant local governments the authority to create such laws tailored to local airport needs. Support in interpreting and applying the laws in these statutes is provided by the Airport Planning Rule, found in OAR Chapter 660, Division 13.

ORS 836.608 requires local governments to recognize airport locations in local planning documents, and to depict airport locations on local planning maps. This statute also establishes the process for airports to expand or add new land uses on their property. The continuation and expansion of land uses on airport property is protected by this statute, provided the use was in existence on or before 1996 and the use complies with state planning laws. The expansion of an existing land use which impacts off-airport property is subject to a public hearing.

ORS 836.610 requires local governments to amend their land use regulations and comprehensive plans to be consistent with 836.616 and 836.619. Sections 836.616 and 836.619 identify types of uses permitted on airport grounds, and require the government creating airport zoning to consult with the Oregon Land Conservation and Development Commission to meet standards for safe land uses near airports.

ORS 836.623 allows local governments to limit the size of water impoundments near airports to reduce the attraction of birds, thus reducing the risk of bird strikes, by requiring that no new water impoundments larger than one quarter of an acre shall be allowed on airport property, or within 5,000 feet of the runway ends. The Oregon Department of Aviation's Airport Land Use Compatibility Guidebook, section 5.3b.2, recommends that local governments create regulations to prohibit water impoundments within approach zones.

The Oregon Department of Environmental Quality's regulations for airport noise emissions, OAR 340-035-0045, are discussed in Section 2 of this chapter.

1.3 Lane County Regulations

Chapter 16 of the Lane Code pertains to land use and development. This chapter establishes the Commercial Airport Safety (CAS-RCP) Combining Zone and the Airport Operations Zone. Together, these Zones establish criteria and regulations for what can and cannot be built around the Airport in the interest of safety. Note that there is no overlap between the Lane County Comprehensive Plan and the Lane Council of Government's Metro Plan. Page I-6 of the 2004 Metro Plan indicates that "Lane Code Chapter 16 is applied in the area between the UGB and the Plan boundary to implement the Metro Plan."

1.3.1 Airport Operations Zone (Lane Code 16.247)

The intention of the Airport Operations Zone (AO-RCP) is "to recognize those areas devoted to or most suitable for the immediate operational facilities necessary for commercial and non-commercial aviation". The AO-RCP is also intended "to provide areas for certain open space uses for airfield grounds maintenance and as a buffer to minimize potential dangers from, and conflicts with, the use of aircraft." **Table 6-1** shows permitted buildings and uses in the AO-RCP.

Table 6-1. Permitted Buildings and Uses in an Airport Operations Zone	
• Expansions and alterations of essential airport facilities such as hangers and tie downs provided they do not allow a larger class of airplane	• Aircraft or air transportation business or professional uses
• Game and fish preserves	• Environmental monitoring and enforcement agencies
• Air cargo warehousing and distribution facilities	• Schools relating to aircraft operations
• Aerial mapping and surveying	• Public parking and/or auto storage
• Retail sales and commercial services for passengers or flight connected activities	• Accessory buildings normally required in connection with a use as specified in this table
• Aircraft related research and testing	• Aircraft sales, repair, service and storage
• Aviation clubs	• Auto rental agencies
• Hotels and motels	• Restaurants
• Taxi, bus, and truck terminals	• Forest or open land preserves
• General farming	• Pastures and grazing
• Aircraft or aircraft component manufacturing or assembly	• Public and semi-public buildings, structures, and uses essential to the physical and economic welfare of an area

Source: Lane Code 16.247(2)

Lane Code 16.247(3) states that airport related uses not described in Table 6-1 are subject to approval by a hearing official. In general, these uses will be approved if their location near an airport is necessary for the airport to function, or if there are factors that make airport proximity advantageous. Lane Code 16.247(4) lists structure approval criteria, such as conformance to the Rural Comprehensive Plan of Lane County and compatibility with adjacent land uses. Lane Code 16.247(5) requires the height of proposed structures to not penetrate FAA Part 77 surfaces, as shown in Exhibit 6-1 and Exhibit 6-2.

1.3.2 Commercial Airport Safety Combining Zone (Lane Code 16.245)

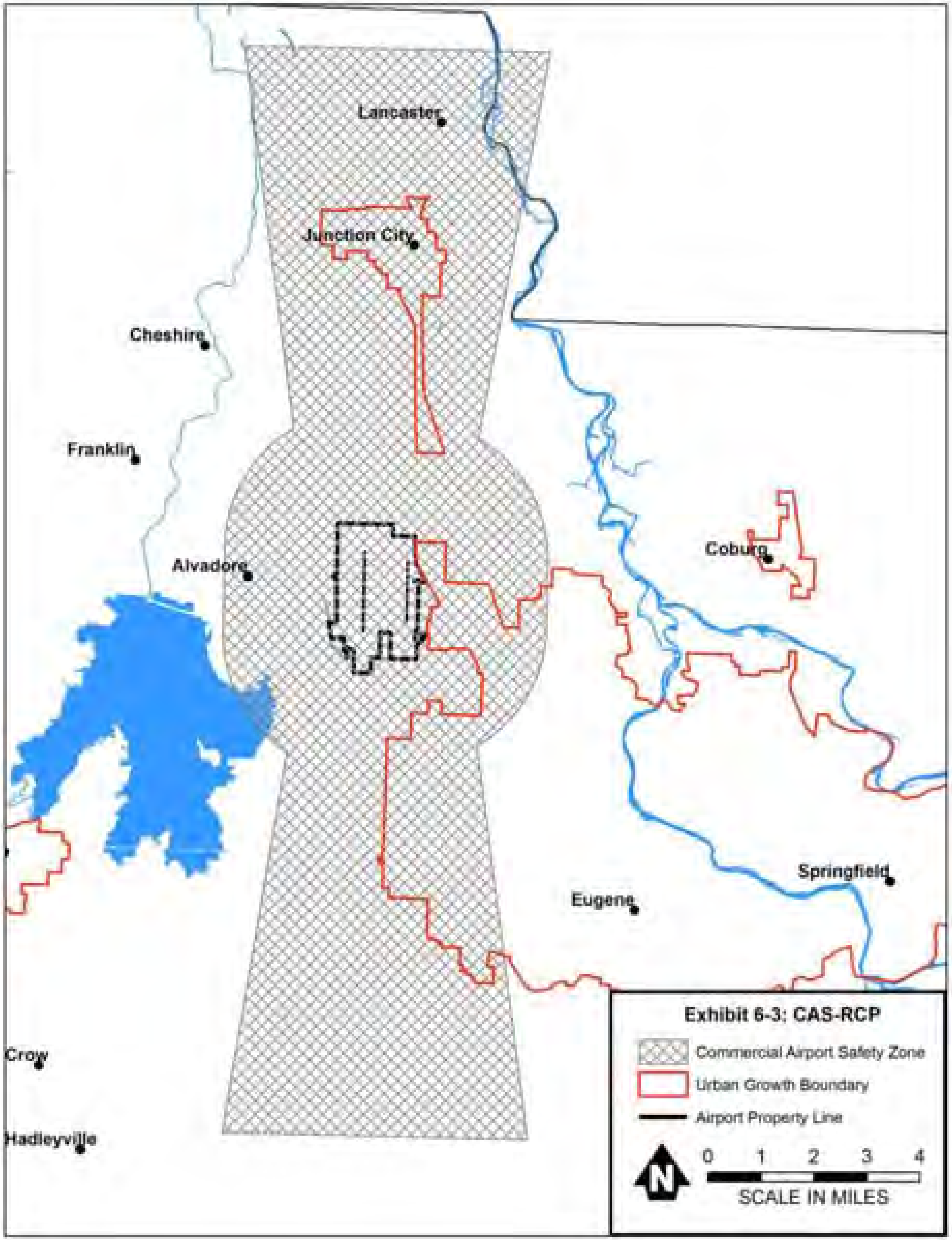
The Commercial Airport Safety Combining Zone (CAS-RCP) is an overlay zone that exclusively affects land near Eugene Airport. The purpose of the CAS-RCP is to prevent land uses that are hazardous to airport operations and prevent the construction of obstructions to air navigation as defined in Lane Code 16.245(3). Hazardous uses include those that create significant dust, smoke, or glare; attract birds and other wildlife; or pose a threat due to their height. The CAS-RCP utilizes surfaces defined in FAR Part 77.25 to define allowable heights of structures. Objects and structures within the Zone are not permitted to penetrate the FAR Part 77.25 surfaces. CAS-RCP boundaries are shown in **Exhibit 6-3**. Height limitations of the CAS-RCP are illustrated on the ALP Part 77 Surface Plan Sheets.

1.4 Metro Plan Guidance

In 2004, the City of Eugene, the City of Springfield, and Lane County adopted the latest update to the Metro Plan, which provides policy direction concerning the growth and development of the metropolitan area. Because the Airport's area of influence spans multiple jurisdictions, planned changes which impact the Airport must be coordinated with the Metro Plan.

The Metro Plan has been designed as a dynamic document that adapts to the changing needs of the metropolitan area. Metro Plan amendments may be initiated by the three participating governments, or by property owners if the amendment is site specific. The approval process for an amendment is decided by first classifying the amendment by the type of impact it will have on the plan, then using criteria outlined in Chapter IV of the Metro Plan. As the Metro Plan has defined the Airport as a regional facility, an amendment to the plan affecting the Airport may require the approval of all three governments. This Airport Master Plan Update presents changes to land use and the Airport Layout Plan, and may require future Metro Plan amendments.

According to the Metro Plan, Eugene Airport is located outside the UGB to "protect it from incompatible development as well as to reduce airport-related impacts on development within the UGB." The Airport is designated as "government/education" land use on the Metro Plan diagram, and receives emergency services and utilities from its owner, the City of Eugene. The land surrounding the Airport is designated "agricultural" according to the Metro Plan diagram. Metro Plan Policy F.30 is to "support public investment in the Eugene Airport as a regional facility and provide land use controls that limit incompatible development within the airport environs," and to "continue to use the *Eugene Airport Master Plan* as a guide for improvements of facilities and services at the airport."



Sources: Lane Code 16.245, Lane County GIS

The Metro Plan also establishes an area called the “Airport Reserve”. The Airport Reserve is “land which may be acquired by the City of Eugene at some future time in connection with Eugene Airport, for which an exception to statewide planning goals must be taken, if the zoning is changed from Exclusive Farm Use/Commercial Airport Safety Combining (E-40/CAS zone).” This allows the City of Eugene to permit future airport growth and prevent the Airport from becoming constrained by future surrounding zoning. In effect, this policy allows the Airport to acquire and rezone land without such an action being confronted on the basis that it violates the Metro Plan or Oregon state policies. The Airport Reserve is designated on maps contained in Appendix C of the Metro Plan.

1.5 Recommendations

This Airport Master Plan Update recommends airside and landside improvements to accommodate future operations and development. The local, state, and federal policies that are in place today protect the Airport from encroaching development and obstructions, and protect the community from unsafe conditions on the ground. However, the proposed Airport improvements will require modifications to the zoning boundaries to ensure the Airport continues to be protected from incompatible development, and continues to operate safely.

It is recommended that Lane County, the City of Eugene and Eugene Airport conduct a detailed analysis of existing land use protection measures to determine necessary changes that will result from the implementation of the airport improvement projects outlined in this Airport Master Plan Update. The development of a property acquisition plan is also recommended to identify property that should be acquired to accommodate planned airport improvements. The following subsections highlight the areas that will need to be addressed.

1.5.1 Existing RPZs

The RPZ for Runway End 16R extends onto approximately 4.5 acres of land that is not owned by the Airport. The RPZ for Runway End 16L extends onto approximately 6.6 acres of land that is not owned by Airport, in addition to railroad and public road rights-of-way. The RPZs for Runway Ends 34R and 34L are located on Airport property.

The RPZs for Runway Ends 16R and 16L are expected to remain in their current location under this Airport Master Plan Update. It is recommended that the Airport acquire these properties to protect the runways from incompatible development. If this is not possible, the airport should pursue avigation easement for the properties.

1.5.2 Future RPZs

Proposed runway extension projects will require the relocation of the RPZs for Runway Ends 34R and 34L. Property within the future RPZs is on current Airport property, with the exception of public road right-of-way.

1.5.3 FAR Part 77 Surfaces

FAR Part 77 surfaces have been developed for the future runway extensions, and are shown in the Airport Layout Plan. FAR Part 77 surfaces are also used for Lane County’s Commercial Airport Safety

(CAS-RCP) Combining Zone. It is recommended that the FAR Part 77 surfaces of the Airport Layout Plan be coordinated with Lane County's CAS-RCP Combining Zone, and that impacts to existing land use and future development patterns be evaluated. Changes to the CAS-RCP Combining Zone should be coordinated with the Metro Plan amendment procedures.

2. Aircraft Noise

While many land use regulations limit what can be done around airports, some regulations limit the impact airports can have on the neighboring population. Aircraft noise can be a nuisance to noise sensitive land uses surrounding an airport. Noise sensitive land uses can include residences, hotels, schools, churches, and office complexes. Noise can be a detrimental factor in the relationship between an airport and the surrounding community. Proper land use planning and protection are essential to mitigate the negative externality of airport noise, to keep the airport free of operational restrictions and incompatible land uses.

2.1 FAA Aircraft Noise Guidance

To evaluate potential noise impacts, an aircraft noise analysis was performed and is presented in this study. According to the FAA's *Environmental Desk Reference for Airport Actions*, a noise analysis, including noise contour maps, is required for airport projects that involve 90,000 annual piston-powered aircraft operations or 700 annual jet-powered aircraft operations, as well as projects that involve a new airport location, a new runway, a major runway extension, or runway strengthening.

To evaluate noise impacts, the FAA, the Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD) have established the 65 decibel day-night average sound level (65 DNL) as a threshold for determination of significant noise impacts. Areas experiencing aircraft noise levels at or above 65 DNL are considered to have significant noise impacts. The FAA's Integrated Noise Model (INM) is the accepted industry tool for evaluating aircraft noise impacts. The INM assists in analyzing changes in noise impacts resulting from new or extended runways or runway configurations; assessing new traffic demand, fleet mixes and alternative flight profiles; and evaluating modifications to operational procedures.

Oregon's Department of Environmental Quality (DEQ) establishes Noise Control Regulations for Airports in OAR 340-035-0045. Houses within the 55 DNL contour can require the airport to undertake a noise abatement program. The airport and local government should work together to reduce the effects of aircraft noise on neighboring land uses.

2.2 Aircraft Noise Analysis

This section compares noise exposure levels for 2006 with projected noise exposure levels for 2026. The following identifies land uses adversely affected by noise, and presents strategies to mitigate noise concerns.

2.2.1 Methodology

To prepare a noise exposure map, the INM requires information concerning the number of aircraft operations, the types of aircraft (fleet mix), the time of day (day or night) that activity occurs, runway utilization patterns, and the typical flight tracks of aircraft. Coordination with Airport staff and the FAA, and evaluation of the aviation demand forecasts presented in Chapter 2, provided the necessary information to depict existing and future noise exposure levels at Eugene Airport.

Aircraft Fleet Mix

Eugene Airport has a diverse fleet mix. Aircraft range from small, single-engine general aviation aircraft such as the Cessna 172 to regional and narrow-body commercial service aircraft like the Canadair CRJ700 and the Boeing 737. The airport also receives a significant number of private corporate turboprop and jet aircraft. Other airport activity includes various military aircraft and general aviation helicopters. The Airport's fleet mix was provided by Airport staff and supplemented with data from the 2000 Master Plan.

Airport Operations

The frequency, or total number, of aircraft operations was based on the FAA-approved forecasts contained in Chapter 2 of this Master Plan Update. The total number of operations, with the exception of touch-and-go operations, was divided equally into approach and departure operations. According to Airport staff, touch-and-go operations account for approximately 60 percent of general aviation operations.

Daytime-Nighttime Operations

The INM assigns "penalties" to nighttime operations because aircraft noise is perceived to be louder at night when ambient sound levels are lower. The proportions of daytime and nighttime activity for commercial operations were based on published flight schedules, while proportions for general aviation and cargo operations were based on discussions with Airport staff.

Runway Utilization

Runway utilization includes the number, location, and orientation of the active runways, as well as the directions and types of operations that occur on each runway. Runway utilization depends primarily on wind direction and speed, but is also a function of Air Traffic Control (ATC) procedures and separation standards, terminal location, taxiing distances, and runway lengths. Runway utilization percentages were determined based on discussions with Airport staff and supplemented with data from the 2000 Master Plan.

Flight Tracks

Flight track information represents the path over the ground followed by an aircraft. Because it is not possible to input all of the tracks followed by individual aircraft, the FAA suggests that tracks be consolidated to represent corridors consisting of estimated average flight tracks. Flight track use was determined based on discussions with Airport staff.

2.2.2 Analysis

The following exhibits show aircraft noise exposure contours at Eugene Airport, and their relation to the Airport and surrounding areas. **Exhibit 6-4** shows contours for 2006 while **Exhibit 6-5** shows projected contours for 2026. The noise exposure levels for 2026 include increased operations and proposed airfield improvements.

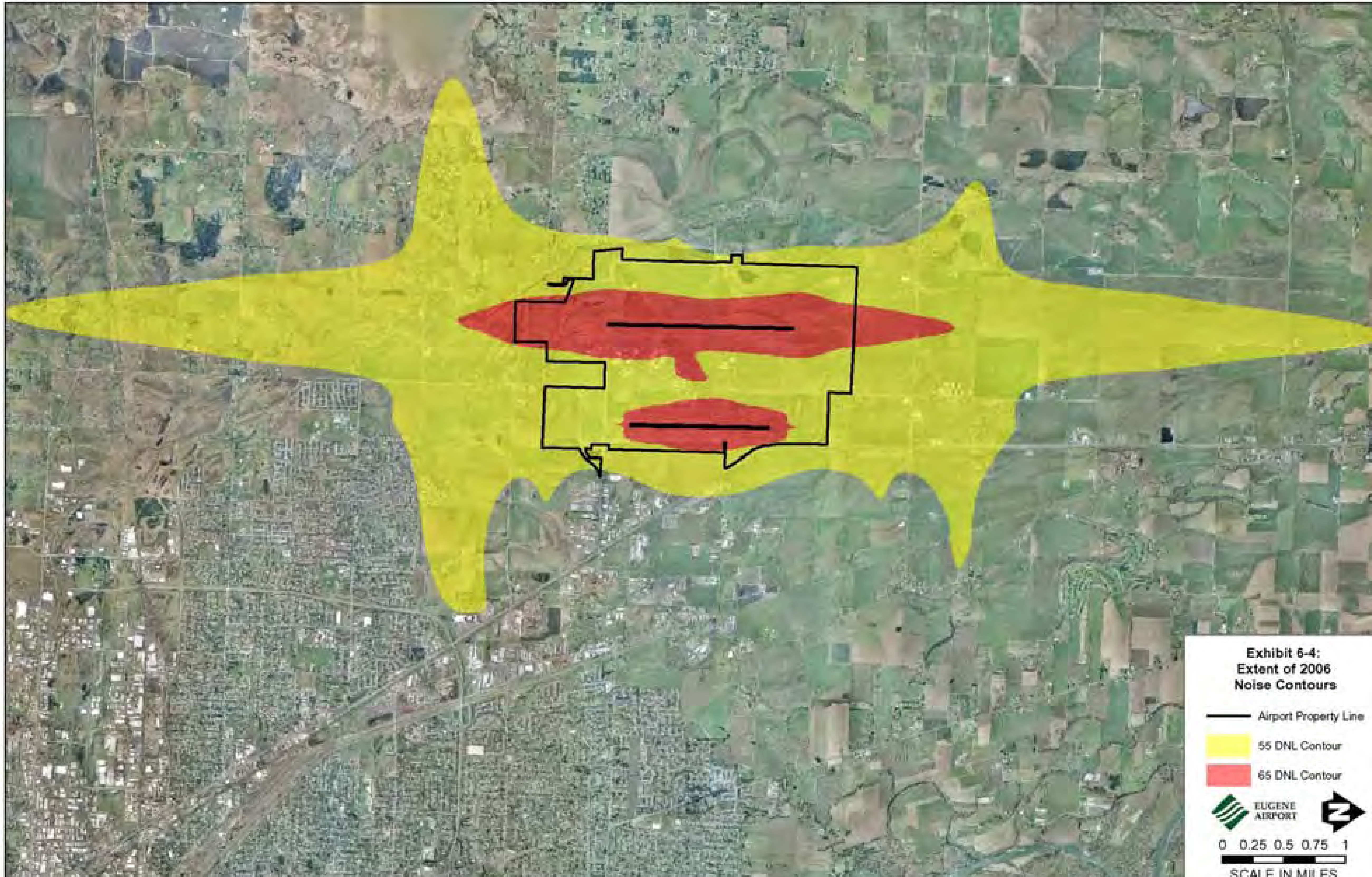


Exhibit 6-4:
Extent of 2006
Noise Contours
Airport Property Line
55 DNL Contour
65 DNL Contour
EUGENE AIRPORT
0 0.25 0.5 0.75 1
SCALE IN MILES

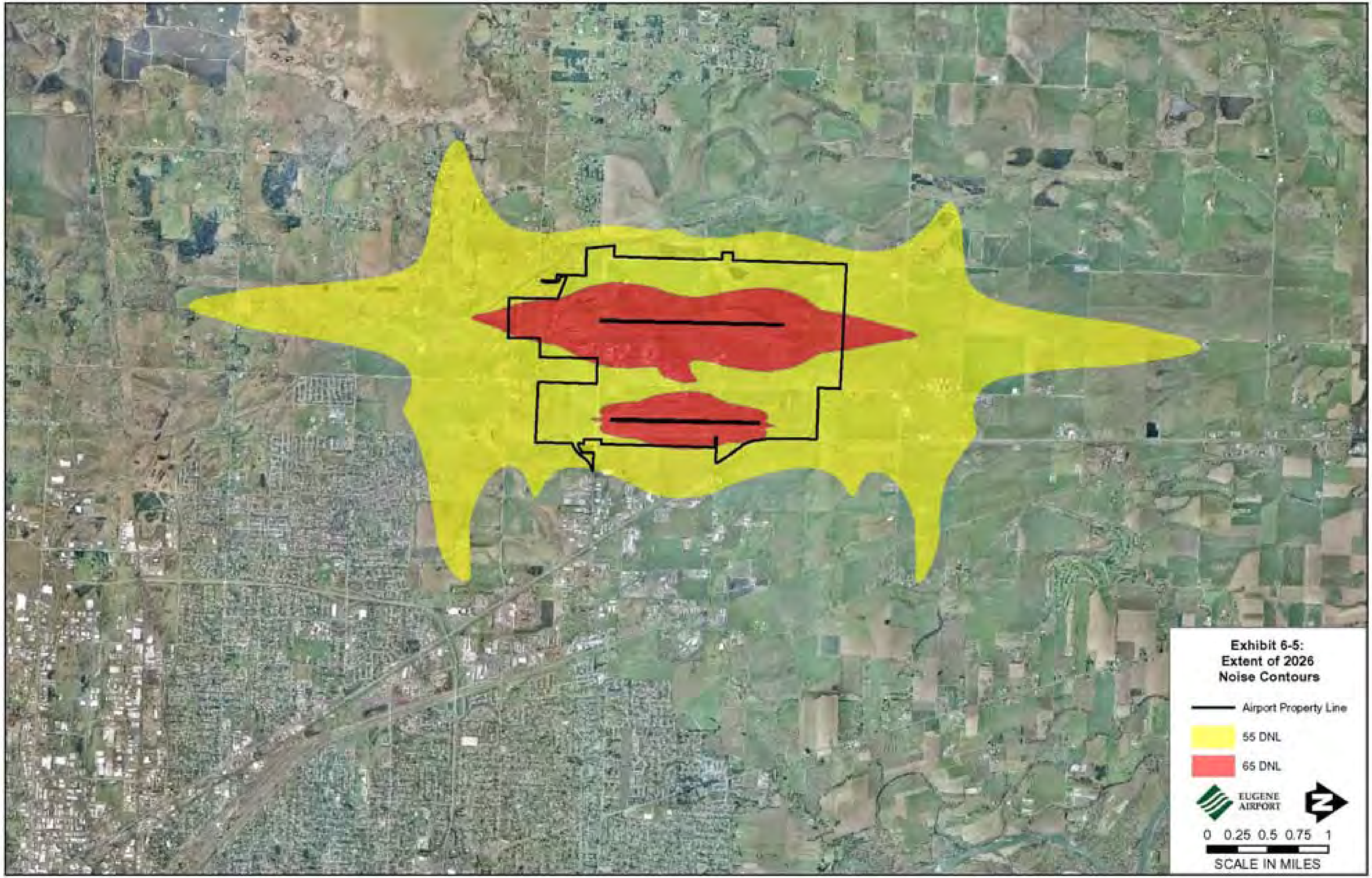


Exhibit 6-5:
Extent of 2026
Noise Contours
Airport Property Line
55 DNL
65 DNL
EUGENE AIRPORT
0 0.25 0.5 0.75 1
SCALE IN MILES

Comparison of the 2006 noise contours to the 2026 noise contours show the contours shrinking in size from north to south, and widening from east to west. This is because of an expected change in military aircraft type. The Navy is expected to replace the A-6 Intruder with the F-18 Hornet. As the F-18 has a quieter noise profile, the 2026 noise exposure contours are expected to affect fewer parcels.

Table 6-2 shows the reduction of affected parcels decreasing across all land use categories, with the exception of commercial, which has one more parcel impacted by the 2026 contours. Housing parcels affected by the 55 DNL or greater contours are expected decrease by 37% by 2026.

Table 6-2: Parcels within Eugene Airport Noise Contours

Year	Contour	Total	Agriculture	Housing	Transport.	Vacant	Commercial	Industrial	Gov./Rec.
2006	**65 DNL**	50	31	5	8	5	0	0	1
	55 DNL	729	221	349	21	92	9	13	24
	Total	779	252	354	29	97	9	13	25
2026	**65 DNL**	48	30	3	9	5	0	0	1
	55 DNL	503	167	218	9	71	10	15	14
	Total	651	197	221	18	76	10	15	15

Source: City of Eugene GIS "LandUse.shp" Shapefile

The housing category is especially sensitive to airport noise. Per OAR 340-035-0045, housing within the 55 DNL contour can require the Airport to undertake a noise abatement program. **Table 6-3** shows a breakdown of affected housing parcels by housing type. There is a reduction between 2006 and 2026 in the number of affected housing parcels of all types. There is a significant decrease in single family housing parcels within the 55 DNL contour in 2026, with 117 less affected parcels than in 2006.

Table 6-3: Breakdown of Affected Housing Parcels

2006	**65 DNL**	**Total Parcels**	**55 DNL**	**Total Parcels**
	Duplex	0	Duplex	7
	Mobile	1	Mobile	53
	Single Family	4	Single Family	290
2026	**65 DNL**	**Total Parcels**	**55 DNL**	**Total Parcels**
	Duplex	0	Duplex	3
	Mobile	0	Mobile	41
	Single Family	3	Single Family	174

Source: City of Eugene GIS "LandUse.shp" Shapefile

Understanding the types of homes within the contours allows for evaluation of mitigation techniques, which can include buying property, insulating homes, and limiting the hours of the day that aircraft operate. As aircraft become quieter, the number of affected parcels will decrease, as will the need for noise abatement.

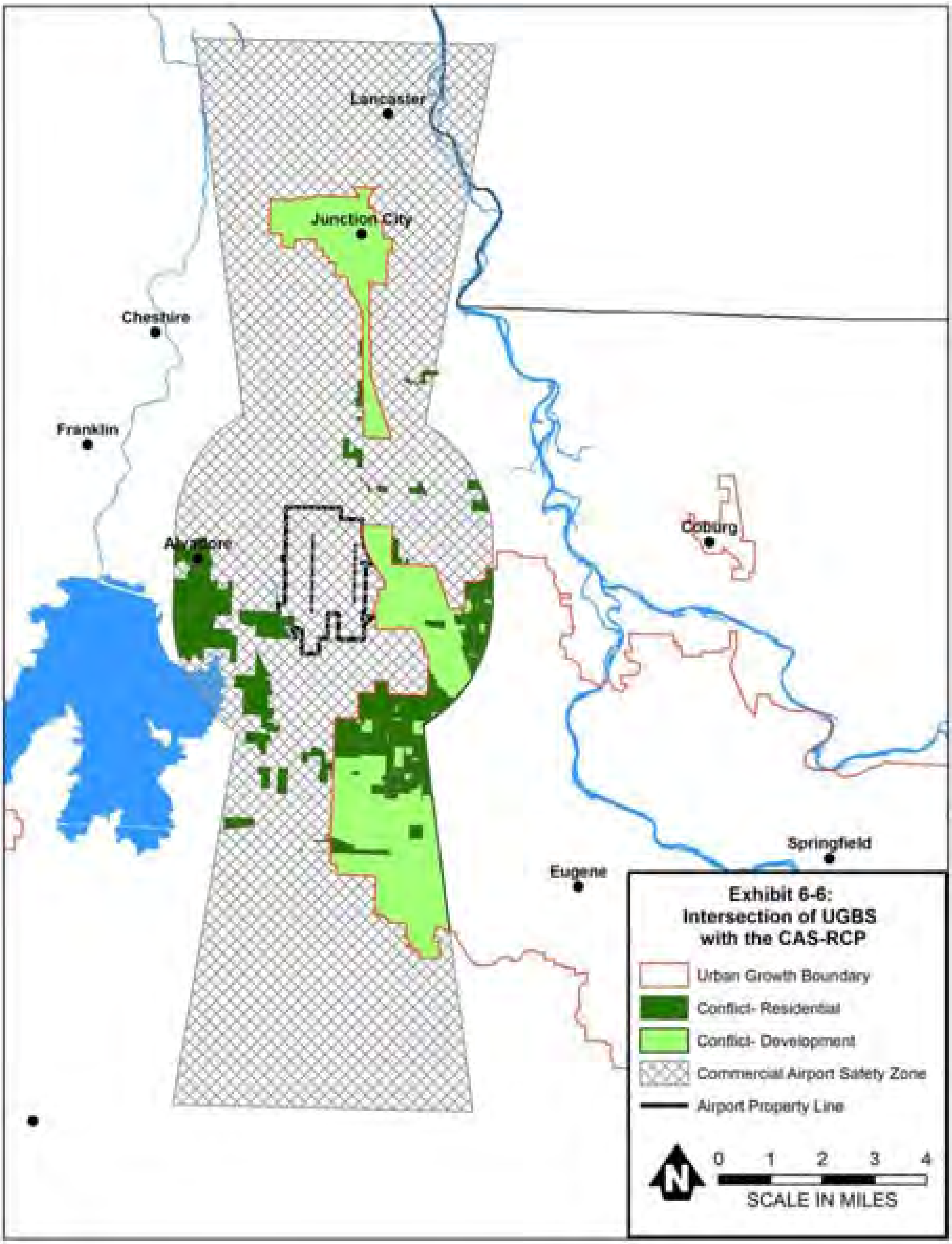
While the State of Oregon defines its Noise Impact Boundary at 55 DNL, many of the criteria requiring airport action correlate with the 65 DNL contour. OAR 340-035-0045 Part C recommends that the airport purchase land within the 65 DNL contour and mandates soundproofing within the 65 DNL contour. Within the 65 DNL contour for 2006, there are four single family home parcels and one mobile home parcel. This number decreases to three home parcels in 2026.

2.3 Recommendations

While the results of the noise analysis show the Airport's noise exposure contours shrinking between 2006 to 2026, the 2026 contours are based upon today's land uses. As the populations of City of Eugene, Junction City, and Lane County grow, there will likely be pressure to build and develop agricultural and vacant land surrounding Airport property. The Airport should continue to be protected from incompatible land uses through enforcement of Lane County and City of Eugene zoning regulations, and through the enforcement of the UGB as defined in the Metro Plan. It is recommended that the Airport consider acquiring land within the 55 DNL contour when feasible.

The Lane Code prevents tall structures from penetrating the FAR Part 77 surfaces, but does not prevent residential development within the 55 DNL contour. Approximately 375 acres of land in the CAS-RCP Combining Zone south of Runway End 34R is zoned for residential use, with housing already in place (see **Exhibit 6-6**). Some of these areas are partially impacted by the 55 DNL noise contours for 2006 and 2026. Although these parcels are not located within the 65 DNL contour, and not eligible for FAA noise mitigation, OAR 340-035-0045 states that airports must develop a noise abatement program to minimize the effects of aircraft noise on local residents, and that all levels of government should cooperate to prevent impacts by encouraging compatible land use. This can be interpreted as governments taking steps to minimizing the construction of noise sensitive parcels within the 55 DNL contours. OAR 340-035-0005(38) defines noise sensitive properties as "real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries". As shown in Exhibit 6-6, Eugene's UGB may present development pressure near the Airport, and proper planning between the Airport and the City will be necessary to address land use conflicts.

Under OAR 340-035-0045, air carrier airports such as Eugene Airport are required to submit their existing noise impact boundary to the Oregon Department of Environmental Quality, along with their projections for the next five, ten and twenty year periods, when they update their master plan. It is recommended that the Airport take steps to comply with this state requirement.



Sources: Lane County GIS, City of Eugene GIS

3. Land Acquisition

As properties around the Airport become available, and as the Airport's priorities are developed, consideration should be given to land acquisition. The RPZs for Runway Ends 16R and 16L extend to parcels not owned by the Airport. Parcels in the RPZ, and other parcels near runway ends, are candidates for acquisition, as Airport control of these parcels allows for protection of aircraft operation and for people and property on the ground. Acquisition of RPZ parcels has generally been an FAA priority.

Consideration should be given to the total acquisition of a parcel, as compared to the acquisition of only a conditional use, restriction, or height protection, often in the form of an easement. The Airport may benefit from leasing interests in a parcel, as opposed to purchasing that parcel.

Parcels may also be acquired to allow the Airport to facilitate desired development, and to better control development around the Airport. The parcel located at the southwest corner of the intersection of Douglas Drive and Airport Road may be such a parcel. The Airport Layout Plan shows the Airport's existing property, as well as parcels to be considered for acquisition.

As a parcel is being evaluated by the Airport for acquisition, consideration should be given to the parcel's functional opportunity, revenue possibility, and environmental conditions. Consideration should also be given to the parcel's land use designation, including the designation's compatibility with the Airport's intended purpose for that parcel, and the possibility and impact of changing that designation, before or after acquisition.

4. Summary of Recommendations

Proper protection and use of off-airport properties are and will remain paramount in preserving the safety and operational utility of the Airport. Proper land use compatibility planning now will allow the Airport to continue to operate into the future, and to connect the City of Eugene and Lane County to the rest of the world.

- Conduct a detailed analysis of existing land use protection measures and what changes may be required to accommodate future airport improvements (Section 1.5).
- Prepare Property Acquisition Plan (Section 1.5).
- Acquire properties for RPZ protection (Section 1.5.1 and 3).
- Coordinate changes to Part 77 surfaces with Lane County’s Commercial Airport Safety Combining Zone (Section 1.5.3).
- Acquire land within the 55 DNL noise contour where feasible (Section 2.3).
- Prevent land being from rezoned to residential, or being used for “noise sensitive” purposes within Lane County’s Commercial Airport Safety Combining Zone (Section 2.3).
- Submit a noise impact boundary and protections for the next five, ten and twenty years to the Oregon Department of Environmental Quality.

This Master Plan Update includes revisions to the Eugene Airport ALP to reflect existing conditions and proposed improvements. This chapter describes the content of each sheet in the revised ALP.

An airport layout plan (ALP) is a set of drawings that graphically depict existing airport facilities and proposed improvements. An ALP has five primary functions.

1) A current, FAA-approved ALP is required to receive federal Airport Improvement Program (AIP) funding for proposed improvements.
2) An ALP is a blueprint for improvements that maintain airport design standards and safety requirements, and that are consistent with local land use plans.
3) An ALP is a useful reference in community deliberations regarding land use proposals, local government budgeting, and other planning-related issues.
4) An ALP enables an airport sponsor and FAA to plan for budgeting, procedural, and airspace implications of proposed improvements.
5) An ALP is a working tool for airport development and maintenance staff.

An ALP remains current for a five-year period or longer, unless major changes at the airport are made or planned. The minimum elements and required content for an ALP are defined in FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, Appendix F, *Airport Layout Plan*. Other FAA ALP funding and approval requirements are contained in FAA Order 5100.38, *Airport Improvement Program Handbook*.

Sheet 1 – Cover Sheet

This sheet includes local maps, an ALP sheet index, and approval signature blocks for FAA and local officials.

Sheet 2 – Existing Airport Layout Plan

This sheet depicts existing airport facilities, design standards, and imaginary surfaces.

Sheet 3 – Future Airport Layout Plan

This sheet depicts proposed future facility improvements, design standards, and imaginary surfaces. Proposed improvements are based on aviation activity forecasts, facility requirements, and alternatives analysis contained in this Master Plan Update. These improvements are identified in the Airport's Capital Improvement Plan, and include future runway extensions, taxiways, approach lighting systems, aircraft hangars and ramps, deicing pads, aircraft rescue and firefighting (ARFF) facilities, automobile parking, and rental car facilities.

Sheet 4 – Airport Data Tables

This sheet presents information tables, including data on Airport location, weather characteristics, facilities, design standards, and imaginary surfaces.

Sheet 5 – Land Use/Vicinity Aerial

The sheet depicts the future airport layout plan superimposed on an aerial photograph of the airport and vicinity.

Sheet 6 – Existing Runway 16R/34L

This sheet presents plan and profile views of each existing end of Runway 16R/34L, including approach lighting, navigational aids, pavement/ground elevation, design standards, and imaginary surfaces.

Sheet 7 – Future Runway 34L

This sheet presents future Runway End 34L plan and profile views, including approach lighting, navigational aids, pavement/ground elevation, design standards, and imaginary surfaces.

Sheet 8 – Existing Runway 16L/34R

This sheet presents plan and profile views of each existing end of Runway 16L/34R, including approach lighting, navigational aids, pavement/ground elevation, design standards, and imaginary surfaces.

Sheet 9 – Future Runway 34R

This sheet presents future Runway End 34R plan and profile views, including approach lighting, navigational aids, pavement/ground elevation, design standards, and imaginary surfaces.

Sheets 10-13 – Appendix 2 Departure Surfaces

These sheets present plan and profile views of existing/future departure surfaces required by AC 150/5300-13, *Airport Design*, Appendix 2, and obstacle penetrations to these surfaces.

Sheets 14-15 – Runway Plans & Profiles

These sheets present plan and profile views of existing/future Runway 16R/34L and Runway 16L/34R, including runway ends, safety areas, and pavement/ground elevation profiles.

Sheet 16 – 2006 Noise Contour Plan

This sheet depicts 55 and 65 decibel day night average sound level (DNL) contours for Eugene Airport, superimposed on a U.S. Geological Survey (USGS) topographic map.

Sheets 17-19 – FAR Part 77 Surfaces

These sheets present plan and profile views of existing/future FAR Part 77 surfaces, superimposed on a USGS topographic map.

Sheets 20-21 – Terminal Plan

These sheets present large-scale plan views of areas with proposed terminal facility improvements.

Appendix A

Glossary of Terms

Glossary of Terms

ABOVE GROUND LEVEL (AGL): An elevation datum given in feet above ground level.

AIR CARRIER: A person who undertakes directly by lease, or other arrangement, to engage in air transportation. (FAR 1) (Also see Certificated Air Carrier)

AIR CARRIERS: The commercial system of air transportation, consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs. (FAA Census)

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC): A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (AIM)

AIR TAXI: A classification of air carriers which directly engage in the air transportation of persons, property, mail, or in any combination of such transportation and which do not directly or indirectly utilize large aircraft (over 30 seats or a maximum payload capacity of more than 7,500 pounds) and do not hold a Certificate of Public Convenience and Necessity or economic authority issued by the Department of Transportation. (Also see commuter air carrier and demand air taxi.) (FAA Census)

AIR TRAFFIC CONTROL (ATC): A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic. (FAR 1)

AIRCRAFT ACCIDENT: An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. (NTSB)

AIRCRAFT APPROACH CATEGORY: A grouping of aircraft (Categories A–E) based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. (Airport Design)

AIRCRAFT OPERATION: The airborne movement of aircraft in controlled or non-controlled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations — local and itinerant. (FAA Stats)

AIRCRAFT PARKING LINE LIMIT (APL): A line established by the airport authorities beyond which no part of a parked aircraft should protrude. (Airport Design)

AIR/FIRE ATTACK BASE: An established on-airport base of operations for the purposes of aerial suppression of large-scale fires by specially-modified aircraft. Typically, such aircraft are operated by the California Department of Forestry and/or the U.S. Forest Service.

AIRPLANE DESIGN GROUP: A grouping of airplanes (Groups I–V) based on wingspan. (Airport Design)

AIRPORT: An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any. (FAR 1)

AIRPORT ELEVATION: The highest point of an airport's usable runways, measured in feet above mean sea level. (AIM)

AIRPORT HAZARD: Any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to aircraft landing, taking off, or taxiing at the airport. (Airport Design)

AIRPORT LAND USE COMMISSION (ALUC): A commission established in accordance with the California State Aeronautics Act in each county having an airport operated for the benefit of the general public. The purpose of each ALUC is "to assist local agencies in ensuring compatibility land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses." An ALUC need not be created if an alternative process, as specified by the statutes, is established to accomplish the same purpose. (California Public Utilities Code, Section 21670 et seq.)

AIRPORT LAYOUT PLAN (ALP): A scale drawing of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to demonstrate conformance with applicable standards.

AIRPORT REFERENCE CODE (ARC): A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. (Airport Design)

AIRPORT REFERENCE POINT (ARP): A point established on an airport, having equal relationship to all existing and proposed landing and takeoff areas, and used to geographically locate the airport and for other planning purposes. (Airport Design)

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. (AIM)

AIRWAY/FEDERAL AIRWAY: A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids. (AIM)

ALERT AREA: A special use airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. (AIM)

APPROACH LIGHT SYSTEM (ALS): An airport lighting system which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended runway centerline during a final approach to landing. Among the specific types of systems are:

- **LDIN—**Lead-in Light System.
- **MALSR—**Medium-intensity Approach Light System with Runway Alignment Indicator Lights.
- **ODALS—**Omnidirectional Approach Light System, a combination of LDIN and REILS.
- **SSALR—**Simplified Short Approach Light System with Runway Alignment Indicator Lights. (AIM)

APPROACH SPEED: The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration. (AIM)

AUTOMATED WEATHER OBSERVING SYSTEM (AWOS): Airport electronic equipment which automatically measures meteorological parameters, reduces and analyzes the data via computer, and broadcasts weather information which can be received on aircraft radios in some applications, via telephone.

AUTOMATIC DIRECTION FINDER (ADF): An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. (AIM)

AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS): The continuous broadcast of recorded non-control information in selected terminal areas. (AIM)

BACK COURSE APPROACH: A non-precision instrument approach utilizing the rearward projection of the ILS localizer beam.

BALANCED FIELD LENGTH: The runway length at which the distance required for a given aircraft to abort a takeoff and stop on the runway (accelerate-stop distance) equals the distance required to continue the takeoff and reach a height of 35 feet above the runway end (accelerate-go distance).

BASED AIRCRAFT: Aircraft stationed at an airport on a long-term basis.

BUILDING RESTRICTION LINE (BRL): A line which identifies suitable building area locations on airports.

CEILING: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration" and is not classified as "thin" or "partial". (AIM)

CERTIFICATED ROUTE AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the Department of Transportation authorizing the performance of scheduled service over specified routes, and a limited amount of nonscheduled service. (FAA Census)

CIRCLING APPROACH/CIRCLE-TO-LAND MANEUVER: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. (AIM)

COMMERCIAL OPERATOR: A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1)

COMPASS LOCATOR: A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). (AIM)

COMPASS ROSE: A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction. (AIM)

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL): The noise rating adopted by the State of California for measurement of airport noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods.

COMMUTER AIR CARRIER: An air taxi operator which performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week and places between which such flights are performed. (FAA Census)

CONTROLLED AIRSPACE: A generic term that covers the different classifications of airspace (Class A, Class B, Class C, Class D and Class E airspace) and defines dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows:

- **Class A—**Generally, that airspace from 18,000 feet MSL up to and including 60,000 feet MSL (Flight Level 600), including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.
- **Class B—**Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds".
- **Class C—**Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5 nm radius, and an outer area with a 10 nm radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.
- **Class D—**Generally, that airspace from the surface to 2,500 feet above the airport elevation (chartered in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.
- **Class E—**Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Class E airspace does not include the airspace 18,000 feet MSL or above.

DEMAND AIR TAXI: Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier. (FAA Census)

DISPLACED THRESHOLD: A threshold that is located at a point on the runway other than the designated beginning of the runway. (AIM)

DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid. (AIM)

FAR PART 77: The part of the Federal Aviation Regulations that deals with objects affecting navigable airspace.

FAR PART 77 SURFACES: Imaginary surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

FEDERAL AVIATION ADMINISTRATION (FAA): The United States government agency that is responsible for insuring the safe and efficient use of the nation's airspace.

FIXED BASE OPERATOR (FBO): A business operating at an airport that provides aircraft services to the general public, including but not limited to sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tiedown or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol.

FLIGHT SERVICE STATION (FSS): FAA facilities which provide pilot briefings on weather, airports, altitudes, routes, and other flight planning information.

FRACTIONAL OWNERSHIP: A company or individual buys, or leases, a fractional interest in one aircraft just as they might acquire a partial interest in one condo unit. They can use their own aircraft or another similar or identical aircraft a certain number of hours or days per year. The economics of each situation differs depending on the number of people who will use the aircraft, the value of their time to the company, and the dollars saved in airline tickets, hotels, etc.

GENERAL AVIATION: That portion of civil aviation which encompasses all facets of aviation except air carriers. (FAA Stats)

GENERIC VISUAL GLIDE SLOPE INDICATOR (GVGI): A generic term for the group of airport visual landing aids which includes Visual Approach Slope Indicators (VASI), Precision Approach Path Indicators (PAPI), and Pulsed Light Approach Slope Indicators (PLASI). When FAA funding pays for this equipment, whichever type receives the lowest bid price will be installed unless the airport owner wishes to pay the difference for a more expensive unit.

GLIDE SLOPE: An electronic signal radiated by a component of an ILS to provide descent path guidance to approaching aircraft.

GLOBAL POSITIONING SYSTEM (GPS): A relatively new navigational system which utilizes a network of satellites to determine a positional fix almost anywhere on or above the earth. Developed and operated by the U.S. Department of Defense, GPS has been made available to the civilian sector for surface, marine, and aerial navigational use. For aviation purposes, the current form of GPS guidance provides en route aerial navigation and selected types of nonprecision instrument approaches. Eventual application of GPS as the principal system of navigational guidance throughout the world is anticipated.

HELIPAD: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM)

INSTRUMENT APPROACH PROCEDURE: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority. (AIM)

INSTRUMENT FLIGHT RULES (IFR): Rules governing the procedures for conducting instrument flight. Also term used by pilots and controllers to indicate a type of flight plan. (AIM)

INSTRUMENT LANDING SYSTEM (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM)

INSTRUMENT OPERATION: An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA)

INSTRUMENT RUNWAY: A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved. (AIM)

ITINERANT OPERATION: An arrival or departure performed by an aircraft from or to a point beyond the local airport area.

LARGE AIRCRAFT: An aircraft of more than 12,500 pounds maximum certificated takeoff weight. (FAR 1)

LIMITED REMOTE COMMUNICATIONS OUTLET (LRCO): An unmanned, remote air/ground communications facility which may be associated with a VOR. It is capable only of receiving communications and relies on a VOR or a remote transmitter for full capability.

LOCALIZER (LOC): The component of an ILS which provides course guidance to the runway. (AIM)

LOCAL OPERATION: An arrival or departure performed by an aircraft: (1) operating in the traffic pattern, (2) known to be departing or arriving from flight in local practice areas, or (3) executing practice instrument approaches at the airport. (FAA ATA)

LORAN: An electronic ground-based navigational system established primarily for marine use but used extensively for VFR and limited IFR air navigation.

MARKER BEACON (MB): The component of an ILS which informs pilots, both aurally and visually, that they are at a significant point on the approach course.

MEAN SEA LEVEL (MSL): An elevation datum given in feet from mean sea level.

MEDIUM-INTENSITY APPROACH LIGHTING SYSTEM (MALS): The MALS is a configuration of steady-burning lights arranged symmetrically about and along the extended runway centerline. MALS may also be installed with sequenced flashers in this case, the system is referred to as MALSF.

MILITARY OPERATIONS AREA (MOA): A type of special use airspace of defined vertical and lateral dimensions established outside of Class A airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. (AIM)

MINIMUM DESCENT ALTITUDE (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1)

MISSED APPROACH: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. (AIM)

NAVIGATIONAL AID/NAVAID: Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight. (AIM)

NONDIRECTIONAL BEACON (NDB): A 4 MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" on or track to or from the station. (AIM)

NONPRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1)

NONPRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing air navigation facilities, with only horizontal guidance, or area-type navigation equipment for which a straight-in nonprecision instrument approach procedure has been approved or planned, and no precision approach facility or procedure is planned. (Airport Design)

OBJECT FREE AREA (OFA): A surface surrounding runways, taxiways, and taxilanes which should be clear of parked airplanes and objects except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (Airport Design)

OBSTACLE: An existing object, object of natural growth, or terrain at a fixed geographical location, or which may be expected at a fixed location within a prescribed area, with reference to which vertical clearance is or must be provided during flight operation. (AIM)

OBSTACLE FREE ZONE (OFZ): A defined volume of airspace above and adjacent to a runway and its approach lighting system if one exists, free of all fixed objects except FAA-approved frangible aeronautical equipment and clear of vehicles and aircraft in the proximity of an airplane conducting an approach, missed approach, landing, takeoff, or departure.

OBSTRUCTION: An object/obstacle, including a mobile object, exceeding the obstruction standards specified in FAR Part 77, Subpart C. (AIM)

OUTER MARKER: A marker beacon at or near the glide slope intercept position of an ILS approach. (AIM)

PRECISION APPROACH PATH INDICATOR (PAPI): An airport visual landing aid similar to a VASI, but which has light units installed in a single row rather than two rows.

PRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which an electronic glide slope is provided, such as an ILS or PAR. (FAR 1)

PRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing an instrument landing system (ILS), microwave landing system (MLS), or precision approach radar (PAR). (Airport Design)

RELOCATED THRESHOLD: The portion of pavement behind a relocated threshold that is not available for takeoff and landing. It may be available for taxiing and aircraft. (Airport Design)

REMOTE COMMUNICATIONS AIR/GROUND FACILITY (RCAG): An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. (AIM)

REMOTE COMMUNICATIONS OUTLET (RCO) AND REMOTE TRANSMITTER/ RECEIVER (RTR): An unmanned communications facility remotely controlled by air traffic personnel. RCO's serve FSS's. RTR's serve terminal ATC facilities. (AIM)

RESTRICTED AREA: Designated airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction. (FAR 1)

RUNWAY CLEAR ZONE: A term previously used to describe the runway protection zone.

RUNWAY EDGE LIGHTS: Lights used to define the lateral limits of a runway. Specific types include:

- **HIRL—**High-Intensity Runway Lights
- **MIRL—**Medium-Intensity Runway Lights

RUNWAY END IDENTIFIER LIGHTS (REIL): Two synchronized flashing lights, one on each side of the runway threshold, which provide a pilot with a rapid and positive visual identification of the approach end of a particular runway. (AIM)

RUNWAY PROTECTION ZONE (RPZ): A trapezoidal shaped area at the end of a runway, the function of which is to enhance the protection of people and property on the ground through airport owner control of the land. The RPZ usually begins at the end of each primary surface and is centered upon the extended runway centerline. (Airport Design)

RUNWAY SAFETY AREA (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the even of an undershoot, overshoot, or excursion from the runway. (Airport Design)

SMALL AIRCRAFT: An aircraft of 12,500 pounds or less maximum certificated takeoff weight. (FAR 1)

SPECIAL USE AIRSPACE: Airspace of defined horizontal and vertical dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. (AIM)

STANDARD INSTRUMENT DEPARTURE (SID): A preplanned instrument flight rules (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. SID's provide transition from the terminal to the appropriate en route structure. (AIM)

STANDARD TERMINAL ARRIVAL ROUTE (STAR): A preplanned instrument flight rule (IFR) air traffic control arrival route published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area. (AIM)

STOPWAY: An area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff. (FAR 1)

STRAIGHT-IN INSTRUMENT APPROACH — IFR: An instrument approach wherein final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM)

TAXILANE: The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc. (Airport Design)

TAXIWAY: A defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft. (Airport Design)

TERMINAL INSTRUMENT PROCEDURES (TERPS): Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: precision approach, nonprecision approach, circling, and departure.

TERMINAL RADAR SERVICE AREA (TRSA): Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. (AIM)

THRESHOLD: The beginning of that portion of the runway usable for landing. (AIM)

TOUCH-AND-GO: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is defined as two operations. (AIM)

TRAFFIC PATTERN: The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM)

TRANSIENT AIRCRAFT: Aircraft not based at the airport.

TRANSMISSOMETER: An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. (AIM)

UNCONTROLLED AIRSPACE: Now known as Class G airspace. Class G airspace is that portion of the airspace that has not been designated as Class A, Class B, Class C, Class D, and Class E airspace.

UNICOM (Aeronautical Advisory Station): A nongovernment air/ground radio communication facility which may provide airport information at certain airports. (AIM)

VERY-HIGH-FREQUENCY OMNIDIRECTIONAL RANGE (VOR): The standard navigational aid used throughout the airway system to provide bearing information to aircraft. When combined with Distance Measuring Equipment (DME) or Tactical Air Navigation (TACAN) the facility, called VOR-DME or VORTAC, provides distance as well as bearing information.

VISUAL APPROACH SLOPE INDICATOR (VASI): An airport landing aid which provides a pilot with visual descent (approach slope) guidance while on approach to landing. Also see PAPI.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used by pilots and controllers to indicate type of flight plan. (AIM)

VISUAL GLIDE SLOPE INDICATOR (VGSI): A generic term for the group of airport visual landing aids which includes Visual Approach Slope Indicators (VASI), Precision Approach Path Indicators (PAPI), and Pulsed Light Approach Slope Indicators (PLASI). When FAA funding pays for this equipment, whichever type receives the lowest bid price will be installed unless the airport owner wishes to pay the difference for a more expensive unit.

VISUAL RUNWAY: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan. (Airport Design)

WARNING AREA: A type of special use airspace which may contain hazards to nonparticipating aircraft in international airspace. (AIM)

Frequently Used Terms and Acronyms

AAAE:	American Association of Airport Executives
AAE:	Accredited Airport Executive
AALS:	Advanced Approach and Landing System
AAMS:	Association of Air Medical Services
AC:	Advisory Circular (FAA publications) – Informational policy and guidance material.
ADO:	Airports District Office (FAA)
AFFF:	Aqueous Film Forming Foam
AFSS:	Automated Flight Service Station (FAA)
ALUC:	Airport Land Use Commission (California)
AGL:	Elevation Above Ground Level
AHS:	American Helicopter Society
AIM:	Aeronautical Information Manual – Instructions and procedures for operation aircraft in the U.S. National Airspace System
AIP:	Airport Improvement Program – Federal program administering financial grants-in-aid for airport development projects.
ALP:	Airport Layout Plan – Drawings illustrating existing and proposed property, facilities and structures.
ALUC:	Airport Land Use Commission (California)
AMS:	Air medical service
AOPA:	Aircraft Owners and Pilots Association
ARFF:	Airport Rescue and Fire Fighting
ARTCC:	Air Route Traffic Control Center
ASOS:	Automated Surface Observation System
ATC:	Air Traffic Control – Separation services involving aircraft utilizing a control tower.
ATIS:	Automated Terminal Information System – Provides continuous broadcast of an airport's current weather.
AVGAS:	Aviation gasoline
AWOS:	Automated Weather Observing System – Primary surface weather observing system in the U.S.
CAL/OSHA:	California Occupational Safety and Health Administration
CIP:	Capital Improvement Program
CUP:	Conditional Use Permit
DME:	Distance measuring equipment – Aircraft navigation equipment
DNL:	Day-Night Average Sound – Decibel measurement determining noise.
DOA:	Division of Aeronautics (part of the California Department of Transportation – Caltrans)
EHLF:	Emergency helicopter landing facility
EMS:	Emergency medical service
ENG:	Electronic news gathering
FAA:	Federal Aviation Administration
FAR:	Federal Aviation Regulation
FARA:	Final approach reference area

FATO:	Final approach and takeoff area
FBO:	Fixed Base Operator
FONSI:	Finding of No Significant Impact – Determination by the FAA that a proposed action has no significant impact on the environment.
FSDO:	Flight Standards District Office (FAA)
GAL	General Aviation – Civil aviation except air carrier or air taxi.
GPS:	Global Positioning System
HAI:	Helicopter Association International
HRP:	Heliport reference point
ICAO:	International Council of Aviation Officials
IFR:	Instrument flight rules
ILS:	Instrument landing system
IMC:	Instrument Meteorological Conditions
MALSR:	Medium Intensity Approach Light System with Runway Alignment Indicator Lights
MGTOW:	Maximum gross takeoff weight
MHz	Megahertz
MSL:	Elevation above Mean Sea Level
MUP:	Major use permit
NAVAID:	Navigational Aid
NFPA	National Fire Protection Association
NOTAM:	Notice to Airmen – Notice containing airport/airspace information.
NOTAR:	“No tailrotor” technology
NTSB:	National Transportation Safety Board
OE:	Obstruction evaluation
OSHPD:	Office of Statewide Healthcare Planning and Development (California)
PART 139:	Federal regulations for airports serving air carrier aircraft.
PCL:	Pilot-controlled lighting
PVT:	Private Use
PUC:	Public Utilities Code
SWPPP:	Storm Water Pollution Prevention Plan
TLA:	Three-letter acronym
TLOF:	Touchdown and liftoff area
TSA:	Transportation Security Administration
UHF:	Ultra high frequency
VASI	Visual approach slope indicator
VHF:	Very high frequency
VFR:	Visual flight rules
VMC:	Visual Meteorological Conditions
VOR:	Very high frequency omnirange
Z/ZULU:	Greenwich Mean Time

Sources

FAR 1: Federal Aviation Regulations Part 1, Definitions and Abbreviations. (1993)

AIM: Airman's Information Manual, Pilot/Controller Glossary. (1993)

Airport Design: Federal Aviation Administration. *Airport Design*. Advisory Circular 150/5300-13, Change 11. (2007)

FAA ATA: Federal Aviation Administration. *Air Traffic Activity*. (1986)

FAA Census: Federal Aviation Administration. *Census of U.S. Civil Aircraft*. (1986)

FAA Stats: Federal Aviation Administration. *Statistical Handbook of Aviation*. (1984)

NTSB: National Transportation Safety Board. *U.S. NTSB 830-3.* (1989)

Appendix B

Supplemental Financial Analysis

Eugene Airport Master Plan Update
Supplemental Financial Analysis
FY 2011 - 2015

Background and Purpose

Chapter 5, *Financial Feasibility Analysis* of the 2008 Eugene Airport Master Plan Update presents a financial feasibility analysis that demonstrates the Airport's capacity to undertake the proposed capital improvement plan generated as the result of the findings of this planning effort. This plan anticipates an investment of approximately $119.4 million during the 20-year planning period to complete identified aviation safety, preservation, security, and capacity enhancement projects.

Subsequent to finalizing this Master Plan Update significant shifts in national, state and local economic conditions occurred which negatively affected aviation activity at Eugene Airport (EUG). These events, coupled with the fact that sustainable Airport Improvement Program (AIP) reauthorization legislation has not been enacted at the federal level, have altered the focus and scope of the proposed capital improvement plan presented in Chapter 5. Despite these events, EUG has completed several projects identified in this plan and is coordinating a revised five year capital improvement plan with the FAA. Moreover, the Airport is seeking grant-in-aid funds from the State of Oregon to construct its proposed rental car service facility in lieu of incurring debt to complete this project.

Given that local governing bodies are scheduled to hold public work sessions on the Airport Master Plan during the first quarter of 2010, Airport management requested that a supplemental analysis of the Airport's financial plan be undertaken to ensure that the revised five (5) year capital improvement program is sustainable and viable both from a capital and operational perspective. Accordingly, this supplemental analysis evaluates the Airport's capacity to:

- Complete its revised FY 2011-2015 capital improvement plan
- Generate sufficient revenues to fund all anticipated operating expenses
- Make required annual contributions to its established reserve funds

The techniques utilized in Chapter 5 of this Master Plan Update are reflected in this supplemental analysis to ensure its findings are consistent and valid.

Overview of the Airport's Operating Financial Results FY 2008 - Present

The single-most negative impact for EUG created by changing national, state and local economic conditions was a 14.6 percent decline in passenger activity in FY 2009. Reduced passenger levels influenced the loss of approximately $900,000 in overall revenues (11.9%) between FY 2008 and FY 2009. Lower automobile parking fees, airline landing fee collections, airline terminal building fees and food/beverage concession fees were primarily responsible for this reduced level of funding. While operating revenues lagged, the Airport experienced an increase in operating expenditures of approximately $400,000 or 7.2 percent during this period. Salaries and labor increased because of obligations contained in the Airport's current labor agreement as well as the hiring of 3.5 full-time equivalent positions in the Airport's Maintenance Division needed to address the evolving workload associated with the mission of this Department. Additionally, the Airport's payment to the City of Eugene for central services increased 38 percent or $139,000.

Despite declining revenues and increased expenditures, EUG met all required expenditure obligations and was capable of making payments to its required reserve funds including a $124,500 contribution to its Operating and Capital Reserve Fund. Of equal importance is the fact that the Airport achieved positive financial results during this difficult period void of increasing airline rates and charges. As noted earlier, all sources of airline revenue were generally down over FY 2008 due in most part to management's proactive decision to hold airline rates and fees constant in recognition of the need to maintain EUG's favorable operating environment for its carriers.

Thus far in FY 2010, both passenger activity and revenue performance appear to have stabilized as reflected by the fact that fourth quarter of calendar year 2009 was especially strong for EUG. Mid-year forecasts of revenues and expenditures reveal that EUG should meet budgeted amounts for revenues and expenditures while enplanements should total approximately 349,000 representing a 5.4 percent increase over FY 2009. Although these trends are quite positive, it is important to recognize that should this growth be sustained during the remaining six months of this fiscal year, EUG's passenger totals will essentially mirror results for FY 2006 when 360,258 boardings were experienced while total Airport revenues will achieve levels consistent with FY 2007 levels.

The Revised FY 2011-15 Capital Improvement Plan

The FY 2011-15 Capital Improvement Plan (CIP) described in Chapter 5 projects the need for $35.9 million in federal and local funds to complete a host of projects. It includes a phased expansion of the terminal building to accommodate three (3) additional airline gates as well as expansion of the airline ramp area for aircraft parking. The cumulative cost of these projects represents approximately $25.0 million of this $35.9 million plan. Due to the decrease in passenger activity in FY 2009 and an expected slow recovery period, these capacity-related projects have been removed from the revised five year planning horizon. Furthermore, the issuance of Passenger Facility Charge (PFC) backed bonds for these projects has also been delayed due to this change. In fact, no additional borrowing is anticipated through FY 2016; indicating that EUG will remain debt-free during this period.

The revised capital improvement plan presented in **Table B-1** of this supplemental analysis suggests that the Eugene Airport will focus its capital funding on projects which primarily preserve existing airfield/landside infrastructure. Of the twelve (12) projects programmed to be undertaken, five (5) are designed to preserve existing airfield pavement while other projects are aimed at modernizing the Airport's fleet of snow removal equipment, constructing an aircraft deicing containment area and aircraft wash station, and addressing storm water drainage needs. Two projects are designed to enhance the Airport's taxiway system through the widening of Taxiway K and reconstruction of Taxilane E to the North Ramp**.** In FY2014, the Airport is slated to complete its only terminal building capacity-related project when it expands the airline baggage claim area.

In order to complete projects during this five year period, an investment of $20.9 million is programmed from the following sources:

Funding Source	Amount	Percent
FAA Entitlement	$13.7 Million	66%
FAA Discretionary	$4.7 Million	22%
Passenger Facility Charge	$2.5 Million	12%

Although reduced by $15.0 million from the program envisioned in Chapter 5, EUG's revised FY2011-2015 capital improvement plan represents a responsible and manageable program which will yield positive results for Airport users. Since the Airport's current PFC program expires on November 30, 2011 and does not include projects listed in the FY2011-2015 plan, an amendment to the Airport's existing PFC program or preparation of an application for new PFC impose and use authority in the amount of $2.5 million is required. Moreover, because projects listed in this revised plan are not currently included in a PFC plan, the Airport will need to temporarily utilize $390,000 in its Capital & Operating Reserve as local matching funds for the South Ramp Rehabilitation and Runway 34L/16R Overlay projects in FY2011. Upon approval and collection of sufficient PFC revenues, this amount can be reimbursed to this reserve fund. Since the Runway 16R/34L Overlay Project is considered a high priority project for FAA funding, it is very likely that the required $4.7 million in FAA discretionary funding will be allocated for this project.

Table B-2 provides a forecast of FAA entitlement funds and PFC revenues to be collected during this five year period. As noted, $2,751,263 in annual FAA Entitlements is programmed for this five year period. This level of funding is consistent with direction provided by the FAA Seattle District Office and assumes that annual enplanement levels reach 379,100 each fiscal year. Because FAA entitlement funds presented in this revised plan are not based on forecast passenger activity as in Chapter 5, any shortfall in federal grant-in-aid created from not achieving this level of passenger activity will require FAA Discretionary funds and/or supplemental PFC revenues to complete the planned improvements. Should additional PFC funds be required, additional impose authority will need to be approved for EUG.

Table B-1

Eugene Airport
Master Plan Update

CAPITAL IMPROVEMENT PLAN

			Project Funding Sources					
Year	Project	Total Cost	FAA Entitlement	Ent. Carryover	Discretionary	PFC	Local /1	Other
2011	South Ramp Rehabilitation - South Section	$300,000	$285,000	$0	$0		$15,000	$0
	Runway 34L/16R Overlay - Lights & Connecting Taxiway	$7,500,000	$2,466,263	$0	$4,658,737		$375,000	$0
	Year 2011 Total Project Costs	$7,800,000	$2,751,263		$4,658,737		$390,000	$0
	PROJECTED AVAILABLE FUNDING		$2,751,263	$0			$0	
2012	Taxiway A Rehabilitation (A7-A4)	$1,600,000	$1,520,000		$0	$80,000	$0	$0
	SRE Oshkosh 5160-01(Broom)	$200,000	$190,000		$0	$10,000	$0	$0
	Mitigate & Fill Ponds (Runway 34L)	$400,000	$380,000		$0	$20,000	$0	$0
	Deicing Containment/Aircraft Wash Station (Phase I)	$695,000	$660,250		$0	$34,750	$0	$0
	Year 2012 Total Project Costs	$2,895,000	$2,750,250		$0	$144,750	$0	$0
	PROJECTED AVAILABLE FUNDING		$2,751,263	**$1,013**		$840,278		
2013	Deicing Containment/Aircraft Wash Station (Phase II)	$1,405,000	$1,334,750		$0	$70,250	$0	$0
	Mitigation/Drainage - Runway 34R	$1,000,000	$950,000		$0	$50,000	$0	$0
	SRE Oshkosh 5160-01	$450,000	$427,500		$0	$22,500	$0	$0
	Year 2013 Total Project Costs	$2,855,000	$2,712,250		$0	$142,750	$0	$0
	PROJECTED AVAILABLE FUNDING		$2,752,276	**$41,039**		$1,472,168		
2014	Baggage Claim Expansion (Phase I)	$4,200,000	$2,565,000		$0	$1,635,000	$0	$0
	SRE Deicer Truck Replacement	$220,000	$209,000		$0	$11,000	$0	$0
	Year 2014 Total Project Costs	$4,420,000	$2,774,000		$0	$1,646,000	$0	$0
	PROJECTED AVAILABLE FUNDING		$2,792,302	**$59,341**		$156,054		
2015	Pavement Rehab Projects - Taxiways	$500,000	$475,000		$0	$25,000	$0	$0
	Taxiway Kilo Widening	$2,000,000	$1,900,000		$0	$100,000	$0	
	Taxilane EGAR to North Ramp	$400,000	$380,000		$0	$20,000	$0	$0
	Year 2015 Total Project Costs	$2,900,000	$2,755,000		$0	$145,000	$0	$0
	PROJECTED AVAILABLE FUNDING		$2,810,604	**$114,945**		$0		
	TOTAL PROJECT COSTS FY 2011 - FY 2015	***$20,870,000***	***$13,742,763***		***$4,658,737***	***$2,468,500***	***$390,000***	***$0***

Source: City of Eugene, Department of Public Works

Note: /1 Current PFC Authority expires November 30, 2011. Assume new PFC application to be filed for projects in 5 year CIP. Amount to be reimbursed in FY12-13 by PFC revenues.

Table B-2

Eugene Airport

Master Plan Update

PROJECTED AIRPORT ENTITLEMENT FUNDS

AND PASSENGER FACILITY CHARGE REVENUE

Fiscal Year	Projected Enplanements 1/	Projected Enplanements (2 yrs. Prior)	Entitlement Funds 2/	Passenger Facility Charges 3/	Total Funds
2011	356,737	331,875	$2,751,263	$0	$2,751,263
2012	364,585	349,058	$2,751,263	$840,278	$3,591,541
2013	372,606	356,737	$2,751,263	$1,472,168	$4,223,431
2014	380,804	364,585	$2,751,263	$156,054	$2,907,317
2015	389,181	372,606	$2,751,263	$0	$2,751,263
TOTAL PROJECTED REVENUE			***$13,756,315***	***$2,468,500***	***$16,224,815***

Source: Mead & Hunt, Inc.

Note: 1/ Includes charters.

2/ Entitlement Funds are per FAA direction & not reflective of forecast enplaned passengers.

3/ Assumes a net collection of $4.39 per eligible enplaned passenger.

Assumes 90 percent of the Airport's enplanements are eligible for PFC collection.

Table B-3, entitled, Capital Improvement Plan Funding Analysis, depicts the capacity of the Airport's PFC program to absorb any shortfall in FAA entitlement funds should enplanements not achieve the level sufficient to generate $2.75 million per year. As presented, the Airport's authority to impose a PFC is scheduled to continue beyond November 2011. If this is achieved, sufficient funding for the local match required for this plan is achieved by the first quarter of fiscal year 2014. Accordingly, should FAA entitlement funds lag due to enplanements not meeting expectations, or should FAA Discretionary funding not be made available, the Airport is capable of extending PFC authority in order to address any shortfall. Table B-3 further depicts the transfer of local funds in FY2011 to match anticipated FAA grants and how this temporary transfer is capable of being refunded by PFC receipts in the subsequent year.

Table B-3

Eugene Airport
Master Plan Update

CAPITAL IMPROVEMENT PLAN FUNDING ANALYSIS

Year	Capital Improvement Costs	Required FAA Entitlements	Cumulative Entitlement Funding Surplus (Shortfall)	Anticipated FAA Discretionary 1/	Passenger Facility Charges 2/	Required PFC Funds	Annual PFC Balance	Required Local Funds 2/
2011	$7,800,000	$2,751,263	$0	$4,658,737	$0	$390,000	-$390,000	$390,000
2012	$2,895,000	$2,750,250	$1,013	$0	$840,278	$144,750	$305,528	$0
2013	$2,855,000	$2,712,250	$41,039	$0	$1,472,168	$142,750	$1,634,946	$0
2014	$4,420,000	$2,774,000	$59,341	$0	$156,054	$1,646,000	$145,000	$0
2015	$2,900,000	$2,755,000	$114,945	$0	$0	$145,000	$0	$0
CIP TOTAL	***$20,870,000***	***$13,742,763***		***$4,658,737***	***$2,468,500***	***$2,468,500***	***$0***	***$0***

Sources: City of Eugene, Department of Public Works
Mead & Hunt, Inc.

Notes: 1/ It is anticipated that no surplus/shortfall will be experieced in these revenue sources over the planning period.
2/ A detailed cash-flow analysis that examines the Airport's ability to fund the required local share of project costs from the Operating and Capital and Depreciation Reserve Funds that the Airport maintains will be presented later in this analysis.

Historical and Projected Airport Revenues

Tables 5-4 and 5-5 of the Master Plan Update present historical and anticipated revenues for EUG. Historical revenue trends were calculated for the period FY 2003-2009 (Budget) while the forecast period considered fiscal years 2010-2016. As noted in these tables, total Airport revenue for FY 2008 and FY 2009 was expected to total $7,146,353 and $7,134,010 respectively. Audited actual results, presented in **Table B-4**, totaled $7,613,965 for FY 2008 and $6,718,224 in FY 2009. While actual results for FY 2008 exceeded expectations, this gain was more than offset by a precipitous 11.4 percent drop in revenues experienced in FY 2009. Despite these variations, annual percentage growth rates for airport revenues

Table B-4

Eugene Airport
Master Plan Update

HISTORICAL AND BUDGETED AIRPORT REVENUES

	2006	2007	2008	2009	Budget 2010	CAGR FY06-FY10	CAGR FY03-FY09
AIRLINE REVENUES							
LANDING AREA							
Airline Landing Fees - Scheduled	$1,138,042	$970,393	$1,014,834	$948,866	$952,691	-4%	2%
COMMON USE AREAS							
Airline Common Use Fee	605,576	671,876	714,754	733,330	671,085	3%	5%
Airline Security Charges	133,134	114,774	123,430	163,105	147,141	3%	7%
TERMINAL AREA							
Airline Leased & Joint Use Areas	926,170	678,011	722,086	675,385	676,580	-8%	-3%
PREVIOUS YEAR AIRLINE ADJUSTMENTS	(67,982)	(258,977)	(30,481)	(263,964)	-		
Total Airline Revenue	***$2,734,940***	***$2,176,077***	***$2,544,623***	***$2,256,722***	***$2,447,497***	-3%	2%
NON-AIRLINE REVENUES							
AIRFIELD AREA							
Hangar Rentals	$152,146	$230,439	$201,811	$133,693	$178,745	4%	0%
Fuel Flow Fees	51,653	49,534	51,627	35,802	50,200	-1%	3%
Tie-Down Fees	10,281	10,220	10,084	9,124	8,558	-4%	-1%
Fixed Based Operators	63,594	61,444	63,994	51,241	33,937	-15%	0%
Ground Fuel	8,393	2,206	2,208	1,179	2,010	-30%	7%
Non-Airline Landing Fees	102,423	81,298	85,357	103,761	89,000	-3%	-3%
TERMINAL AREA							
Rental Auto Concessions	$803,351	$813,260	$871,892	$908,507	$1,031,295	6%	5%
Food and Beverage Services	62,082	56,176	120,085	70,681	118,000	17%	5%
Miscellaneous Terminal Facilities	226,375	229,060	271,875	217,001	227,180	0%	4%
Security-LEO Reimbursement/Fingerprints	278,178	318,524	236,319	255,888	224,108	-5%	
PARKING AREA							
Public Parking Facility	$2,308,328	$2,378,751	$2,770,148	$2,379,661	$2,358,500	1%	8%
ADMINISTRATION							
Administative Revenue (Interest)		$269,233					
OTHER AREAS							
Other Building Rentals	$228,917	$236,530	$223,765	$228,694	$222,123	-1%	8%
Other Land Rentals	83,807	78,128	80,629	14,571	81,715	-1%	-1%
Miscellaneous Revenue	(64,759)	155,474	79,548	51,699	35,439		31%
Total Non-Airline Revenue	***$4,314,769***	***$4,970,277***	***$5,069,342***	***$4,461,502***	***$4,660,810***	2%	5%
TOTAL AIRPORT REVENUE	**$7,049,709**	**$7,146,354**	**$7,613,965**	**$6,718,224**	**$7,108,307**	0%	2%
	356,830	363,785	387,433	331,875	349,058		
AIRLINE COST PER ENPLANEMENT	$7.66	$5.98	$6.57	$6.80	$7.01		

Source: City of Eugene, Department of Public Works

CAGR = Compound Annual Growth Rate

for the periods examined continued on the order of 2 percent. Overall Airport revenue grew from $6.6 million in FY 2003 to $7.0 million in FY 2006. Between FY 2006 and 2010 (Budget), Airport revenues were essentially flat after spiking in FY 2008 to $7.6 million only to decrease to FY 2006 levels in the following year. The following presents the annual compounded annual growth rates in overall Airport revenues for the period FY 2003-09, FY 2006-10 (Budget) and FY 2008-10 (Budget):

	FY 2003-09	FY 2006-10	FY 2008-10
Total Airport Revenues	2%	0%	-3%

For the period FY 2006-2010 (Budget), aircraft hangar rentals and rental car auto concessions experienced solid annual growth rates of 4 and 6 percent respectively while Fixed Base Operators, building land rentals and automobile parking concession revenues were unchanged. Historical trends for airline revenue continue to reflect EUG's efforts at reducing its reliance on these sources of revenue for its operation. In FY 2003, airline revenue totaled $3.1 million and represented 47.5 percent of all Airport revenues. FY 2009 revenues collected from airlines totaled $2.3 million; however, represented only 34 percent of overall Airport operating revenues.

As shown in Table 5-5, total revenues for EUG were projected to increase from $7,296,261 in FY 2009 to $9,636,043 in FY 2016; representing a compounded annual growth rate of 4.0 percent.

Revenue trends experienced during the period FY 2006-2010 (Budget) as well as FY 2008-2010 (Budget) complicate forecasting of future revenue; however, based upon the positive trends experienced in FY 2010, it is reasonable to expect that EUG will meet its FY 2010 budget estimates and attain an annual compounded growth rate of 3.0 percent during the next five years. Such a rate of growth will require on the order of approximately $180,000 per year of additional revenue to reach the forecasted level of $8.0 million in FY 2015 as detailed in **Table B-5**. Attainment of this revenue forecast will require that airline rates and charges be adjusted 2 percent per year. Such changes in airline rates should be acceptable provided annual enplanements grow at a rate of 2.2 percent per year; the level of passenger growth required to maintain airline cost per enplaned passenger levels at the current competitive level of approximately $7.00.

Table B-5

Eugene Airport
Master Plan Update

PROJECTED AIRPORT REVENUES

	2009	Budget 2010	Projected 2011	2012	2013	2014	2015	CAGR FY06-FY10	CAGR FY03-FY09	Rate Used
AIRLINE REVENUES										
LANDING AREA										
Airline Landing Fees - Scheduled	$948,866	$952,691	$971,745	$991,180	$1,011,003	$1,031,223	$1,051,848	-4%	2%	2%
COMMON USE AREAS										
Airline Common Use Fee	733,330	671,085	691,218	711,954	733,313	755,312	777,971	3%	5%	3%
Airline Security Charges	163,105	147,141	151,555	156,102	160,785	165,608	170,577	3%	7%	3%
TERMINAL AREA										
Airline Leased Areas	675,385	676,580	690,112	703,914	717,992	732,352	746,999	-8%	-3%	2%
PREVIOUS YEAR AIRLINE ADJUSTMENTS	(263,964)	-								
Total Airline Revenue	***$2,256,722***	***$2,447,497***	***$2,504,629***	***$2,563,150***	***$2,623,093***	***$2,684,496***	***$2,747,395***	-3%	2%	
NON-AIRLINE REVENUES										
AIRFIELD AREA										
Hangar Rentals	$133,693	$178,745	$180,532	$182,338	$184,161	$186,003	$187,863	4%	3%	1%
Fuel Flow Fees	35,802	50,200	50,702	51,209	51,721	52,238	52,761	-1%	3%	1%
Tie-Down Fees	9,124	8,558	8,644	8,730	8,817	8,905	8,995	-4%	-1%	1%
Fixed Based Operators	51,241	33,937	34,276	34,619	34,965	35,315	35,668	-15%	0%	1%
Ground Fuel	1,179	2,010	2,070	2,132	2,196	2,262	2,330	-30%	7%	3%
Non-Airline Landing Fees	103,761	89,000	90,780	92,596	94,448	96,336	98,263	-3%	-3%	2%
TERMINAL AREA										
Rental Auto Concessions	$908,507	$1,031,295	$1,062,234	$1,094,101	$1,126,924	$1,160,732	$1,195,554	6%	5%	3%
Food and Beverage Services	70,681	118,000	121,540	125,186	128,942	132,810	136,794	17%	5%	3%
Miscellaneous Terminal Facilities	217,001	227,180	233,995	241,015	248,246	255,693	263,364	0%	4%	3%
Security-LEO Reimbursement/Fingerprints	255,888	224,108	224,108	224,108	224,108	224,108	224,108	-5%		
PARKING AREA										
Public Parking Facility	$2,379,661	$2,358,500	$2,429,255	$2,502,133	$2,577,197	$2,654,513	$2,734,148	1%	8%	3%
ADMINISTRATION										
Administative Revenue (Interest)										
OTHER AREAS										
Other Building Rentals	$228,694	$222,123	$226,565	$231,097	$235,719	$240,433	$245,242	-1%	8%	2%
Other Land Rentals	14,571	81,715	82,532	83,357	84,191	85,033	85,883	33%	-1%	1%
Miscellaneous Revenue	51,699	35,439	35,793	36,151	36,513	36,878	37,247		31%	1%
Total Non-Airline Revenue	***$4,461,502***	***$4,660,810***	***$4,783,028***	***$4,908,772***	***$5,038,147***	***$5,171,260***	***$5,308,219***	2%	5%	
TOTAL AIRPORT REVENUE	**$6,718,224**	**$7,108,307**	**$7,287,657**	**$7,471,922**	**$7,661,240**	**$7,855,755**	**$8,055,614**	0%	2%	

Source: City of Eugene, Department of Public Works
CAGR = Compound Annual Growth Rate

Historical and Projected Airport Operating Expenses

Chapter 5 also analyzes historical and projected operating expenses for EUG in Tables 5-6 and 5-7. When this plan was originally published, it was expected that total operating expenses would equal $6.3 million in FY 2008 and $6.6 million in FY 2009. Actual results for these two (2) fiscal years were $5.9 million and $6.3 million respectively; both significantly below forecast. As previously noted, salaries and labor drove the majority of expenditure increases between FY 2008 and FY 2009 due to increases in salaries and the addition of 3 full-time equivalent positions for the Maintenance Division. The following presents the annual compounded annual growth rates in overall Airport expenses for the period FY 2003-09, FY 2006-10 (Budget) and FY 2008-10 (Budget):

	FY 2003-09	FY 2006-10	FY 2008-10
Total Airport Expenses	4%	6%	8%

Major expenditure variables between FY 2008 and FY 2010 generated the annual increase of 8 percent for this period:

- Salaries & labor increased $368,000
- Benefits increased $114,000
- Materials & Supplies increased $100,000
- Contractual Services increased $269,000
- Central Allocation Services increased $150,000

EUG, like many local governing bodies, is experiencing significant and ongoing increases in employee benefit costs as contributions to health insurance plans and defined benefit plans continue to rise. Although these expenditure categories are growing significantly, personnel expenditures (salaries and labor and benefits) comprise 56 percent of the Airport’s operating expenses which compares favorably to other local government jurisdictions that oftentimes expend 65-70 percent of budgeted funds on employee compensation and benefits.

Although actual operating results for FY 2008-09 were more favorable than expected in the forecast contained in Table 5-6, Airport expenses continued to grow at an annualized rate of 4 percent for the period FY 2003 – FY 2009. For the forecast period of FY 2011 – FY 2015, Table 5-7 projects that expenditures will grow at an annualized rate of 4 percent from $7.2 million to $8.8 million. **Table B-6 and B-7**, which unlike Chapter 5 does not anticipate additional positions to be added to Airport staff during this period, indicates that overall Airport expenditures will total $7.7 million by the end of this period yielding a savings of $1.1 million over the original forecast.

Table B-6

Eugene Airport
Master Plan Update

HISTORICAL AIRPORT OPERATING EXPENSES

	2006	2007	2008	2009	Budget 2010	CAGR FY06-FY10	CAGR FY08-FY10	CAGR FY03-FY09
OPERATING EXPENSES								
Salaries and Labor	$1,872,203	$1,979,789	$2,078,905	$2,329,455	$2,446,847	7%	8%	3%
Employee Benefits	1,107,381	1,127,680	1,305,678	1,209,860	1,419,552	6%	4%	6%
Maintenance and Repairs	306,889	269,160	300,993	363,919	304,386	0%	1%	9%
Materials & Supplies	595,738	919,936	600,804	607,874	701,266	4%	8%	3%
Rent	237,899	224,772	258,867	228,242	223,600	-2%	-7%	4%
Utilities	372,140	377,433	362,954	370,716	408,850	2%	6%	4%
Contractual Services	581,464	503,845	505,493	481,147	774,967	7%	24%	9%
Insurance	201,301	151,233	84,675	73,354	112,097	-14%	15%	1%
Encumberance Rollover/Capital/Vehicles			45,260	165,622	-			
Total Operating Expenses	***$5,275,015***	***$5,553,848***	***$5,543,629***	***$5,830,189***	***$6,391,565***	5%	7%	3%
NON-OPERATING EXPENSES								
Central Services Allocation	$265,000	$297,000	$364,000	$503,000	$514,000	18%	19%	6%
Total Non-Operating Expenses	***$265,000***	***$297,000***	***$364,000***	***$503,000***	***$514,000***	18%	19%	6%
TOTAL AIRPORT EXPENSES	**$5,540,015**	**$5,850,848**	**$5,907,629**	**$6,333,189**	**$6,905,565**	6%	8%	4%

Source: City of Eugene, Department of Public Works

CAGR=Compound Annual Growth Rate

Table B-7

Eugene Airport
Master Plan Update

PROJECTED AIRPORT EXPENSES

		Budget	Projected					CAGR	CAGR	
	2009	2010	2011	2012	2013	2014	2015	FY06-FY10	FY03-FY09	**Used**
OPERATING EXPENSES										
Salaries and Labor	$2,329,455	$2,446,847	$2,497,766	$2,572,699	$2,649,880	$2,729,376	$2,811,258	7%	3%	**3%**
Employee Benefits	1,209,860	1,419,552	1,404,969	1,489,267	1,578,623	1,673,341	1,773,741	6%	6%	**6%**
Maintenance and Repairs	363,919	304,386	295,254	308,541	322,425	336,934	352,096	0%	9%	**5%**
Materials & Supplies	607,874	701,266	680,228	704,036	728,677	754,181	780,577	4%	3%	**4%**
Rent	228,242	223,600	216,892	223,399	230,101	237,004	244,114	-2%	4%	**3%**
Utilities	370,716	408,850	396,585	408,482	420,736	433,359	446,359	2%	4%	**3%**
Contractual Services	481,147	774,967	507,826	530,678	554,559	579,514	605,592	7%	9%	**5%**
Insurance	73,354	112,097	108,734	109,821	110,920	112,029	113,149	-14%	1%	**1%**
Capital/Vehicles	165,622	-							0%	
Total Operating Expenses	***$5,830,189***	***$6,391,565***	***$6,108,254***	***$6,346,923***	***$6,595,921***	***$6,855,737***	***$7,126,887***	5%	3%	**4%**
NON-OPERATING EXPENSES										
Central Services Allocation	$503,000	$514,000	$483,000	$507,150	$532,508	$559,133	$587,090		6%	**5%**
Total Non-Operating Expenses	***$503,000***	***$514,000***	***$483,000***	***$507,150***	***$532,508***	***$559,133***	***$587,090***		6%	**5%**
TOTAL AIRPORT EXPENSES	**$6,333,189**	**$6,905,565**	**$6,591,254**	**$6,854,073**	**$7,128,429**	**$7,414,870**	**$7,713,976**		4%	**4%**

Sources: Historic, budget, and proposed - City of Eugene, Department of Public Works.
Projected - Mead & Hunt, Inc., and Airport Management.
CAGR=Compound Annual Growth Rate

Cash Flow Analysis and Overall Feasibility

Table 5-9 of the Master Plan Update details anticipated cash flow from operating activities for the period FY 2009-FY 2016. This analysis forecasts that net operating revenue will increase from $596,322 to $2.024 million in FY 2016. It further details programmed debt service associated with the issuance of PFC-backed bonds in FY 2011 and FY 2014 for capacity-related projects associated with improvements to the terminal access road and phased expansions to the terminal building. Collectively, debt service of $7.9 million was expected to be made during this period from both PFC as well as general Airport revenues. Finally, this plan displays the capacity of EUG to make deposits of $800,723 to its Operating and Capital Reserve Fund during the period FY 2011-2015.

The revised plan described in this supplemental analysis (**Table B-8**) assumes no debt will be issued by EUG in the next five (5) years. Since debt financed projects are not scheduled to be undertaken, EUG will be capable of enhancing its reserve balances for its Operating & Maintenance Reserve Fund as well as Operating and Capital Reserve Fund. As presented, contributions to this fund are expected to range from approximately $750,000 to $290,000 during this period. Increasing the available balance in the Operating and Capital Reserve Fund could enable EUG to pursue cash-only projects in Years 6-10 of its Capital Improvement Plan and forgo issuance of debt for projects. In addition, continuation of accruing two (2) months of operating fund reserves in the O&M Reserve Fund enables EUG to be positioned for uncertain economic conditions.

Table B-8

Eugene Airport
Master Plan Update

PROJECTED AIRPORT CASH FLOW FROM OPERATING ACTIVITIES

	Projected				
	2011	2012	2013	2014	2015
CASH FLOW - OPERATING ACTIVITIES					
Airport Revenue	$7,287,657	$7,471,922	$7,661,240	$7,855,755	$8,055,614
Operating Expense	6,591,254	6,854,073	7,128,429	7,414,870	7,713,976
Net Revenue	$696,403	$617,849	$532,812	$440,885	$341,638
Deposit to O&M Reserve Fund	52,385	(43,803)	(45,726)	(47,740)	(49,851)
Deposit to Operating and Capital Reserve Fund	$748,788	$574,045	$487,086	$393,145	$291,787

Source: Mead & Hunt, Inc.

Table B-9, like Table 5-10, presents an analysis of the anticipated sources, uses and balance of funds to be used to implement EUG's revised recommended CIP through FY2015. Both reveal that EUG is capable of undertaking the projects detailed for this five year planning horizon while at the same time meet expenditure obligations and make deposits to required reserve funds. As previously described, EUG does have additional capacity in its PFC program to fund potential reductions in FAA funding. Moreover, the balance in the Airport's Operating and Capital Fund should increase from approximately $6.5 million in FY 2011 to $8.3 million in FY 2015.

Table B-9

Eugene Airport

Master Plan Update

PROJECTED AIRPORT CASH FLOW - CAPITAL IMPROVEMENT PLAN

	Projected				
	2011	2012	2013	2014	2015
CASH FLOW - CAPITAL IMPROVEMENT PROGRAM					
SOURCES OF FUNDS - CUMULATIVE BALANCE (Current contribution plus previous year-end balance)					
Federal AIP Entitlement Funds	$2,751,263	$2,751,263	$2,751,263	$2,751,263	$2,751,263
Federal AIP Discretionary Funds	4,658,737	0	0	0	0
Passenger Facility Charge Revenues	-	840,278	1,472,168	156,054	-
Operating and Capital Reserves	6,532,638	7,106,683	7,593,769	7,986,914	8,278,701
Other Funds	0				
Total Sources of Funds	$13,942,638	$10,698,225	$11,817,200	$10,894,232	$11,029,964
USES OF FUNDS					
Federal AIP Entitlement Funds	$2,751,263	$2,750,250	$2,712,250	$2,774,000	$2,755,000
Federal AIP Entitlement Carryover Funds	-			22,737	3,737
Federal AIP Discretionary Funds	4,658,737	-	-	-	
Passenger Facility Charges		534,750	142,750	1,646,000	145,000
Operating and Capital Reserves	390,000	-	-	-	-
Local Funds					
Total Uses of Funds	$7,800,000	$3,285,000	$2,855,000	$4,442,737	$2,903,737
BALANCE OF GRANTS AND OTHER FUNDS AT YEAR END					
Federal AIP Entitlement Funds 1/	$0	$1,013	$41,039	$59,341	$114,945
Passenger Facility Charges	-	305,528	1,634,946	145,000	0
Operating and Capital Reserves	6,142,638	$7,106,683	7,593,769	7,986,914	8,278,701

Source: Mead & Hunt, Inc.

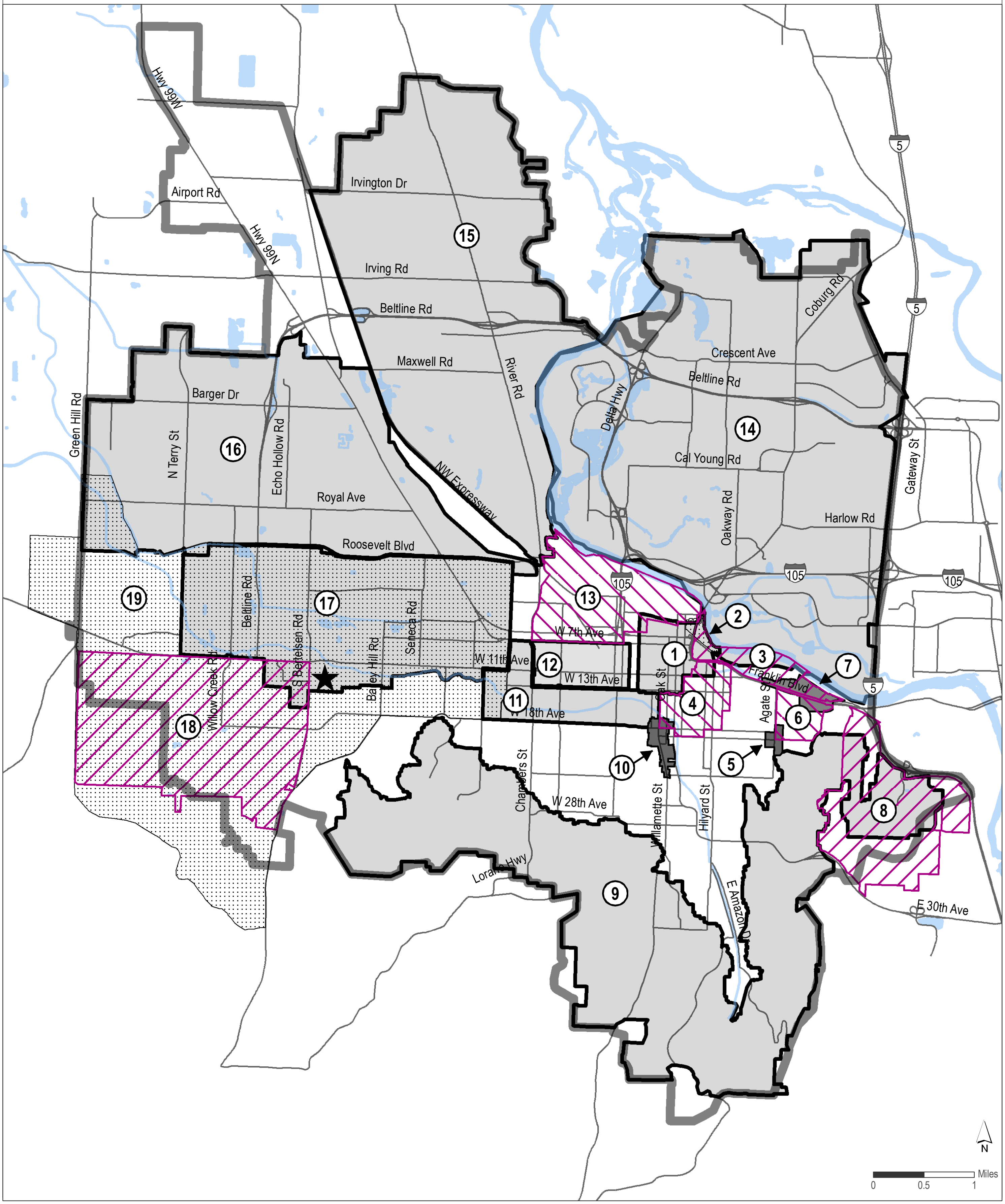
Note: 1/ Entitlements not used in year received can be carried over for three years.

Conclusion

Based upon the findings of this supplemental analysis, EUG is projected to produce sufficient revenues to meet all anticipated operating expenses between FY 2011-2015 while at the same time make required deposits to established reserve funds. The cash balance of the Airport should be further strengthened during this period through continued annual growth in operating revenues of 3 percent each year. Operating expenditures, while growing at an annualized rate of 4 percent, should remain at a level which will enable the Airport to produce net income necessary for funding the aforementioned reserve funds. Provided FAA airport entitlement funds are allocated as described herein and the Airport's PFC program is extended to collect $2.5 million in revenues, EUG is expected to have adequate resources to complete the revised Capital Improvement Plan as presented. In summary, through the foregoing analysis, including the underlying assumptions through which it was generated, the revised CIP for EUG is expected to be both feasible and implementable.

Exhibit C to Ord.

Map 9.8010
Adopted Plans



Map: 4/22/13

Map 9.8010
Adopted Plans Legend

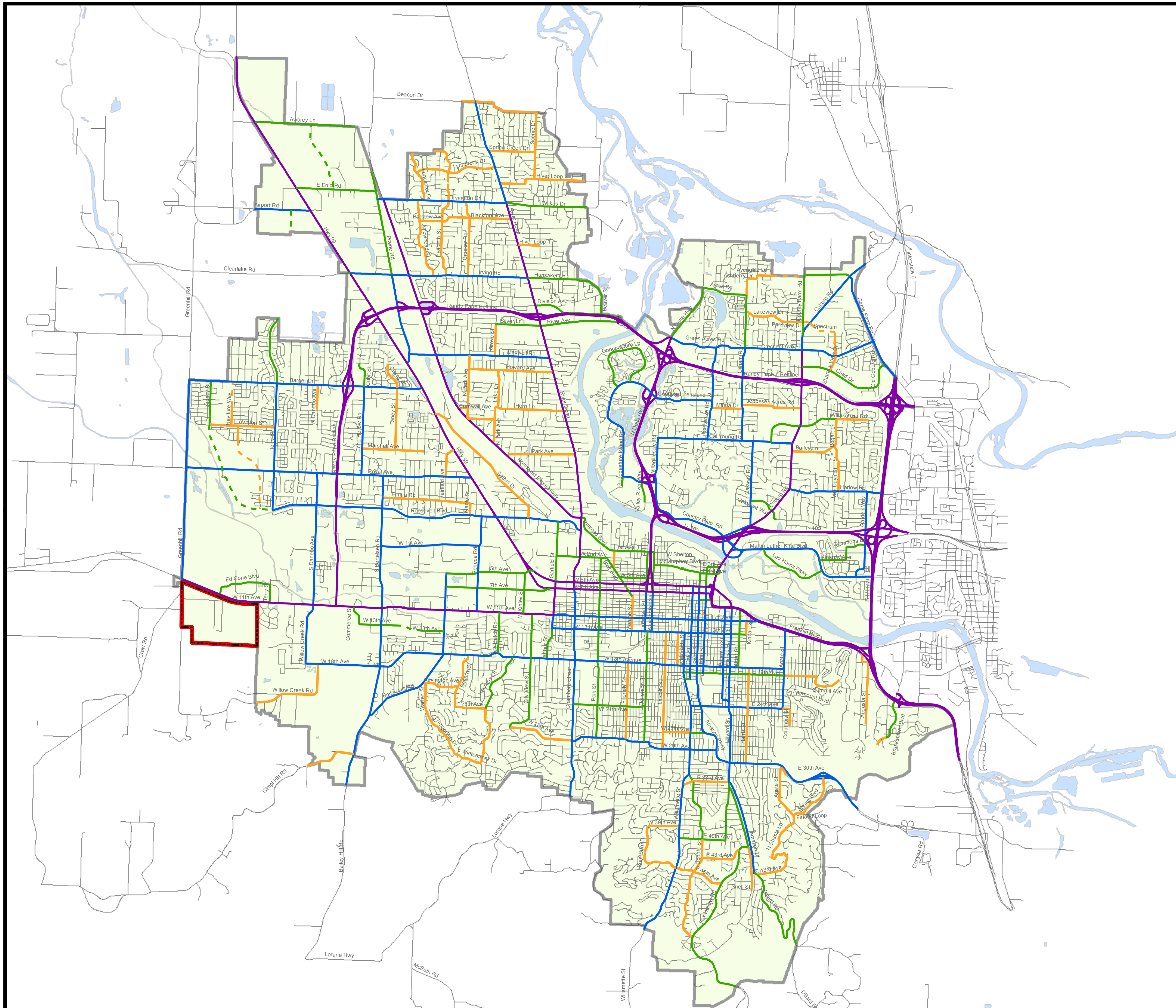
1 Eugene Downtown Plan
2 EWEB Downtown Riverfront Specific Area Plan
3 Riverfront Park Study Area
4 West University Refinement Plan
5 19th & Agate Special Area Study
6 Fairmount/University Special Area Plan
7 Walnut Station Specific Area Plan
8 Laurel Hill Plan
9 South Hills Study
10 South Willamette Subarea Study
11 Jefferson/Far West Refinement Plan
12 Westside Neighborhood Plan
13 Whiteaker Plan
14 Willakenzie Area Plan
15 River Road -Santa Clara Urban Facilities Plan
16 Bethel-Danebo Refinement Plan
17 Bethel-Danebo Neighborhood Refinement Plan, Phase II, West Eugene Industrial Study
18 Willow Creek Special Area Study
19 West Eugene Wetlands Plan

City or Metropolitan Area Plans

Urban Growth Boundary (UGB)
Comprehensive Stormwater Management Plan = City Limits (not shown)
Eugene Commercial Lands Study = UGB
Eugene Parks & Recreation Plan = UGB
Eugene 2035 Transportation System Plan = UGB + Airport Master Plan Area (not shown)
Metro Plan = Metro Area
TransPlan = Metro Area

This map is intended as general reference for the boundaries of plans adopted by the Eugene City Council. For specific boundaries, please refer to the plan. Map prepared by Eugene Planning and Development Department. (Some plans have overlapping boundaries.)

Exhibit D to Ordinance



City of Eugene

Figure 60

Street Classification Map

Legend

- Major Arterial
- Minor Arterial
- Major Collector
- Neighbor Collector
- Local
- Future Major Collector
- Future Neighbor Collector
- Specific route to be determined later
- Eugene UGB

THIS MAP IS BASED ON IMPRECISE SOURCE DATA WHICH IS SUBJECT TO CHANGE; IT IS FOR GENERAL GRAPHICAL REFERENCE AND IS NOT INTENDED FOR LEGAL, ENGINEERING, OR SURVEYING PURPOSES.

City of Eugene PWE Info Team Adhoc 2014-1704 May 2016